

Penn State Harrisburg Basketball



Harrisburg

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Phase 0 -Problem Space

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Organizational Analysis:

Penn State Harrisburg basketball is a program that strives for excellence in everything that student athletes, coaches, and staff are a part of. The mission and primary goal of the program is to provide student athletes with a positive experience while both academically and athletically preparing them for life beyond the University. To achieve this the program thrives on a number of concepts: Being smart, strong, working hard, and working together as a team.

The biggest event to the team, as for any athletic team that has been preparing during the off season, is the start of the regular season. For this basketball program, that date falls on November 14th. Although prior to the start of the season, there will be a number of scrimmages to get the team ready for their opponents and these are expected to start late October to early November, these dates are the expected completion of our final product in order for the users to be able to apply the product and learn it. Along with the scrimmages, there will also be practices in which a certain number of drills will be performed and each player will be watched as to which was their strongest and weakest areas. A big service that they provide the players is game tape or tapes of scrimmages so that they can go back and rewatch something they did wrong, right, or something they wish they would've done. They can also use these to scout players of the opposing team in order to get the players ready as to what their areas of expertise are.

Our final product will strive to be an easy to use system that can be adopted quickly with maximum efficiency. The first problem we will run into is teaching first time users how to use this application. Along with this the computers that the intended users are going to use these

forms are will need to be able to open and edit a pdf. We will need to run some prototypes past our client, Donald Friday Head coach of the team, to see what messes well with him and his staff and what doesn't so that we may find other solutions in a timely fashion. We will also need to make sure that the users who this is intended for will be able to run the program on their computers without any difficulties just by doing a quick check on a few of the machines. The easiest issue to solve is the problem of getting the final product done before the start of the season, we want the client to be able to show his staff how the product works and can easily implement it into his training regimen quickly before the first game.

User Characteristics :

In order to effectively further our understanding of the problem space we must discuss the users that will be operating our new instantiated methods. Mr. Friday will be our main target user for our solution to his dilemma regarding intuitive forms needed for his Penn State's women's basketball team.

We can define his level of expertise in order to fully accommodate his needs when it comes to implementing our new form designs to ensure that Mr. Friday is fully capable of assimilating with the new software technology. From the client interview, we have discovered that Mr. Friday has used Microsoft Word to create his forms template. Although he has this technological skill, his classification regarding his expertise on the matter would be labeled as novice. He has had no prior experience with using an editable PDF file using Adobe Professional Pro. Since assessing his expertise level, we can further conclude to make a very

user oriented design, that is simple and effective in its use for Mr. Friday to create and edit with ease.

In this next paragraph we will go over intrinsic and extrinsic motivators that our user, Mr. Friday, sees in transitioning to a newer software technology. Clearly understanding these motivators will allow us to effectively create a viable solution for Mr. Friday's needs.

Intrinsic motivators

- Pride (Self-respect)
- Personal Challenge (Desirable ends)
- Efficiency (Gathering data on athletes)
- Stress (Reduce frustration)
- Skill improvement (Improve coaching skills)

Extrinsic motivators

- Awards (Trophies)
- Gain recognition (Fame)
- Improved team strategies
- Better utilization of individual players strengths

Problem Space:

Penn State Harrisburg basketball is a program to provide Penn State student-athletes with a positive experience academically and athletically readying them for life beyond higher education. Our object is to create a fillable Reports/basketball preparation form with form fields for the basketball program. Portable Document Format (PDF) is a very popular file format used to read or create documents in some software like Adobe Acrobat, Nitro and so on. Many users know how to convert Word or Excel forms into a PDF file, but not many users know how to make PDF file forms with fillable field. Fillable PDF is a good way to enhance user experience, especially when users need to type some information into a PDF directly, they don't need to waste time trying edit on Word or Excel and then convert to PDF. One of our goal is that users want to edit in PDF file directly. Other goals included:

- That users want to avoid bad handwriting ,Fillable PDF will provide legible and clear text in their pdf document.
- That users want to easily open, edit and submit their existing document.
- That users want to store the pdf form in order to reduce paper consumption.
- That users want to simplify and organize their pdf form easily.

A result was that users will very enjoy to edit in fillable PDF, because Fillable PDF is fast, easy and convenient to use

• **Are there problems with the existing product or user experience? If so, what are they?**

There are several problems with the existing product:

- **Different format** -- The existing PDF forms are usually converted from Word or Excel, however the file format will be different compared to the original file after conversion.
- **Difficult to Use** -- The design of the existing PDF page is terrible, for example, the existing pdf file is missing many components such as Practice number table and Scrimmage notes table.
- **Difficult to Edit** -- The existing PDF format is not designed for editing .Users can read the PDF files by using Adobe Acrobat for free, but if they wanted to edit the PDF, then they must pay an additional amount for Adobe Acrobat Pro.

•**Why do you think there are problems the product or user experience?**

Many people like to use Word instead of PDF because of the existing PDF isn't fillable. The most popular pdf reader is Adobe Acrobat, however the free Adobe Reader cannot create fillable forms, so people rather to edit documents in Word or Excel. On other hand, PDF is design for print, and it isn't as professional as Microsoft office. Such as the interface and toolbar are terrible.

•**How do you think your proposed design ideas might overcome these?**

Our proposed design ideas are to create PDF file with form fields such as text fields, buttons, listboxes. Our team will redesign the PDf document which make it better to use. Fillable PDF documents can let my user to edit existing PDF document directly, so my user don't need to worry about converting or formatting problem. My user can type information into each form fields, such as Game data, Announcement note, Player Name and some other information directly, which make PDF documents fast, easy and convenient to use.

Assumptions and Claims:

Summarize the initial assumptions and claims

We have assumptions and claims about the fillable PDF form and how user will use the fillable PDF form. Our main user is coach Donald Friday who is the Penn State Harrisburg basketball head coach.

Initial Assumptions and claims

In the recent decades, many design software have been created in this digital information age that do a number of different tasks and they differ from one another. At the beginning of this project we claimed that the current version was very hard to use and read, and also hard to maintain with the amount of time they will utilize it. Recently, the coach assigned us our main task, which is to design a fillable PDF form for the basketball team. We assume that the user expects a nice sleek format form. Also a lot of users want the fillable form, so to go along with this we assume we should expect the form to be easy to edit when they move the file to a different computer. Plus, the fillable PDF file will greatly increase the efficiency compared to the older version PDF. With our assumptions in line, we claim that this form will be much more convenient and easier to deal with than the previous versions.

Reformulated assumptions and claims

Based on our assumptions, now we have come to an agreement that it should look the same with included functionality. The coach would also like us to make available sections to place player photos. The PDF form should be able to keep the original form after the PDF file is converted. After researching methods, we found it best to put pictures in the form and organize

the format in the file. According to the coach, he has to use the word document to do the format repeatedly, so we assumed that he needs a fillable PDF file that will not affect the format when adding a certain section and the overall shape will still stay the same. With these reformulated assumptions, we are able to claim that the version we provide as our final product will be much better to suit the basketball program than previous versions and will help him achieve his current mission and goals. This is an ongoing process so we will keep in constant contact with coach Friday to see if there are things we have missed that he would like created.

Inspiration

We found three different forms that are similar to the basketball form online and compared them. After we compared the three examples, we found that each of them has their unique design and ideas. We can use their design and ideas as our prototypes reference.

2014-15 Penn State MBB Notes

http://grfx.cstv.com/photos/schools/psu/sports/m-baskbl/auto_pdf/2014-15/release/release.pdf

They use bold headings on every section to make it clear for users. This form uses players pictures to point out the players, which makes recognizing athletes easier. This idea is something we will use as a reference for our PDF. Also they separate the players tournament statistics into many section by their names, so users can find the players information quickly. Plus, there is a unique logo next to the name of the university, which is easier for user to recognize the university logo. These are designs that are possibilities in our design of the basketball form.

Temple Women's Basketball

http://owlsports.com/documents/2015/4/1/TUWBB_Final_2014_15.pdf?id=3985

This form uses the table to record players information by rows and columns, and also record the players scores. When users are looking at the scoreboard, they can easily identify the best player in the game. Another perk to this resource is that the form includes team statistics. The score of this team will show how this team goes against their opponents by comparing the statistics in the team statistics table. Last but not least, the form will show the name of the next opponent by upcoming date, which users can check the schedule of the competition.

Basketball Team Roster Template

<http://www.vertex42.com/ExcelTemplates/basketball-roster.html>

We found this form while conducting research on the subject matter through the Internet. This form uses the table to locate the typing space. Users can add additional columns by copying a column and changing the heading. One of the advantages is that it included shot charts to find out where most of your shooting is occurring. Plus, this form use the game information section to communicate game times and to coordinate snack rotations. The organization is pretty clear. When people fill the information, they just follow the line top to bottom to finish the application, which is easier to fill the information without missing any lines.

Our group has concluded through the client interview and a close analysis of the problem space that we can definitely help Mr. Friday in successfully streamlining the process of form creations for his basketball team in order to improve the overall experience and allow Mr. Friday to carry onto more important means of coaching the team, rather than to repeatedly create templates to use for his required forms. The current forms using Microsoft Word, as mentioned didn't include having the ability to automatically input the current date upon software launch, had no editable box regions for practice information and player background information, and

were required to be converted to an appropriate format. Utilizing our analysis of the problem space and motivators, our group has become motivated to design a fully editable PDF template using Adobe Professional Pro to strongly meet his requirements towards editable form templates associated with his women's basketball team.

Project Plan:

This section includes our team members and their roles in this project, as well as an overall schedule.

TEAM MEMBERS & ROLES:

Project Manager	<i>Cheng Yang</i>
Developer	<i>Everyone</i>
Tech. Writer	<i>Sean Groshens, Sothearin Kim</i>
Tester	<i>Everyone</i>
Project Planner	<i>GuangNan Liu</i>
Presentation Planer	<i>Sean Groshens</i>

This section includes the due date of each phase of the project. We will be completed this detail schedule including the due date of each phase and the person or persons expected to complete them.

I D	Task Name	Start	Fini sh	Dura tion	Sep-15						Oct-15				Nov-15				Dec-15		
					8/25 /15	9/1/ 15	9/8/ 15	9/15 /15	9/22 /15	9/29 /15	10/6 /15	10/1 3/15	10/2 0/15	10/2 7/15	11/3 /15	11/1 0/15	11/1 7/15	11/2 4/15	12/1 /15	12/7 /15	
1	Phase0 - Problem Space	8/25 /15	9/27 /15	30d																	
2	Phase1 - Require ments Analysi s																				
3	Phase2 - Design Alternat ives																				
4	Phase3 - System Prototyp e																				
5	Phase4 - Evaluati on																				
6	Phase5 - Final Report																				

Phase 1 - Requirements Gathering and Analysis

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User Characteristics:

Stakeholders are the users that will be indirectly and directly be affected by the use of the software. They are the users that allow us to create general requirements and concise features associated with its use. Stakeholders for this certain project include the head coach, assistant coach, and team captain of the basketball team.

