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CCS370 UI AND UX DESIGN UNIT I

UI vs. UX Design – Core Stages of Design Thinking – Divergent and Convergent Thinking – Brainstorming and Game storming – Observational Empathy.

FOUNDATIONS OF DESIGN

- ❖ UI vs. UX Design
- ❖ Core Stages of Design Thinking
- ❖ Divergent and Convergent Thinking
- ❖ Brainstorming and Game storming
- ❖ Observational Empathy

INTRODUCTION

Design: A simple definition is: achieving goals within constraints

Goals: what is the purpose of the design we are intending to produce? Who is it for? Why do they want it? For example, if we are designing a wireless personal movie player, we may think about young affluent users wanting to watch the latest movies whilst on the move and download free copies, and perhaps wanting to share the experience with a few friends.

Constraints: What materials must we use? What standards must we adopt? How much can it cost? How much time do we have to develop it? Are there health and safety issues? In the case of the personal movie player: does it have to withstand rain? Must we use existing video standards to download movies? Do we need to build in copyright protection?

Trade-off

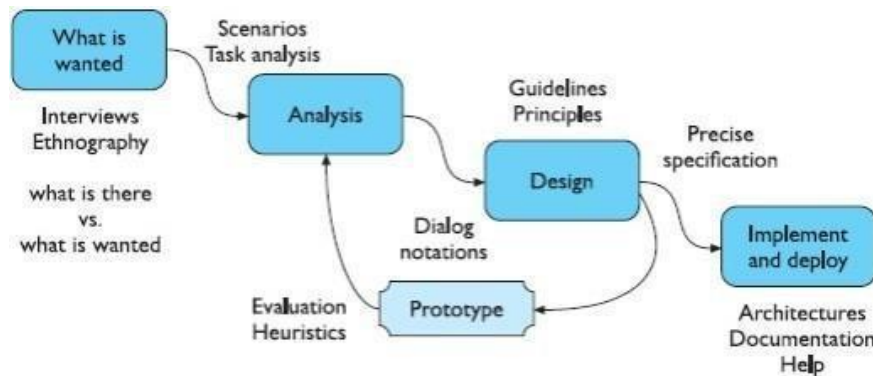
Choosing which goals or constraints can be relaxed so that others can be met. For example, we might find that an eye-mounted video display, a bit like those used in virtual reality, would give the most stable image whilst walking along. However, this would not allow you to show friends, and might be dangerous if you were watching a gripping part of the movie as you crossed the road.

The golden rule of design

The designs we produce may be different, but often the raw materials are the same. This leads us to the golden rule of design:

- ❖ understand computer limitations, capacities, tools, platforms
- ❖ understand people psychological, social aspects, human error.

The Process of Design



DESIGN and SOFTWARE PROCESS

- ❖ Software engineering provides a means of understanding the structure of the design process, and that process can be assessed for its effectiveness in interactive system design.
- ❖ Usability engineering promotes the use of explicit criteria to judge the success of a product in terms of its usability.
- ❖ Iterative design practices work to incorporate crucial customer feedback early in the design process to inform critical decisions which affect usability.
- ❖ Design involves making many decisions among numerous alternatives. Design rationale provides an explicit means of recording those design decisions and the context in which the decisions were made.

User

By "user", we may mean an individual user, a group of users working together. An appreciation of the way people's sensory systems (sight, hearing, touch) relay information is vital. Also, different users form different conceptions or mental models about their interactions and have different ways of learning and keeping knowledge and. In addition, cultural and national differences play a part.

Computer

When we talk about the computer, we're referring to any technology ranging from desktop computers, to large scale computer systems. For example, if we were discussing the design of a Website, then the Website itself would be referred to as "the computer". Devices such as mobile phones or VCRs can also be considered to be

—computers

Interaction

There are obvious differences between humans and machines. In spite of these, HCI attempts to ensure that they both get on with each other and interact successfully. In order to achieve a usable system, you need to apply what you know about humans and computers, and consult with likely users throughout the design process. In real systems, the schedule and the budget are important, and it is vital to find a balance between what would be ideal for the users and what is feasible in reality.

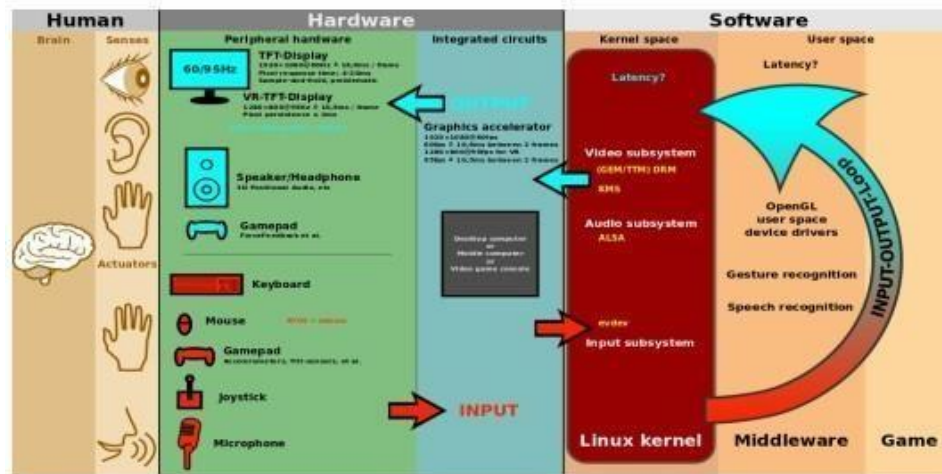


Figure 1.1 Human Computer Interaction

A good design is used to produce a usable and safe system, as well as functional system. In order to produce computer systems with good usability, developers must attempt to: understand the factors that determine how people use technology, develop tools and techniques to enable building suitable systems, achieve efficient, effective, and safe interaction put people first.

Underlying the whole theme of design is the belief that people using a computer system should come first. Their needs, capabilities and preferences for conducting various tasks should direct developers in the way that they design systems. People should not have to change the way that they use a system in order to fit in with it. Instead, the system should be designed to match their requirements.

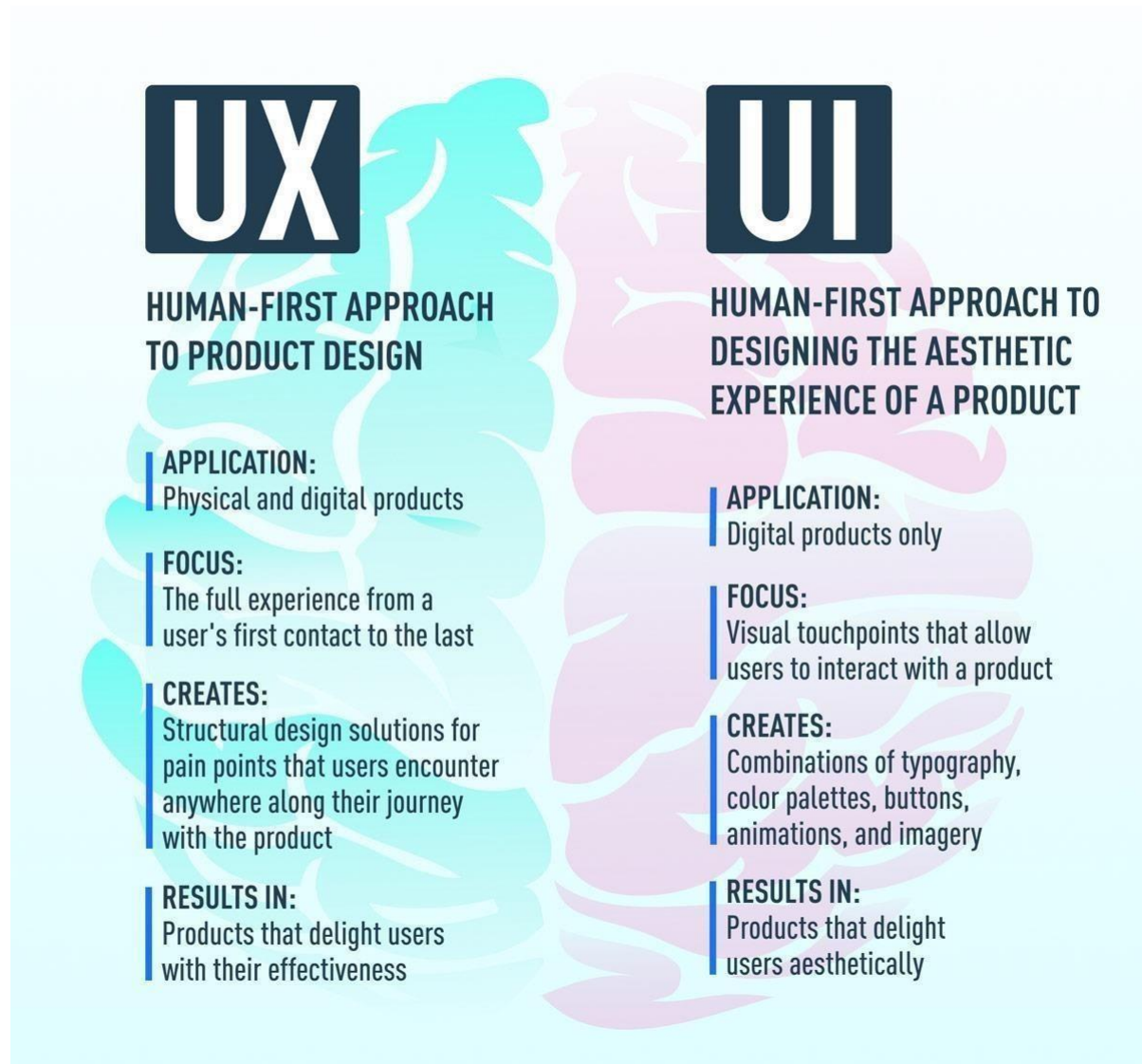
Usability : Key Factor of a Design

It is concerned with making systems easy to learn and use. A usable system is:

- easy to learn
- easy to remember how to use
- effective to use
- efficient to use
- safe to use
- enjoyable to use

UX VS. UI DESIGN

UX design refers to the term “[user experience design](#)”, while UI stands for “[user interface design](#)”. Both elements are crucial to a product and work closely together. But despite their professional relationship, the roles themselves are quite different, referring to very different aspects of the product development process and the design discipline.



What is user experience (UX) design?

Here's how he describes it: "User experience encompasses all aspects of the end-user's interaction with the company, its services, and its products."

Don Norman's definition tells us that, **regardless of its medium** [plenty of non-digital UX](#) (and there are lots out there) UX Design encompasses any and all interactions between a potential or active customer and a company.

As a scientific process, it could be applied to anything; street lamps, cars, Ikea shelving, and so on. However, despite being a scientific term, its use since its inception has been almost entirely within digital fields; one reason for this is that the tech industry started blowing up around the time of the term's invention.

Essentially, UX applies to anything that can be experienced—be it a website, a coffee machine, or a visit to the supermarket. The "user experience" part refers to the interaction between the user and a product or service. User experience **design**, then, considers all the different elements that shape this experience.

UX design

A UX designer thinks about how the experience makes the user feel and how easy it is for the user to accomplish their desired tasks. They also observe and conduct [task analyses](#) to see how users actually complete tasks in a user flow.

For example: How easy is the checkout process when shopping online? How easy is it for you to grip that vegetable peeler? Does your online banking app make it easy for you to manage your money?

The ultimate purpose of UX design is to create easy, efficient, relevant, and all-around pleasant experiences for the user.

About UX design in a nutshell:

- User experience design is the process of developing and improving the quality of interaction between a user and all facets of a company.
- User experience design is, in theory, a non-digital (cognitive science) practice but used and ~~defined~~ predominantly by digital industries.

- UX design is NOT about visuals; it focuses on the overall feel of the experience.

UX tasks and responsibilities

Here is an example of a UX designer's typical tasks and responsibilities. You'll find a more detailed account of the UX design process in this guide.

Strategy and content:

- Competitor analysis
- Customer analysis and user research
- Product structure and strategy
- Content development

Wire framing and prototyping

- Wire framing
- Prototyping
- Testing and iteration
- Development planning

Execution and analytics

- Coordination with UI designers
- Coordination with developers
- Tracking goals and Integration
- UX analysis and iteration

In fact, the role of the UX designer varies hugely depending on the type of company they're working in. You see that iteration of the product, as connected to analysis or testing, is indeed mentioned twice, but in reality, you would put it in between every other item on the list.

Ultimately, the aim is to connect business goals to users' needs through a process of user and usability testing and refinement toward that which satisfies both sides of the relationship.

What is user interface (UI) design?

While user experience is a conglomeration of tasks focused on the optimization of a product for effective and enjoyable use, user interface design is its complement; the look and feel, the presentation and interactivity of a product.

But like UX, it is easily and often confused by the industries that employ UI designers—to the extent that different job posts will often refer to the profession as completely different things.

Unlike UX, **user interface design is a strictly digital term.**

[A user interface](#) is the point of interaction between the user and a digital device or product—like the touchscreen on your smartphone or the touchpad you use to select what kind of coffee you want from the coffee machine.

In relation to websites and apps, UI design considers the look, feel, and interactivity of the product. It's all about making sure that the user interface of a product is as intuitive as possible, and that means carefully considering each and every visual, interactive element the user might encounter.

A UI designer will think about [icons and buttons](#), [typography](#) and [color schemes](#), spacing, imagery, and responsive design.

UI design

Like user experience design, user interface design is a multi-faceted and challenging role. It is responsible for the transference of a product's development, research, content, and layout into **an interactive, guiding, and responsive experience for users.**

UI design is about:

- User interface design is a purely digital practice. It considers all the visual, interactive elements of a product interface—including buttons, icons, spacing, typography, color schemes, and responsive design.
- The goal of UI design is to visually guide the user through a product's interface. It's all about creating an intuitive experience that doesn't require the user to think too much!
- UI design transfers the brand's strengths and visual assets to a product's interface, making sure the design is consistent, coherent, and aesthetically pleasing.

UI tasks and responsibilities

If you like the idea of creating awesome user experiences but sees yourself as a more visual person, you may be more interested in UI design.

The look and feel of the product

- Customer analysis
- Design research
- Branding and graphic development
- User guides and storylines

Responsiveness and interactivity

- UI prototyping
- Interactivity and animation
- Adaptation to all device screen sizes
- Implementation with developer

As a visual and interactive designer, the UI role is crucial to any digital interface and, for customers, a key element to trusting a brand. While the brand itself is never solely the responsibility of the UI designer, its translation to the product is.

You'll also note the final point, which states responsibility for the "implementation" of the design with a developer. While this is generally how UI jobs have worked in the past, you should be aware that the lines are blurring, as the term "web designer" (essentially a UI designer who can code) is being replaced by the expertise of user interface designers.

While UX has no need for coding, UI is a role that, as time progresses, will rely on it as part of building interactive interfaces, with "UI developer" beginning to appear as a role in companies.

2. Understanding their key differences

"User Experience (UX) and User Interface (UI) are some of the most confused and misused terms in our field.

UX vs. UI

What's the difference?

UX

UX design is a human-first way of designing products and services. It considers how the overall experience feels for the user.

UI

UI design is a human-first way of designing all the visual, interactive elements of a digital product.

So: UI is what you use to interact with a product (buttons, screens, scrollbars, etc.) while UX is concerned with how this overall interaction feels.



What does a UX designer do?

- Conducts user research
- Determines information architecture
- Creates wireframes and prototypes
- Conducts usability tests
- Bridges the gap between the user's needs and the needs of the business
- Collaborates with UI designers, developers, and other key stakeholders

What does a UI designer do?

- Designs buttons, icons, and animations
- Chooses typography and color palettes
- Creates a visual style guide
- Creates wireframes and prototypes
- Ensures the design is responsive
- Collaborates with UX designers and developers



Key skills of a UX designer

- Collaboration, communication, and open-mindedness
- Empathy
- Curiosity and continuous learning
- Critical thinking and problem-solving
- Familiarity with user research and analysis techniques
- Wireframing and prototyping
- Understanding of information architecture
- User and usability testing



Key skills of a UI designer

- Collaboration, communication, and open-mindedness
- Empathy
- Adaptability
- Creativity and problem-solving
- Visual branding skills: Typography, color theory, icon design, etc.
- Wireframing and prototyping
- Knowledge of responsive design
- Animation and interactivity

Where do UX and UI fit into the product development process?

1. The UX designer (or UX researcher) conducts user research

2. The UX designer and business stakeholders come up with a product idea

3. The UX designer determines the information architecture, sketches out wireframes and creates low-fidelity prototypes

4. The UX designer carries out some initial user testing before handing over to the UI designer

5. The UI designer determines all the visual and interactive properties of the product, e.g. choosing the color scheme, designing icons and typography, and creating animations

6. The UI designer creates interactive, high-fidelity prototypes for further user testing

7. The UI designer hands the final design over to the developers who code the product into life



“User Experience (UX) and User Interface (UI) are some of the most confused and misused terms in our field. A UI without UX is like a painter slapping paint onto a canvas without thought; while UX without UI is like the frame of a sculpture with no paper mache on it. A great product experience starts with UX followed by UI. Both are essential for the product’s success.”

It’s important to understand that UX and UI do go hand-in-hand; you can’t have one without the other. UX design is all about the overall feel of the experience, while UI is about how the product’s interfaces look and function.

CORE STAGES OF DESIGN THINKING:

Design thinking is a non-linear, iterative process that can have anywhere from three to seven phases, depending on whom you talk to.

The five stages of design thinking,

- **Empathize:** research your users' needs.
- **Define:** state your users' needs and problems.
- **Ideate:** challenge assumptions and create ideas.
- **Prototype:** start to create solutions.



Stage 1: Empathize—Research Your Users' Needs

- ❖ The first stage of the design thinking process focuses on user-centric research. You want to gain an empathic understanding of the problem you are trying to solve.
- ❖ Consult experts to find out more about the area of concern and conduct observations to engage and empathize with your users.
- ❖ Empathy is crucial to problem solving and a human-centered design process as it allows design thinkers to set aside their own assumptions about the world and gain real insight into users and their needs.
- ❖ Depending on time constraints, you will gather a substantial amount of information to use during the next stage.
- ❖ The main aim of the Empathize stage is to develop the best possible understanding of your users, their needs and the problems that underlie the development of the product or service you want to create.

Stage 2: Define—State Your Users' Needs and Problems

In the Define stage, you will organize the information you have gathered during the Empathize stage. You'll analyze your observations to define the core problems you and your team have identified up to this point. Defining the problem **and problem statement must be done in a human-centered manner.**

For example, you should not define the problem as your own wish or need of the company: “We need to increase our food-product market share among young teenage girls by 5%.”

You should pitch the problem statement from your perception of the users' needs: “Teenage girls need to eat nutritious food in order to thrive, be healthy and grow.”

The Define stage will help the design team collect great ideas to establish features, functions and other elements to solve the problem at hand or, at the very least, allow real users to resolve issues themselves with minimal difficulty.

Stage 3: Ideate—Challenge Assumptions and Create Ideas

During the third stage of the design thinking process, designers are ready to generate ideas. With this solid background, you and your team members can start to **look at the problem from different perspectives and ideate innovative solutions to your problem statement.**

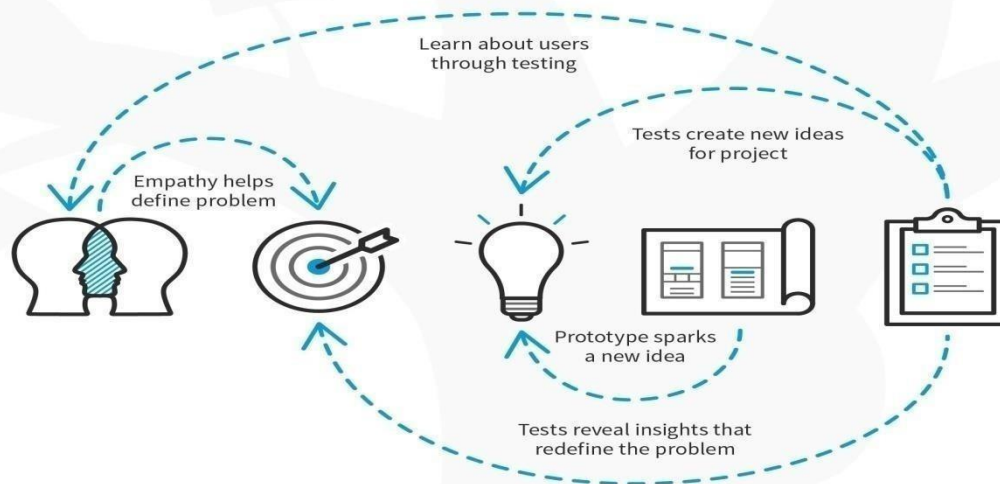
Brainstorm and Worst Possible Idea techniques are typically used at the start of the ideation stage to stimulate free thinking and expand the problem space.

This allows you to generate as many ideas as possible at the start of ideation. You should pick other ideation techniques towards the end of this stage to help you investigate and test your ideas. Choose the best ones to move forward with either because they seem to solve the problem or provide the elements required to circumvent it.

Stage 4: Prototype—Start to Create Solutions

The design team will now produce a number of inexpensive, scaled down versions of the product (or specific features found within the product) to investigate the key solutions generated in the ideation phase.

Design Thinking: A Non-Linear Process



Interaction Design Foundation
interaction-design.org

This is an experimental phase, and the aim is to **identify the best possible solution for each of the problems identified during the first three stages**. The solutions are implemented within the prototypes and, one by one, they are investigated and then accepted, improved or rejected based on the users' experiences.

By the end of the Prototype stage, the design team will have a better idea of the product's limitations and the problems it faces. They'll also have a clearer view of how real users would behave, think and feel when they interact with the end product.

Stage 5: Test—Try Your Solutions Out

Designers or evaluators rigorously test the complete product using the best solutions identified in the Prototype stage.

This is the final stage of the five-stage model; however, in an iterative process such as design thinking, the results generated are often used to redefine one or more further problems.

This increased level of understanding may help you investigate the conditions of use and how people think, behave and feel towards the product, and even lead you to loop back to a previous stage in the

design thinking process. You can then proceed with further iterations and make alterations and

refinements to rule out alternative solutions. The ultimate goal is to get as deep an understanding of the product and its users as possible.

NEED FOR DESIGN THINKING

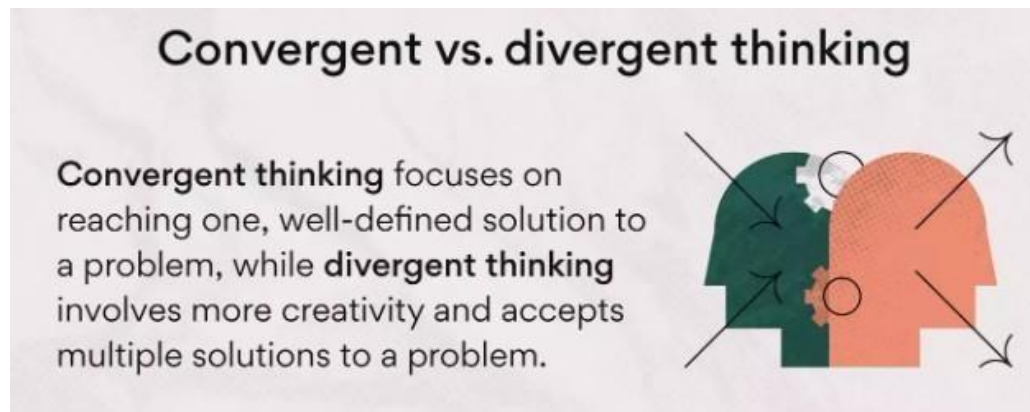
- Design thinking helps individuals to focus on the solution rather than getting stuck on the problem.
- This process allows companies to better understand their customers' needs, which, in turn, allows the businesses to better meet these needs.
- Design thinking enables businesses to come up with new and innovative solutions to problems.
- The design thinking process can help to more adequately meet a client's needs, especially when the client is directly involved in the process.
- Design thinking allows businesses to continually learn about and monitor their customers' satisfaction as well as allow them to make changes to their products or services when necessary to promote increased customer satisfaction.