Head Coach's are generally in their mid 30's or 40's regarding to age. They have basic skills in using computers, ranging from novice to a casual user, as well as using the internet. Other than being able just to view files on Adobe they do not have any extensive experience with the software. They are looking to progress their roster by giving careful attention to players while building a successful sports program. Without the worry of technology, they seek to increase time improving their team and other methods of areas.

Assistant Coach's are similar to the ages of a head coach, at late 20's to mid 30's. They have an expertise level of novice to casual when using computer and internet technologies. They are familiar with using Adobe software on their computers to open and view documents. They strive to assist the head coach in any manner including organizing and running group exercises with the team.

Team Captains are typically of 20 to 25 years of age. They are usually students as well as players for the teams at the university that they attend. They have a wider range of expertise levels that can go from novice to frequent, when it comes to computer and internet technologies. They have basic knowledge of using the Adobe software, using it to view various documents and

print features. They seek to improve their team through morale and leadership where assistance with technology that is beneficial.

Personas:

Based on the needs of our stakeholders we can create Personas, which are profiles meant to represent an individuals within our stakeholder groups in order to empathize our design features for our project.

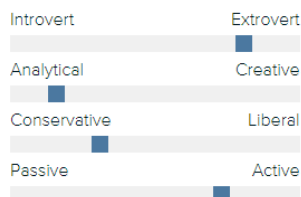
Jeff Dunlap



"Effort is the key to victory."

Age: 38
Work: Head Coach
Family: Married, kids, etc.
Location: Lincoln, Nebraska
Gender: Male

Personality



Motivations

- Watching the Boston Celtics games
- Loves playing with his dog Shiloh
- Posting tweets using Twitter.

Frustrations

- Messy interfaces
- Son leaving the TV on
- Scraps and clutters on his desk

Bio

Jeff is the head coach at the University of Nebraska in Lincoln. He has had six years of past coaching experience at a previous university before transferring to the University of Nebraska. Jeff is interested in drastically reducing time spent in his office doing busy work, so that he can focus on coaching his team. Using an archaic paper filing method, he hopes that the IT team at the university can use Adobe to improve office work efficiency using a software application that he finds familiar. By implementing this method, he hopes to spend more time conditioning his basketball team for future matches and stay committed to his sports program of high excellence.

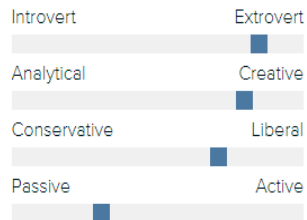
Leonard Matt



"Teamwork makes the dreamwork."

Age: 22
Work: Student Athlete
Family: Single
Location: City, state
Gender: Male

Personality



Motivations

- Spending time with his girlfriend
- Listening to music
- Studying for school
- Playing basketball

Frustrations

- Computer loading screens
- Being swamped in text messages
- Operating his universal TV remote

Bio

Leonard is a student athlete at UTSA in San Antonio, Texas where he studies Finance. He is a senior at his university and has played basketball for the school since his sophomore years. He wants to be able to motivate and lead his basketball team to victory as well as offering the student athletes a satisfactory experience within their sports program. With the idea of an upgrade to Adobe for the office work, he is glad that team statistics and skills will be clear, concise, and updated for him to enforce positive thinking for individual weak areas for players.

Thomas Asterson



"Looking through a glass onion"

Age: 28

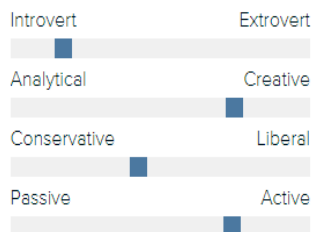
Work: Assistant Coach

Family: Single, Divorced

Location: City, state

Gender: Male

Personality



Motivations

- The goals this user hopes to achieve.
- A task that needs to be completed.
- A life goal to be reached.
- Or an experience to be felt.

Frustrations

- The frustrations this user would like to avoid.
- The obstacle that prevents this user from achieving their goals.
- The problems with the solutions already available.
- The product or service that currently does not exist.

Bio

Thomas is an assistant coach of his basketball team at UCLA in Los Angeles, California. He has been an assistant coach at the university for three years assisting with their basketball sports program. Tom lives alone at an apartment complex on the outside of the main city with his two pet cats Chex and Sherry.

Thomas often gets angry trying to decipher the written team exercises given to him by the head coach for they can get as he puts it "extremely messy". Leonard hopes that in upgrading to Adobe, he will be able to efficiently interpret team warmups and group exercises to his team without having to scan through an eraser marked form. Leonard is excited to begin using Adobe to not only instruct his group but to have his team information present in an organized manner.

Requirements:

Functional Requirements:

Functional requirements usually mean what the system should do. In our project, The fillable Reports/basketball preparation form will provide an easy to use system that can be adopted quickly with maximum efficiency. Fillable reports/basketball preparation form will be able to assist our stakeholder, Coach Friday of the Penn State Harrisburg basketball team in multiple ways:

- It will allow the user to edit in a PDF file directly.
- It will provide legible and clear text in their pdf document.
- It will allow the user to easily open, edit and submit their form.
- It will let the user simplify and organize their pdf form easily.
- It will help the user reduce the chance for errors.
- It can help the user work more efficiently while saving time and money.

Data Requirements:

Data requirements capture the type, volatility, size/amount, persistence, accuracy, and value of the required data. Fillable Reports/basketball preparation forms should display information for each text field. Almost every text field requires input from the users, such as player name and practice date. Therefore, our team needs to focus on how to make sure all the user inputs are consistent in order to stay valid for their intended data types.

The following are few data requirements that we identified:

Data	Data type	Example/Format
Date	Date	09/01/2005
Player Full Name	Char(15):allow 15 digit inputs	GuangNan Liu
Player Initial	Char(5) : only allow 5 digit inputs	GuN L
Notification	Char(50): allow 50 digit inputs	We have game today started at 5PM
Player weight	Decimal(7,3): Allow max 7 digit inputs, 3 is behind the decimal point.	164.122lbs
Player number	Number	10

Environmental Requirements:

Environmental Requirements or Context of use refer to the different environments in which the fillable form will be expected to operate. There are a total of four types of environments that must be considered when establishing requirements:

1. Physical Environments

The example of physical environments is how much lighting, noise, and dust will be expected when user use our product. We consider our user might need to open the PDF form by using smartphone, tablet and laptops. We understand our user will read or edit the PDF form under the sunlight, it might cause some problem such as glare. Therefore, our design should have

strong color contrast on text, background which will make the form still readable under the sunlight.

2. Social Environments

Social environment is the interaction between two or more users such as collaboration and coordination. Basketball game/player data will be shared with every member in Penn State Harrisburg Basketball program. Every player needs to view the data collectively, because there will also be practices in which a certain number of drills will be performed and each player will be critiqued as to which was their strongest and weakest areas. Also, each player's score and skills will be recorded in each practice game, so Coach Friday needs to review these Game/Players' data in order to improve our basketball player.

3. Organizational Environments

The organizational environments shows how good is user support likely to be and how hierarchical is the management. The organizational structure for Penn State Harrisburg basketball team is consists of the Head coach, Coaching staffs of the team, and Basketball players. Head Coach Friday of the Penn State Harrisburg basketball team will have ultimate control over what kind of data should input into the report form. Coaching staffs would need to input the data into report form. Players would need to review this information in order to improve themselves. When submitting each PDF, there will be time to show Coach Friday how the system works.

4. Technical Environments

Technical environments is what technologies will the fillable form run on or need to be compatible. The original forms are built with Microsoft word doc and then converted to PDF file. So, we created Fillable Reports/basketball preparation form by using Adobe Acrobat Pro. Here are some reason that we chose Adobe Acrobat Pro:

- Adobe Acrobat is popular PDF reader.
- Adobe Acrobat almost support all the Operating system.
- Many Browser have Adobe PDF reader plug-ins.

So, the fillable forms that we create can open in many device such as Iphone, Android phone, and it can running under different Operating system such as Windows, Ios, Android. There are so many PDF creator/maker online, but Adobe Acrobat provides us with strong compatibility and detailed tutorials which is very important to our team and users.

Data Gathering Techniques:

Our primary data gathering technique is interviews. As of now, we have met with our stakeholder, Coach Friday of the Penn State Harrisburg basketball team, to discuss requirements he needs, ideas we had that expanded on the original idea, and to show prototypes of each document we have designed. Interviews have allowed us to properly discuss the key features that Coach Friday wants in this system and clarify things based on his previous model. Our secondary technique will be observation, specifically, direct observation. We will accomplish this by going to practices or scrimmages to see how the current version and our prototypes are being used in

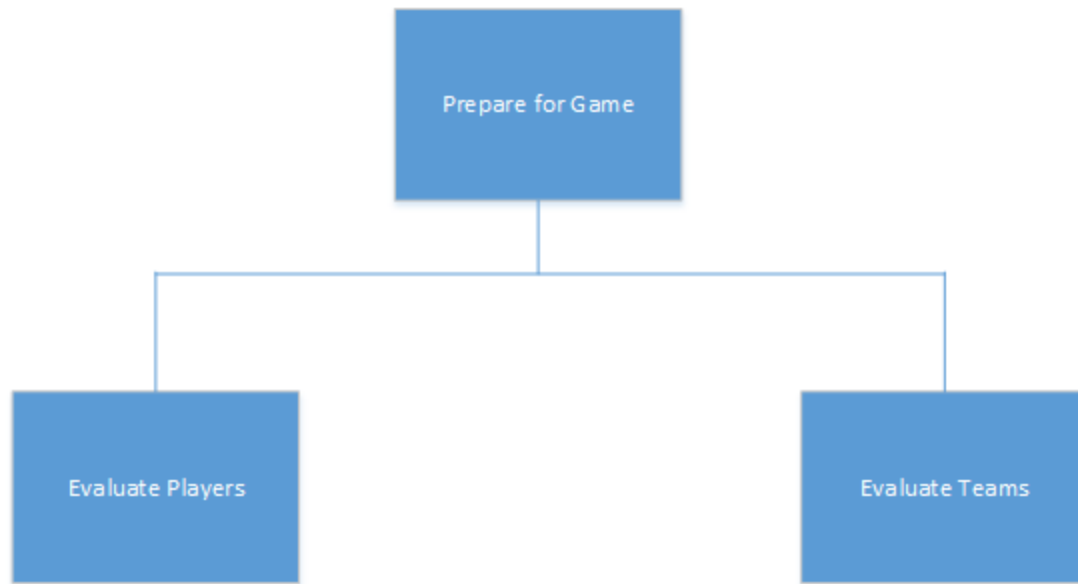
the field. This will help us get an idea of how exactly the current models are going being used and how we can create our own requirements that would make the final product easier for the coaching staff.