BENEFITS OF DESIGN THINKING

- ❖ The Design Thinking process teaches people how to innovate and problem-solve: While most of us are programmed to solve problems that readily present themselves, we're not necessarily inclined to look for problems.
- ❖ Design Thinking encourages creative problem-solving; it pushes you to redefine the problem space and seek out the challenge worth solving. This is especially useful in a business context— designing a competitive digital product, optimizing internal processes, or reinventing an entire business model.
- ❖ The Design Thinking process fosters teamwork and collaboration: As explained by the HPI Academy, “innovations and answers to complex questions are best generated in a heterogeneous team of five to six people.” The Design Thinking process brings multidisciplinary teams together, breaks down silos, and encourages people to collaborate and challenge their assumptions.
- ❖ The Design Thinking process offers a proven competitive advantage: Design-led companies have been shown to consistently outperform their competitors. As already mentioned, the aim of the Design Thinking process is to come up with solutions, products, or services that are desirable for the user, economically viable from a business perspective, and technologically feasible. This user- first approach, coupled with early and frequent testing, helps to minimize risk, drive customer engagement, and ultimately boost the bottom line.
- ❖ Design Thinking is a tool for creativity, innovation, and problem-solving. Not only does it help designers to come up with ground-breaking products, but it also fosters a culture of innovation and user-centricity at every level of business.

DIVERGENT AND CONVERGENT THINKING

Divergent and convergent thinking are two complementary methods to explore ideas, work towards goals, and address challenges. In the design world where we're constantly employing design thinking in our work both approaches are necessary and lead to unique solutions for challenges that require exploration and creativity.



Divergent thinking

Divergent thinking is taking a challenge and attempting to identify all the possible drivers of that challenge, then listing all of the ways those drivers can be addressed. In divergent thinking, your mind expands outward as you generate as many ideas as possible.

Divergent thinking typically happens in open, free-flowing, spontaneous environments where multiple creative ideas can be shared and considered. Typically, this means that everyone involved in this type of thinking will look for unexpected combinations and connections between remote associations. Divergent thinking sparks creativity specifically because of its spontaneous, non-linear nature.

When setting up a divergent thinking exercise, participants need to know that all ideas are valid. It's also important to ensure that all participants can contribute equally—not just the most vocal. I often recommend using methods such as the first few steps of nominal group technique to ensure all voices are heard.

Divergent thinking is often associated with brainstorming or free writing—but it's more than that. You need to do a small amount of analysis so that you don't put too many tools in your Swiss army knife, but you shouldn't hamstring yourself with too many constraints, either.

Divergent thinking techniques

There are many different techniques you can use to stimulate creativity and divergent thinking. It's important to find the ones that work best for you—everyone is different and it's okay to try something, realize it doesn't work, and move onto another technique. As a user experience company, we utilize many divergent thinking techniques:

- **Freewriting:**

This technique is helpful when you need to focus on one topic. Choose an allotted amount of time and start writing, don't worry about revising or proofreading just let the thoughts spill onto the page (or screen). This technique allows a lot of thought generation without blockers that you can come back to, restructure, and organize.

- **Brainstorming:**

This common group-problem solving technique involves contribution of ideas from multiple people and discussion around the ideas provided. Encouraging all to participate and not be afraid of right or wrong answers can help improve the session and divergent thinking.

- **Nominal Group Technique:**

This is a form of structured brainstorming that starts with individuals silently generating ideas, then moves through sharing and discussion of those ideas. The silent generation of ideas ensures everyone in the room has an equal voice, rather than just the most gregarious.

- **Keeping a journal:**

A great technique that allows you to record whatever spontaneous thought comes to your mind. Writing down thoughts when they happen allows you to revisit them later. Our designers enjoy journaling, check out how one of our experience designers used a work journal.

- **Scenario role play:**

A technique that involves providing a prompt that users put themselves into and act out the scenario using their imagination and putting themselves into the shoes of the characters (users of a product).

- **Mind mapping:** This visual technique involves turning brainstormed ideas into a visual map that shows the relations of the brainstorming. A common type of mapping our researchers enjoy— affinity mapping, allows topics to be synthesized and organized to work through later.

Divergent thinking examples

User experience designers practice divergent thinking in a few ways. We use divergent thinking in the initial stages of ideation on a project or task when we have a challenge to solve and we need to brainstorm or iterate on creative solutions. Divergent thinking can also be used after you have synthesized research data during discovery or validation phases of your work.

One great example of divergent thinking in action is in the early days of Twitter. Twitter took a Minimum Viable Product (MVP) approach to their application. They created an online service without a clear practical application or market, launched it to see how people would use it, then refined Twitter to highlight those uses.

Convergent thinking

Convergent thinking, on the other hand, is known as the practice of selecting the optimal solution from a finite set of ideas collected from different sources in order to solve a discrete challenge quickly and efficiently.

Convergent thinking is best practiced at times when you need an answer, and you believe you have access to the data and information you need to guide a decision or solution. Convergent thinking typically calls for speed, accuracy, and knowledge on a subject, so it's best used when the team has access to experts and relevant data. The team will analyze and bring that information together into an educated decision.

Convergent thinking techniques

There are many convergent techniques that can be used and below are a few that our teams use regularly:

- **Grouping:**
In order to understand information that comes from a divergent thinking exercise we need to group together similar ideas and hypotheses. This is when mapping comes into play. We like to use tools like FigJam and Miro (or if you're in person, a good old whiteboard and post-its) to start organizing similar ideas into categories. This helps us take a large amount of data or ideas and narrow them down to a more succinct data reference.
- **Prioritizing:**
From there, it's important to decide which concepts are crucial and which can come a little later on (if at all). When thinking about our product design mapping, that might mean we prioritize features around mobile experience if the application is primarily mobile, and we place any desktop capabilities a little lower on the priority list.
- **Dot-voting:**
This technique allows each participant to join in a prioritization activity regardless of their participation style or preferences. Individuals are given a set number of dots and apply them to the choices in a list.
- **Filtering:**
Applying filtering convergent techniques allows us to eliminate ideas or concepts that we won't take action on (maybe because of time, lift, or importance). Ultimately, we can't review copious amounts of data or complete every feature that comes to the table, filtering helps us remove those unreachable ideas and focus on the final product.

Convergent thinking examples

There are many examples of convergent thinking that demonstrate the necessity of this technique, including in our own industry. We're often asked questions by clients that have one, clear answer and we know that because our team has spent years accumulating user experience design and technology knowledge on specific types of problems, goals, and decisions. Also, as an evidence-based company, gathering user and customer feedback often helps point us to very clear design solutions.

Consider that scene in Apollo 13 where the astronauts are trying to generate enough power to get the capsule back to Earth. The chief orders his team to make the capsule simulator "cold and dark," and create "the exact same conditions they've got" right down to the readings on all of the instrument panels. One of his engineers says "I need a flashlight," and the response is, "That's not what they have up there."

Don't give me anything they don't have on board." The challenge is discrete and the solutions are limited to the constraints of a hard reality.

Difference between divergent and convergent thinking

Convergent and divergent thinking are both modes of thinking, but lie on the opposite end of the spectrum from one another. Divergent thinking is rooted in creativity; it is spontaneous and non-linear— looking at all sorts of possible solutions. Whereas convergent thinking is rooted in structure; it is all about efficiency and is linear—looking for the best possible solution.

A common practice for problem solving is to use a combination of both. Start with a divergent brainstorming session to generate as many ideas as possible. Move into a mapping exercise to group and prioritize the initiatives that came from the brainstorm.

Divergent vs. convergent thinking problem-solving example

Here's an example of the same problem framed for divergent and convergent thinking:

- **Divergent thinking:** My company laptop is malfunctioning. I need my laptop to complete a project by the end of tomorrow. I work remotely and IT can't ship a replacement until after the deadline. What can I do to make sure my project is completed by the deadline?
- **Convergent thinking:** My company laptop is malfunctioning. I need my laptop to complete a project by the end of tomorrow. I work remotely and IT can't ship a replacement until after the deadline. Name three people who have the context and skills to 兜揽 the project so I can contact them to check availability.

The problem is the same, but the questions change slightly. The convergent example is focused on exploring options for delegating the work, whereas the divergent example doesn't rule out options like fixing the laptop locally or using another device to get by until a new one is shipped.

Both examples will produce valuable results. The convergent example may be driven by other issues. Perhaps I'm only authorized to login to accounts on my secured work laptop. The divergent example may take more time to investigate, but you may save the cost and resources it takes to get a brand new laptop shipped. In thinking through both you may discover an option that is completely different from what the user has asked you to do. As designers, we need to use both methods of thinking to best serve our clients.

Divergent thinking, convergent thinking, and creativity

Both methods of thinking are important and necessary for creative work, and for work that requires building solutions for complex problems. So while divergent thinking is typically associated with creativity and convergent thinking is closely associated with logic, if you only use one method it'll be more difficult to come up with an innovative and elegant solution to the problem. That's why we tend to use both types of thinking.

However, there are times when one way of thinking might be best. The challenge in the context of design thinking comes in framing the problems correctly if you want a specific result. Frame it one way, and you may be leading the group to spend two months brainstorming when all you needed was a hammer four weeks ago. Frame it the other way, and you could end up with a team chasing every problem with the same old hammer while your competition invented the screwdriver.

Embracing divergent and convergent thinking at Think Company

Since we have a clear idea of each method of thinking works, part of our job is to determine which one best suits clients and project goals during the many phases of our work. We have learned to embrace these thinking styles in a number of ways, including:

- ❖ Collaborative Think sessions with clients focused on design thinking, ideation, and brainstorming
- ❖ Technology discovery work to identify internal experts and gather knowledge on platforms and process
- ❖ Regular sprint reviews and other project rituals to review, synthesize, and ideate around research findings
- ❖ Ongoing internal collaboration with different departments to bring in subject matter experts
- ❖ Design validation and usability studies to collect evidence for convergent exercises
- ❖ Retrospectives focused on continuous improvement and knowledge sharing
- ❖ Ideation challenges for teams to keep creative work fun and innovative

Ways to increase divergent thinking

- ❖ Modify your perspective
- ❖ Practice generating ideas
- ❖ Experiment with brainstorming, Mind maps
- ❖ Give yourself extra time - Time boxing, take breaks, Give yourself space.
- ❖ Be bold and inquisitive
- ❖ Be eager to learn
- ❖ Move out of your comfort zone
- ❖ Try mindfulness meditation

Benefits of divergent and convergent thinking

- ❖ Increased creativity and innovation
- ❖ Better decision-making
- ❖ Human-centered design
- ❖ Enhanced problem-solving
- ❖ Improved collaboration

Finally, the most important element of embracing divergent and convergent thinking techniques is getting support from leadership during divergent and convergent thinking exercises. Stakeholder buy-in is easier to accomplish when you are clear about the purpose and goals of an exercise. Giving an organizational leader a heads up that tomorrow's exercise will be about generating ideas, and that their participation and support is critical to a successful session, can make or break the exercise.

CLASSROOM ACTIVITY 1

- ❖ **Alternative Use Activity Resource** - Place an image or a description in the provided box on the page, then give the worksheet to students. Ask students to generate ideas for the image or description in the box within a given time frame.
- ❖ **Reverse Brainstorming Graphic Organizer** - Place an image or a description in the provided box on the page, then give the worksheet to students. Ask students to first list what ideas can NOT be generated for the provided image or description. Once they have completed that, then ask students to generate ideas for what ideas CAN be generated. This exercise can be used as a supplemental resource completed by students after their alternative uses exercise to help them generate more ideas.
- ❖ **Creative Choice Board** - Edit this choice board for your needs and provide it to students as a more structured way of divergent thinking practice. Each box should have an open-ended task that students should complete. They can choose one chose from the board. For future activities, they must choose something new.
- ❖ **Visual Map Starter Graphic Organizer** - For students that may struggle with the initial brainstorming process, provide them with this starter template to help them categorize ideas onto paper. Later, as they are comfortable with the process, ask students to build their own visual map from scratch without the use of a graphic organizer aid.
- ❖ **Circles Creativity Exercise** - Provide students with the worksheet and ask them to draw as many images using the provided circles as possible within the provided time frame that you set. You can provide this exercise many times, changing the time frame to introduce an additional constraint.
- ❖ **Creativity Pictures Exercise** - Create a simple doodle in each of the 6 boxes. The doodles can be identical, or each can be different. They can be simple lines, half- shapes, or other abstract images that students can use as a starting point for an image idea. Ask students to take the simple doodles and create images out of them, and provide a time constraint to push their divergent thinking.
- ❖ **Divergent Creativity Rubric** - Use the rubric to provide additional feedback and support strategies to your students as they work to practice their divergent thinking.

Divergent Creativity Rubric

	Low Ability	Average Ability	High Ability	Support Strategy Ideas
Fluency	Student generates only a limited number of ideas the given time constraint.	Student can generate some ideas within the given time constraint.	Student generates a significant number of ideas within the given time constraint.	Provide student more or unlimited time; provide increasing time constraints over time, allow students to collaborate on ideas; provide student with a few sample ideas; provide a different prompt that is more familiar to a student
Originality	Student ideas are common or basic. They may also be similar to examples posed in class.	Some student ideas are clever and unusual	A significant amount of ideas generated are unique, interesting, clever, or novel.	Introduce topic caveats and constraints to help provide more unique ideas; Point to specific ideas and ask students how they can substitute the idea for something else or combine it with another idea to generate a new idea.
Flexibility	When comparing all ideas to one another, they are not varied and are too similar to each other.	At least some ideas are varied when comparing ideas to one another.	Ideas are generated in a number of different ways with significant variation between ideas.	Provide students with specific categories to help them generate ideas for that category; ask students to determine the opposite of the idea; require student to focus on individual components of the idea or rearrange components to generate something new and varied.
Elaboration	Simple ideas are generated, with little detail or embellishment.	Ideas contain some detail or embellishment.	Ideas are specific and provide clear details and a more elaborate thought process, expanded to	Provide a thesaurus for more specific detail; ask students to describe who, what, when, where, why, and how; ask students to provide detail using the senses (how it looks, smells, tastes, etc.); require modifications in color, meaning, form, etc.

BRAINSTORMING

Brainstorming is a method design teams use to generate ideas to solve clearly defined design problems. In controlled conditions and a free-thinking environment, teams approach a problem by such means as “How Might We” questions. They produce a vast array of ideas and draw links between them to find potential solutions.

Best ways to use Brainstorming

Brainstorming is part of design thinking. You use it in the ideation phase. It’s extremely popular for design teams because they can expand in all directions. Although teams have rules and a facilitator to keep them on track, they are free to use out-of-the-box and lateral thinking to seek the most effective solutions to any design problem.

By brainstorming, they can take a vast number of approaches the better instead of just exploring conventional means and running into the associated obstacles. When teams work in a judgment-free atmosphere to find the real dimensions of a problem, they’re more likely to produce rough answers which they’ll refine into possible solutions later.

In brainstorming, we aim squarely at a design problem and produce an arsenal of potential solutions. By not only harvesting our own ideas but also considering and building on colleagues’, we cover the problem from every angle imaginable. A good mix of participants will expand the experience pool and therefore broaden the idea space.

GOLDEN RULES

Brainstorming may seem to lack constraints, but everyone must observe eight house rules and have someone acting as facilitator.

1. **Set a time limit** – Depending on the problem’s complexity, 15–60 minutes is normal.
2. **Begin with a target problem/brief** – Members should approach this sharply defined question, plan or goal and *stay* on topic.
3. **Refrain from judgment/criticism** – No-one should be negative (including via body language) about any idea.
4. **Encourage weird and wacky ideas** – Further to the ban on killer phrases like “too expensive”, keep the floodgates open so everyone feels *free* to blurt out ideas (provided they’re on topic).
5. **Aim for quantity** – Remember, “quantity breeds quality”. The shifting-and-sorting process comes later.
6. **Build on others’ ideas** – It’s a process of *association* where members expand on others’ notions and reach new insights, allowing these ideas to trigger their own. Say “and”—rather than discourage with “but”—to get ideas closer to the problem.
7. **Stay visual** – Diagrams and Post-Its help bring ideas to life and help others see things in different ways.
8. **Allow one conversation at a time** – To arrive at concrete results, it’s essential to keep on track this way and show respect for everyone’s ideas.

To capture everyone’s ideas in a brainstorming session, someone must play “scribe” and mark every idea on the board. Alternatively, write down your own ideas as they come, and share these with the group.

Often, design problems demand mixed tactics: brainstorming *and* its sibling approaches braindumping (for individuals), and **brainwriting** and **brainwalking** (for group-and-individual mixes).

Risks in Brainstorming

Brainstorming involves **harnessing synergy** – we leverage our collective thinking towards a variety of potential solutions.

It’s challenging to have boundless freedom. The person leading the session must “police” the team to ensure a healthy, solution-focused atmosphere where even the shiest participants will speak up. A warm-

up activity can cure brainstorming “constipation” e.g., ask participants to list ways the world would be different if metal were like rubber.

Another risk is to let the team stray off topic and/or address other problems. As we may use brainstorming in any part of our design process including areas related to a project’s main scope it’s vital that participants stick to the problem relevant to that part (what Osborn called the “Point of View”).

Similarly, by framing problems with “How Might We” questions, we remember brainstorming is organic and free of boundaries. Overall, your team should stay fluid in the search for ways you might resolve an issue not chase a “holy grail” solution someone has developed elsewhere. The idea is to mine idea “ore” and refine “golden” solutions from it later.

GAME STORMING

Game storming is exploration of business challenges through the application of gaming (games). Game storming will help organizations to:

- Overcome conflict and increase engagement with team-oriented games
- Improve collaboration and communication with visual-thinking techniques
- Generate better ideas, insights, strategies and more of them – faster than ever before
- Produce better products and services for your end users

Overall, game storming can encourage a shift in how work is done from a process centric model that's about predictability and consistency to a game-centric model that recognizes the complexity and unpredictability of a digital world.

About Game

There is no absolute singular definition for a 'game'; however, all games share these similar characteristics:

- **Game space:**

To enter into a game is to enter another kind of space where the rules of ordinary life are temporarily suspended and replaced with the rules of the game. In effect, a game creates an alternative world, a model world. To enter a game space, the players must agree to abide by the rules of that space, and they must enter willingly.

- **Boundaries:**

A game has boundaries in time and space. There is a time when a game begins when the players enter the game space and a time when they leave the game space, ending the game.

- **Rules for interaction:**

Within the game space, players agree to abide by rules that define the way the game world operates. The game rules define the constraints of the game space.

- **Artifacts:**

Most games employ physical artifacts; objects that hold information about the game, either intrinsically or by virtue of their position. Artifacts can be used to track progress and to maintain a picture of the game's current state.

- **Goal:**

Players must have a way to know when the game is over; an end state that they are all striving to attain, that is understood and agreed to by all players.

Stages of a Game

Every game is a world which evolves in stages:

- Imagine the world,
- create the world,
- open the world,
- explore the world, and
- close the world.

Here's how it works:

1. Imagine the world

Before the game can begin you must imagine a possible world; a temporary space, within which players can explore any set of ideas or possibilities.

2. Create the world

A game world is formed by giving it boundaries, rules, and artifacts. Boundaries are the spatial and temporal boundaries of the world; its beginning and end, and its edges. Rules are the laws that govern the world; artifacts are the things that populate the world.

3. Open the world

A game world can only be entered by agreement among the players. To agree, they must understand the game's boundaries, rules, artifacts; what they represent, how they operate, and so on.

4. Explore the world

Goals are the animating force that drives exploration; they provide a necessary tension between the initial condition of the world and some desired state. Once players have entered the world they try to realize their goals within the constraints of the game world's system.

5. Close the world

A game is finished when the game's goals have been met. Goals are markers to ceremonially close the game space. The true point of the game is the play itself, the exploration of an imaginary space, and the insights that come from that exploration.

Core Game Storming Skills

There are three core skills to Game storming:

- Asking Questions
- Creating Artifacts and Meaningful Spaces
- Employing Visual Language (Sketching)

1. Asking Questions

Perhaps nothing is more important to exploration and discovery than the art of asking good questions. Questions are fire-starters: they ignite people's passions and energy; they create heat; and they illuminate things that were previously obscure.

2. Creating Artifacts and Meaningful Spaces

Artifacts are some type of physical medium such as sticky notes or index cards which allow teams to break any complex topic into small, moveable pieces of knowledge (often called knowledge atoms). Having these knowledge atoms allow teams to quickly and easily explore all kinds of relationships between and among these atoms.

Teams can apply the concept of meaningful, organized spaces to knowledge atoms such as what you would find on a board game, a tennis court, or a golf course. Defining meaningful spaces allow the position of knowledge atoms to have precise meaning that is dependent on their position.

3. Employing Visual Language

In school we are taught to learn to be successful are reading, writing, and arithmetic. In an industrial world, where every worker functioned as a standardized cog this made sense. But today's challenges aren't standard. There is another language that's equally powerful. It's called visual language, and it's the language teams can use to make ideas visual and explicit. You don't need to be a designer to be able to visualize ideas. You just need the visual alphabet. It's made up of 12 shapes called glyphs.

OBSERVATIONAL EMPATHY

Empathy requires us to put aside our learning, culture, knowledge, opinions, and worldview purposefully in order to understand other peoples' experiences of things deeply and meaningfully. It requires a strong sense of imagination for us to be able to see through another person's eyes.

It requires humility so we can seek to abandon our preconceived ideas and biases. It requires that we have a heightened awareness of other peoples' needs, wants, motivations and goals. Let's go through the traits an empathic observer should possess and some methods you can use to gain a deep understanding of the people for whom you are designing.

Empathy is an innate quality in all people. Being an empathic listener in a Design Thinking project is not as simple as it seems, because we are trained whether consciously in our schools or workplaces, or subconsciously from our prior experiences to form judgements and opinions about others rather than absorbing and understanding the raw data.

Empathy is especially important in the first stage of any Design Thinking process. The first stage in Design Thinking is often named the "empathise" stage – the following four stages are: Define, Ideate, Prototype and Test.

In the Empathise stage, it's your goal as a designer to gain an empathic understanding of the people you're designing for and the problem you are trying to solve. This involves empathising with, engaging and observing the people your target audience you intend to help.

How to be an Empathic Observer

Abandon Your Ego

Most of us have a tendency to assert ourselves, which results in an imposition upon others, as well as having more concern about our own situation rather than the needs and concerns of others. Often in our education or workplace, we are taught to adopt an egocentric view of things and be firm in our opinions and thoughts. However, in order to empathise deeply, we need to tame and put aside our egos. We need to become aware of the primary goal of empathy in Design Thinking, which is to understand and experience the feelings of others.

Adopt Humility

When we adopt humility, we naturally improve our ability to empathise, because through humility we elevate the value of others above ourselves. In Rise of the DEO, Giudice and Ireland discuss the emerging

willing to admit their own shortcomings as well as to abandon preconceived ideas for the good of the overall vision and goals.

3. Be a Good Listener

To empathise, we need to listen and listen attentively. We need to choose actively to block out our inner conflicting voices, and allow the other's voice to resonate. We need to train ourselves to control our natural tendency to formulate our own opinions and voice them before the other person has finished talking. Doing so would enable us to have a deeper kind of listening, which uncovers deeper meaning and experience.

4. Hone Your Observation skills

In order to develop empathy towards our users, we need to do more than listen. We need to observe others, and have a close reading of their behaviours, subtle indications, their non-verbal expressions, body language, and environments.

Only once we are able to experience the full range of sensations of others within context can we have a deeper and more meaningful empathic experience. Many times, what our users articulate is only a fraction of the full story. By honing our observation skills, we can fill many of the gaps, leading to a deeper understanding of someone else's experience.

5. Care

A genuine concern about the state of others, leading to the desire to act and assist, is required. This is one of the important drivers that allow us to overcome our own needs and wants and seek to understand others. We must build a sense of care, a deep concern and desire to want to help, nurture, and provide assistance. This requires a level of emotional insight.

6. Be Curious

Being genuinely curious makes engaging in empathy research not only easier but also extremely rewarding as we learn to understand what motivates people. By being curious, we are naturally inclined to dig into unexpected areas, uncover new insights, and explore all aspects of people's lives. At a glance, these details might seem unimportant, but they will expose the most important information we need for problem solving.

7. Be Sincere

Nothing kills empathy more than a lack of sincerity. When we approach people with a superficial agenda, superiority complex, or any mindset that may undermine our sincere intention to understand their experience deeply, we are placing a barrier between us and those we seek to understand.

Rather than approaching people with the mindset that they are in need of our help, we should realise that we stand to benefit more out of deeply understanding them. After all, the solution exists to serve their needs, and your work will not be complete unless you properly understand their needs.

Learn to Understand Body Language

We should have a keen awareness of how our body language sets the scene for trust and engagement between ourselves and the people we are observing or interviewing. On top of that, we need to read and interpret the signals that our users give off via their body language. This is a skill that comes with practice, and thus practice we must.

At times, body language might be *so* subtle that the messages made by our very forms (eyebrows, shoulders, hands, and virtually any other part) as well as how we sound and behave are visible only to practiced readers of body language.

To connect with and engage our users on a deeper level, we need to study their body language, body signals, facial expressions, voice intonations, and the positive and negative signs that come from these. Here are some of the little things that you should pay attention to:

- Learn to read the subtle nuances in communication, change of tone, pauses and skipping back over points.
- Listen to what is *not* being said, to what's being avoided or covered up.
- Subtly know when to encourage more expression or to lead the conversation or story in a beneficial direction.
- Know what to ask and how to ask it and when the person might be ready to be asked.

Empathic Understanding of People

The most effective way you can gain empathy comes in the form of **immersion**: direct experience of the lives, contexts, environments, and activities of the people you would like to understand better.

On top of immersing yourself in the environment to experience first-hand what it feels like to be your user, there are also a couple of methods you can engage in so as to gain a deeper understanding of people's needs and emotions.

Here, we will highlight three methods, and provide a template for each that you can download and use. Remember: the key to developing empathy is to go out there and practice with real people.

What-How-Why Method

The What-How-Why method is a tool that you can use while observing people to help you dive into your observations and derive deeper levels of understanding. With the What-How-Why method, you start with concrete observations the **What** and from there move to higher levels of abstraction asking **How** and then finally you arrive at the **Why**, i.e., the emotional drivers behind people's behaviours. This method is extremely useful for you to analyse images that you might have taken while observing your users.

You should divide your observations into three sections: What, How and Why.

- In *What*, note down the details of what is happening. What is the person doing? What is happening in the background? What is the person holding? Describe using adjectives and try to be as concrete as possible.
- In *How*, describe how the person is doing what he or she is doing. For instance, is the person putting in a great deal of effort? Is the person frowning or smiling while doing the task? Does the person use many ad-hoc tools to make the task easier? Try to describe the emotional impact of performing the task.

- Finally, in *Why*, try to interpret the scene. Based on the What and How observations, guess the emotional drivers behind the person you are observing. The person might be frowning while doing a task because she is concerned about hurting herself in the process which means safety is a driver of her behaviours.

Methods of Empathy in Design Thinking

- ❖ Observation and Immersion
- ❖ Interviewing
- ❖ Co-creation

Benefits of Empathy in Design Thinking

- ❖ Improved User Experience
- ❖ Increased Customer Loyalty
- ❖ Higher Quality Products and Services
- ❖ Increased Market Share

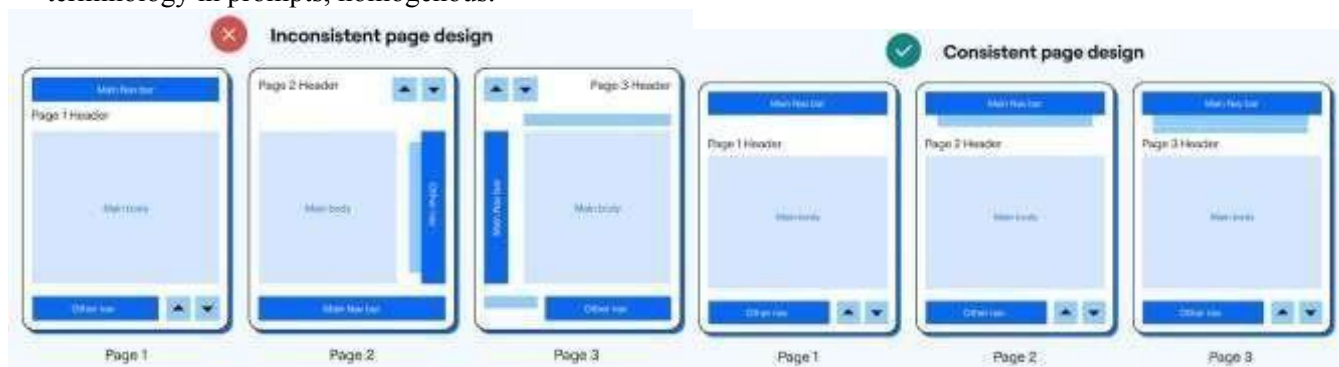
Unit II – FOUNDATIONS OF UI DESIGN

Visual and UI Principles – UI Elements and Patterns – Interaction Behaviors and Principles – Branding – Style Guides.

NOTES:

Golden Rules of User Interface Design

Make user interfaces consistent – Mike Gilfillan, Technical Lead Developer at Edge of the Web says, menus and screens, and consistent commands throughout the interface. "Consistency is key – multiple colors, fonts and styles can create confusion, whilst consistency creates familiarity." Consistent UI means using similar design patterns, identical terminology in prompts, homogenous.



demonstrate how strong the user's password currently is.

Design dialog to yield closure: According to Shneiderman, "Sequences of actions should be organized into groups with a beginning, middle, and end. Informative feedback at the completion of a group of actions gives users the satisfaction of accomplishment, a sense of relief, a signal to drop contingency plans from their minds, and an indicator to prepare for the next group of actions." A great example is taking users to a Thank You page with a summary after they complete an order, informing them it's confirmed.

Prevent error as much as possible: Make the UI as easy to use as possible by preventing serious user errors. So from greying out menu items that are not available to preventing users from typing in alphabets in fields that ask for phone numbers, try to prevent error as much as possible. This is also where usability testing comes in. As a designer, you need to ensure everything works as intended by testing the design with users before launching. It not only helps to test the

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functionality and usability of your product, but also helps you to understand your target audience's needs better. However, occasionally errors happen. So if a user has made an error, make sure to offer them a clear explanation to understand the error and an easy solution to solve it.

Allow users, ways to reverse their actions easily: Offer users, easy and obvious ways to reverse their steps when they've taken a wrong step. Shneiderman explains: "This feature relieves anxiety, since users know that errors can be undone, and encourages exploration of unfamiliar options." Say someone has accidentally added the wrong information in a multi-page form, allow them to go back to that page and rectify their mistake easily without having to start all over again.

Support internal locus of control: "Experienced users strongly desire the sense that they are in charge of the interface and that the interface responds to their actions. They don't want surprises or changes in familiar behavior, and they are annoyed by tedious data-entry sequences, difficulty in obtaining necessary information, and inability to produce their desired result," says Shneiderman. A great example of keeping users in control is when someone is about to exit Microsoft Office and is asked by the system if they're sure they want to exit without saving their work. Not only does this make the user feel in control, but it also ensures that in case of an accidental exit, their work is not lost.

Minimize memory load: A key rule for making user interfaces easy for people to use is minimizing cognitive load. Cognitive load (or memory load) can reduce a user's capacity to perform important tasks, so it's critical that computers take over the burden of memory from them as much as they can. For instance, don't make users re-enter personal information every time they're buying from your website or add their email address and name every time they log into your website. While designing, always choose recognition over recall to enable users to complete their tasks quickly and without hassle.

Visual Design Principles

- Visual Weight (Contrast and Size)
- Color
- Repetition and Pattern Breaking
- Line Tension and Edge Tension
- Alignment and Proximity
- Using Motion for UX

Visual Weight

Some parts of your design are more important than others, so we have to help users notice the important stuff. The idea of visual weight is fairly intuitive. Some things look "heavier" than others in a layout. They draw your attention more easily. And that idea is valuable to a UX designer. Your job is to help users notice the things that matter. It is equally important not to distract the users from their goals.



THE CENTER DUCK DRAWS YOUR EYE MOST. CONTRAST EFFECTS VISUAL WEIGHT.

By adding visual "weight" to certain parts of your design, you increase the chance that a user will see them and you change where their eyes will go next. Remember: visual weight is relative. All visual principles are about comparing a design element to whatever is around it.

Visual Weight – Contrast: The difference between light things and dark things is called contrast. The more distinguishable a light thing is compared to a dark thing, the “higher” the contrast. In UX, you want to give important things higher contrast, like the duck in the center. In this case, most of the image is light, so a dark duck is more noticeable. If the image were mostly dark, the lighter duck would be more noticeable. If these were buttons, more people would click the dark one than if all the buttons were the same color.

Visual Weight – Depth and Size: In the real world, we notice things that are close to us more than things that are far away. In the digital world, bigger things are perceived to be closer, like the middle duck in the second illustration, and something that is smaller is perceived to be farther away (like the blurry duck in the back.) If the ducks were all the same size, you would probably look at them from left to right (assuming you read that way). If you use blur effects or shadows it just makes the perception of depth more realistic. Size has this effect even if your design looks “flat.”



THE FRONT, CENTER DUCK ATTRACTS MORE ATTENTION. DEPTH AND SIZE CHANGE VISUAL WEIGHT.

As a general rule, you want more important things to be bigger than less important things. This creates a visual “hierarchy” on the page and makes it easier to scan, but it also allows you to choose what the user notices first. That’s why it’s wrong to “make the logo bigger,” unless you want users to stare at your logo instead of buying something.

Color

You get the idea: the ducks are identical, but colors change the meaning. If the ducks were buttons, they might be “confirm,” “cancel,” and “delete.” If they were indicators on a fuel tank, they might represent “full,” “half,” and “empty.” Or if they were on a stove: “cold,” “warm,” and “hot.” Real life is full of sunlight, artificial light, heat, cold, clothing, brands, fashion, and a million other things that affect the way we perceive colors. As a UX designer, we might not care about Pantones and brand guidelines, but we definitely have to learn about color.



WHICH DUCK LOOKS COLD? OR LIKE A WARNING? COLOUR HAS MEANING.



WHICH DUCK SEEMS TO COME FORWARD? COLOUR CAN REcede OR ADVANCE.

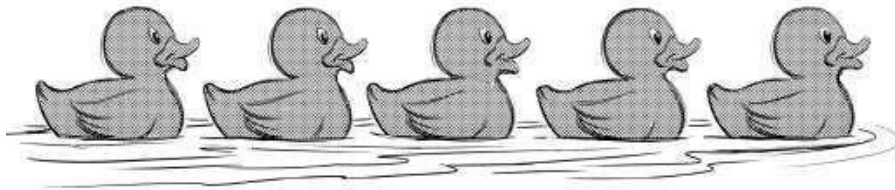
There are a few things we can learn about color from the Technicolor rubber ducks on the preceding page. As UX designers, we usually rock the wireframes in black and white. And that’s a good thing! If you don’t need to indicate something with color, let the UI designer choose colors. But if you do, let your wireframes do the talking. We focus on the function, while

the UI designers can focus on the look, feel, and style. However, sometimes color is function. Like traffic lights, or making the color of a popsicle match the flavor. The other thing to keep in mind is that colors can be “loud” or “quiet.” The second image in previous slide shows a red duck and two bluish ones. The red duck almost looks a little closer, doesn’t it? It’s not. Something like a “buy” button should have a color that makes it jump off the screen. More people will click a color that “advances” (comes forward).

On the other hand, sometimes we want things to step back so they are visible, but not too distracting, like the two bluish ducks. They “recede” (sink backward). This is good for something like a menu that is always on the screen. If it is always yelling at you, that’s unnecessary and it steals focus from more important things.

Repetition and Pattern Breaking

One important visual design principle involves the creation of patterns to move the user’s eyes to important things. And like all good rules, patterns are made to be broken. Human brains have a particular talent for patterns and sequences. Whenever something in nature happens over and over, we will quickly notice. In fact, we don’t just notice, we think about those things differently.

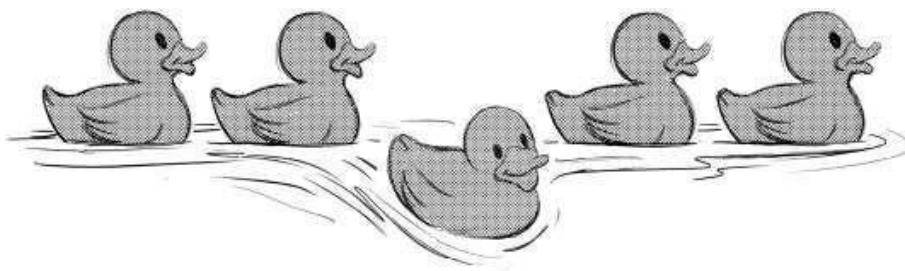


THESE DUCKS CREATE A PATTERN. REPETITION CHANGES PERCEPTION.

We don’t see five individual ducks though, we see a row of ducks. We treat them as a group or a sequence, and if you live in the Western world, you will probably look at them from left to right because that’s how we read. If that row of ducks were a menu or a list, we would do the same thing. Therefore, you could expect more people to click the options on the left, and fewer people to click the options on the right.

Breaking a Pattern

Now we see a row of four (jealous) ducks, and Beyoncé is alone, in the spotlight. She woke up like that! It is hard not to focus on Beyoncé, even though all five ducks are equally majestic creatures. Now, if that were a menu, the middle option would get far more clicks than before because our eyes fixate on it. Also, those clicks would be stolen from the left options, so the left options would be less popular than before (although probably still more popular than the far-right option). This might seem simple and obvious, but when you apply that principle to your designs—or your dance routines—it can make people notice the important buttons, options, or pop stars. Be careful: pattern-breaking can also lead the user’s eyes away from other important things. Before you can break a pattern, you have to make one. To make a pattern or a sequence, keep visual weight and color consistent.



WHEREVER A PATTERN IS BROKEN, THAT’S WHERE WE FOCUS.

The user’s eye will start at one end and follow the pattern to the other end. To break the pattern, just switch it up in the place where you want to add focus. Make the “Register Now” button an unexpected color, size, shape, or style, and watch your clicks go up overnight!

Line Tension and Edge Tension

Repetition, as we learned in the last lesson, creates a pattern. However, certain types of repetition can also create the perception of shapes that affect where the user's eyes will go. Visual "tension" is a concept that seems very elementary, but you'd be amazed how useful it can be. Our brains are a little too good at seeing patterns where they don't exist. As a designer you can use that.

Line Tension

We don't see eight individual ducks; we see a line. That's line tension. The perception of a line or a "path" when there isn't one. Our eyes will follow the path to see where it goes.



YOU SEE A LINE OF DUCKS WITH A GAP. WHY DON'T YOU JUST SEE 8 DUCKS?

Edge Tension

If we break that path—like any broken pattern—the gap steals more focus. So far, we have assumed there is only one line. But what if we create line tension using more than one line? The result can be "shapes." I have arranged the ducks so they appear to form the corners of a box. You could see 12 ducks, or four groups of 3 ducks, but your mind really wants to see the box, so it does. Furthermore, now we can put things "inside" the box (like more ducks!), or in the spaces between the corners. Similar to line tension, edge tension brings focus to the gaps. Layout-wise, this can be an excellent way to put more focus on something small, like a label.



DO YOU SEE 12 DUCKS, OR A BOX MADE OF DUCKS? THAT'S EDGE TENSION.

Or you can create visual paths leading to the button you want people to click. Vintage ads use this technique often to put a small logo in focus. And conveniently, it makes a layout feel simpler and more cohesive because a path or a box is only one mental thing, but 12 separate ducks is too much awesome to handle. In this lesson I have left the "tension" gaps blank, but you don't have to. You can also use color to create a path like a gradient on a list of items. Or you can add visual weight to a group of elements by treating them like one shape instead of separate pieces. It's a great way to direct the user's eyes without adding any more things to a layout!

Alignment and Proximity

The last design principle you will learn about is how to add order and meaning to elements of your design without adding any more elements. It might sound subtle, but it affects everything you see, every day.

Alignment

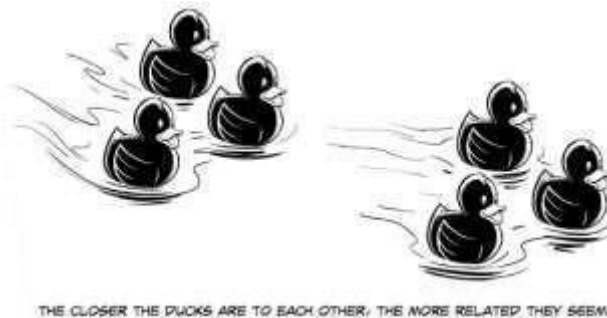
In this slide, you see a group of six stunningly beautiful ducks, but you also see a lot of relationships, because of the way they are aligned. We see two rows. The far-left and far-right ducks seem to be separated. The two center ducks seem the

most organized. All ducks seem to be going in the same direction. If you see motion, the far-left duck might be falling behind and the far-right duck might be leading. Those six ducks are identical. Only the alignment creates these perceptions. Buttons with similar functions can be aligned. Different levels of content can be aligned. Information can be in a grid of rows and columns like a spreadsheet to create complex meaning.



Proximity

The closeness or distance between two objects creates a feeling of those objects being related or unrelated. That distance is called proximity. In this slide, you see six identical ducks that are not aligned horizontally or vertically, but you definitely see two groups. The ducks in each group seem together, like a team or a family. The only thing creating that perception is their proximity. In your designs, put related elements closer together and unrelated elements farther apart. For example: a headline, a block of text, and a button that are all related to one action—like a purchase or an app download are usually designed like a “package.” That allows the user to understand that they go together without reading anything.

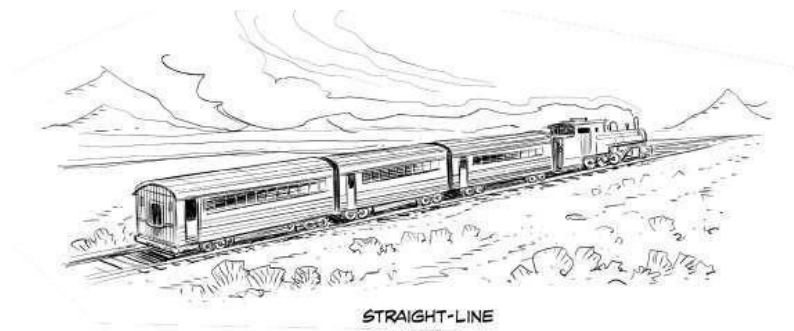


Using Motion for UX

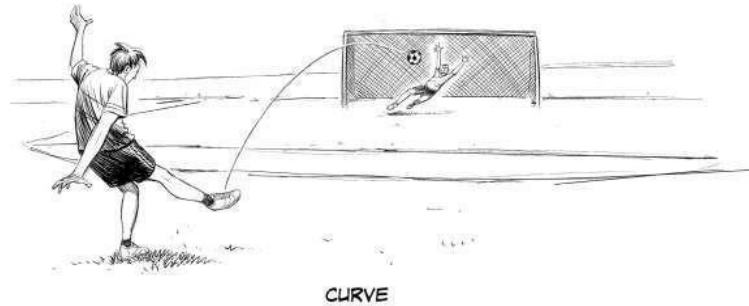
In digital design, it is becoming more and more common to include animation or motion design as part of the UX. It's a stylish detail, but in UX, you care about more than style. Motion is a tool. If Motion Makes People Wait, It's Bad.

Motion Is Noticed First: If Motion Makes People Wait, It's Bad Before you start designing amazing transitions between screens, and smooth animated buttons, and parallax gravity in your scrolling, think about the user. If the user is trying to navigate, or if they know what is coming, or if they have to see this animation a hundred times every time they use your site or app, you might be doing more harm than good. Animations take time to show, and making users wait quickly gets frustrating. If Motion Makes People Wait, It's Bad. Even worse than waiting, sometimes animations make things hard to read, or they distract users from the content and buttons you want them to read and click. If you have ever been disturbed by a vibrating banner or a jumping button, then you understand how motion can draw your attention. If you made a list of the things your brain notices, in order of priority, motion would be first. But, a little goes a long way. If you make a vibrating banner or a jumping button (which are really annoying to click, by the way) I will hunt you down and... well... let's just say it won't be pretty.

Straight Lines Point in a Direction: Different types of motion will do different things to the user's eyes. If you make something move in a straight line, the user's brain will anticipate where it's going and the user will look at the “end of the line.” If you are using motion to highlight key features or tell users where to go, straight lines are a good choice.



Curved Lines Make People Follow the Curve: However, if you want to lead users around the screen—like when you’re explaining your app for the first time—curved motion will make their eyes stick to the path and stop where the animation stops.

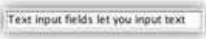


UI Elements and Patterns

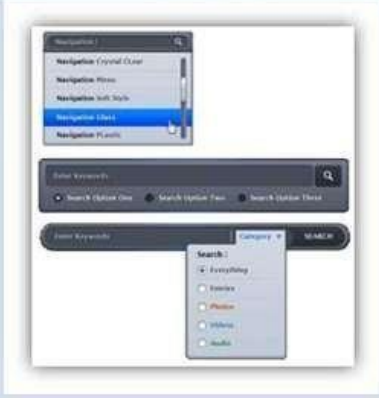
UI Elements

- Input Controls: checkboxes, radio buttons, dropdown lists, list boxes, buttons, toggles, text fields, date field
- Navigational Components: breadcrumb, slider, search field, pagination, slider, tags, icons
- Informational Components: tooltips, icons, progress bar, notifications, message boxes, modal windows
- Containers: accordion

Input Controls

Element	Example
Dropdown Button	
Toggles	
Text Fields	
Date and Time Picker	

Element	Example
Icons	

Element	Example
Search Field	
Breadcrumb	
Image Carousel	

Element	Example
Pagination	
Tags	
Sliders	

Layout – Page Framework

Although it might be tempting to approach your wireframes on a page-by-page basis, don't do it! If you're building a house, you don't start with the rooms and furniture. You start with the walls. This is one of those "measure twice, cut once" kind of things. As a general rule, you should do your wireframes like you do your tattoos: start with the big parts, then fill in the details. In this case the big parts are the elements that will appear on all of the pages: navigation and footers.