We may touch on questionnaires if we need more information. These questionnaires will be distributed to the coaching staff of the team and possibly the players (as they will use the scouting reports) so that we may get an idea of features they like on the current product or any problems they are having with the prototypes we have provided. These questions will be a series of open and close ended questions. Also we looked up some samples related to our project to get a better understanding of how things should flow, and some extra features that we may have overlooked.

As for data analysis, we will be doing some Volere shell cards to get a better visualization of our requirements and of the information we gathered in the past. This will help us to better understand each requirement that is expected so that we may plan ahead and check off each requirement as the design process approaches the end.

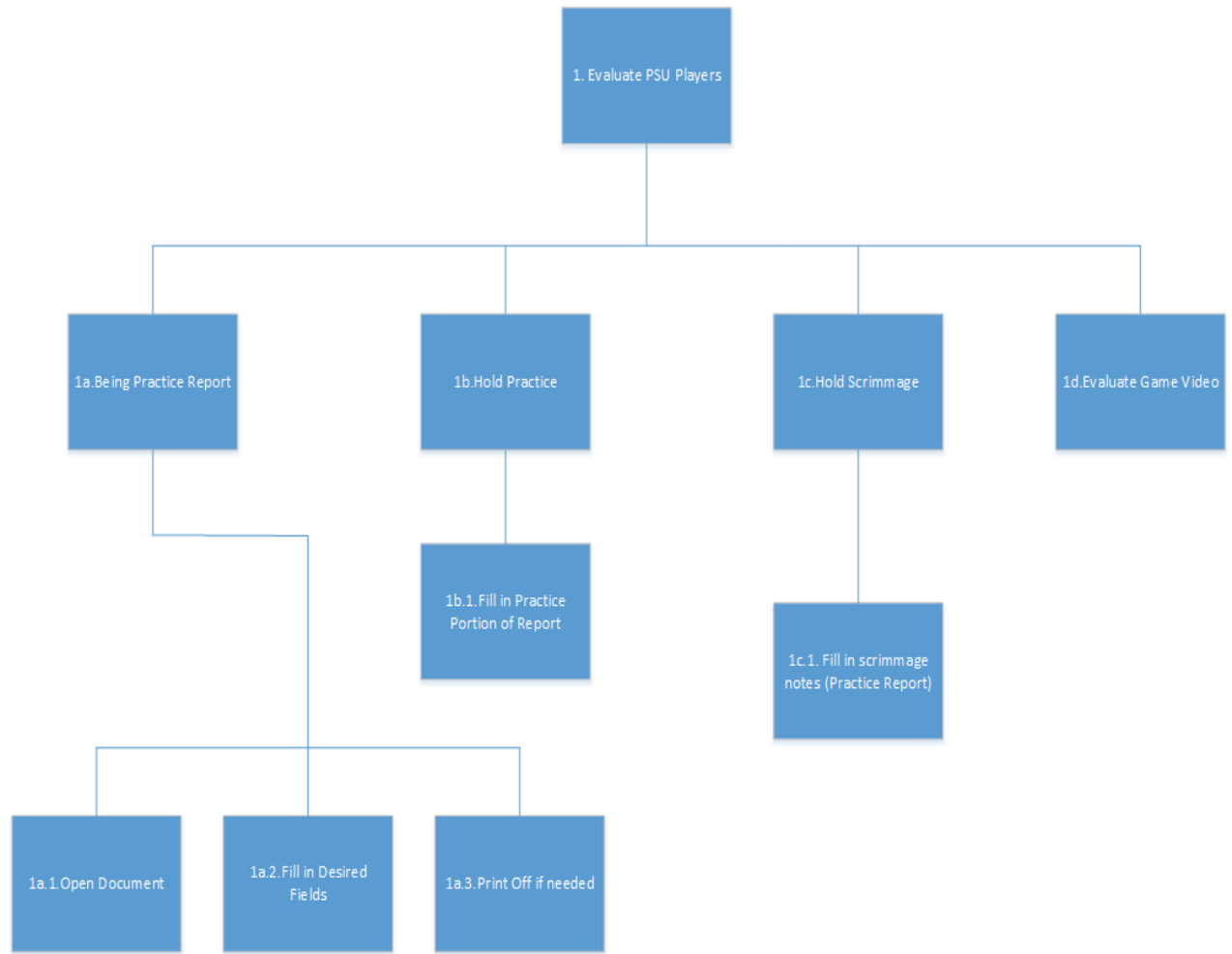
Task Analysis:

The task of preparing for a game, which is the center reason for doing this systems, can be broken up into two main tasks, evaluating players, broken down into Penn State players and then a separate system to scout opposing players, and then evaluating the opposing team.



Evaluate PSU Players

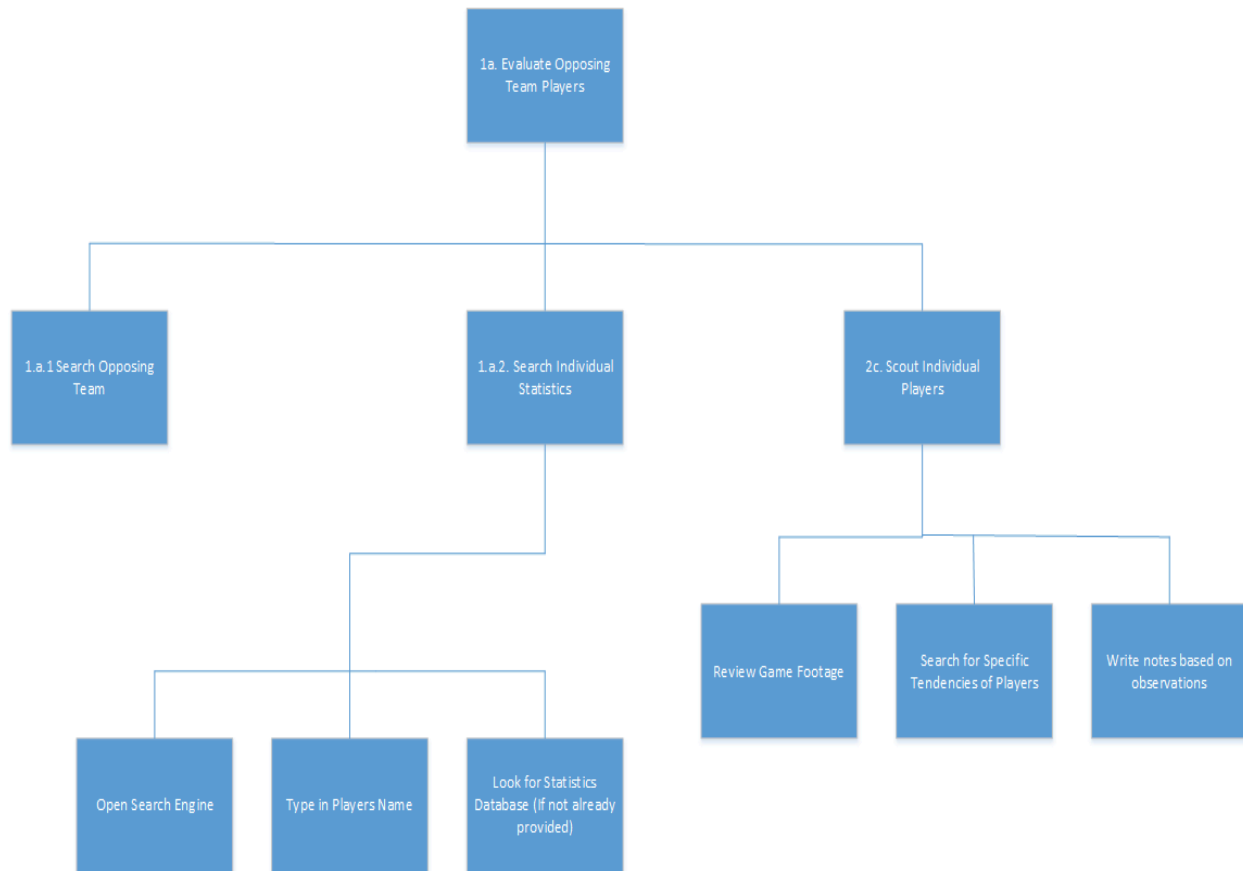
The first step is to evaluate the penn state harrisburg players. This involves holding practice and scrimmages in order to run specific drills and plays that the coach may want to utilize in the game. This can also include watching game film of previous games or scrimmages. Included in this task is creating the practice report which is responsible for keeping track of everything that will need to be done during practice. Also included is the teams for a possible scrimmage to be played after practice. Information from practice, scrimmages, and any other relevant information will be entered into the practice report.



Evaluate Opposing Players

Along with our own players, the coaching staff will need to evaluate the opposing team's players for certain things. They will need to make note of the statistics that each player has so that they may plan accordingly. They will be able to draw out which players are better free throw shooters, better three point shooters, etc. This is done by either looking at a statistics database or possibly having an up to date version of the statistics already. Also, game footage plays a big part as this allows the staff to find specific tendencies of opposing players so that they may shell out

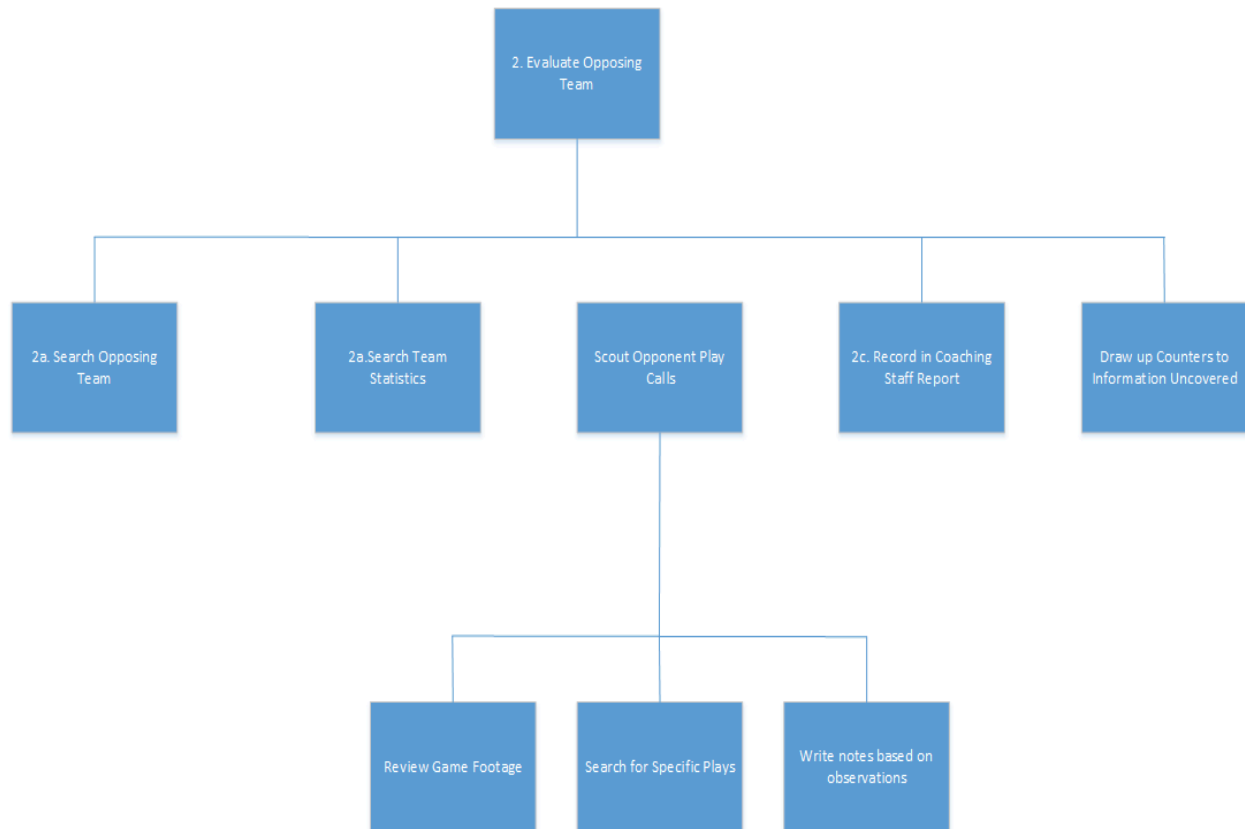
their strengths and weaknesses and adjust accordingly for the game. All this is to be reported on the player scouting report.



Evaluate Opposing Team

The final step is to scout the opposing team. The staff will already have an idea of a player's strengths and weaknesses but they will need to scout the team as a whole in order to get specific things such as play calls. They will also need to know team statistics such as points off fast breaks, points off of turnovers, etc. The coaching staff may view previous game footage of these teams in order to evaluate the way that they set up plays or where certain players are better in the court. This leads into describing and identifying the opponents play calls and trying to

come up with ways to counteract them. These will all come together to describe how to beat an opponent using the most efficient and effective means. All this information will be recorded in the staff scouting report to allow for a more in depth analysis.



Draw any remaining notes

Some of the notes will have to be done off of the computer as the word document does not allow for the editing of certain fields. As such, the coach may remember to add something to one of the half court pictures that is on some of the forms. This will allow for the user to come back and correct or add notes that may have been overlooked.

The current task environment is a rather simple one as this involves a college sports team. It includes the school, school staff, the coaching staff, the players, and the competitors. This current task environment is meant to be a supportive system to the organization as it helps them achieve their goal which is to, provide student athletes with a positive experience academically and athletically, readying them for life beyond the University. The school, school staff, and the coaching staff will all come together in order to ensure that the players are all well looked after and are excelling in both the academic environment and the basketball court.

The rationale of the current system, which was developed a few years ago, is that it is easier to use than previous models. The current system uses Microsoft word to assemble the scouting reports, practice reports, opponent notes, and other forms related to getting ready for games. This is to make it easier for the coaching staff to create reports and get them out faster than they would if they were to continuously write it by hand every time. It also saves a lot of time that they could be doing other things to get the team ready.

Usability Goals:

Usability goals is a gauge to help us design the fillable Reports/basketball preparation form more effectively for the user. We need to clearly state the usability goals in the beginning of the project. The following are some of the usability goals:

Efficiency	
How efficiently are users able to write down the information?	The fillable PDF form should be automatically formatting when users type the information. So the users do not need to worry about the format all the time. Also the format of the form should be simple and clear for user to improve the readability of the form.
Memorability	
What aspects of the design allow the users to remember how to use the fillable form?	The fillable PDF form should follow a similar layout for all the pages and simple design so that it is easier for the users to remember how to use the fillable PDF form. Also users should take the time to practice with the fillable form multiple times so that they easily understand how it works.
Utility	
Does the fillable PDF form provide the right kind of functionality so users can do what they suppose to do?	The fillable PDF form should be easy to use with simple instructions design for typing information in the text field and insert picture in the picture field. Also the form should be able to reuse many times during the course of the season. The functionalities and features should not be overly complicated.
Learnability	
How long should it take for user(considering the different types) to learn to use the fillable PDF form?	For the first time to use the fillable PDF form, users should spend their time to understand and work with it. If the fillable PDF form is too complex to use and understand, users have spend a lot of time to work and they will lose interested with the product. Also, users who are adept with computers should still realize all the features and uses of the fillable PDF form.

User Experience Goals:

User-experience goals focus on user's' feeling from their interaction with the system and what users need to improve the system. We have use these goals to gauge what would improving the quality of the user's interaction. Following are some of the user experience goals:

Helpful	User should be able to easily type down all the information (Player information, practice details and analysis, game plan and so on) on the fillable PDF form. Likewise, the fillable PDF form should be able to organize the formation of form which is more clearer than handwriting styles. Additionally, it also improve the writing efficiency which is saving a lot of time for the users. If users need to use fillable PDF form in multiple times, users have to keep the original PDF and always to save PDF as different PDF.
Rewarding	The users should feel satisfied and comfortable with their experience after using the fillable PDF form. The fillable PDF form achieve the requirements which are easy to use, easy to learn and saving time.

SCHEDULE:

This section includes the due date of each phase of the project. We will be completed this detail schedule including the due date of each phase and the person or persons expected to complete them.

	Task Name	Start	Finish	Duration	15-Sep					15-Oct				
					8/25/15	9/1/15	9/8/15	9/22/15	9/29/15	10/6/15	10/13/15	10/20/15	10/22/15	10/31/15
1	Phase0 Problem Space	8/25/15	9/27/15	30 days										
2	Phase1 Requirements Analysis	9/28/15	10/22/15	24 days										
3	Phase2 Design Alternatives													
4	Phase3 System Prototype													
5	Phase4 Evaluation													
6	Phase5 Final Report													

Phase 2 - Design Alternatives

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Project Description and Requirements Summary:

Penn State Harrisburg basketball is a program that strives for excellence in everything that student athletes, coaches, and staff are a part of. The biggest event to the basketball team is on November 14th, which is the start of the regular season. The basketball program really needs a fully functional fillable PDF form in order to get the players ready as to what their areas of expertise are. The goal for our team is to develop a fillable basketball preparation form data analysis sheet and Scouting Report, with function fields for the basketball program. Our final product will strive to be an easy to use system that can be adopted quickly with maximum efficiency. The Stakeholder will be able to improve their work efficiency by using our final product.

Project requirements is very important steps in the process of project design. On the functional requirement, our final product will be able to assist our stakeholder, Coach Friday of the Penn State Harrisburg basketball team in multiple ways:

- It will allow the user to edit the PDF file directly.
- It will allow the user to upload images into the PDF file.
- It will allow the user to use a calendar function to select Date/Time.
- It will allow the user to draw in a PDF file directly.
- It will allow the user to use a drop-down menu to select information for the player.
- It will allow the user to tab over to specific columns and rows.

On the non-functional requirement, our final product will be able to execute very stable and smoothly. Any invalid inputs will not cause the system to crash or create other software

issues. The fillable PDF forms will have a nice graphic design and a better format. Our product will be easy to use and learn for our user.

On the data requirements, our final product should display information for each text field and every text field requires an input from our users, such as Game Note and Player Stats. Our final product will be able to make sure all the user inputs are consistent in order to stay valid for their intended data types. In our product, the input format for Date will be “MMM-DD-YYYY”, and the input format for time will be “HH:MM AM/PM”. For text-fields, we used different character limits depending on how much our user will need to type into each text field. For number fields, we used an integer or decimal for each number field. For image fields, it will be able to support common image formats such as png and jpg.

There are a total of four types of environment requirements that must be considered when establishing requirements. The first one is physical environments where our product will be able to be read in outdoor conditions, because we decided to use Zebra Striping and high color contrast to make each textfield easier to read and manage. The second one is social environments where our product will be shared with each member of the Penn State Harrisburg Basketball program, such as the head coach, coaching staffs, and team players. The third one is organizational environments where the head coach will have ultimate control of our product. The coaches staff will be able to input data into the preparation form or scouting report and individual team players will have to view these practice or match stats. The last one is technical environments where our product can only edit, save, and view on Adobe Acrobat Reader, so our

product can run on any device or operating system that has the installation of Adobe Acrobat Reader. So far, our product can operate on Windows, Apple OS X, Android and Linux.

Design Spaces:

By looking at potential interfaces that our group researched, we were able to discover both conceptual and concrete designs that we were able to implement towards our final decisions on the project design. To begin creating a viable design space we went over some conceptual design decisions to further figure out how our user will interact with the product as well as what the user needs to know in order to interact with it. Knowing that Mr. Friday has a beginner skill level when it comes to using computers, we knew he had to do a myriad of different functions that could be easily punched into a form. Some of these ideas included being able to key in player statistics and blank floor charts in order to open in warm up strategies and plans to assess individual team players. Along with blank floor charts to initiate gameplay strategies. Using these potential interfaces we came up with many concrete and conceptual ideas to implement towards our projects form.

In order to get an idea of what we wanted to accomplish as a group we began to look at potential interfaces that we enjoyed from other basketball reports available. Our first interface we discovered was the Penn State MBB form. The bold headings really helps a user navigate the sections of the form. Player pictures that were inserted helped recognize performing athletes faster. This form also separated the player's tournament statistics into different sections, which allows us to see a breakdown of individual players attributes. The pictures at the top of

the form also gave a clear depiction of the current and opposing team to clearly identify the different teams associated with the form. The form however was very cluttered and contained a lot of information that seemed to be obstructing what our user would need in order to analyze the information effectively.

The second form that we came across was from the Temple women's basketball team website. This form used tables with rows and columns to record player information and scores from previous games. When viewing this form it is very easy to identify the best players from the home and opposing teams. Being able to have a side by side comparison of team scores allows the user to identify how well they must be prepared to combat the opponent. An additional perk to this form allows the user to see upcoming dates of the matches. The second form however was very text based and it was difficult to see how all the information was laid out, due to its use of color and information organization.

The third form is a Basketball team roster template. This form allowed our group to see a blank editable version of where inputs may be entered as far as the typing space. The advantage to using this form was the ease of adding additional columns and modifying the headings to accommodate user needs. The shot charts clearly displayed where most shooting would occur. The form also uses a game information section to communicate game times and snack rotations. The organization is very clear and can be edited with ease from the top of the form till the bottom, which will make it easy for our novice user to have less errors. To accommodate our user however, we had to slim down certain pictures and fields to allow for further effectiveness of play building and court strategies.

By taking what we liked and disliked from the combination of discovered forms we were able to create our Adobe PDF form to accommodate our user. We were happy with the ideas that were gathered from these sources and began to implement them into our project.