Footers

A footer is typically a list of static links that are too general and too insignificant to get a place in the main navigation. Some sites actually have really nice footer designs, which is great, but if users need those links to make the site work, the footer is the wrong place for them.

- Ask yourself: "Are there going to be any pages that have an infinite scroll?"
- If the answer is yes, make sure everything in the footer is available somewhere else.
- If the language selector is in the footer and it runs away every time I try to change it, it is a bad design.

Navigation

Menus and links are used for navigation. Menus come in at least two flavors: main menu and submenu.

Main Menu

If you did your information architecture properly, then you already know what should be in the main menu. It's the first level of links in your site map (below the home page). The order of the menu items—left-to-right or top-to-bottom— should be from most-to-least popular (measured by user interest, not by how much you like them). For brand new sites, when you get some real traffic to your site, make sure your order and the real popularity match.

Submenu

The submenu is a list of the pages in your site map “below” whatever page the user is on. You did make a site map, right?! The main thing with the submenu is that it should ideally be in the same place on every page, even if the links change all the time. That way, users will quickly learn where to find it. Huge Submenus Are Never a Good Idea. I am always surprised when someone tries to argue that their mega menu is the best idea available. That actually means the Information Architecture (and the information architect) sucks. Everything-in-one-menu is the laziest design in the universe. Do better. Menus are like dating: if you need more than seven or eight choices, it’s time to break somebody’s heart— maybe your own.

Create navigation and footers that work for all of the pages/screens in your app before you get into content. Layout – The Fold, Images, and Headlines. One of the most popular old-school misconceptions is about “the fold.” In case you’ve never heard of it, this is the part of your design that is visible before the user scrolls. Everything above the fold will get maximum visibility. However, from the studies I have seen, 60 to 80% of users will scroll immediately if they expect to find something useful below the fold. Whatever is above the fold should inform users about what is below the fold. If user’s don’t know what is down there, they might not be interested enough to find out.

Layout – The Fold

Careful: It is popular right now to use huge background images at the top of the page. If it looks like the site ends at the fold, people might leave instead of scrolling. And if you need to add a graphic that says “scroll down,” your design is weak.

Layout – The Images

Many UX designers treat images as if they are not functional, but images can lead the user’s eyes, so you should think about them. Images of people, specifically, draw more attention than anything else you can use in your layout. As a general guideline, the more emotion an image adds, the more engaging it is. For images of people, try to get the eyes of the person in the image to look in the direction you want the user to look. It’s shocking how much difference it makes.



Layout – The Headlines

Other than pictures of people, our eyes are most attracted to the largest, highest-contrast piece of text in a layout. So when you add a big headline to your design, you have just chosen where people will begin scanning. Therefore, it is important that your headline is aligned with the most important content below it. If that content is not very important, you will draw too much attention to it (and away from other content.) If it is not aligned, users will look for a new focus point after they read the headline.

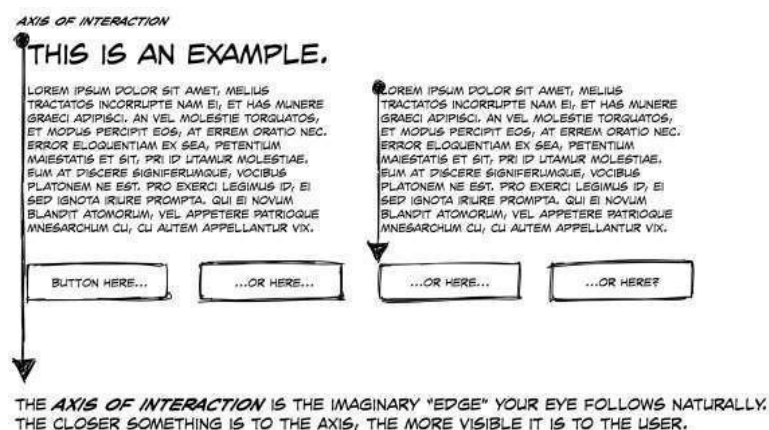
Layout – The Axis of Interaction

One of the most common questions in UX design is “Should the button be on the left or the right?” Well, it depends, actually. It depends on where you have created visual “edges.” This idea is deceptively simple. Human attention is very limited. We can only focus on one thing at a time, like a squirrel, or Duck Dynasty. So while we’re focusing on one chunk of content, the other chunks of content effectively become invisible.

Layout – The Axis of Interaction

Find the Edges

In every design, you will use the visual principles you learned in this course. When you step back and look at your layout, you will notice that you have created “lines” or “edges” or “blocks” everywhere. They might be the aligned edge of the text, or your images, or groups of things in a row. Each of those edges is an Axis of Interaction. Your eyes will follow an Axis until it is interrupted or until it ends. Your user’s attention is almost always focused on an Axis of Interaction, and when they stop focusing there, they will hop to the next Axis of Interaction. Therefore, if you want people to click something, put it on (or near) an Axis of Interaction. If you don’t want them to click it, put it somewhere else. The farther an element is from the Axis, the less people will see it, and if you don’t see something, you can’t click it.



Layout – The Forms

As you work through your designs, it is only a matter of time until you have to design a way for users to give you information. Forms are one of the places you will spend a lot of your time, usability-wise. They cause confusion, mistakes, and loss of engagement, and they are one of the most valuable parts of your site. If they aren’t one of the most valuable parts of your design, why are you using a form? Did I mention that they cause confusion, mistakes, and loss of engagement?

One Long Page or a Few Short Pages?

The most common question with regard to forms—from UX designers and marketers alike—is “How long is too long?” It is a good general rule to keep forms as short as possible, but don’t be afraid to break it into pages if it makes sense, or if you want to save the input in steps just in case the user quits in the middle. The main thing is to make a form feel simple. Keep related questions together; eliminate questions you don’t really need; and use as many pages as you need, no more, no less.

Input Types

The purpose of a form is to get input (i.e., information from the user). And there are a number of ways you can collect it. Whether you use a standard text field or a super-custom slider, you should choose the input type that gives you the highest quality answers. For example, let’s say you want the user to pick their favorite type of goat. Checkboxes and radio buttons are both ways to let the user pick from a list of options. However, checkboxes allow them to choose more than one option, and radio buttons only allow one selection.

Labels and Instructions

When you’re labeling your inputs—how else will the user know what to do with them?—be short, clear, legible, and put the labels close to the input. In the grand scheme of things, that will solve 99% of labeling problems. Sometimes

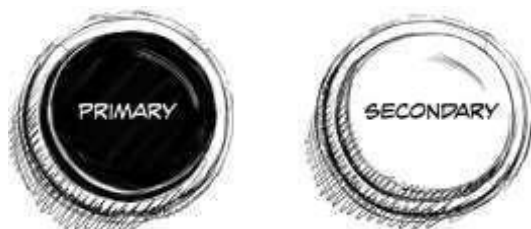
instructions are needed if the question is unconventional or complicated. In that case, it can be helpful to add a little explanation. If it's only a few words, put it near the label and the input. If it's more than a few words, put it on the side of the form instead of within it so it doesn't interrupt the flow of users who know what they're doing.

Preventing and Handling Mistakes: When it comes to forms, mistakes happen. It's your job to prevent as many as possible and handle the rest as gracefully as you can. You can prevent mistakes by adding some intelligence to the inputs. For example, if a text field is for phone numbers, make the form smart enough to handle the structure (000) 000-0000 and 000 000 0000, or 0000000000, or 000.000.0000. (Talk to your developers about this.) Giving users an example of the input you expect can also reduce errors. It can be directly in a text field, for example, or part of your instructions. When users miss a question or make a mistake, you should alert them so they can fix it. If it is a question that you can verify, you can show a check mark or an "X" to indicate whether it is correct or incorrect. This is called inline error handling. Password fields also use the inline method to indicate if the password is weak or strong as you type. Do not use inline error handling if you can't verify the input, like when people type their name (i.e., you never know if a name is "correct.") When the user clicks "next" or "done," you can check the form for missed questions or mistakes. If there is a problem, make it visually obvious which ones they missed and why they are wrong.

Speed versus Mistakes: This is a little advanced, but super useful: Are you asking really common questions like "name" and "email," or more unusual ones like "what's your favorite type of velvet artwork?" For common questions, a form with labels that are left-aligned and above the input will get users through it as fast as possible. It keeps everything on the Axis of Interaction. For uncommon or complex questions, a form with labels to the left of the input (on the same row) will slow users down a little, but result in fewer errors. For most forms, put the "done" button on the left, on the Axis of Interaction. If the form will do something really destructive or critical, put it on the right so people pause to look for it instead of clicking it by reflex.

Primary and Secondary Buttons

Users can click or tap many things in your design. Some of those actions are helpful to your goals, and some aren't. This example shows two button examples. As a general guideline, you will need only two button styles because most user actions fall into one of two categories: 1. Primary Actions that are helpful to our goals. 2. Secondary Actions that are not.



Primary Buttons: Some actions that are available to the user are productive, like registering, buying, submitting content, saving, sending, and sharing, and so on. They produce things that didn't exist before. Those are primary actions, or things that we want the user to do as often as possible. Buttons that execute primary actions—primary buttons—should be as visible as possible. We do that by using the principles we learned earlier in the course. Primary style vs High contrast compared to the background (very different color or shade). Position in layout vs on or near the Axis of Interaction so users notice them first, by reflex.

Secondary Buttons: Some actions that are available to the user are counterproductive, like canceling, skipping, resetting, and declining an offer, and so on. They remove or stop the creation of new things. Those are secondary actions, or things we don't want the user to do, but we provide the option for the sake of usability. Therefore, buttons that execute secondary options—secondary buttons—should be less visible, to prevent accidental or "reflexive" clicks. Secondary style vs Low contrast compared to the background (a similar color or shade). Position in layout vs Away from the Axis of Interaction so users notice them only when they are looking for them.

Importance Is a BIG Exception: Sometimes counterproductive actions are important, like deleting your account. Those actions should get a primary style but secondary position in the layout. The reason is that we want the user to find it, but

we want them to think about their action before doing it. It is also a good idea to give this button a warning color that indicates the importance of the action (red, orange, yellow, etc.).

Special Buttons: In some cases, you will have one type of action that is unique to your site or app, which requires special focus. Design a special button for this so it stands out in your design (pattern breaking). Amazon’s “One-Click Purchase” buttons, Pinterest’s “Pin it” button, and Facebook’s good ol’ thumbs-up “Like” button all got this treatment (more or less).

Adaptive and Responsive Design

UX is not one-size-fits-all, so you will eventually find yourself trying to fit your giant web design onto any number of other, smaller devices. A lot of beginner designers are confused between adaptive and responsive design terminology, but it’s actually pretty simple.

Adaptive Design: Adaptive design is a few different designs; one for each of the device types you think are important. For example, if you have a webshop and you have customers visiting on mobile and desktop web, then you might design a small phone-sized version, and a bigger desktop version. If someone visits on a phone, they see the small one, and if they visit on a bigger screen, they see the big one. Adaptive design takes less time and it’s easier because it is a lot more static than responsive design. Lots of designers will post a version of their design for mobile and a version for web and call it “responsive,” but in reality they often haven’t designed the “in between” states of the design.

Responsive Design: Responsive Design Is One Design That Fits All Screens. Responsive design “stretches” and “adjusts” as you change the size of the window, so no matter what device you’re using or what resolution your screen has, it works perfectly. How does this magical responsiveness occur, you say? Well, it’s all about “break points.” One layout can’t stretch forever and still look good, so you have to decide when to show or hide some features and how far you want something to stretch before it will “break” and change to a layout that will show things better at that size. Then, when a device loads the page, or the window changes size, the site adjusts automatically, providing an orgasmically perfect experience to everybody.

UI Design Patterns

What Is a Design Pattern?: When many designers have the same challenge and someone solves it in an elegant way, and many designers use that solution, it is called a design pattern. A design is not necessarily good just because it’s common. To be a “good” design pattern, a solution must be common and usable.

Some design ideas become popular because they allow lazy UI designers to ignore a challenging feature. It’s like putting a bag over someone’s head because they are ugly. For example: Facebook’s “hamburger” button—which represents the hidden menu in many mobile apps—has started appearing on full-size websites that have plenty of space for a menu. It’s common because hiding the menu is easier than designing a nice one, not because the results are better.

Hamburger Button: In real life, many users don’t notice the hidden “hamburger” menu button at all, and they leave the site or get lost. That’s bad. And lazy. Now, there are hundreds of design patterns, and they are changing all the time as devices and technologies evolve. But if you Google “UI design patterns,” you will find many sites that collect common solutions (whether they are good or not)



Z-Pattern, F-Pattern, Visual Hierarchy: It is easy to imagine every user excitedly reading every letter you write and every pixel you make. Get over it, because real users won't. They scan. "Scanning" means the user only stops to read when something catches their eye. Using a website or an app may feel like a different experience every time, but in fact, the way people look at any design is fairly predictable.

Z Pattern: Let's start with the most boring design I can imagine: an entire newspaper page of solid text. All one story. No headlines. No images. No breaks or pull quotes; just text, in even columns, from corner to corner. In a design like that— which I hope you never create—users will generally scan it in a pattern something like a "Z," starting in the upper left and ending in the lower right. Anything in the layout that isn't near the Z probably won't be noticed.



F Pattern: If we add a bigger headline (visual weight), create one column to follow (line tension), and use smaller sections (repetition), we can get people closer to the famous F-Pattern. Similar layouts = similar scanning pattern. Google results make a great F-Pattern if you track the eye movements of users.

The F-Pattern works like this:

1. Start in the upper-left corner, like the Z-Pattern.
2. Read/scan the first (head)line of the text.
3. Scan down the left side of the column until you find something interesting.
4. Read the interesting thing more carefully.
5. Continue scanning down.
6. By repeating that method over and over, the scanning pattern starts to look like an "E" or an "F," hence the name



Why Is F Pattern Important?

You might notice that some parts of the page get lots of attention “naturally,” whereas other parts of the page are overlooked most of the time. This is what is meant by “strong” and “weak” spots in a layout. A button in the upper left will get more clicks than a button in the upper right, which will get more clicks than a button in the lower left, which will get more clicks than a button in the lower right. Why Is F Pattern Important? And all of those will get more clicks than something randomly stuck in the middle, unless you do something about it. It might also be good to know that each “block” of content and each column can have their own F–Pattern. It doesn’t have to be one–F–Pattern–per–page.

Create a Visual Hierarchy

When you consistently use typography to indicate the importance of text, and certain colors to highlight buttons, and when you give more visual weight to things that matter, it creates a visual hierarchy (i.e., a design that people can scan easily). Our eyes jump from important thing to important thing rather than scanning like a robot. Some designers think visual hierarchy is good because it looks better, but the truth is that it feels better because it is easier to scan.

Interaction Behaviors

Psychology versus Culture

Some parts of human behavior are predictable. Some aren’t. We are all born with the same brain (more or less). The details might vary a bit, but overall, it’s the same machine. We can all feel happy and sad. We all want to be respected. Pinterest.com, for example, is built on the psychological principle of collecting things we like. That is common to all people. Psychology, in this sense, is the same for all of us. Most of what we will learn in this course is about psychology. The stuff we all share. Behavior you can predict and use in your designs. But differences are useful, too. After we’re born, we take those brains on very different journeys. You might be an Eastern, Christian scientist who climbed Everest, or a Western, atheist artist who watches monster truck videos 24/7. For example: all people feel the need for justice, but one person might think death row is appropriate and another person might not. Or, to continue our Pinterest example: “collecting” might be universal, but what we collect is highly personal.

Pinterest does a lot of work to find topics of interest for each user, whether that is interfaces, architecture, or fluffy chickens. Culture, in this sense, is different for each of us. People with similar experiences and personalities will have similar cultures, but on an individual level, culture can be almost anything.

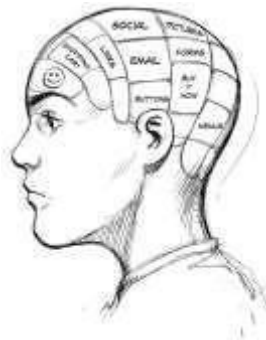
Psychology vs Culture – The Practical Difference: Psychological elements—such as collecting things you like—can become focused over time as you move toward “optimal” functionality. The “perfect” feature. Their purpose is usually more general, but they have the most impact overall. Cultural elements—like your topics of interest—will expand over time as users want to personalize or categorize things more and more. They cannot be optimized, only customized. Their purpose

is more detailed, but there are more of them. Your collection could be endless! Keep these ideas in mind as we build our model of behavior.



What is User Psychology?

Everything that can happen in a user's mind is important when they use your design. And a few things before that. And a few after. UX Design can affect that brain in lots of predictable ways. And that's what you're gonna learn: your brain, on design. All practical, all the time. User psychology is a combination of neuroscience, cognitive psychology, social psychology, and human-computer interaction that approaches UX design through the lens of human behavior.



Why do we need User Psychology?

The answer: you can't be a great UX designer without psychology. UX Design is the practice of creating nonrandom effects in people to solve a problem. In other words, you make them feel, think, and do stuff—on purpose. Therefore, the more you understand your users' feelings, thoughts, and actions, the better designer you are. Understanding psychology allows you to answer things like why people share. The answers might not be what you think! Your intuition lies to you all the time. And sometimes the same design looks different to different people. You'll learn about that, too. And some things that seem super personal are actually universal human behavior.

What is a User Experience?

- What the user feels?
- What the user wants?
- What the user thinks?
- What the user believes?
- What the user remembers?
- What the user doesn't realize?

What the user feels? In UX forums, this is what inexperienced designers talk about most. Making the user "happy." Asking them what they "like." Making users say "wow!" Users have feelings, and they are useful, but they are only a small fraction

of an experience. The good things about feelings are that we can see them on a user's face, users can tell us about them, we can measure them, and we can relate to them, so feelings are easy to study.

What the user wants? Much more important, but not as easy for the user to describe. A user's motivations are the engine of their behavior. Everything they do, click, choose, buy, and even what they see and hear depends on what they want. "When you're a hammer, everything looks like a nail." And if you change the way they see the situation, sometimes they will want something different.

What the user thinks? It is helpful to imagine "thinking" as something the user carries, like bricks. Psychologists might call it cognitive load. Every time you make a user figure something out, or read more than a sentence of instructions, or learn a new feature, or hunt for the right link, or do two things at once, you're giving them another brick to carry. Most people can only carry a few bricks at a time. If you give them too many, they will drop everything.

What the user believes? Beliefs are tricky. The reasons people believe things are fairly predictable though. That's why you learned about psychology versus culture before this lesson. More important, your intuition has predictable flaws that most people don't know about. If you know about them—and you will—it allows you to predict what people will believe, before they believe it.

What the user remembers? Ironically, almost all designers forget about this one. Humans do not remember things like a video. Memories make mistakes. We only remember certain parts, we change those memories over time, and sometimes we remember things that never even happened! Your design can determine which parts someone remembers, and which are forgotten.

What the user doesn't realize? Yes. This separates good UX designers from other random people making wireframes. Most of our daily experience doesn't catch our attention. You have been breathing this whole time, but now you're aware of it. There's a low, constant noise all around you, but you weren't hearing it until right now

Conscious vs Subconscious Experience

In real life, your mind only puts attention on a small amount of the world around you. Otherwise you would be overwhelmed.



Conscious Experience: You might hear UXers discussing something called "delight." Basically it is the art of designing something that makes a user say "wow!" One thing must be true to create delight: the user must be aware of it, consciously. Daniel Kahneman, a Noble Prize-winning psychologist, says our conscious mind is like "a supporting character who believes herself to be the lead actor and often has little idea of what's going on." Your conscious experience may feel like the whole experience, but it is actually just a small part. However, it's still significant. It is what makes people share, like, comment, download, and register. YouTube videos often explicitly tell you to subscribe at the end, because you may not consciously think of doing it otherwise.

Subconscious Experience: Subconscious experience seems like it "just is." It's how we decide what we trust, what we believe, and what is easy. But there is never a moment when you "decided" to trust a website or an app. It just happened.

And a user will only notice that your form design is easy if they expected it to be harder. Otherwise they might not even mention it. Things are supposed to be easy. That is subconscious design. If you want users to trust or understand, your design must feel trustworthy or obvious. If it doesn't, you can add as much delight as you want and it ain't gonna fix nothin'. Usability, for example, is the science of making your designs mentally invisible. You can see them, of course, but the more aware the user is of your form design, the worse the experience. It should feel automatic. The more clever you get with your form design, or your copywriting, the less people will finish the form.

Emotions

We have arrived at one of the core parts of psychology. The part that makes your pupils big or small, tears flow down your face, smiles happen, and more. Emotions are super important in UX design. There are two categories of emotions: gain and loss. Emotions are reactions, not goals. Time makes emotions more complicated. Emotions come in two flavors: good and bad; positive and negative; happy and unhappy. I call them gain and loss. Gains give you positive feelings. You might feel refreshed after a good night's sleep, or ecstatic after winning the lottery, or euphoric when your companion is a little more thorough than usual. For now, just put them all in the same "happy" category. Losses give you negative feelings. You feel grumpy when you haven't slept, or devastated after a breakup, or embarrassed when you go blank on the podium. Emotions Are Reactions, Not Goals

There are two types of feelings: emotions and motivations. Motivations are what we want (goals), and emotions are how we feel when we gain or lose what we want (feedback). You can give the user a score, or an email, or a badge, or levels, or Likes, or followers, or any other method of feedback so they feel useful emotions about their gains and losses. Your emotions, or your "mood," change all the time. Within reason, that's normal. If it's extreme, you should probably see somebody about getting on reality television. But it's not all about here-and-now. You think in time. You remember the past and expect the future. When you see a box wrapped in colorful paper, you think: gift! When someone says "we need to talk" you think: crap. A more interesting emotion, in my opinion, is anger. If you want/expect something, but you can't get it, you will become aggressive toward whatever is stopping you. This is how emotions interact with time. When someone says "we need to talk" your first reaction is probably fear. You want to keep your job or your relationship, or whatever you think they are going to destroy. But when they actually do try to destroy it, you might get aggressive. Now they are stopping you from having it. When they succeed, you're sad, (loss). If they change their mind, you're happy, (gain).

Motivations: Emotions are reactions based on whether someone gains or loses their goals. But what goals? Motivations. Motivations are built-in psychological needs. Some are physical—you need them to survive—and some exist only in your mind. All are important. Motivations can fall anywhere between conscious experience and subconscious experience. You can gain or lose each motivation, and you are motivated to do both. That will become very useful in UX, when you learn about conditioning. Motivations are relative. That means it's not about how much you get, it's about how much more you get compared to what you have or what other people have.

Universal Motivations

- Avoid Death
- Avoid Pain
- Air/Water/Food
- Homeostasis (Internal balance of your body)
- Sleep
- Love
- Protection of Children
- Status
- Justice
- Understanding (Curiosity)

Branding

Branding in general is the set of marketing and psychological techniques and steps aiming at promotion of a product, service, persona etc. first of all via setting a brand. Branding is a sort of image building for an organization via a set of distinguishing features and promoting awareness and recognizability of the product or service on the market.

Branding can be realized via the set of visual elements, the most widely used of which are:

- Logo
- Brand Colors
- Typography: lettering as a part of the logo or full representation of the logo (wordmark); types and fonts used via digital as well as physical products representing the brand; Graphic elements such as, for example, illustrations, design of letterheads, business cards and other print assets;
- Templates for corporate presentations etc.

Branding is essential in user interface, especially in case when you want to use the interface as the additional flow of user attraction as well as the way to increase brand awareness. Branding includes a set of visual elements such as shape, dimensions, color or sound are all the contributing factors that make products memorable. People perceive visuals much faster than listening or even reading. According to UX, UI should reflect brand values and qualities through every illustration and interaction.

Typography: Content is a significant ingredient of a website. The product's credibility does depend on its' content but also on how you visually represent it. Fonts have personalities of their own; some appeal to your brand some don't such as the san serif font; old but approachable and can flatter you.

Color Palette: Colors impact people's emotions such as Red is for love and passion, orange is energetic and happy, yellow specifies deceit, blue is for trust, etc., and therefore, careful consideration is necessary when choosing a color scheme. Some biggest giants like Dell, Facebook, HP, and Intel are using blue in their logos to create a brand identity. Your web app UI design should also consider 'designing for accessibility', to cater to those who are color blind and hence, support readability.

Micro-Interactions: They are small animations but significant. These tiny interactions guide and keep the users engaged and hold the power to enhance the user experience and brand identity. Invision and Stripe have exciting animations that leave a striking impression due to their eye-catching properties. Additionally, they can entice users and draw their attention to exactly where you want them to be. But they should be subtle and not overbearing.

Visuals: Images grab the user's attention immediately. Instead of using random images, choose images that tell a significant story. Stock images are easy to use but they don't usually convey the meaning, therefore, custom brand imagery in your web app UI design delivers a fine narrative consistent with the brand image.

Efficient UI Design without Branding

Is it possible to create the efficient UI design without particular branding elements designed beforehand? The answer is certainly positive. Yes, it's possible and there are lots of examples. However, in this case UI will not work on brand recognizability as effectively as if with branding elements included. These two different powers of attracting and engaging customers will somehow work separately, not supporting each other. However, if UI is really amazing and product is useful, in case it gets popular there can be a reverse process: UI itself becomes the strong element of branding due to its popularity and determines all the further solutions on branding design. For example, it happens that customers cannot afford design of branding and UI design for a product simultaneously, for example, when it is a startup with a limited budgeting. There are also cases when general branding elements such as logo, corporate colors, fonts and the like are totally different from stylistic concept of UI for the product. It sometimes is done purposefully in case when marketing strategy for some reason presupposes that there shouldn't be visual connection of brand image with the product and an application or a website should not be strongly associated with the brand in general. However, in cases when this kind of difference is not the part of well-thought-out strategy but just a lapse in general design and marketing process, it can have.

Style Guide

User interface style guides are design guidelines or standards and a development tool for designing UI elements and interactions for various websites or app products. These documents usually contain the essential details relating to your product's user interface to ensure consistency across different screen sizes, design teams, companies, and brands. A UI style guide outlines design elements, such as typography, colors, layout, buttons, fonts, other components, etc., approved for use in the brand guideline. These guidelines are essential for design and product teams to keep the UI style guides consistent.

Why do you need UI style guides?

For many reasons, developing a UI style guide is crucial when designing your digital product. If you are creating your digital product for the first time without any prior design, a style guide will help you streamline your design process and help you stay organized and in line with your brand design guidelines. Since your UI design is part of your brand design, it is good for you to have a consistent design, so it impacts your brand visibility. A UI style guide helps you to save time when making design decisions and prevent back and forth. Importantly, these guidelines also ensure that all your designers (new or old) understand what to include and avoid when designing your product UI.

A style guide drives your business success by creating positive user experiences (for example, if you have an e-commerce site, consistent branding on your site interface will make it easy for your customers and potential customers to navigate the site easily, find what they want, and complete payment). Finally, a style guide is helpful when growing a design team from scratch. In addition, they come in handy when onboarding new designers to the groups, providing them with all the essential information they need to quickly adopt the look and feel of the product features, colors, and brand guidelines to the UI design.

Difference between UI Style Guides and Design systems

UI style guides are set rules with a complete list of user interface design's do's and don'ts. Unfortunately, it is often easily confused with the term "design system," different design guidelines, designers use. If you don't know what design system means, here's a definition. A design system is a complete list of design principles, standards, and documentation that guides designers and developers to design consistent products and increase sales. It is an all-encompassing design document that contains design style guides, design patterns, technical specifications, and component libraries to improve product and brand consistency. A style guide is an element of a design system that lists out rules regarding the brand and visual style of products. The critical difference between a UI style guide and a design system is that the former focuses on the product's overall aesthetics. At the same time, the latter specifies how different design components within the design aesthetics look and function.

Benefits of UI Style Guides for Users and Design Teams

A UI style guide benefits the UI users and not just the design team. First, it makes it easier for users to understand the digital product. Second, it builds coherent experiences that help users feel comfortable using your product. Third, adding intuitive features can help users interact with your digital products without reading instructions. Consistent branding increases brand recognition and helps users recognize another website or application developed by your company. It enhances brand loyalty. Creating your own UI style guide provides clear instructions or guidelines for designers to follow when designing the product's UI features. It helps to save the time designers will spend seeking guidance from product supervisors or leaders. It offers developers and designers easy access to a library of approved assets and elements that should be included in the products. It encourages and improves collaboration between designers and developers since they are all on the same page regarding design requirements. It reduces the stress and burnout that comes with creating suitable designs.

What should be included in a Style Guide?

- Typography
- Colors

- Iconography
- Layouts and Grids
- Components

Typography: The typography section of your UI style guide contains guidelines on the fonts to include in your designs. It should have the following: The specific font to use in all your product UI designs. A list of font sizes and weights to show visual hierarchy. Additional guidelines on the fonts as well as colors and links fonts to include in the design. It also states the font's compatibility on different browsers and screen sizes to ensure that it appears the same to all users.

Colors: Colors are an essential part of the visual brand, and UI design that sets the mood for brand expression improves brand recognition and enhances solid emotional connections with customers. However, your choice of colors can make or mar your user engagement success. Since cohesive color schemes are significant for ensuring consistency, communicating with users, and making the user interface attractive and engaging, your UI style guide must outline the accepted color palette and scheme used in the guide.

Iconography: Icons represent objects, symbols, or concepts with specific meanings universally recognized in a creative design. Icons are essential elements of UI that can be used to provide a simple and easy way to improve the accessibility of a product user interface. Usually, for UI designs, icons are paired with typography to explain or guide users on what the different icons used on the site mean and where they will lead them. In other situations, icons can organize similar functions like navigation, controls, tools, data, and many more.

Layouts and Grids: Layouts and grids are essential UI design elements that indicate where and how different visual aspects of digital products are placed. So, the UI style guide must contain complete information and standards for acceptable layouts and grids to ensure consistency of the design project and help users move from page/screen to page/screen. Also, considering the different guidelines available on different screens, devices, and search engines, including clear instructions on the different layouts and grids, can help your digital product appear the same across different screen sizes.

Components: The last on our list is the components you choose for UI designs and how they will all be displayed to enhance user experience and avoid confusion across your products. An excellent way to have consistent components in your UI design is to create design systems alongside your UI style guides to understand better how every design component would look. Although we have already listed some of the components above, it is equally important to include all the elements that would make UI design simple, accessible, and functional.

Examples of Style Guides

Pockie eCommerce Design System

Smart Home System



Mobile look design



FOUNDATIONS OF UX DESIGN

Introduction to User Experience - Why You Should Care about User Experience - Understanding User Experience - Defining the UX Design Process and its Methodology - Research in User Experience Design-Tools and Method used for Research-User Needs and its Goals - Know about Business Goals

INTRODUCTION TO USER EXPERIENCE (UX)

User Experience (UX) is a crucial aspect of design and technology that focuses on enhancing the overall satisfaction and usability of a product or service. In short, UX encompasses a wide range of factors, including:

Usability: UX ensures that a product or service is easy to use and navigate, making it accessible to a broad audience.

User-Centered Design: It involves designing products or services with the needs, preferences, and behaviors of users in mind. This approach often includes user research and testing.

Information Architecture: Organizing information and content in a logical and user-friendly manner to facilitate easy navigation.

Visual Design: Creating visually appealing and coherent interfaces that align with the brand and resonate with users.

Interaction Design: Focusing on how users interact with a product, including the design of buttons, forms, and other interactive elements.

Accessibility: Ensuring that the product can be used by people with disabilities, making it inclusive and compliant with accessibility standards.

Performance: Optimizing the speed and responsiveness of a product to prevent frustration and delays.

Emotional Design: Recognizing that users form emotional connections with products, and designing experiences that evoke positive emotions.

User Feedback and Testing: Continuously gathering feedback from users and conducting usability testing to identify and address issues.

WHYYOUSHOULDCAREABOUTUSEREXPERIENCE

Here are some key reasons why you should care about user experience:

Enhances Product Quality: Emphasizing UX in design and development leads to products and services that are of higher quality. A positive UX can make the difference between a successful and unsuccessful product.

Meets User Expectations: In the digital age, users have high expectations for usability and functionality. Teaching UX helps students design products that meet or exceed these expectations.

Boosts User Satisfaction: Products and services that prioritize UX are more likely to satisfy users, leading to increased customer loyalty and positive word-of-mouth recommendations.

Reduces Costs: Identifying and fixing usability issues early in the design process is more cost-effective than addressing them after a product is launched. UX can save time and resources in the long run.

Drives Innovation: UX encourages innovative thinking by challenging students to find creative solutions to user problems and needs.

Increases Accessibility: Teaching UX includes considerations for accessibility, making technology more inclusive for people with disabilities, which is not only ethical but also often legally required.

Fosters Empathy: UX design requires students to understand and empathize with users, teaching them valuable soft skills such as empathy, communication, and teamwork.

Supports Business Goals: Good UX can lead to increased sales, conversions, and user engagement, which align with the goals of many businesses and organizations.

Adapts to Evolving Technology: UX principles are adaptable to various technologies and platforms, ensuring that students can apply their knowledge to a wide range of projects.

Prepares for Industry Demand: Many tech companies and startups actively seek professionals with UX expertise. Teaching UX prepares your students for in-demand careers.

Ethical Considerations: UX design also includes ethical considerations, such as data privacy and user consent. Teaching these principles ensures responsible use of technology.

Global Reach: In an interconnected world, technology often serves a global audience. UX design helps students create products that resonate with diverse user groups.

UX Design Process and Its Methodologies

UX Design process is a method which helps a

process of solving User Problem. It is an iterative UX Design to continuously improve and polish

designs based on User Feedback.



6 Steps of UX Design Process

Step 1 : Understand

UX design is the process of solving a problem for user so that they can achieve their goals easily. In order to do this, the first step is to **understand the problem** you would solve and **the objectives of the organization** as well.

There can be multiple ways to do this

- If you are working for an agency then ask your clients
- Working for an organization then ask the stakeholders
- Ask for previous research conducted which can include market research, User research, competitor analysis, etc.)

- Speak to the Product Managers as well
- Analyze requirements to understand and clarify them

Getting understanding about two elements is crucial

1. User
2. Brand

Understanding these Key elements would help you create a Design Strategy that would **align the goals and objectives of User and business**. And forms a base for your next step where you would conduct user research to dig deep into the User Problem.

Outcome:-

By the end of Step 1, you would get a good understanding of the Design Strategy and objectives of the Organization. This would guide you on how to carry on User Research.

Step 2 : Research

User Experience (UX) research—serves many purposes throughout the design process. It not just helps us to get a clear picture of about users, but also answers key questions like **what users think and why they do what they do**.

And in order to do so you need to ‘walk their shoes’. You need to learn about the Target Audience. Hence, it is extremely essential that user experience research and Design teams conduct user research regularly.

Additionally, It also helps us identify and prove or disprove our assumptions. In Bigger organization, research is conducted by a UX Researcher. However in smaller organizations/startups, a UX Designer has to wear multiple hats to perform multiple jobs.

Primarily, there are two UX Research methods

Qualitative Research: Exploratory form of the research where the researcher collects verbal, behavioral or observational data which is interpreted to get insights. Most common methods are

1. Focus Groups

Focus Group brings together 6-9 Participant users. The Goal of the Test is to discover what users want from the Product.

Furthermore, conducting Focus Groups allows you to learn about their attitude, opinion and reactions to concepts that you are testing with Users.

2. Contextual Interview

A contextual interview involves one-on-one interaction between user and researcher. And the interaction involves the researcher to watch and observe the user work in their environment; and then discuss those activities with them.

3. User Interview

User interview is one of the most common User research methods. In fact, it provides you the rich information and insights of what your target users think about your new product, site or service.

A User Interview is typically conducted by 2 UX researchers, one to conduct the interview and other to record the interview and take notes.

4. Ethnography Study

Ethnography is a kind of social research. It is type of qualitative research which provides a detailed and in depth description of everyday life and practice taking a wider picture of culture.

Quantitative Research: Structured way of collecting and analyzing data in numeric form. Analysis, interpretation and presentation of numerical data is done by using Statistical techniques .

Survey

Surveys consists of a set of questions to gather wide information on a wide range of topics. It is one of the most common types of quantitative research methods. Survey is an easy way of collecting quantitative data from a large number of users within lesser amount of time.

The questionnaire, or survey is completed by the person being surveyed which may be

- an online questionnaire
- a face-to-face interview
- or a telephone interview.

Outcome:-

By the end of Step 2, you would get a lot of User insights. This information needs to be then analysed in order to make a sense out of it and learn about key User issues.

Step 3 : Analyze

After you have conducted your Research, you would have a plethora of insights which can be quantitative or qualitative. In the next step, you have to analyse the information gathered and make connections around it so that you draw some conclusions.

Framing the right problem is the only way to create the right solution. Moreover, Only after you have detailed information of the wants, needs, and pain-points, you can synthesize the information into an actionable problem statement.

“If I had an hour to solve a problem, I’d spend 55 minutes thinking about the problem and 5 minutes thinking about solutions.”– Albert Einstein

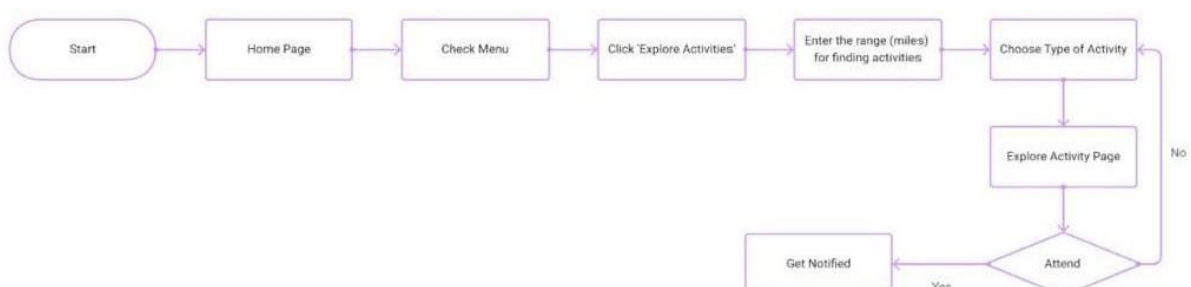
There are multiple UX Techniques that you can use to Analyze the information

1. Creating User Personas

User Persona is **a fictional yet realistic representation of Target user of the product**. Creating User Personas helps you to identify what the user requirements by understanding their needs, experiences, behaviors and goals.

2. Affinity Mapping

Affinity Mapping is about finding the user needs from the observations gathered. The goal is to synthesize information gathered into common themes and patterns to discover interesting findings which will help in defining user focused Problem and creating design solution.



5. User Journey Map

User Journey map talks about the complete path a user takes while interacting with your company which starts from the awareness stage when they realize they have a need, through all the points of interaction with your brand, and the moment they are satisfied (or not).

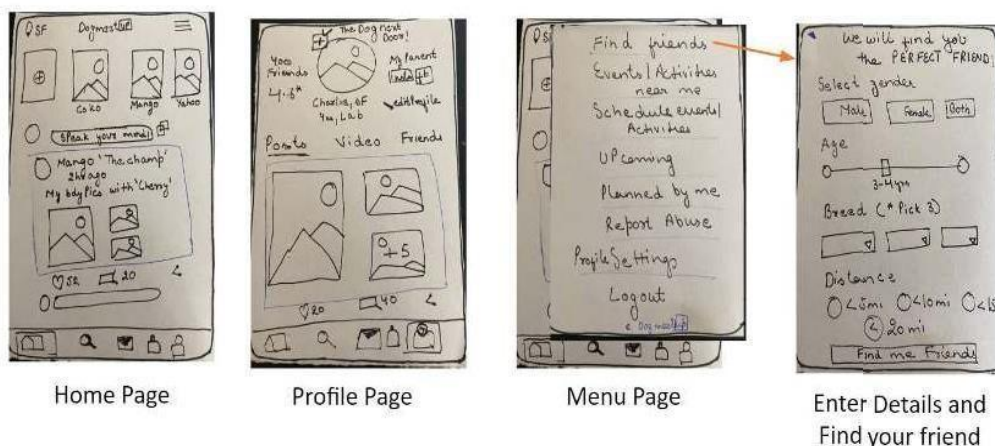
Outcome:-

By the end of Step 3, you would get a clear understanding of User Issues that would help you to define your Problem Statement. All of this would help you to brainstorm and come up with solutions to solve the User Problem

Step 4: Sketch Designs

Now, it's time to actually define how the content on each page should be organized. Furthermore, you have to define how these screens would work together in a way that for a user finds that they find the design easy to navigate.

Easiest way to do this is by creating Paper Sketches. In fact, creating paper sketches and Prototyping on paper is a quick and cost-effective way to test ideas



It is very common for designers to move ahead and create Actual UI Screens, however it is the best practice to stick to the lo-fi first. See, you must spend time

on exploring the design
lets you do just that.

Draw different sketches

Creating a Digital App

and not creating the designs. And PaperP
rototypes

S

or showing multiple steps to
each physical product-
of the user interface on different
pieces of paper and

simulate interactivity by linking and moving series of paper on table. This is quick and easy, best in the early stages of Product Development.

Make sure you review the design with team members and then move ahead to design it.

Tools Used–Pen and Paper

Outcome:-

By the end of Step 4, you would have a Paper representation of your solutions, validated by your Team members and stakeholders. The solution would be then designed in the next step.

Step 5: Wireframes and Prototype

A wireframe is a static representation or blueprint of the initial product concept however, prototype is a working model of an app or a webpage. Wireframes and prototypes can be low/medium as well as high fidelity.

Wireframing is the stage where you take a concept or design and shape it into something tangible so that you can thoroughly review your work with users and stakeholders and ensure it makes sense.

Creating Wireframes gives Designers the flexibility to play around and do a lot of Experimentation . Prototyping helps to review and refine it with the help of User Feedback to turn it into a Polished version that can be Developed to an End Product.

This is often when UI designer comes into the picture to design the high fidelity mockups of the product. It is important to mention here that though UX and UI design needs different skill sets, however Sometimes UX and UI are done by the same person.

Tools Used- There are a lot of tools in the market. some are free and for some you have to pay. Check out this article where you would find 8 important UI tools that you can use to create Designs.

Outcome:-

By the end of Step 5, you would get Mockups of your solution to be tested with Target Users .

Step6: Test Design and Iterate

The next step is to go out and test the Design with end users to gather feedback on it. This feedback will form the basis for further iterations and refinement. You must learn about how they feel and think about it. Learn how they interact with the prototype. Pay attention on the User interactions.

So, if you get a constructive feedback and iterate it. Constructive feedback will help you to move faster in the Design Process. It will save time, effort and money by catching bugs/errors that no one has anticipated.



You'll get to learn if your solution has been validated or if it has to be improved. It might be possible that end user will invalidate the solution and you will have to redefine the problem by empathizing with user. And repeat the entire process again.

Some of the ways of conducting User Test are

1. Usability Testing

Usability testing evaluates the degree to which a product can be used by specified users with

effectiveness, efficiency and satisfaction in a specified context of use - ISO 9241 Ergonomics of human-system interaction

It is a great method which allows you to improve the usability of the product. **Usability** refers to the ease with which a user can

use a product to achieve his/her goal and how useful the product is. A product which is high on usability makes it easy for users to accomplish his/her

2. Concept testing

When you have a big idea, it becomes important to check and evaluate whether or not it would be accepted by people when launched in the market. Concept testing is done to **evaluate consumer acceptance** for a new product idea. ^m

Concept testing helps to **validate as well as refine a product concept** by getting feedback directly from target market.

3. First Click Testing

First-click testing is the best way to improve your App/website designs. It allows you to analyze where the User clicks on the screen when the website or app is shown to them.

4. Tree Testing

Tree testing is a **usability technique** for evaluating the ease with which information can be found in a website. However, unlike Usability testing, Tree Testing is done on the simple version of site structure.

5. Beta Testing

In Beta testing, you test a near-complete product/software/application with end users (called **Beta Testers**). Before Launching the product in the market, enough tests need to be carried out to test the functionalities and reporting bugs.

Outcome:-

By the end of Step 6, you would get a lot of User Inputs whether the solution solved user problem and uncover Usability Issues. All of this information would be then used to iterate the solution further.

RESEARCH IN USER EXPERIENCE DESIGN–

TOOLS AND METHODS

User Experience (UX) research—serves many purposes throughout the design process. It not just helps us to get a clear picture of about users, but also answers key questions like **what users think and why they do what they do**.

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User Experience (UX) Design: User Needs and Goals

User Needs:

Understanding Users: UX design begins with a deep understanding of the target users. Designers must gather information about users' demographics, behaviors, and preferences to identify their needs accurately.

User Research: Conduct user research through surveys, interviews, and usability testing to uncover specific pain points, challenges, and desires that users have when interacting with a product or service.

Empathy: Developing empathy for users is essential. Designers should put themselves in the users' shoes to grasp their perspectives and emotions, allowing for more user-centric design.

Task Analysis: Analyze the tasks users need to accomplish using the product or service. Identify bottlenecks, inefficiencies, or areas where users may struggle.

User Personas: Create user personas – fictional representations of different user types – to encapsulate various user needs, behaviors, and goals. These personas guide design decisions.

User Goals:

Defining Goals: Clearly define the goals users aim to achieve when interacting with a product or service. These goals can vary from informational (learning something) to transactional (making a purchase).

Primary and Secondary Goals: Identify primary goals that are essential for users and secondary goals that enhance the user experience but are not as critical.

Alignment with Business Goals: Ensure that user goals align with the business goals of the product or service. A successful UX design balances both sets of objectives.

Task Flows: Design task flows that guide users toward achieving their goals efficiently. Remove unnecessary steps and obstacles in the user journey.

Measuring Success: Establish key performance indicators (KPIs) to measure the success of user goals. Common metrics include conversion rates, completion times, and user satisfaction scores.

Feedback Loops: Implement feedback mechanisms to allow users to express their satisfaction or dissatisfaction with goal achievement. Feedback helps refine the user experience.

Iterative Design: UX designers iterate on their designs to better align with user goals. User feedback and usability testing play a vital role in refining the design over time.

Accessibility: Ensure that the design caters to users with various abilities and disabilities, allowing them to achieve their goals effectively. This inclusivity is a critical aspect of UX.

User-Centered Design: Throughout the design process, prioritize user goals over aesthetic or technical considerations. User-centered design ensures that the final product meets user needs.

Adaptability: Recognize that user goals can change over time or in different contexts. Design with flexibility to accommodate evolving user needs and goals.

Communication: Clearly communicate how users can achieve their goals within the interface. Use intuitive navigation, labels, and visual cues to guide them.

In UX design, the synergy between understanding user needs and aligning them with user goals is essential for creating products and services that are not only functional but also satisfying and enjoyable for the end-users. Designers should continuously strive to meet user needs while achieving both user and business goals.