Design Assessment:

Usability Goals:

Effectiveness	
Prototype 1	The form has a good organizational format that it is very clear and easy to follow.
Prototype 2	There are five large text fields for our users to include notes for each subtitle. Also the table uses zebra striping to contrast out each row so our users will locate needed information immediately.
Prototype 3	We also created picture fields to insert player pictures. The picture fields come with the borders, which clearly identify the sections where an image is able to uploaded.

Efficiency	
Prototype 1	For the time field, it will automatically appear AM or PM after typing numbers. It will help users to save their time from typing additional words.
Prototype 2	The form keeps the same font style and font size which improves the readability for the user. It will reduce the mistakes that may occur for the format.
Prototype 3	Once users select date and insert a college logo on the first page, the rest of the pages will automatically sync this information. It will help user to save a lot of time when filling the same field.

Utility	
Prototype 1	Use Adobe livecycle software to build the function that can insert the date calendar by using drop-down menu. Also when users type the time in the box, it should be automatically display the AM or PM after the number. Using comment marker of Adobe reader software, our users should be able to draw some information on simulated basketball court.
Prototype 2	When users try to type the college name in the text field on the first page, the name will automatically appear on the other text fields for college name on other pages. Also the date text field is operated the same way as text fields for college name.
Prototype 3	The form should be able to have an image field that can insert the college logo and player picture. Also there are many drop-down menus which allow our users to select desired choices.

Learnability	
Prototype 1	The design of this form is using zebra striping to flesh out the fields, which make easy for user to know where the text field.
Prototype 2	The design of this form is simple, and the format of the text field will stay the same so that the user can use it without any mistakes.
Prototype 3	After using insert picture design multiple times, our users will get used to this form.

User experience Goals

Helpful	
Prototype 1	The tables can help users to record the notes. Also the simulated basketball courts help the users to better analyze different situations and player positions.
Prototype 2	The zebra striping table can help users to organize the notes by separate rows. The text fields of this form can help users to organize the format.
Prototype 3	Picture field can help user easy to insert the different type of the pictures.

	Also the drop down menu helps users to select desired fields quickly. The date field and logo field can help user to reduce time in repeat processes.
--	---

Rewarding	
Prototype 1	Easy to record the information in the text field and draw the notes on the simulated basketball courts.
Prototype 2	Easy to organize the format in the text field.
Prototype 3	Easy to use the drop-down menu and also saves time for the users.

Reflection:

When discussing requirements, Coach Friday added that he wanted the PDF to be able to easily tab through the different text boxes for easy data inputting. We also added a requirement ourselves, being able to click on a drop down to see a calendar and adding the date by clicking on a specific day rather than manually inputting. We added a usability goal in effectiveness, this is because we want to make sure that our product is doing the right thing as far as what it is meant to do. If the product isn't effective then there would be no point in redesigning the system.

As far as the difficulty goes, the goals and requirements that have been set for this project are very much achievable and can possibly be taken a step further with enough time. At first things such as adding places where the user could input photos was not something that was seen as doable but with some research the solution was quickly found and will be implemented in later designs. Most difficult things can be learned with enough research and time. One possible

complication is getting the system to run on every device, especially on iOS devices as they may not have the proper tools set up to view the PDF's.

When creating the prototypes we wanted to create something that was very easily recognizable to Coach Friday. So we took the examples of previous versions he used and made them online as editable PDF forms. This ensured that he can easily spot things he needs and does not take much time to learn or much thinking into remembering how to use. Most of the evaluation of our prototypes was done while consulting with Coach Friday. We wanted to make sure that everything looked right for him and ran the way he wanted. We held multiple meetings, and tested the forms both printed and digitally, this ensured that we could mark up everything that we needed to fix or add later in the design process.

Teamwork:

As far as teamwork, we have very active communications with each other and this ensures that we can easily talk about certain things regarding each phase and the design of our final product. When first formed, we were excited to be working on this project and wasn't sure what to think about what we were potentially going to be doing. Once we received our project and the phases started to come, we had to overcome how each of us worked. We discussed a lot about when we could get together in order to work, as other than 2 classes our schedules differed. We set a specific time with Coach Friday for whenever we could stop by and show him updated prototypes, the days were just later shared as a group.

Everyone has taken their tasks and completed them before reporting back to the group for a discussion on particular objectives of that week. Creating a Facebook chat greatly increased our communication after the first couple of weeks on this project as it ensured everyone got up to date changes to our meeting schedule. By phase one we were comfortable with each other and how we worked, we even began to see eye to eye on how to implement many of the requirements that we received from Coach Friday. Once we became even more comfortable we began to see different things we could possibly add as our own requirements and see if the stakeholder was interested in the ideas. At the end of our development, Coach Friday will invite us to be special guests of the basketball team and this can be a great opportunity to get to know each other more socially outside of the bounds of the project or class.

Prototype Presentation:

Prototype 1:

For our first prototype PDF form, we were interested in setting a clean and organized layout based off of our given samples. Things such as date and time were among the issues discovered during this time. We wanted our text fields within our form to accommodate for additional lines of text without compromising the structure. By implementing text field limits as well, we were able to control which information would remain permanent and which would could be editable so that our user would not have to repeat typing. We were intent on using Zebra design to allow for more aesthetic viewing. The last thing we wanted from our first prototype was to set up a form structure to allow us to tab to specific columns and rows so that information can be entered without ever leaving the keyboard space.

Date:

Practice# :

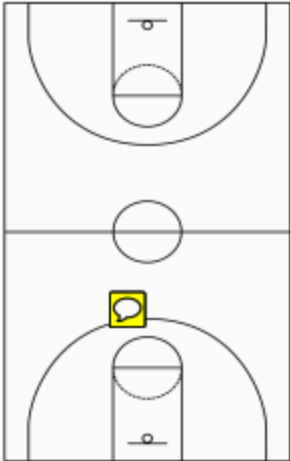
Pre-Practice:



Harrisburg Basketball

Attack The Moment

Time	



PRE-PRATICE IDEAS

TOMORROW'S NOTES

SCRIMMAGE NOTE

TEAM		TEAM	
W	B	W	B

ANNOUNCEMENTS:

Prototype 2:

Our second prototype PDF form we began to brainstorm available PDF functions that could assist our user in editing time consuming data. Zebra design was further implemented at this stage for additional design forms created to accommodate information visibility. On this prototype we were interested in setting up image fields for home and away teams, where our away team logo is an editable image field to accommodate different matches. Mr. Friday wanted additional text fields to be restricted and set for as a template to reduce time spent keying in duplicate information. We also wanted to be able to set duplicate fields to accept data keyed for all pages within the form, to reduce repeat typing. Our group also began to begin tagging every editable field to keep the many pages of forms organized.

Penn State

Scouting Report

Penn State University vs. Army | 29 - Jan - 2015



VS

Offensive Tendencies



3 Point Shooters



Defensive Tendencies



Poorest Foul Shooters



Transition Tendencies

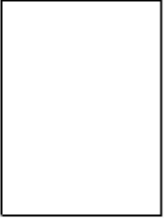
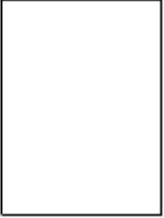


Team Stats

	Penn State University	vs. Opponent
PPG		
FG%		
FGM-A		
3PT %		
FT %		
FTM-A		
ORPG		
DRPG		
RPG		
APG		
TOPG		
STLPG		
BLKPG		

Prototype 3:

Our third prototype PDF form we created image field borders to clearly identify the sections where an image is able to uploaded. A drop down menu java function was implemented for our player stats which included attributes such as position, year, height, and weight. This section had to be very well organized in the layering to accommodate the ease of tabbing feature. A calendar java function was created to allow our user to select a specific date from a popup calendar for the date the form is to be used. A time java function was created as well to allow our user to incorporate specific durations of activities and warm ups. These two functions were also to be updated on all pages to reduce repeated entries. Zebra design as well as restricting additional fields at this stage was still being issued for certain sections of the form. Mr. Friday was also interested in increased size of text for readability for specific tables within our form. He also was interested in having us adjust the alignment and lengths of our columns to further accommodate his needs. Our group also further adjusted field tags to keep our editable form organized.

2015-2016 Penn State Harrisburg Men's Basketball Scouting Report													
													
STARTING LINE-UP													
	#												
								Pts	Reb	Ast	Stl	Blk	Fg
	#												
								Pts	Reb	Ast	Stl	Blk	Fg
	#												
	#												
	#												

This section includes the due date of each phase of the project. We will be completed this detail schedule including the due date of each phase and the person or persons expected to complete them.

	Task Name	Start	Finish	Duration	15-Sep 8/25/15	15-Sep 9/29/15	15-Oct 9/30/15	15-Oct 10/22/15	15-Nov 10/23/15	15-Nov 10/27/15	15-Nov 10/31/15	15-Nov 11/4/15	15-Nov 11/10/15
1	Phase0 Problem Space	8/25/15	9/27/15	30 days									
2	Phase1 Requirements Analysis	9/28/15	10/22/15	25 days									
3	Phase2 Design Alternatives	10/23/15	11/10/15	20 days									
4	Phase3 System Prototype												
5	Phase4 Evaluation												
6	Phase5 Final Report												

Phase 3 - System Prototype and Evaluation Plan

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Project Description:

Penn State Harrisburg basketball is a program that strives for excellence in everything that student athletes, coaches, and staff are a part of. The mission and primary goal of the program is to provide student athletes with a positive experience while both academically and athletically preparing them for life beyond the university. To achieve this, the program thrives on a number of concepts: Being smart, strong, working hard, and working together as a team. The biggest event facing the basketball team is on November 14th, which is the start of the regular season. The basketball program needs a fully functional fillable PDF form in order to get the players prepared as well as discovering their areas of expertise. The goal for our team is to develop a fillable basketball preparation data analysis sheet and scouting report, with editable fields pertaining to the basketball program. Our final product will strive to be an easy to use system that can be adopted quickly with maximum efficiency. The stakeholder will be able to improve their work efficiency by using our final product.

Requirements Summary

Functional Requirements :

Project requirements is an important step in the process of project design. Given the functional requirements, our final product will be able to assist our stakeholder, coach Friday of the Penn State Harrisburg basketball team in multiple ways:

- It will allow the user to edit the PDF files directly.
- It will allow the user to upload images into the PDF file.
- It will allow the user to use calendar functions to select a date and time.
- It will allow the user to sketch in PDF files directly.
- It will allow the user to interact with a drop-down menu to select information regarding the player.
- It will allow the user to use the tab key to navigate over to specific columns and rows.

Non-Functional Requirements :

For the non-functional requirements, our final product will execute smoothly and stable. Any invalid inputs will not cause the system to crash or create other extraneous software issues. The fillable PDF forms will have an improved graphic design and improved structure. Our product will be easy to use and learn for our intended user.