UX DESIGN: UNDERSTANDING BUSINESS GOALS

Business Objectives:

UX designers must have a clear understanding of the overarching objectives of the business or organization. This involves knowing what the company aims to achieve, such as increased revenue, market expansion, or customer retention.

Alignment with User Goals:

While keeping business goals in mind, it's essential to align them with the needs and goals of the users. Successful UX design finds a balance that ensures a positive user experience while advancing business objectives.

Target Audience:

Identifying the target audience is crucial. UX designers should know who the primary customers or users are and tailor the design to meet their specific needs and preferences.

Value Proposition:

Understand the unique value proposition of the product or service. What sets it apart from competitors? Ensure that the UX design highlights and reinforces this value.

KeyPerformanceIndicators(KPIs):

Define the KPIs that will measure the success of the project. These might include conversion rates, user engagement metrics, or customer satisfaction scores.

CustomerJourney:

Map out the customer journey to visualize how users interact with the product or service at different touchpoints. Identify areas where the user experience can impact business outcomes.

ROIConsiderations:

UX design decisions should take into account the potential return on investment (ROI). Assess how design changes may impact revenue, cost savings, or other financial metrics.

MarketResearch:

Stay informed about market trends, competitive landscape, and user preferences. This knowledge helps in making design choices that align with the current market.

ProductRoadmap:

Understand the product or service roadmap, including upcoming features or enhancements. UX design should align with the long-term vision for the product.

BrandIdentity:

Ensure that the UX design aligns with the brand identity and messaging of the company. Consistency in branding helps build trust and recognition among users.

Usabilityand Efficiency:

While achieving business goals is essential, the UX design should also prioritize usability and efficiency. Users are more likely to engage with a product that is easy to use and efficient.

IterativeImprovement:

Recognize that UX design is an ongoing process. Continuously collect user feedback and use it to refine the design to better meet both user and business goals.

CommunicationandCollaboration:

Effective communication and collaboration with stakeholders, including marketing, product management, and development teams, are vital to ensure that UX design aligns with business goals.

RiskAssessment:

Evaluate potential risks and challenges that may arise in achieving business objectives through UX design. Develop strategies to mitigate these risks.

Adaptability:

Be prepared to adapt the UX design strategy if business goals or market conditions change. Flexibility is essential in dynamic business environments.

EthicalConsiderations:

Ensure that the UX design aligns with ethical principles and values. Avoid practices that could harm users or damage the reputation of the business.

Understanding and aligning with business goals is a fundamental aspect of UX design. By integrating user needs and business objectives, UX designers can create experiences that not only delight users but also contribute to the success and growth of the organization.

UNIT IV WIREFRAMING, PROTOTYPING AND TESTING

Sketching Principles - Sketching Red Routes - Responsive Design – Wireframing
- Creating Wireflows - Building a Prototype - Building High-Fidelity Mockups -
Designing Efficiently with Tools - Interaction Patterns - Conducting Usability Tests
- Other Evaluative User Research Methods - Synthesizing Test Findings -
Prototype Iteration

SKETCHING PRINCIPLES

Sketching is a fundamental skill in various fields, including art, design, architecture, engineering, and more. Here are some essential principles to keep in mind when sketching:

Observation:

Carefully observe the subject you're sketching, whether it's an object, a person, or a scene. Pay attention to details, proportions, and relationships between elements.

Simplify Complexity:

Begin by simplifying complex subjects into basic shapes and forms. This simplification makes it easier to capture the essence of the subject.

Line Quality:

Vary your line weight and style to convey depth, texture, and dimension. Light lines can represent highlights, while heavier lines can indicate shadows or bold outlines.

Proportion and Scale:

Ensure that the proportions and scale of your sketch accurately represent the subject. Use basic measuring techniques like comparative measurement to maintain accuracy.

Negative Space:

Pay attention to the spaces between objects or within the subject. Sketching the negative space can help define the positive shapes more accurately.

Composition:

Consider the arrangement of elements within your sketch. Use principles like the rule of thirds or golden ratio to create balanced and visually pleasing compositions.

Perspective:

Understand perspective principles to give your sketches depth and three-dimensionality. Use techniques like one-point, two-point, or three-point perspective to create realistic spatial relationships.

Contrast and Values:

Use contrast in line weight, shading, and values to create depth and emphasize focal points. Darker areas can recede, while lighter areas can come forward.

Texture:

Depict texture through variations in line quality and shading. Different textures, such as rough, smooth, or reflective, can add realism to your sketches.

Consistency:

Maintain a consistent style and approach throughout your sketch. This helps create a cohesive and unified visual language.

Experimentation:

Don't be afraid to experiment with different sketching techniques, materials, and styles. Exploring new approaches can lead to creative breakthroughs.

Practice:

Regular practice is essential to improve your sketching skills. Set aside time to sketch regularly, even if it's just for a few minutes each day.

Gesture and Flow:

Capture the essence and movement of your subject with gestural lines. Allow your hand to flow naturally as you sketch, emphasizing motion and energy.

Erase Strategically:

Don't hesitate to erase and refine your sketch as needed. Erasing can help correct mistakes and refine details.

Feedback and Learning:

Seek feedback from peers, mentors, or teachers to gain insights and improve your sketching skills. Take advantage of tutorials, books, and online resources to continue learning.

Creativity and Expression:

Sketching is not just about technical accuracy; it's also a means of expressing your creativity and personal style. Don't be afraid to infuse your sketches with your unique artistic voice.

Remember that sketching is a skill that improves with practice and patience. Whether you're sketching for art, design, or any other purpose, these principles will help you develop your abilities and create compelling sketches.

SKETCH RED ROUTES

"Sketching red routes" typically refers to the process of visually identifying and mapping out the most critical or high-priority user journeys or tasks within a user interface or user experience design. Red routes are essential because they represent the core functionalities or interactions that users need to accomplish their goals. Here's how you can sketch red routes:

Identify Key User Tasks:

Begin by identifying the key tasks or user journeys that are central to your design or application. These tasks should align with your project's objectives and user needs.

Prioritize Red Routes:

Determine which of these tasks are the most critical or "red routes." These are the actions that, if poorly designed or implemented, can have a significant negative impact on the user experience or the success of the project.

Sketching Workflows:

For each red route, start by sketching the user's workflow or journey. This involves visually mapping out the series of steps and interactions that the user will follow to complete the task.

Storyboarding:

Create a series of simple sketches or storyboards that illustrate each step in the workflow. Use arrows or lines to indicate the flow of the user's actions.

Annotations:

Add annotations or notes to your sketches to describe what's happening at each step. Explain the user's actions, system responses, and any decision points or interactions.

User Interface Elements:

Include basic user interface elements in your sketches, such as buttons, forms, menus, and screens. Focus on the essential elements necessary to complete the task.

Visual Hierarchy:

Consider the visual hierarchy and layout of your sketches. Use visual cues like size, position, and emphasis to highlight critical elements or actions.

Feedback and Error Handling:

Depict how the system provides feedback to the user at different stages of the red route. Show how errors or issues are handled and communicated.

Usability Testing:

If possible, use your sketches to conduct usability testing with real users. This can help identify potential usability issues and refine the red routes.

Iterate and Refine:

Based on feedback and insights from sketching the red routes, iterate and refine your designs. Make adjustments to improve the clarity and efficiency of the user journeys.

Documentation:

Document the red routes, including sketches, annotations, and any usability findings. This documentation can be valuable for the design and development teams.

Communication:

Share your red route sketches and findings with project stakeholders, including designers, developers, and product managers. This helps ensure that everyone understands the critical user journeys and their importance.

Sketching red routes is a valuable design practice for ensuring that the most vital user interactions in your project receive the attention and design focus they deserve. It helps prioritize user experience efforts and contributes to the overall success of the design.

RESPONSIVE DESIGN

Definition:

Responsive Design is an approach to web design that makes web pages render well on various devices and window or screen sizes. It ensures that websites adapt and respond fluidly to different user contexts, such as desktops, laptops, tablets, and smartphones, providing an optimal viewing and interaction experience.

Key Principles of Responsive Design:**1. Fluid Grid Layout:**

Percentage-Based Widths: Instead of fixed pixel widths, elements are defined in percentages, allowing them to scale based on the screen size.

Flexible Grids: Grid layouts are designed to be fluid, adjusting seamlessly to different screen dimensions.

2. Flexible Images:

CSS Media Queries: Images can be made responsive using CSS media queries, ensuring they resize and adapt based on the screen width.

Max-Width Property: Images are set to have a maximum width of 100% of their parent element, preventing them from overflowing their containers.

3. Media Queries:

Breakpoints: Media queries are used to apply specific CSS styles based on the device's characteristics, such as width, height, or orientation.

Adaptive Styling: Different CSS rules are applied for different screen sizes, ensuring optimal layout and readability.

4. Mobile-First Approach:

Start Small: Design and develop for mobile devices first, then progressively enhance the design for larger screens.

Enhancement Principle: Advanced features and styles are added as the screen size increases, ensuring a baseline experience for all devices.

5. Viewport Meta Tag:

Initial-Scale: The viewport meta tag controls the initial zoom level when the page is first loaded, ensuring proper scaling on different devices.

Width: Setting the viewport width to device width allows the website to adapt to the specific device's screen width.

Benefits of Responsive Design:

1. Enhanced User Experience:

Consistency: Users have a consistent experience across various devices, fostering familiarity and ease of use.

Improved Accessibility: Responsive design ensures accessibility for users with disabilities on different devices.

2. SEO Benefits:

Improved Ranking: Search engines favor mobile-friendly websites, leading to improved search engine rankings for responsive sites.

Single URL: Responsive design uses a single URL, avoiding duplicate content issues common with separate mobile sites.

3. Cost-Effectiveness:

Maintenance Efficiency: Managing a single responsive site is more efficient than maintaining multiple versions for different devices.

Future-Proofing: Responsive sites are adaptable to new devices and screen sizes, reducing the need for frequent redesigns.

4. Higher Conversion Rates:

Optimal User Experience: Users are more likely to engage, interact, and convert on websites that offer a seamless experience on their preferred devices.

Challenges and Considerations:

1. Performance Optimization:

Image Compression: Heavy images can impact loading times, requiring careful optimization for various screen resolutions.

Code Efficiency: Efficient coding practices are crucial to maintain fast load times, especially on mobile networks.

2. Testing Across Devices:

Device Diversity: The wide array of devices and screen sizes requires extensive testing to ensure consistent functionality and appearance.

Emulators and Testing Tools: Various emulators and online testing tools aid in evaluating responsive designs across multiple devices.

Conclusion: Responsive design has become essential in the modern web development landscape. By embracing fluid grids, flexible images, media queries, and a mobile-first approach, websites can deliver optimal user experiences across diverse devices, leading to higher user engagement, improved SEO rankings, and ultimately, business success in the digital realm.

WIREFRAMING

Definition:

Wireframing is a visual representation of a website or application's user interface. It outlines the basic structure and layout of the interface without design elements like colors and images, focusing on functionality, user interactions, and content hierarchy.

Purpose:

Conceptual Visualization: Provides a conceptual overview of the interface, allowing stakeholders to understand the structure and layout of the application.

Functional Blueprint: Serves as a functional blueprint for developers and designers, guiding the development process.

User-Centric Design: Helps in understanding user interactions and user experience (UX) by emphasizing navigation, information architecture, and content placement.

Cost-Efficient Prototyping: Enables quick and cost-effective changes during the early stages of design, saving time and resources in later development phases.

Key Elements of Wireframes:

Layout: Defines the arrangement of elements, such as headers, footers, navigation bars, and content areas.

Content: Represents textual and visual content placement, including images, videos, and text.

Functionality: Illustrates interactive elements like buttons, forms, and links, showcasing how users will interact with the interface.

Hierarchy: Establishes the visual hierarchy of information, indicating which elements are more important through size, placement, or formatting.

Navigation: Demonstrates the flow between different pages or sections, including menus, sub-menus, and links.

Types of Wireframes:

Low-Fidelity Wireframes: Simple, basic representations focusing on structure and placement, often created using pen and paper or wireframing tools. They lack details and are quick to produce.

High-Fidelity Wireframes: More detailed and polished versions, including specific colors, fonts, and some visual elements. They provide a closer approximation of the final product.

Best Practices for Wireframing:

Understand User Needs: Research user requirements and preferences to inform the wireframe design.

Keep It Simple: Focus on essential elements and functionality; avoid unnecessary details.

Iterative Design: Embrace feedback and iterate on wireframes based on user and stakeholder input.

Consistency: Maintain consistency in layout, navigation, and design elements across the wireframes.

Collaboration: Involve key stakeholders, including designers, developers, and users, in the wireframing process to gather diverse perspectives.

Conclusion: Wireframing is a fundamental step in the UX and UI design process, providing a clear, visual representation of the application's structure and functionality. By emphasizing user interactions and content organization, wireframes lay the foundation for intuitive and user-friendly digital experiences.

CREATING WIREFLOWS

Definition:

Wireflows combine the concepts of wireframing and user flow diagrams, offering a holistic view of both the structure and user interactions within a digital interface. It integrates the functional aspects of wireframes with the sequential user interactions represented in flowcharts.

Purpose:

Integration of Structure and Flow: Unlike standalone wireframes or flowcharts, wireflows seamlessly blend the structural layout of a user interface with the sequential flow of user interactions.

Enhanced Communication: Wireflows facilitate effective communication between designers, developers, and stakeholders, ensuring a shared understanding of both the layout and the user journey.

Improved User Experience: By visually representing both structure and flow, designers can ensure that the user interface is not only logically organized but also optimized for a smooth user experience.

Key Elements of Wireflows:

Wireframe Components: Include wireframe elements such as headers, footers, menus, buttons, forms, and content areas, defining the layout and structure of the interface.

User Flows: Represent the sequential steps a user takes to achieve specific tasks, including navigation paths, interactions, and decision points.

Annotations: Provide explanations and additional details about specific elements, interactions, or functionalities within the wireflow.

Steps to Create Effective Wireflows:

Define User Personas: Understand the target audience, their needs, preferences, and behaviors to design user-centered wireflows.

Identify User Scenarios: Define common user scenarios or tasks that the interface should support.

Create Wireframes: Develop wireframes for key screens, ensuring clarity in layout, content placement, and interactive elements.

Map User Flows: Establish the sequential steps users will follow to accomplish tasks, connecting wireframes in a logical order.

Annotate Elements: Add relevant annotations to explain specific functionalities, interactions, or user decisions.

Review and Iterate: Collaborate with stakeholders to review the wireflows, gather feedback, and make necessary revisions to enhance clarity and functionality.

Best Practices for Creating Wireflows:

Consistency: Maintain consistent design elements, terminology, and interactions across all wireframes and flowcharts.

Clarity: Ensure that wireflows are clear and easy to understand, even for someone unfamiliar with the project.

Collaboration: Foster collaboration between design, development, and stakeholder teams to ensure a comprehensive and accurate representation of the interface.

Versioning: Keep track of versions and changes made during the iterative design process to maintain a clear development path.

User Testing: Consider user testing to validate the wireflows, ensuring that they align with user expectations and behaviors.

Conclusion: Wireflows provide a powerful method to visualize both the structure and user interactions of a digital interface, enabling teams to create user-friendly designs that meet both functional and experiential requirements. Through a meticulous combination of wireframing and flowcharting, wireflows serve as a bridge between design and functionality, ensuring a seamless and intuitive user journey.

Building a Prototype

Definition:

Prototyping is the process of creating a preliminary version of a product or system to visualize, test, and validate its design, functionality, and user experience before the final product is developed. Prototypes can vary in fidelity, from low-fidelity paper sketches to high-fidelity interactive digital models.

Purposes of Prototyping:

Visualization: Prototypes provide a tangible representation of the product, allowing stakeholders to visualize the design and layout.

User Feedback: Prototypes facilitate user testing and feedback, enabling designers to understand user interactions and preferences early in the design process.

Clarification: Prototypes help in clarifying requirements, functionalities, and design elements among team members and stakeholders.

Risk Reduction: By identifying potential issues and challenges early, prototypes assist in reducing risks associated with the final product development.

Steps in Building a Prototype:

1. Define Objectives:

Clearly outline what you want to achieve with the prototype. Identify specific features, interactions, and design elements to focus on.

2. Choose the Prototype Type:

Decide whether you need a low-fidelity prototype (for quick ideas and concepts) or a high-fidelity prototype (for detailed design and functionality testing).

3. Sketch or Wireframe:

Start with rough sketches or wireframes to map out the basic layout and elements of your prototype. This helps in visualizing the initial concept.

4. Develop Interactive Prototypes:

Utilize prototyping tools and software to create interactive prototypes with clickable buttons, menus, and basic functionalities. This step is crucial for user testing.

5. Test and Gather Feedback:

Conduct usability testing with real users. Gather feedback on the prototype's usability, user experience, and any issues encountered.

6. Revise and Refine:

Based on user feedback, make necessary revisions to the prototype. Address usability issues, refine design elements, and improve user interactions.

7. Repeat the Process:

Depending on the complexity of the project, iterate through the prototyping process multiple times. Each iteration helps in refining the design and enhancing user satisfaction.

Best Practices for Prototyping:

Involve Stakeholders: Include stakeholders in the prototyping process to ensure alignment with project objectives and expectations.

Iterative Approach: Prototyping is an iterative process. Be prepared to refine the prototype based on user feedback and team evaluations.

Realism vs. Speed: Balance between creating a realistic representation of the final product and the speed of prototyping. High-fidelity prototypes might take longer to develop but provide a more accurate user experience.

User-Centric Design: Prioritize user feedback and preferences. The prototype should align with user needs and expectations.

Conclusion: Prototyping is an invaluable step in the product development lifecycle, offering a practical way to visualize ideas, gather feedback, and mitigate risks. By following a systematic approach, involving stakeholders, and focusing on user experience, prototypes become powerful tools for creating successful and user-friendly products and applications.

Building High-Fidelity Mockups

Definition:

High-fidelity mockups are detailed, visually polished representations of a digital interface, showcasing the final look and feel of a product. These mockups incorporate precise colors, typography, images, and interactive elements, providing a realistic preview of the user interface.

Purposes of High-Fidelity Mockups:

Visual Representation: High-fidelity mockups present a visually accurate representation of the final product, incorporating brand guidelines and design aesthetics.

User Experience Evaluation: Designers and stakeholders can evaluate the user experience (UX) and user interface (UI) elements in a realistic context, identifying potential issues before development.

Client Communication: High-fidelity mockups facilitate clear communication with clients and stakeholders, allowing them to visualize the project's direction and make informed decisions.

Developer Reference: Detailed mockups serve as precise references for developers, ensuring that the implemented interface aligns with the intended design.

Key Steps in Building High-Fidelity Mockups:

1. Gather Requirements:

Client Inputs: Understand client preferences, brand guidelines, and specific design requirements to incorporate them into the mockups.

User Research: If applicable, analyze user feedback and behavior data to inform design decisions.

2. Create Wireframes:

Basic Structure: Develop wireframes outlining the fundamental layout and structure of the interface, focusing on content placement and functionality.

3. Design Detailed Mockups:

Color Scheme: Apply the project's color palette consistently, ensuring harmony and contrast for readability and visual appeal.

Typography: Choose appropriate fonts and styles for headings, body text, and interactive elements, maintaining readability across different devices.

Images and Icons: Integrate high-resolution images, icons, and graphics relevant to the content, ensuring they are clear and visually appealing.

Interactive Elements: Design buttons, forms, navigation menus, and other interactive elements with attention to size, spacing, and feedback animations.

4. Use Design Tools:

Graphic Design Software: Utilize tools like Adobe XD, Sketch, or Figma, which offer extensive features for creating high-fidelity mockups.

Prototyping: Some tools allow for basic interactive prototyping, enabling the visualization of transitions and user flows.

5. Iterate and Gather Feedback:

Internal Review: Conduct internal reviews with the design team to identify improvements and refinements.

Stakeholder Feedback: Share the mockups with stakeholders and clients, gathering feedback to make necessary adjustments.

6. Handoff to Developers:

Annotations: Provide detailed annotations, specifying colors, fonts, dimensions, and interactive behaviors.

Assets: Prepare and organize all assets (images, icons, etc.) required for development, ensuring they are easily accessible.

Best Practices for High-Fidelity Mockups:

Consistency: Maintain consistent design elements, such as buttons, fonts, and colors, across all screens for a cohesive user experience.

Realism vs. Simplicity: Achieve a balance between realism and simplicity. Focus on clarity and user understanding while ensuring a visually appealing design.

Accessibility: Ensure that color choices and contrast ratios meet accessibility standards, making the interface usable for all users.

Responsive Design: Design mockups with responsiveness in mind, showcasing how the interface adapts to various screen sizes and orientations.

Version Control: Use version control systems or naming conventions to keep track of different iterations and changes made during the design process.

Designing Efficiently with Tools

Introduction: Efficient designing processes are crucial in various fields, including project management, software development, and problem-solving. Utilizing appropriate tools enhances clarity, collaboration, and precision in defining tasks, requirements, and objectives. Here's a guide on defining efficiently with tools.

1. Mind Mapping Tools:

Purpose: Mind mapping tools like MindMeister and XMind help visualize complex concepts, breaking them down into manageable, interconnected ideas.

Benefits: Improve brainstorming, identify relationships, and organize thoughts hierarchically for clearer definitions.

2. Flowchart Tools:

Purpose: Tools like Lucidchart and draw.io allow the creation of flowcharts, illustrating processes, workflows, and decision trees.

Benefits: Clarify procedures, identify bottlenecks, and define step-by-step sequences for efficient task execution.

3. Wireframing and Prototyping Tools:

Purpose: Tools like Adobe XD and InVision aid in creating wireframes and prototypes, defining user interfaces and interactions.

Benefits: Visualize designs, simulate user experiences, and gather feedback early in the development process, leading to precise definitions.

4. Project Management Tools:

Purpose: Tools like Trello, Asana, and Jira assist in defining tasks, assigning responsibilities, setting deadlines, and tracking progress.

Benefits: Clearly define project scopes, tasks, and goals, fostering efficient team collaboration, communication, and task management.

5. Version Control Systems:

Purpose: Git and SVN are version control tools ensuring efficient tracking of changes, collaboration, and definition of codebases.

Benefits: Define software versions, track modifications, and manage collaborative coding projects efficiently, reducing conflicts and errors.

6. Collaborative Document Editing Tools:

Purpose: Google Docs, Microsoft Teams, and Dropbox Paper enable real-time collaborative editing and commenting on documents.

Benefits: Define project requirements, reports, and documentation efficiently with simultaneous input from team members, ensuring accuracy and clarity.

7. Data Modeling Tools:

Purpose: Tools like ERDPlus and Microsoft Visio assist in defining database structures, relationships, and data entities.

Benefits: Precisely define database schemas, improving data integrity, querying efficiency, and application performance.

8. Requirements Management Tools:

Purpose: Tools like IBM DOORS and Jama Connect aid in defining, tracking, and managing project requirements throughout the development lifecycle.

Benefits: Define detailed and traceable project requirements, ensuring alignment with stakeholder expectations and regulatory standards.

9. Collaborative Whiteboard Tools:

Purpose: Tools like Miro and Microsoft Whiteboard facilitate collaborative brainstorming, diagramming, and defining ideas visually.

Benefits: Enhance remote team collaboration, allowing teams to define concepts, processes, and designs collectively in real-time.

Interaction Patterns

Definition:

Interaction Patterns refer to recurring, predictable ways in which users interact with digital interfaces. These patterns are established based on user behaviors, cognitive processes, and design conventions, aiming to create intuitive, user-friendly experiences across various applications and platforms.

Key Aspects of Interaction Patterns:

1. Consistency:

Visual Consistency: Common visual elements (buttons, icons) across interfaces enhance familiarity and ease of use.

Behavioral Consistency: Predictable behaviors (e.g., clicking a button to submit a form) create intuitive interactions.

2. Predictability:

User Expectations: Interaction patterns align with users' mental models, meeting their expectations and reducing cognitive load.

Feedback Loops: Immediate feedback (e.g., button color change on hover) reinforces users' understanding of the system's response.

3. Efficiency:

Minimized Steps: Streamlined patterns reduce the number of steps users need to perform tasks, enhancing efficiency.

Progressive Disclosure: Complex interactions are revealed progressively, preventing overwhelming users with information.

4. Learnability:

Intuitive Design: Patterns are based on familiar real-world analogies, making it easier for users to understand and remember how to interact.

Onboarding: Guided interactions during onboarding introduce users to interaction patterns, aiding in quick learning.

5. Accessibility:

Inclusive Design: Patterns are designed to accommodate users with diverse abilities and disabilities, ensuring equal access to functionality.

Keyboard and Screen Reader Support: Patterns are implemented to support keyboard navigation and screen reader technologies for accessibility.

Common Interaction Patterns:

1. Click/Tap:

Purpose: Activating buttons, links, or interactive elements by clicking (desktop) or tapping (mobile) with a finger.

Example: Clicking a 'Submit' button to send a form.

2. Scroll:

Purpose: Navigating through content vertically, especially in long documents or web pages.

Example: Scrolling down to read an article.

3. Swipe:

Purpose: Moving content horizontally, often used in carousels or galleries on touch-enabled devices.

Example: Swiping left or right to view different images.

4. Drag and Drop:

Purpose: Allowing users to drag objects and drop them onto designated areas, enabling tasks like file uploads or reordering items.

Example: Dragging a file from the desktop and dropping it into an email attachment area.

5. Hover:

Purpose: Displaying additional information or interactive options when the mouse pointer hovers over an element (desktop only).

Example: Hovering over a product image to view a brief description.

6. Form Input:

Purpose: Allowing users to input data through text fields, checkboxes, radio buttons, and dropdown menus.

Example: Filling out a registration form with name, email, and password

Conducting Usability Tests

Definition: Usability testing is a user-centered evaluation method where real users interact with a product's representative tasks, identifying usability issues and providing valuable feedback. It involves observing users as they perform tasks to understand how intuitive, efficient, and satisfying the product is.

Key Steps in Conducting Usability Tests:

1. Define Objectives:

Clearly outline the goals of the usability test. Determine what aspects of the product's usability you want to evaluate and improve.

2. Recruit Participants:

Select participants who represent the product's target audience. Aim for diversity to capture a broader range of perspectives.

3. Create Scenarios and Tasks:

Develop realistic scenarios and tasks that participants can perform using the product. Tasks should align with common user goals.

4. Prepare the Testing Environment:

Set up a quiet, distraction-free room with necessary equipment. Ensure that the product, prototypes, or wireframes are ready for testing.

5. Conduct the Test Sessions:

Instruct participants clearly about the tasks without biasing their responses. Encourage them to think aloud, explaining their thought processes.

6. Observe and Take Notes:

Watch participants interact with the product, noting their actions, comments, and struggles. Record both qualitative and quantitative data.

7. Collect Feedback:

After each session, ask participants open-ended questions about their experience. Encourage them to share their opinions and suggestions.

8. Iterate and Redesign:

Analyze the data collected, identify patterns, and prioritize usability issues. Use this feedback to make design improvements.

Best Practices for Usability Testing:

Moderator Neutrality: The moderator should remain neutral, refraining from influencing participants' actions or responses.

Realistic Scenarios: Use scenarios that mirror real-life situations to elicit genuine user behaviors and reactions.

Pilot Testing: Conduct a pilot test with a small group to identify any issues with the test setup or tasks before the actual sessions.

Remote Testing: Consider remote usability testing, especially for online products, using screen-sharing tools to observe users in their natural environment.

Iterative Testing: Conduct multiple rounds of usability testing throughout the design process to ensure continuous improvements.

Clear Reporting: Present the findings in a clear, actionable manner, including both issues and positive feedback, to aid the design team.

Benefits of Usability Testing:

User-Centric Design: Ensures the product meets users' needs, preferences, and expectations, leading to higher satisfaction.

Issue Identification: Uncovers usability issues, allowing for targeted improvements and a more intuitive user interface.

Data-Driven Decisions: Provides concrete data for design decisions, reducing reliance on assumptions or subjective opinions.

Improved Conversion: Enhances the user experience, leading to increased user engagement, retention, and conversion rates for products.

Competitive Advantage: Products with superior usability stand out, fostering customer loyalty and positive word-of-mouth.

Other Evaluative User Research Methods

Introduction: Evaluative user research methods are essential for assessing existing designs, prototypes, or products. These methods provide valuable insights into user experiences, allowing designers to identify issues, validate design decisions, and iterate effectively. Apart from usability testing, several other evaluative research methods offer unique perspectives on user interactions and preferences.

1. Heuristic Evaluation:

Definition: Heuristic evaluation involves experts evaluating a user interface against a set of established usability principles (heuristics).

Purpose: Identifies usability problems quickly and cost-effectively by leveraging expert opinions.

Benefits: Provides valuable insights before user testing, highlighting potential issues for further investigation.

2. Cognitive Walkthrough:

Definition: Cognitive walkthroughs involve evaluators simulating users' mental processes, step-by-step, to assess how well a system's design supports task completion.

Purpose: Focuses on identifying potential obstacles or confusing points in the user's thought process.

Benefits: Provides a detailed understanding of user decision-making during task execution.

3. Card Sorting:

Definition: Card sorting involves users organizing topics into categories, providing insights into their mental models and how they expect information to be structured.

Purpose: Helps in information architecture, ensuring intuitive navigation and content organization.

Benefits: Reveals user preferences and mental models, aiding in effective content grouping and labeling.

4. Tree Testing:

Definition: Tree testing involves users navigating a simplified site structure (without visual design) to find specific information or complete tasks.

Purpose: Assesses the findability and navigational efficiency of content and menu structures.

Benefits: Highlights areas where users struggle to locate information, guiding improvements in site structure.

5. A/B Testing:

Definition: A/B testing compares two versions of a webpage or product to determine which performs better based on user engagement metrics.

Purpose: Evaluates design changes, feature implementations, or content variations to optimize user interactions.

Benefits: Provides quantitative data on user preferences, informing data-driven design decisions.

6. Surveys and Questionnaires:

Definition: Surveys collect quantitative data through structured questions, gauging user opinions, preferences, or demographics.

Purpose: Provides insights into user satisfaction, preferences, or general attitudes toward a product.

Benefits: Allows for large-scale data collection, offering a broader perspective on user opinions.

7. Eyetracking Studies:

Definition: Eyetracking studies use specialized equipment to monitor and record users' eye movements while interacting with a design.

Purpose: Identifies where users focus their attention, helping designers understand visual hierarchy and information prioritization.

Benefits: Offers precise insights into visual attention patterns, guiding the placement of important elements.

Synthesizing Test Findings

Introduction: Synthesizing test findings is a critical step in the user experience (UX) design process. It involves analyzing and integrating the data collected from various evaluative methods like usability tests, interviews, surveys, and heuristic evaluations. The goal is to distill this diverse information into meaningful insights that guide design decisions and improvements.

Key Steps in Synthesizing Test Findings:

1. Data Collection Review:

Thoroughly review all raw data collected during usability tests, interviews, surveys, and other evaluative research methods. This includes user behaviors, comments, and quantitative metrics.

2. Identify Patterns and Themes:

Look for recurring patterns, common issues, and themes across different participants and methods. Categorize findings to simplify the analysis process.

3. Prioritize Findings:

Rank the identified issues based on severity, frequency, and impact on the user experience. Focus on critical problems that significantly affect usability and user satisfaction.

4. Create Personas and User Journeys:

Develop user personas based on the collected data. Understand different user segments, their goals, pain points, and behaviors. Map out user journeys to visualize their interactions with the product.

5. Use Affinity Diagrams:

Affinity diagrams help in organizing findings into related groups. Post-it notes or digital tools can be used to group similar issues together, providing a visual representation of the data's structure.

6. Create Empathy Maps:

Empathy maps help in understanding users' emotions, thoughts, and pain points. Use the data to fill out empathy maps, gaining a deeper understanding of users' perspectives.

7. Visualize Data:

Use charts, graphs, and infographics to visualize quantitative data. Visual representations make complex data more accessible and aid in identifying trends at a glance.

8. Generate Insights:

Translate the identified patterns and themes into actionable insights. Clearly articulate the implications of the findings on the design and user experience.

9. Share Findings Effectively:

Prepare a concise, visually appealing report or presentation to communicate the synthesized findings. Use visuals, quotes, and real user stories to make the insights relatable.

10. **Collaborate with Stakeholders:** - Engage stakeholders, including designers, developers, and product managers, in discussions about the findings. Encourage collaborative brainstorming sessions to generate ideas for solutions.

Benefits of Synthesizing Test Findings:

Informed Decision-Making: Synthesized findings provide a clear understanding of user needs and pain points, guiding informed design decisions.

Focus on Priorities: Prioritized findings help teams focus on addressing critical issues first, ensuring optimal use of resources and efforts.

Enhanced Collaboration: Sharing synthesized insights fosters collaboration and alignment among cross-functional teams, leading to cohesive problem-solving approaches.

User-Centered Solutions: By understanding user perspectives deeply, synthesized findings pave the way for designing solutions that resonate with users' expectations and preferences.

Continuous Improvement: Synthesizing findings is an iterative process, fostering continuous improvement in product design and user experience through multiple testing cycles.

Prototype Iteration

Enhancing Design through Iterative Development

Introduction: Prototype iteration is a fundamental aspect of the design process, particularly in user-centered design methodologies like iterative prototyping and agile development. It involves the continuous refinement and enhancement of design prototypes based on user feedback, usability testing, and evolving project requirements. This iterative approach ensures that the final product aligns closely with user needs and expectations.

Key Aspects of Prototype Iteration:

1. Gathering User Feedback:

Purpose: Collect feedback from real users through usability testing, surveys, and interviews to understand their interactions, preferences, and pain points.

Benefits: Provides actionable insights into user experience, highlighting areas for improvement and innovation.

2. Identifying Design Issues:

Purpose: Analyze user feedback and identify design flaws, inconsistencies, or features that don't meet user expectations.

Benefits: Pinpoints specific problems, allowing for targeted solutions in subsequent iterations.

3. Prioritizing Enhancements:

Purpose: Prioritize identified issues based on their impact on user experience, focusing on critical elements that significantly affect usability.

Benefits: Guides the design team on where to concentrate their efforts for the most substantial improvements.

4. Implementing Design Changes:

Purpose: Introduce design modifications, feature enhancements, and usability improvements based on feedback and identified issues.

Benefits: Ensures that the prototype evolves, addressing user concerns and aligning with project objectives.

5. Usability Testing:

Purpose: Conduct usability tests on the updated prototype to validate design changes and assess their impact on user experience.

Benefits: Provides concrete data on the effectiveness of design modifications, helping in further refinements.

6. Continuous Refinement:

Purpose: Continuously refine the prototype, integrating user feedback and making incremental improvements in subsequent iterations.

Benefits: Results in a highly polished and user-friendly final product, shaped by continuous user input and testing.

Benefits of Prototype Iteration:

User-Centered Design: Ensures that the final product aligns with user needs and preferences, leading to higher user satisfaction.

Early Issue Identification: Identifies design problems and usability issues in the early stages, reducing the likelihood of costly fixes later in the development process.

Enhanced Usability: Through iterative refinement, the prototype becomes increasingly intuitive and user-friendly, enhancing the overall usability.

Flexible Adaptation: Allows for flexibility in adapting to changing project requirements and evolving user expectations, ensuring the product remains relevant.

Data-Driven Decision Making: Relies on concrete data from usability tests and user feedback, guiding design decisions based on real user experiences.

UNITY:RESEARCH,DESIGNING,IDEATING&INFORMATIONARCHITECTURE

Identifying and Writing Problem Statements - Identifying Appropriate Research Methods- Creating Personas - Solution Ideation - Creating User Stories - Creating Scenarios - Flow Diagrams - Flow Mapping - Information Architecture

IDENTIFYINGANDWRITINGPROBLEMSTATEMENTS

1. Identifying the Problem:

- **Observation:** Start by observing your surroundings, workplace, or community. Look for patterns, inefficiencies, or areas where improvements are needed.
- **Listening:** Pay attention to the concerns of people around you, colleagues, students, or community members. Their challenges can often be a source of meaningful problems.
- **Research:** Stay updated with current literature, research, and news in your field. Identify gaps or unresolved issues that can be explored further.

2. Defining the Problem Clearly:

- **Clarity:** Ensure the problem statement is clear, concise, and easy to understand for a broad audience. Avoid technical jargon or overly complex language.
- **Specificity:** Be specific about the problem. Avoid vague statements and provide details about the who, what, when, where, and why of the problem.
- **Scope:** Define the boundaries of the problem. What is included in the problem, and what is not? Clearly outline the scope to avoid ambiguity.

3. Explaining the Impact:

- **Significance:** Explain why the problem is significant. Describe the potential impact on individuals, organizations, or the community if the problem is not addressed.

- **Consequences:** Detail the negative consequences of the problem. This can include financial losses, decreased efficiency, environmental impact, or any other relevant factors.

4. Providing Relevant Data:

- **Statistics:** If applicable, include relevant statistics or data that highlight the extent of the problem. Statistical information adds credibility to the statement.
- **Research Findings:** Refer to existing research findings or studies that support the existence and importance of the problem you are addressing.

5. Proposing a Solution (Optional):

- **Tentative Solution:** While not necessary, you can briefly mention a potential solution. However, emphasize that further research or investigation is needed to validate and implement the solution.
- **Innovation:** If your problem statement is for a research project, consider how your approach could be innovative and contribute to the existing body of knowledge.

6. Keeping it Concise and Focused:

- **Brevity:** Problem statements should be concise, usually a few sentences to a short paragraph. Avoid unnecessary details or background information that does not directly contribute to understanding the problem.
- **Focus:** Stay focused on the main issue. Do not try to address multiple problems within a single statement. Each problem should have its own clearly defined statement.

IDENTIFYING APPROPRIATE RESEARCH METHODS

Research methods in UI/UX design are crucial for understanding user behavior, preferences, and needs. Choosing the right methods ensures that designers make informed decisions leading to user-friendly interfaces. Here are key points on identifying appropriate research methods in UI/UX:

User Interviews:

- Conduct one-on-one interviews with users to gain in-depth insights into their experiences, expectations, and pain points.
- Use open-ended questions to encourage participants to share their thoughts freely.

Surveys and Questionnaires:

- Deploy surveys to collect quantitative data from a large user base.
- Craft questions carefully to gather specific feedback on UI/UX elements and overall user satisfaction.

Observational Studies:

- Observe users interacting with the interface in real-time.
- Note their behaviors, gestures, and facial expressions to understand their natural interactions.

Usability Testing:

- Create tasks for users to perform using the interface.
- Observe their actions, errors, and time taken to complete tasks to evaluate usability.

Card Sorting:

- Ask users to categorize information into groups, revealing their mental models.
- Helps in organizing content and navigation based on user expectations.

Prototyping and Wireframing:

- Develop low-fidelity prototypes or wireframes to visualize interface concepts.
- Gather user feedback early in the design process, allowing for iterative improvements.

EyeTracking:

- Use eye-tracking technology to monitor where users focus their attention on the screen.
- Helps in understanding visual hierarchy and optimizing important elements' placement.

A/B Testing:

- Compare two versions of a design to determine which performs better.
- Useful for testing specific elements like buttons, colors, or layout variations.

Heatmaps and Click Tracking:

- Generate heatmaps to visualize where users click, scroll, or spend the most time.
- Identify popular areas and optimize them for better user engagement.

Contextual Inquiry:

- Observe users in their natural environment, understanding how the interface fits into their daily tasks.
- Provides insights into real-world usage patterns and challenges faced by users.

Expert Reviews:

- Have UX experts evaluate the interface against established usability principles.
- Offers insights from professionals, highlighting potential issues and improvements.

Remote Testing:

- Conduct usability tests remotely, allowing participants to engage from their own locations.
- Enable testing with a diverse user group regardless of geographical constraints.

Choosing the right combination of these methods depends on the project goals, budget, and timeline. A mix of qualitative and quantitative methods often provides a comprehensive understanding of user behavior and preferences, leading to successful UI/UX design.

CREATING PERSONAS

Definition: Personas are detailed, fictional characters representing different user types within a target audience. They help designers and developers understand users' needs, behaviors, and expectations, guiding UI/UX decisions to create user-centered designs.

Steps to Create Personas:

User Research:

- Gather data through interviews, surveys, and observations.
- Identify common patterns, behaviors, and demographics among users.

Identify User Groups:

- Categorize users into distinct groups based on similarities.
- Consider factors like age, profession, goals, and technology proficiency.

Create Detailed Profiles:

- Develop comprehensive personas for each user group.
- Include personal details, goals, challenges, preferences, and motivations.

Name and Visual Representation:

- Assign a name and, if possible, a photo to each persona.
- Humanize the persona, making it easier for the team to relate to them.

Goals and Scenarios:

- Define the primary goal each persona aims to achieve using the product.
- Create scenarios outlining how personas interact with the interface to achieve their goals.

Attitudes and Behaviors:

- Describe attitudes, behaviors, and pain points of each persona.
- Understand how personas might respond to different design elements.

Needs and Pain Points:

- Identify what each persona needs from the product.
- Pinpoint their challenges and frustrations while using similar products or services.

Incorporate Empathy:

- Encourage the team to empathize with personas.
- Understand their feelings, needs, and aspirations, ensuring a user-centric approach.

Validation:

- Validate personas through user testing and feedback.
- Refine personas based on real user interactions and experiences.

Benefits of Creating Personas**: Focuses Design Decisions:**

- Guides design choices based on user needs and preferences.
- Helps prioritize features that matter most to the target audience.

Enhances Empathy:

- Encourages empathy within the team, leading to designs that resonate with users emotionally.

Facilitates Communication:

- Provides a common understanding of the target audience.
- Improves communication among team members, ensuring a shared vision.

Reduces Subjectivity:

- Reduces reliance on personal opinions and biases.
- Grounds design decisions in user data and research.

Improves Usability:

- Designs tailored to specific personas enhance overall usability.
- Increases the likelihood of user satisfaction and positive experiences.

By understanding users deeply, designers can craft interfaces that meet user needs effectively, leading to more successful and user-friendly products.

SOLUTION IDEATION

Definition: Solution ideation is a structured brainstorming process aimed at generating innovative and practical ideas to address specific problems or challenges. It involves collaborative and creative thinking to explore diverse solutions that can lead to breakthrough innovations.

Key Steps in Solution Ideation:

Define the Problem:

- Clearly articulate the problem or challenge that needs to be addressed.
- Understand its context, impact, and relevance to the users or stakeholders.

Diverse Team Collaboration:

- Form a diverse team with members from different backgrounds and expertise.
- Encourage open communication and mutual respect among team members.

Research and Insights:

- Gather relevant data, user feedback, and market research findings.
- Understand user behaviors, preferences, and pain points to inform ideation.

Creative Techniques:

- Use creative techniques such as brainstorming, mind mapping, or reverse thinking.
- Encourage wild ideas without immediate judgment to foster creativity.

Inspiration from Outside Fields:

- Draw inspiration from unrelated fields or industries.
- Explore how solutions in other domains can be adapted to the current problem.

Prototyping and Visualization:

- Create rough prototypes or visual representations of ideas.
- Use sketches, diagrams, or digital tools to illustrate concepts visually.

Iterative Process:

- Embrace an iterative approach, refining and combining ideas.
- Solicit feedback from team members and stakeholders to enhance concepts.

Constraints as Catalysts:

- Consider constraints like budget, time, or technology as catalysts for creativity.
- Constraints can inspire innovative solutions within limitations.

User-Centric Focus:

- Keep the end-users at the center of ideation.
- Evaluate ideas based on how well they meet user needs and enhance user experience.

Evaluation and Selection:

- Evaluate generated ideas based on feasibility, desirability, viability, and alignment with project goals.
- Prioritize ideas that offer the best balance of innovation and practicality.

Documentation and Communication:

- Document the selected ideas comprehensively.
- Clearly communicate the rationale behind chosen solutions to stakeholders.

Benefits of Solution Ideation:**Innovation and Creativity:**

- Promotes innovative thinking by exploring a wider range of ideas.
- Encourages creative solutions that might not have been considered initially.

Collaboration and Team Building:

- Fosters collaboration and teamwork among diverse team members.
- Enhances communication and mutual understanding within the team.

User-Centric Designs:

- Ensure that solutions are tailored to meet the needs of the users.
- Enhance user satisfaction by addressing specific pain points effectively.

Adaptability and Problem-Solving:

- Equip teams with the ability to adapt to changing circumstances.
- Enhances problem-solving skills, enabling teams to tackle future challenges effectively.

Market Competitiveness:

- Drives the development of unique and competitive products or services.
- Enables organizations to stand out in the market with innovative offerings.

Solution ideation is a dynamic and essential phase in the design thinking process. By fostering a creative environment and leveraging diverse perspectives, teams can generate solutions that have the potential to transform ideas into impactful realities.

CREATING USER STORIES

Definition: User stories are concise, informal descriptions used in Agile software development to capture the functionality and requirements from an end-user perspective. They focus on the who, what, and why of a feature, providing a clear understanding of user needs and expectations.

Key Components of User Stories:

Role (Who):

- Identify the user or stakeholder involved.
- Define their role or persona within the context of the story.

Action (What):

- Specify the action or task the user needs to perform.
- Describe the desired outcome or goal of the action.

Benefit (Why):

- Explain the benefit or value the user gains from completing the action.
- Clarify the purpose and significance of the user story.

Format of a User Story: "As a [type of user/persona], I want to [perform an action/task] so that [achieve a specific benefit/value]."

Key Considerations in Creating User Stories:

User-Centric Perspective:

- Emphasize the user's needs and experiences.
- Focus on how the feature enhances user satisfaction and addresses user pain points.

Independence and Modularity:

- Keep user stories independent and modular.
- Each story should deliver a specific, valuable functionality on its own.

Negotiable and Flexible:

- User stories are negotiable; details can be refined during discussions.
- Flexibility allows for adaptability based on changing priorities and feedback.

AcceptanceCriteria:

- Defineclearandconciseacceptancecriteria.
- Criteriaoutlineconditionsforthestorytobeconsideredcompleteand functional.

Conversationand Collaboration:

- Encouragecontinuousconversationbetweendevelopers, stakeholders, and users.
- Collaborativediscussionsensuresharedunderstandingandrefineuser stories over time.

Estimationand Prioritization:

- Estimatetheeffortrequiredforeachuserstory.
- Prioritizestoriesbasedonbusinessvalue,urgency,and dependencies.

UserFeedbackandIteration:

- Regularlygatheruserfeedbackonimplementedstories.
- Iteratebasedonfeedback,enhancingsubsequentstoriesforcontinuous improvement.

BenefitsofCreatingUser Stories:

Clarityand Focus:

- Provides a clear, understandable description of user needs and expectations.
- Keepsthedevelopmentteamfocusedondeliveringspecificuservalue.