Data Requirements :

On the data requirements, our final product will display title information for each text field and every text field requires an input from our users, such as game note and player stats. Our final product will be able to ensure that all the user inputs are consistent in order to stay valid for their intended data types. In our final product, the input format for our date field will be “MMM-DD-YYYY”, and the input format for the time will be “HH:MM AM/PM”. For text fields, we used different character limits depending on how much our user will need to type into each text field. For number fields, we used an integer or decimal for each number field. For image fields, it will be able to support common image formats such as PNG and JPG.

Environment Requirements :

There are a total of four types of environment requirements that must be considered when establishing requirements. The first one is physical environments, where our product will be able to be read in outdoor conditions. We decided to use zebra striping and high color contrast to make each textfield easier to read and manage. The second one is social environments, where our product will be shared with each member of the Penn State Harrisburg Basketball program, such as the head coach, coaching staffs, and team players. The third one is organizational environments, where the head coach will have ultimate control of our product. The coaches staff will be able to input data into the preparation form or scouting report, where individual team players will have to view the practice or match stats. The last one is technical environments, where our product can only edit, save, and view on Adobe Acrobat Reader, so our product can run on any device or operating system that has the installation of Adobe Acrobat Reader. So far, our product can operate on Windows, Apple OS X, Android and Linux operating systems.

Design Summary:

For our final design, we have met all of the requirements based on usability goals and user experience goals. There are three prototypes in our project, each of them is similar in design and usage. The major advantage of this fillable PDF form is that users can record information faster in a neat and clear format, as well as unlimited times of usage. It will greatly improve *efficiency* and *effectiveness* in many aspects. In order to make it easier for the user to use our form, we decided to use borders and zebra designs to stand out each section. It is not efficient to

have users type redundant information. Thus, for redundant information such as date, school name, and school logos it will automatically key in information on other prototypes as well by just entering the information once.

For the date section, a drop down box function will be accessible for users to select a specific date, which is simple and convenient. All of the users expect a neat and clear interface form design, where zebra stripings and borders make it high in *utility* by allowing them to differentiate each category. *Learnability* is an important goal in our final design project because no user will prefer a complex and complicated fillable PDF form. To achieve this goal, we created three prototypes and each of them contain these different categories, which will not be complicated for the users to follow and will be easy to learn. It is *helpful* and *rewarding* by targeting the major user of our form, coach Friday, to provide him an organized, fully functional fillable PDF form, while making sure that the PDF form will meet the user requirements.

Although developing this high-fidelity prototype is a time-consuming process, we gained important experience during the process and learned how to better meet the requirements. If we want our product to be successful, we need to conduct usability testing on our product before sending it to a large group of the user population to see if our product is usable for our intended stakeholders.

Prototypes:

Prototype 1:

For our first prototype PDF form, we were interested in creating a clean and organized layout based off of our given samples. Things such as date and time were among the issues discovered during this time. We wanted our text fields within our form to accommodate for additional lines of text without compromising the structure. By implementing text field limits as well, we were able to control which information would remain permanent and which would could be editable so that our user would not have to repeat typing. We were intent on using Zebra design to allow for more aesthetic viewing. The last thing we wanted from our first prototype was to set up a form structure to allow us to tab to specific columns and rows so that information can be entered without ever leaving the keyboard space.

Date:

Practice# :

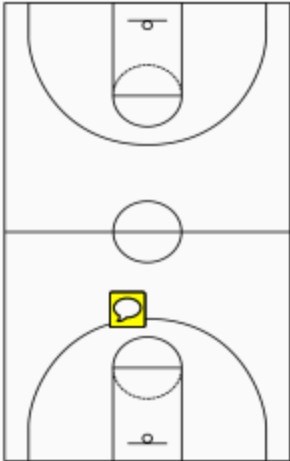
Pre-Practice:



Harrisburg Basketball

Attack The Moment

Time	



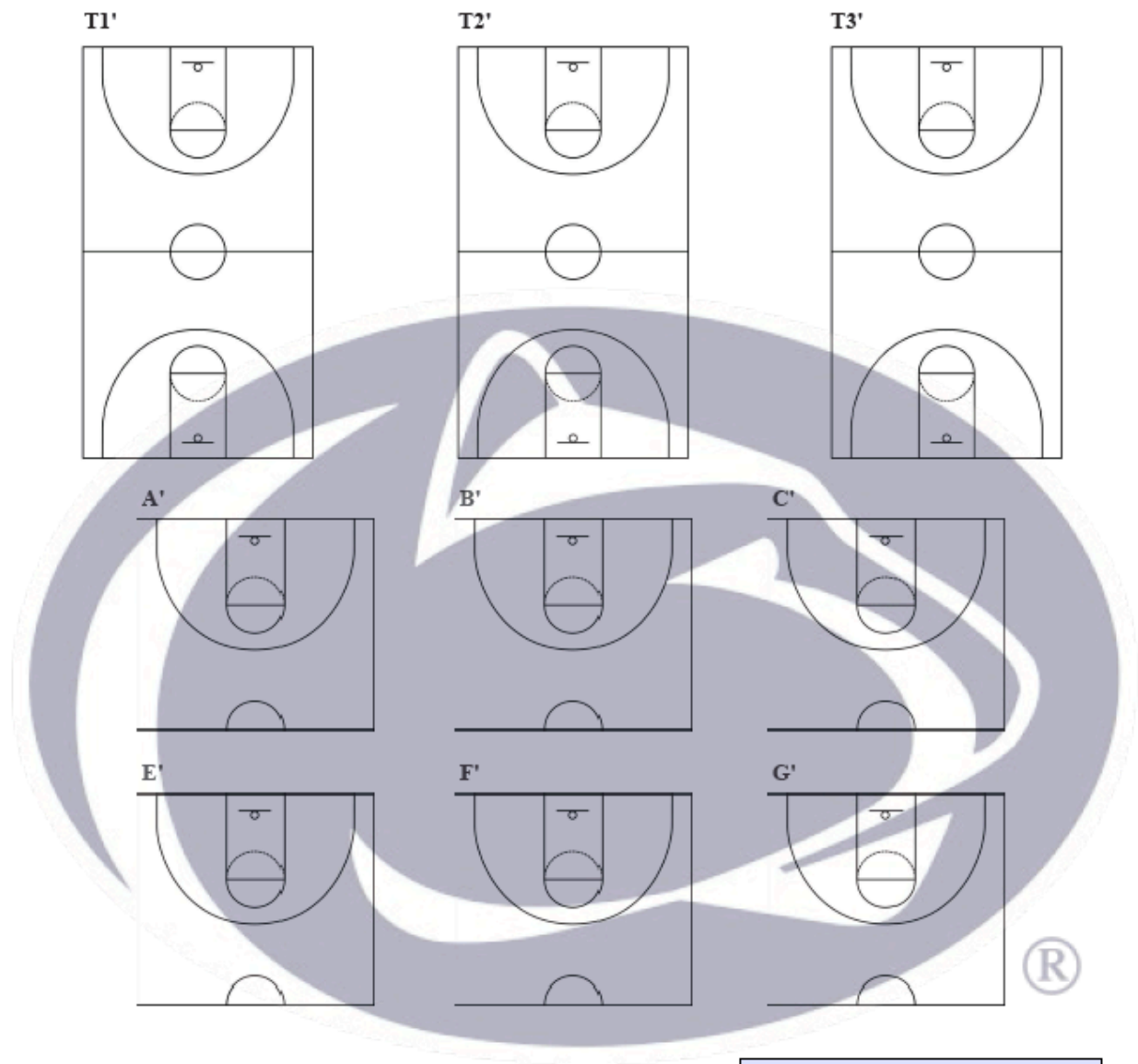
PRE-PRATICE IDEAS

TOMORROW'S NOTES

SCRIMMAGE NOTE

TEAM		TEAM	
W	B	W	B

ANNOUNCEMENTS:

**Situations**

A Personnel:

B Personnel:

C Personnel:

D Personnel:

Points: OFF-GUARDS: SWINGS: POWER: CENTER:

Prototype 2:

Our second prototype PDF form we began by brainstorming available PDF functions that could assist our user in editing time consuming data entries. Zebra stripe design was further implemented at this stage for additional design forms created to accommodate information visibility. For this prototype we were interested in setting up image fields for home and away teams, where the away team logo is an editable image field to accommodate different opponents in different matches. Mr. Friday wanted additional text fields to be restricted and set for being able to show redundant data and this will help to reduce time spent keying in duplicate information. We also wanted to be able to set duplicate fields to accept data keyed for all pages within the form, to reduce repeat typing. Our group also began tagging every editable field to keep the many pages of forms organized.

Penn State Harrisburg Scouting Report Penn State University VS	  
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Offensive Tendencies

3 Point Shooters

Defensive Tendencies

Poorest Foul Shooters

Transition Tendencies

Team Stats

	Penn State University	vs. Opponent
PPG		
FG%		
FGM-A		
3PT %		
FT %		
FTM-A		
ORPG		
DRPG		
RPG		
APG		
TOPG		
STLPG		
BLKPG		

Prototype 3:

This was one of our final prototypes for this set of documents. We decided on things that we needed to change from the previous designs (with Coach Friday). Our third prototype PDF form we created image field borders to clearly identify sections where an image could be uploaded for each different player, something to help our players easily identify the opposing team's players by their faces. We added drop down menus in order to eliminate the redundancy of entering the same data over and over, this way he can easily select based on preset options. We individually set the tabbing order so that Coach Friday could easily enter information without having to constantly go back to the mouse.

A calendar function was created to allow our user to select a specific date from a popup calendar. These two functions are also to be updated on all pages to reduce repeated entries. Zebra design as well as restricting additional fields at this stage were still being issued for certain sections of the form. Mr. Friday was also interested in increased size of text for readability for specific tables within our form. He also was interested in having us adjust the alignment and lengths of our columns to further accommodate his needs. Our group also further adjusted field tags to keep our editable form organized. We decided to change the look a little to add increased aesthetics so that the form isn't completely consisted of too much white space.

2015-2016 Penn State Harrisburg Men's Basketball Scouting Report											
											
STARTING LINE-UP											
	#		Position:	▼	HT:	▼	WT:	YR:	▼		
						▼	▼	▼	▼	▼	▼
						Pts.	Reb.	Ast.	Stl.	Blk.	Fg
	#		Position:	▼	HT:	▼	WT:	YR:	▼		
						▼	▼	▼	▼	▼	▼
						Pts.	Reb.	Ast.	Stl.	Blk.	Fg
	#		Position:	▼	HT:	▼	WT:	YR:	▼		
						▼	▼	▼	▼	▼	▼
						Pts.	Reb.	Ast.	Stl.	Blk.	Fg
	#		Position:	▼	HT:	▼	WT:	YR:	▼		
						▼	▼	▼	▼	▼	▼
						Pts.	Reb.	Ast.	Stl.	Blk.	Fg
	#		Position:	▼	HT:	▼	WT:	YR:	▼		
						▼	▼	▼	▼	▼	▼
						Pts.	Reb.	Ast.	Stl.	Blk.	Fg

Evaluation Plan

Determine the goals:

There are several goals for evaluating our product. The main goal is find out problems and weakness of our prototype so they can be easily fixed and dealt with in a timely manner. The second goal is it will help us to ensure that requirements and objectives are met. For example, we need to make sure our prototype satisfies the user requirements, functional requirement, data requirements, and environmental requirements. The third goal is to check whether our prototype is beneficial to the Penn State Harrisburg basketball program, such as usability and user experience. In order to achieve those goals, we are planning to have an interview about our prototype product, which will give us feedback with our users including the head coach, coach staffs, and team players.

Explore the questions:

The following evaluation questions are focused on the usability of the system and the users experience when interacting with the product. Here are some questions that we are trying to answer when evaluating our product:

- Is our product fast, easy and convenient to use?
- Does the product help you work more efficiently?
- How frequently do you use our products?
- How satisfied are you with our product?

- What do you dislike most about this product? (Ex. Bugs, Poor design)
- What do you like most about this product?
- In what ways, if any, could the product be improved?
- Overall, how would you rate our product?(Out of 5 stars)

Evaluation methods:

In phase three regarding evaluation of our editable PDF for Mr. Friday, our group plans to conduct interviews with the stakeholder, observe our user in a natural setting, and create user testing environments. Through conducting interviews with our stakeholder we are able to specifically gather information to assess the features and modifications that will help our user manipulate the PDF with ease. During these interviews, we also pitch forth ideas that may garner additional ideas to implement towards the PDF, and we can see what may or may not be feasible.

As for our user testing, our group allows our user to actually manipulate and perform tasks or functions within our editable PDF. This ensures that our user has the knowledge capable of performing his tasks successfully. If for some reason our user cannot complete his task according to our design, our group will modify the PDF to accommodate these issues to make access easier or less complex. These ideas could range from design features, java functions, and functionality. Our last evaluation method is concerned with observing our stakeholder using our PDF forms. By observing the use of our forms in a natural setting we can see how it will benefit our stakeholder and the basketball team. Our group attends basketball matches to see how the forms are used as well as how Mr. Friday uses it in his office. In doing so, we can accommodate his needs and formulate further ideas how to make our PDF very efficient.

The evaluation method for this group project will help us meet stakeholder requirements and allow us to create an efficient and successful project in the end, which will satisfy our stakeholder and learn how to use our skills to improve specific stakeholder needs.

Practical Issues:

To go along with our evaluation, there may be some practical issues that we will have to overcome in order to properly carry out our plan

- Time when interviewing. We will have to make meeting times with our stakeholder, his staff, and a few players in order to carry out our interview. They will have limited time as they would like to spend it studying or practicing rather than being locked in an interview.
- We will also need to select the right questionnaire platform in order to conduct our surveys to receive the best feedback..
- Interviews will be conducted in CUB to preserve a natural setting.
- Asking the right questions in the questionnaire, as our sample size will be fairly small and constitutes the entirety of the Penn State Harrisburg basketball organization.

Ethical Issues:

There may also be a number of ethical issues, such is the case when doing surveys and interviews.

- Making sure that the interview participants informed about what they are being interviewed for and ask for whether they would like their opinions to remain anonymous or if we can quote them.
- Questions that are asked are to be answered by the interview participant may or not be answered depending on the individual.
- Online surveys to players will remain anonymous no matter who is taking it.
- Interview/Questionnaire participant should be aware of the reasons pertaining to the study and and what the data will be used for.
- Clearly label our names or group name on every survey in order to show who we are and what we are trying to accomplish.

Summary and Reflections:

Between phase two and phase three there have been minimal additions to the requirements we had. The biggest one was to make our PDF design aesthetically pleasing for the new year. We added some banners to each of the titles and some of the documents received a background logo. Some things we found in similar products of our prototype were a lot more graphically pleasing than our version, so we decided that the overall look of the files should be something pleasing but still not distract the user from their primary goal in using this product.

As for prototyping, we really came together well in order to shell out a multitude of various samples. We started with a very basic design that looked closely to the documents we received at the beginning of the semester. With this basis, we closely discussed some things to

	Task Name	Start	Finish	Duration	15-Sep		15-Oct		15-Nov					
					8/25/15	9/29/15	9/30/15	10/22/15	10/23/15	11/12/15	10/13/15	11/14/15	11/15/15	11/19/15
1	Phase0 Problem Space	8/25/15	9/27/15	30 days										
2	Phase1 Requirements Analysis	9/28/15	10/22/15	25 days										
3	Phase2 Design Alternatives	10/23/15	11/12/15	21 days										
4	Phase3 System Prototype	11/12/15	11/19/15	8 days										
5	Phase4 Evaluation													
6	Phase5 Final Report													

Phase 4 - Evaluation

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Description:

In this phase of our project, we focused heavily on gaining feedback through many different evaluation methods. The completion of our prototype meant that we must seek valid feedback from stakeholders and distribute surveys in order to make any necessary changes that may have been overlooked. Using our knowledge gained in HCI we were motivated to cater and apply our knowledge towards meeting our stakeholder needs to its fullest extent.

In order for our group to assess our stakeholders, we decided on interviewing with our main stakeholder and user Mr. Friday a few times every week as our primary resource. Through these direct observations in his natural environment, we were able to directly question and allow test our prototype. This evaluation technique was very important in the successful completion of our project. We gained qualitative information and valuable requests throughout the semester towards our multiple prototypes such as maximizing column sizes, style changes, and additional features that required java programming. This gave our group a clear direction on what needed work and what had already worked previously.

The secondary evaluation technique our group implemented was an online questionnaire survey, which proved to more quantitative in result. This method helped us reach any extraneous stakeholders that we may have not been able to reach easily. These users would mostly contain the coaching staff of the basketball team. This method proved to be very valuable in order to accommodate all users that will be interacting with our product. It also offered a very quick solution to reach out to the users and a short amount of time. Through these surveys we were

able to collect and analyze data, such as, the amount of satisfaction with using our PDF form, what the user liked, and what the user disliked, and future suggestions. As our knowledge of understanding our stakeholders grew we were able to further pinpoint the areas that would make our PDF form the best basketball form to use to date.

Design rationale:

Our group has narrowed the tasks since phase one and decided that interviewing, observing, and a questionnaire survey would be the best methods to accumulate valuable data. These methods sought to seek out answers pertaining to the use of our PDF form and its efficiency.

Interview tasks

1. Does our form accommodate your needs?
2. Is it fast and efficient?
3. Is the style and structure meet your standards?

Survey tasks

For our survey we asked our stakeholders to answer the following questions after using our PDF form:

1. Is our product fast, easy, and convenient to use?
2. Does the product help you work more efficiently?

3. How frequently do you use our product?
4. What do you like/dislike most about this product?
5. In what ways, if any, could the product be improved?

Through these survey and interview tasks we were able to have important questions answered on our current progress of the prototypes and any improvements that we as a group may have overlooked.

Materials

The materials used in our evaluation included a web questionnaire survey from Google docs, an editable PDF file, and just a standard PC or mobile device. Using Google has helped us reach through to all extraneous stakeholders via email. Using our editable PDF file our group was able to directly observe and test the file against our main stakeholder and derive beneficial information as regards to the forms use, style, and structure.

Summary of the result:

Due to the time restraints, we were only able to get responses from a small number of people directly involved with using these PDF's such as head coach Friday, and few coach staffs. We have five responses so far, here you can see a summary view of our evaluation survey's result:

- According to the survey result, 100% of our participants strongly agreed that our product is fast, easy and convenient to use. This result is very important to our team because making our product fast, easy, and convenient is one of our biggest goals in the project.

- We want to make sure our product is helpful to our users and that it allows them to increase work efficiently. According to the survey result, 100% of our participants agreed that our product helps them work more efficiently. This result is also another main goal for the project.
- When it comes to how frequently the users use our products, 80% of our participants use our product everyday, and 20% of our participants use our product every week.
- Another important result we learn from our survey is that 80% of our participants are satisfied with our product and 20% of our participants are very satisfied. We are very happy to see our product will be benefiting the Penn State Harrisburg basketball program.
- When it comes to what do you like/dislike most about this product, 80% of our participants share their opinion with us, and 20% of our participants didn't answer the question. For example, some participants like the fact that they can key in strategy and practice needs into the files. Some participants like the fact that they can import the image and logo. As for dislikes, many participants issued a complaint about the small text sizes.
- On the suggested section, many participants suggested that they want a better draw tool to draw x's and o's on the PDF easily. Also, they are interested in bigger text fields for statistics session on the player scouting report, and are able to input special symbols like #, or %. Some participants want more pages for less clutter and a little more room on the Game Plan from the Player scouting report.
- On the overall rating session, 60% of our participants give us 5 star rating, and the other 40% of our participants give us 4 star rating.

Discussion of the result:

Due to the time restraints, we were not able to get a more in depth response. We created an online survey on Google Forms, this survey included some dichotomous questions, some Open-Ended questions, some Five point scale questions and one five-star quality ratings question. The purposes and tasks of our evaluation survey were to find out problems and weaknesses of our product, we want to ensure that requirements and objectives are met. We also wanted to check whether our product is beneficial to the Penn State Harrisburg basketball program when it pertains to such things as usability and user experience. According to the survey results, our users are generally very satisfied with our product.

Our users used our product almost everyday and all of our user agree that our product is very helpful when designed to work more efficiency. The evaluation criteria was scaled from one to five, and all of our users agreed that our product is beneficial to the Penn State Harrisburg basketball program and rated our product between four and five stars. We also received some suggestions, feedback, and bug reports from the users for future improvement.

Project Evaluation Survey:

Project Evaluation Survey

IST 331 Project Evaluation

Is our product fast, easy and convenient to use?

☐ Yes

☐ No

Does the product help you work more efficiently?

☐ Yes

☐ No

How frequently do you use our products?

☐ Every day

☐ Every week

☐ Every 2 - 3 weeks

☐ Every month

How satisfied are you with our product?

☐ Not at all satisfied

☐ Somewhat Satisfied

☐ Satisfied

☐ Very Satisfied

☐ Delighted

What do you dislike most about this product? or What do you like most about this product?

(such as bugs, poor design)

In what ways, if any, could the product be improved?