ImprovedCommunication:

- Enhances communication between development teams, stakeholders, and users.
- Bridges thegapbetweentechnicalandnon-technicalstakeholders.

FlexibilityandAdaptability:

- Allowsforchangesandadaptationsasprojectrequirements evolve.
- Facilitatesagiledevelopmentbyaccommodatingshiftingpriorities.

User Engagement:

- Engages users in the development process, ensuring their perspectives are considered.
- Enhances user satisfaction by delivering features aligned with their requirements.

Efficient Development:

- Guides developers by providing a roadmap for feature development.
- Reduces ambiguity, enabling efficient implementation and testing.

Creating user stories is a foundational practice in Agile development, ensuring that software solutions are developed with a deep understanding of user needs. By capturing user requirements in a user-centric, concise format, development teams can create products that genuinely resonate with users and deliver exceptional user experiences.

CREATING SCENARIOS: CRAFTING REALISTIC USER STORIES FOR DESIGN

Scenarios are detailed narratives that describe specific situations or contexts in which users interact with a product or service. They provide a rich, contextual description of user actions, motivations, and emotions, helping designers understand how users engage with the system in real-world situations.

Key Elements of Scenarios:

Context Setting:

- Establish the setting, including the user, their goals, environment, and any relevant background information.
- Describe the scenario's context to provide a clear understanding of the user's situation.

User Actions:

- Outline the actions the user takes within the scenario.
- Describe their interactions with the system, detailing each step they perform.

User Motivation:

sc:

- Explore the user's motivations, needs, and goals.
- Understand what drives the user to engage with the product or service in the given context.

Challenges and Obstacles:

- Highlight potential challenges or obstacles the user might face.
- Identify pain points and difficulties users encounter during their interactions.

Emotions and Feedback:

- Express the user's emotions, feelings, and feedback.
- Capture both positive and negative emotions, indicating user satisfaction or frustration.

Resolution or Outcome:

- Describe how the scenario concludes.
- Highlight the resolution of the user's task or any changes in their situation.

Benefits of Creating Scenarios

:

User-Centric Design:

- Scenarios provide deep insights into user behavior, enabling user-centered design decisions.
- Designers can empathize with users' experiences, leading to more intuitive interfaces.

Contextual Understanding:

- Scenarios offer a holistic view of user interactions within specific contexts.
- Understand the nuances of user behavior influenced by their environment and motivations.

Identifying Design Opportunities:

- Uncover design opportunities and pain points through detailed scenario analysis.

- Focus on resolving specific issues encountered by users in real-life situations.

Effective Communication:

- Scenarios facilitate effective communication among team members, stakeholders, and clients.
- Storytelling engages stakeholders, conveying user needs in a compelling manner.

Iterative Improvement:

- Iterate scenarios based on user feedback and usability testing results.
- Refine scenarios to reflect evolving user needs and design iterations.

Enhanced User Empathy:

- Scenarios foster empathy by immersing designers in users' everyday experiences.
- Enhance understanding of users' challenges, leading to more thoughtful design solutions.

Mitigating Assumptions:

- Scenarios help clarify assumptions about user behavior.
- Test assumptions against real-world scenarios, ensuring design decisions are grounded in reality.

In summary, creating scenarios is a foundational practice in user experience design. By delving into the details of user interactions, emotions, and motivations, designers can develop solutions that truly resonate with users. Scenarios empower designers to step into users' shoes, resulting in interfaces and experiences that are intuitive, empathetic, and tailored to real-world user needs.

FLOW DIAGRAM AND FLOW MAPPING IN USER EXPERIENCE DESIGN

FLOW DIAGRAM

Definition: A flow diagram, also known as a flowchart, is a visual representation of a process, system, or user journey. In the context of user experience design, flow diagrams are used to illustrate the sequential steps that a user follows to accomplish a task or achieve a goal within a digital interface.

Key Elements of a Flow Diagram:

Nodes:

- Represents specific actions or states within the process.
- Nodes can indicate tasks, decisions, start/endpoints, or user interactions.

Arrows/Connections:

- Show the sequence and direction of the flow.
- Arrows indicate the progression from one node to another, depicting the user's journey.

Decision Points:

- Represent points in the process where the flow can diverge based on user choices or system responses.
- Decision diamonds show different paths based on conditions.

Annotations:

- Provide additional information about specific nodes or connections.
- Annotations clarify the purpose of nodes or explain decision logic.

Purposes of Flow Diagrams:

Task Analysis:

- Analyze user tasks and interactions systematically.
- Understand the logical flow of actions, helping in the design of intuitive interfaces.

Communication:

- Communicate complex processes clearly to stakeholders, developers, and team members.

- Enhance collaboration and shared understanding among project participants.

Identifying Issues:

- Identify bottlenecks, redundancies, or potential usability issues in the user journey.
- Pinpoint areas for improvement and optimization in the interface.

Planning and Documentation:

- Plan the structure and navigation of digital interfaces.
- Serve as documentation for development, guiding programmers in implementing the desired user interactions.

FLOWMAPPING

Definition: Flow mapping in user experience design refers to the process of visually mapping out user interactions and experiences within a digital product or service. It provides a detailed view of how users navigate through screens, features, and tasks, highlighting their interactions and decision points.

Key Aspects of Flow Mapping:**Screen Sequencing:**

- Illustrate the sequence of screens or pages that users encounter.
- Show the logical order of information and actions, indicating the natural progression.

User Interactions:

- Detail user interactions with each screen, including clicks, inputs, or gestures.
- Highlight how users engage with elements such as buttons, forms, or menus.

Navigation Paths:

- Visualize the paths users take to move from one screen to another.

- Identify primary navigation routes and potential alternative paths.

User Choices:

- Illustrate decision points where users make choices leading to different outcomes.
- Show how these choices influence subsequent interactions and screens.

Annotations and Notes:

- Include annotations to explain specific user actions, system responses, or design intentions.
- Notes provide context for stakeholders and developers, ensuring a shared understanding.

Purposes of Flow Mapping:**User Journey Analysis:**

- Understand the complete user journey from entry to task completion.
- Analyze user interactions, helping in optimizing the user experience.

Usability Testing Preparation:

- Prepare scenarios and tasks for usability testing.
- Ensure that test cases cover the entire user flow, allowing comprehensive evaluations.

Feature Integration:

- Plan the integration of new features or updates into existing user flows.
- Assess how new functionalities fit seamlessly into the existing user experience.

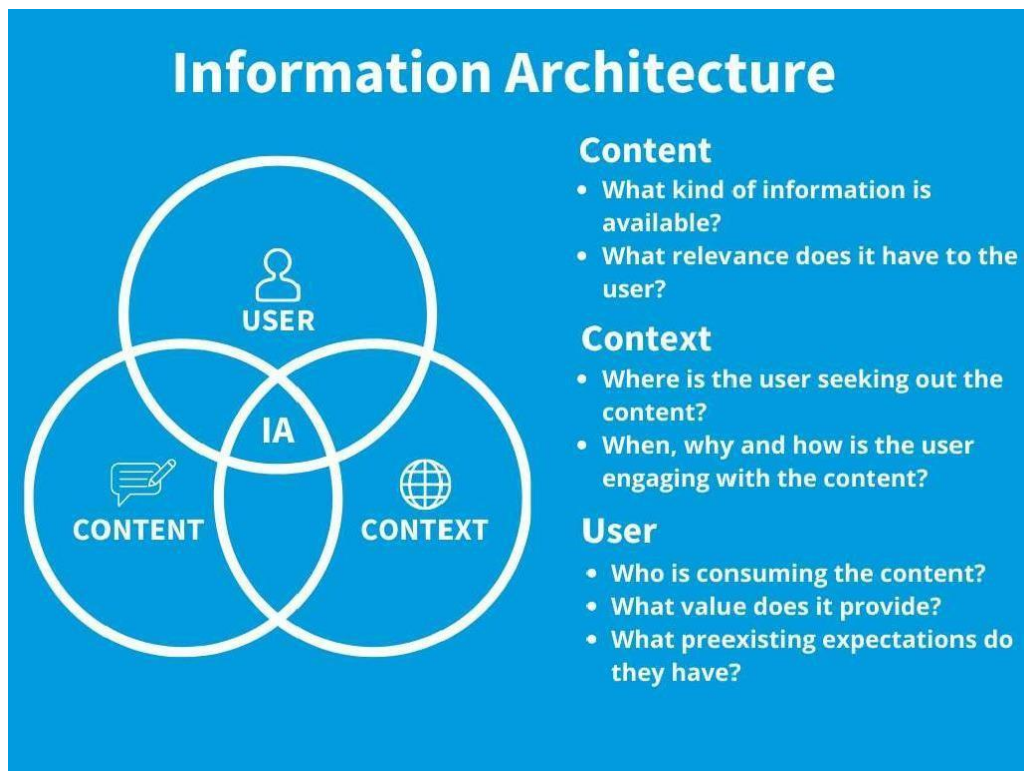
Collaboration and Alignment:

- Facilitate collaboration among design, development, and business teams.
- Ensure alignment on user interactions, reducing misunderstandings and misinterpretations.

INFORMATION ARCHITECTURE:

(Structuring Digital Content for Optimal User Experience)

Definition: Information architecture (IA) refers to the structural design of shared information environments, such as websites and software applications. It involves organizing, structuring, and labeling content to support usability and findability, ensuring users can navigate digital products and interact with them efficiently.



- **Context** relates to business goals, funding, culture, technology, politics, resources and constraints.
- **Content** consists of the document or data types, content objects, volume and existing structures.
- **Users** comprise the audience, tasks, needs, experiences and how they seek information.

Key Components of Information Architecture

• Organization Schemes:

- **Hierarchical:** Content is structured in a top-down manner, resembling a tree-like structure with parent and child categories.

- **Sequential:** Content is organized in a linear sequence, suitable for guiding users through a process or a story.
- **Matrix:** Information is organized using multiple dimensions, allowing users to view content based on various categories simultaneously.

Navigation Systems:

- **Global Navigation:** Primary menus or navigation bars that provide access to main sections of the website.
- **Local Navigation:** Sub-menus or links specific to sections, guiding users within a particular category.
- **Faceted Navigation:** Allows users to filter content based on multiple attributes, refining search results.

Labeling Systems:

- **Descriptive Labels:** Clear and meaningful names for categories and links, aiding users' understanding of content.
- **Consistent Terminology:** Ensures uniformity in naming conventions, preventing confusion among users.
- **Informational Labels:** Provide additional context or explanations, especially for complex terminology or industry-specific terms.

Search Functionality:

- **Search Bar:** Allows users to directly search for specific content or products, providing an alternative navigation method.
- **Search Results Page:** Displays search results clearly, allowing users to refine queries or explore related topics.

Site Maps and Wireframes:

- **Site Maps:** Visual representations of the website's structure, showing the hierarchy and relationships between pages or sections.
- **Wireframes:** Low-fidelity representations of web pages, outlining the layout and placement of elements without detailed design.

Importance of Information Architecture:

Enhanced User Experience:

- Well-organized IA ensures users can quickly find relevant information, leading to a seamless and satisfying user experience.

- Intuitive navigation reduces frustration, encouraging users to explore the website further.

Improved Accessibility:

- Clear organization benefits users with disabilities, as screen readers and assistive technologies rely on logical structure and labeling.

Supports Content Strategy:

- IA aligns with content strategy by structuring information in a way that supports the communication of key messages and objectives.

Boosts SEO:

- Logical and organized content enhances search engine optimization (SEO), making it easier for search engines to index and rank pages.

Facilitates Scalability:

- Well-planned IA allows for easy expansion and addition of content over time, maintaining coherence as the website grows.

Facilitates Collaboration:

- IA serves as a common language between stakeholders, designers, developers, and content creators, ensuring everyone understands the structure and purpose of the digital platform.

In summary, information architecture is a foundational element in web and application design. It focuses on creating a user-friendly, organized, and accessible structure, laying the groundwork for a positive user experience and effective communication of information.

Information Architecture guide for UX designers:

<https://www.youtube.com/watch?v=akWDacn5IIA&t=222s>

Information Architecture Design: A Step-By-Step Guide

Information architecture is a discipline that focuses on organizing information within digital products clearly and logically. It helps users answer the question, “Where can I find the information I’m looking for?”

This guide will discuss 10 steps you need to go through to design information architecture for your product.

Step 1: Understand user goals

In product design, it is essential to understand who you are designing for. People look for information in different ways, and different people look for different kinds of information. You need to understand what users are trying to achieve using your product.

You need to find the answers to the questions:

- *Who will be using a product?*
- *What are they going to do?*
- *What do they want to achieve?*

It's vital to invest in user research. Through research, information architects can learn how the target audience thinks when they interact with a product, and this will help them organize the information in a way that meets the user's needs.

You should create user personas (archetypes of ideal users).

and define the mental models of your users. You need to structure the information based on the mental models. Show exactly what users expect to see at places where they expect to see it.

Step 2: Define business objectives

After identifying user goals, you need to understand how information architecture should help the company achieve business goals. It is better to conduct a brainstorming session with stakeholders to set clear business objectives. You need to identify primary and secondary business goals.

Business objective 1:
Make more money by selling more products

Business objective 2:
Help users make better decisions

Business objective 3:
Improve customer support service

List of the business objectives for eCommerce website.

Step3: Conduct competitor analysis

After you define user and business goals, it's time to conduct competitor analysis. The information architecture design should be based on

	S	W	O	T
Your company	Strengths	Weaknesses	Opportunities	Threats
Competitor	Strengths	Weaknesses	Opportunities	Threats

your products available on the market. Take a look at the competition. Analysis: your goal is to identify the organization that your competitors that you can explore.

SWOT analysis.

Step4: Define content

Next, you need to define your content. Information architects should have a good understanding of the content that the product offers. If you are redesigning an existing product, you should conduct content inventory first. Below you can see a template for a content inventory spreadsheet for websites. It typically includes page ID, page level in description, the hierarchy, URL, content type,

ID	Page level	Page title	URL	Content type	Keywords
1	1	Product A	https://www.	Basic content	keyword 1

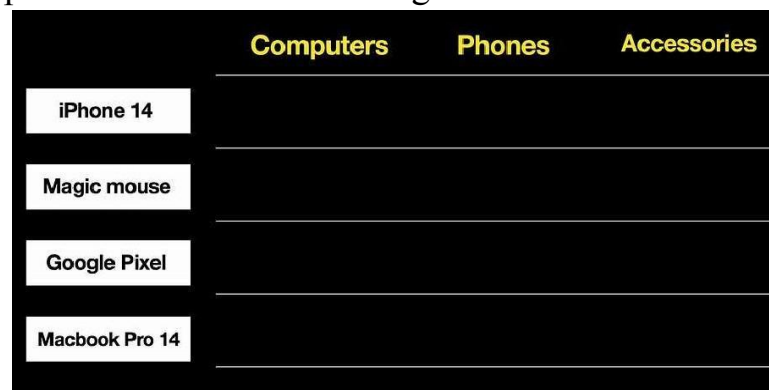
Content inventory spreadsheet for a website

Collect all content that your product has and then conduct a content audit—decide what you want to keep and remove (based on user and business needs).

Step 5: Categorize & prioritize content

Then you need to categorize and prioritize content. You need to decide what content should go on the website. Categorize content and group similar content together to create logical chunks. Web analytic tools like Google Analytics and techniques like card sorting and contextual inquiries will help you learn how to structure content.

Here is how a card-sorting exercise works. Suppose you design an e-commerce website that sells electronics. You write items on cards, define certain categories, and ask test participants to sort cards into categories.



Card sorting: cards (white blocks) and categories (yellow text).

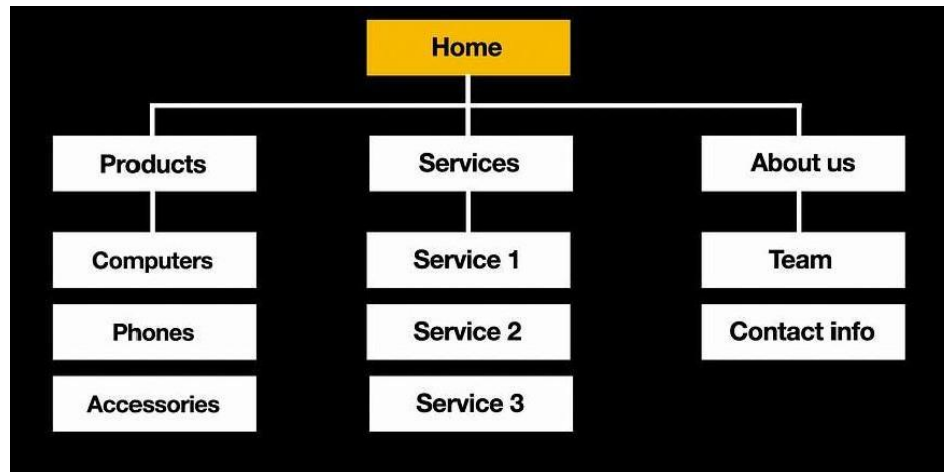
And test participants will group the items according to the categories. It is also possible to leave categories open-ended so that participants can create their own categories that make sense to them.



Results of card sorting.

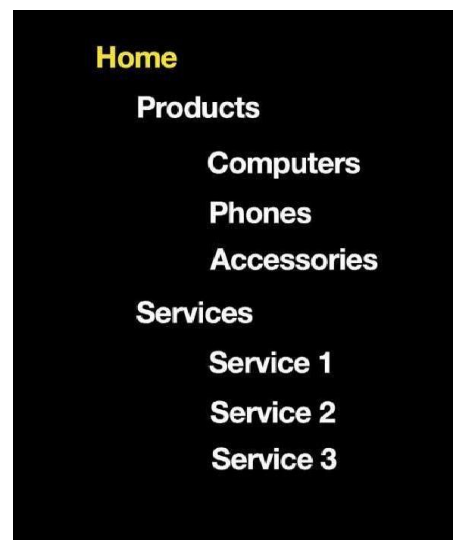
Step 6: Create a sitemap

Based on the content groups you've established in the previous step, you can create a sitemap, a visual representation of the content available on your website or in your app. The sitemap contains parent and child pages. It helps us see the hierarchy of content and structure of the overall website or app — what leads to what.



A sitemap for an e-commerce website that sells electronics.

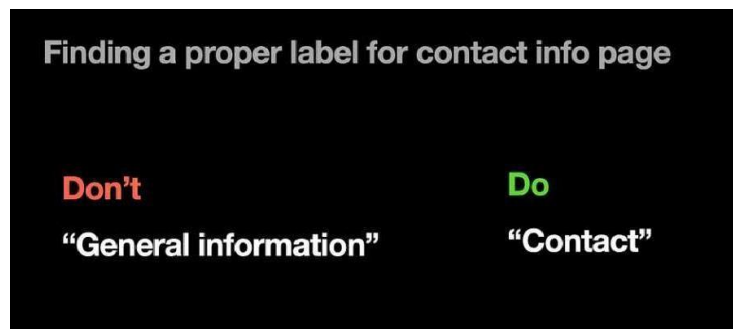
A sitemap should not be fancy; you can create it using tabs like in the example below. This format works well when the structure to communicate is complex and you need to communicate other people.



A sitemap in a format of tabs.

Labels will help people orient themselves on your website. A label can be a page name, the name of a category in the menu, or a section name. Labels tell users what they can expect when they choose a particular option. For example, when users see a category with the label 'Macbooks', they think that when they click this category, they will navigate to a page with MacBooks.

You want to ensure that labels are clear and concise so that users can understand their meaning at a glance.



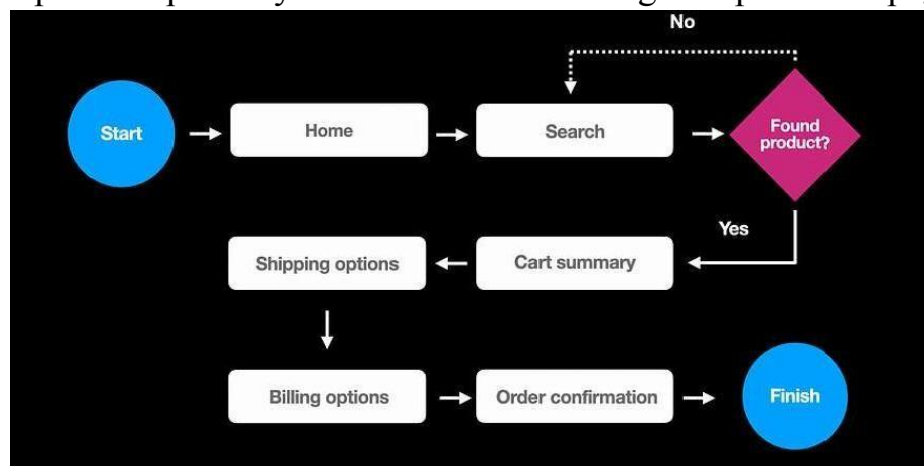
Finding a proper label for the contact info page.

Step 8: Design navigation system & userflows

s. A navigation A to B. It will

Next, you need to outline the navigation system and user flow system will help you understand how users will navigate from

make it evident how content on your product is interlinked and how users will navigate from one page to another. A navigation system will include menus, breadcrumbs, and internal links. Your goal in this step is to establish all possible pathways users can take to navigate a particular page.

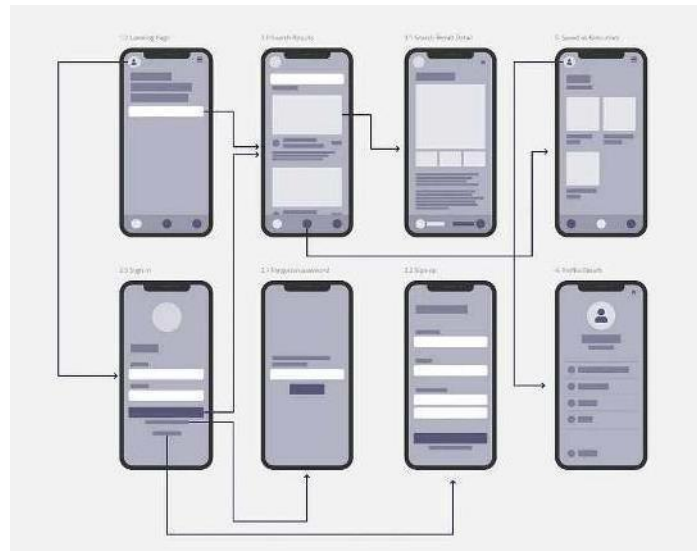


Userflow example for Commerce website.

Step 9: Prototype userflow

The goal of creating a prototype is to define a visual hierarchy of content on individual pages and see how different pages work together. Visual hierarchy defines the order in which users will explore the content on individual pages. You need to ensure that the visual hierarchy you have helps users achieve their goals and, at the same time, increase your conversion rate.

Usually, IA architects create clickable wireframes that have a limited number of graphic elements because it is enough to demonstrate hierarchy of information and navigation.



Clickable wireframes.

Step 10: Validate your design

You need to conduct usability testing to ensure your users can go through your system to complete their tasks. Prepare a set of tasks, invite people who represent your target audience, and let them complete the tasks using your design. For example, if you design a Commerce website, the task can be “Find a laptop that you like and buy it.”

You also need to define metrics for each task you want to perform. Testing will also help you identify where users need more information to make an informed decision.

	Time on task	Num. of clicks
Task 1	2 min 50 sec	23
Task 2	3 min 20 sec	20
Task 3	2 min	12

Results of usability testing.

Conclusion

Information architecture creates a foundation for efficient user experience.

Content is the heart of every product. Well-organized content will help your users interact with your app or website, leading to a great experience.