Overall, how would you rate our product?(5 star rate)

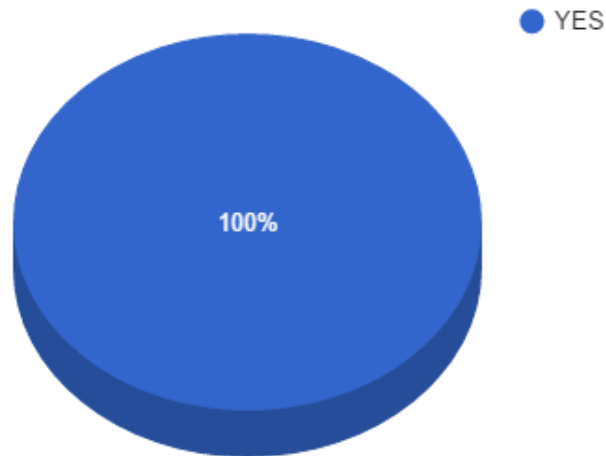
1 2 3 4 5

Lower ☐ ☐ ☐ ☐ ☐ Higher

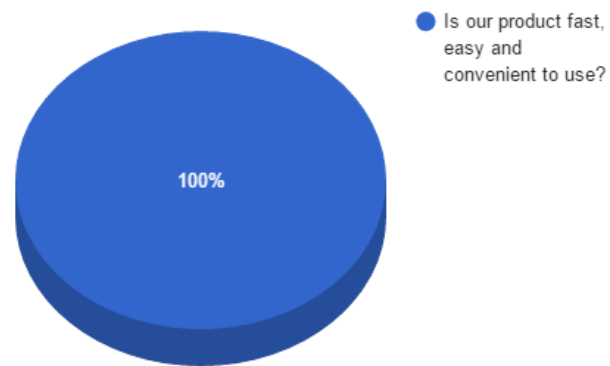
Submit

Project Evaluation Survey result:

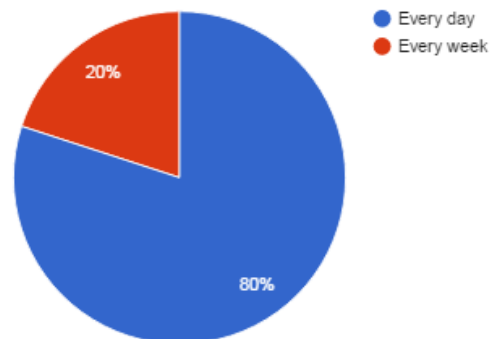
Does the product help you work more efficiently?



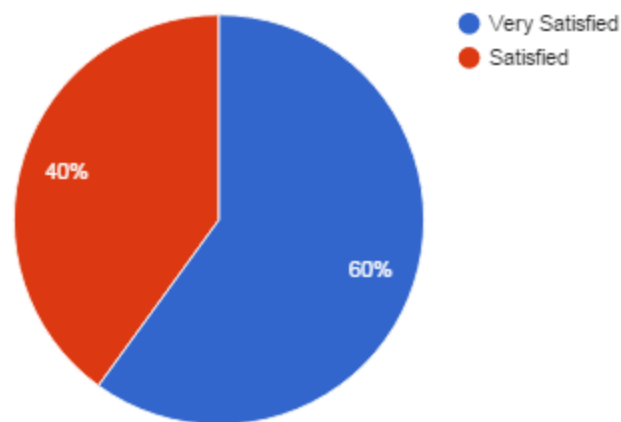
Is our product fast, easy and convenient to use?



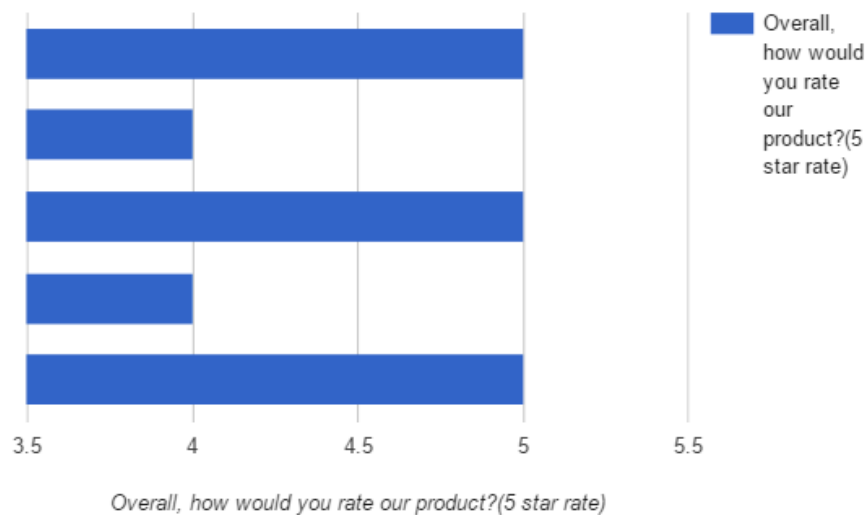
Count of How frequently do you use our products?



Count of How satisfied are you with our product?



Overall, how would you rate our product?(5 star rate)



Design implications

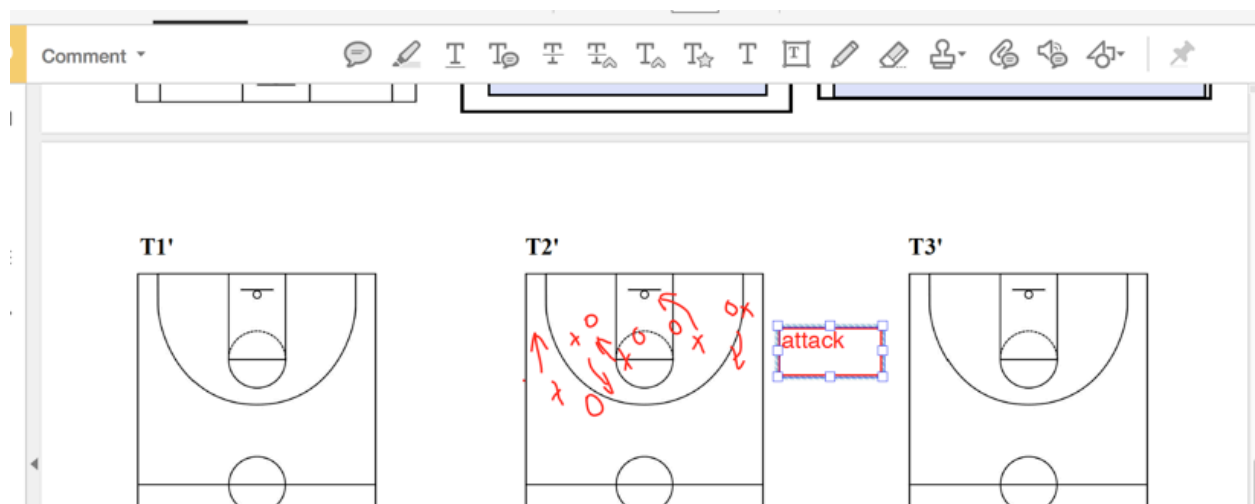
Overall, the participants are quite satisfied the design of the fillable PDF form, and they found the fillable PDF form is easy and convenient to use. The main design implication that we drew from the survey's result is that the PDF form needs to adjust the size of the text field as

well as the font size. According to some of the participants, the two major issues are the text field size and the font size. Users need more room to type information and an appropriate font size for different text fields. These design implications comes with the fact that larger text field size and appropriate font size are making the PDF form comfortable for users to use and read.

Other design implication is that we need to make sure that the users are allowed to input special symbols like # or % from some restricted text field. However, the functionality of the PDF form is very helpful for most of the participants.

Improvements

A few new functionalities are added to the PDF form to improve the quality of the PDF form after evaluation. We received some comments from the survey; one of them is to provide a comment tool in the PDF form. Another one is to improve efficiency on the date selection. Furthermore, we could come up with a better graphic design for our PDF form. To meet the user requirements, we decide to take user experiences more seriously and to spend more time on improving utilities of the PDF form.



For our PDF form, we lack of comment tools. We want to add a tool that is similar to the toolbox in Adobe Reader, which allows users to highlight, add notes and more. By adding these features to our PDF form, not only that it is more convenient but also saves time for the users. The comment tools also provide a feature such as drawing. Before adding this tool in the PDF form, Coach Friday needs to print out the paper every time and draw players' positions on it. After we added this new tool, Coach Friday could simply draw players' positions and add any notes he wants on the PDF without printing out the paper. There is a huge difference after we taught him how to use this comment tool. He definitely will save a lot of time on going through extra processes and increase the efficiency of his work.



For the date field part, we use LiveCycle Designer software to compile specific JavaScript code into the date field. When users click the drop down arrow, it will pop up a calendar for them to choose the date. After they selected a date from the calendar, which will

automatically appear on the date field. Compared to the old version, this new version is more intelligent. By simply selecting a date, it will automatically display in a format “MM/DD/YYYY”. The old version is more complicated, which users need to type the date manually. The new version is very helpful for user to manage the entire date field in the same format.

HARRISBURG BASKETBALL VS [] Date: []	
Key Actions for PSU Victory	PSU Offensive Key
PSU Def Keys	Match Up Zone Attack
Post Feed	Ball Screens
What can we take away the most?	END OF SHOT CLOCK
Game Plan	Breakdown

To create a better graphic design, we design to insert Penn State Logo as watermark on the background of the PDF form. It will make the appearance look professional to most of the participants.

Further Improvement:

Even though our evaluations were rather positive all around, there certain things that could be changed given more time. We wanted to design our project around something that the Coach Friday was use to and wouldn't need to take more than a few minutes learning. Given more time we would have made our design more appealing and focused more on the graphical designs. Some text boxes may be a bit small for certain things and the fact that we used number boxes instead of text boxes for some information restricts the user from inputting special symbols like #, or %. So overall just improving the flow of the text and overall graphical design of each form would help with being able to easily navigate the forms.

We also received some word on being able to draw on these documents, specifically the practice report. We taught Coach Friday a way in which he could insert lines and X's and O's into the court diagrams so he could better show his plays. We were told that this process was rather difficult to manage and given more time we would have done some more research into seeing other methods of drawing on the pictures that would be easier and less time consuming to use.

Critique of Evaluation Plan:

Given more time to do our evaluation we may have been able to get a more in depth response. Due to the time restraints, we were only able to get responses from a number of people directly involved with using these PDF's, as players and some of the staff were too busy to fill out the questionnaire. To solve this we would have began our evaluations sooner rather than later in order to get the appropriate number of responses in order to engage a well thought critique. We would also make separate questionnaires for separate documents because not everyone uses every single document so we had to make our questionnaire extremely vague in order to cover the project as a whole. For example, players only use the player scouting report but our questionnaire wasn't designed specifically for that document.

Also, only the staff fills the forms out while the players read the printed out versions. This means that the staff and player questionnaires should have been divided up in order to best recognize the uses of these documents in the intended hands. Given that questionnaires were one of our only sources of evaluation, we would have spent more time with interviewing members of the staff other than coach Friday in order to get a more in person view of the way they use our product.

SCHEDULE:

This section includes the due date of each phase of the project. We will be completed this detail schedule including the due date of each phase and the person or persons expected to complete them.

Task Name	Start	Finish	Duration	15-Nov											
				8/25/15	9/29/15	9/30/15	10/22/15	10/23/15	11/12/15	10/13/15	11/19/2015	11/25/15	11/30/15	12/3/15	
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