



CST2310 - Information Systems Analysis and Design
Coursework 2: Group Coursework
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Abstract

The group coursework allowed us to present our understanding of the methods learnt in the “Information Systems Analysis and Design” module by giving us the practical experience of analysing a real case study and creating the information system that would benefit the company chosen. The report shows our understanding of what is taught during our lectures.

The formed group was asked to display their performance and skills that they have learned from the module by performing various creations of diagram modelling and extensive research. The coursework that we have created highlights the main information systems that Netflix utilizes to improve their overall customer satisfaction. Throughout the coursework you will notice different attempts on how Netflix provide great “customer service.” Such attempts are what they are noticeably know for which is their notorious recommendation systems and for the sake of their users' smooth transactions, Netflix follows a monthly payment plan that allows users to choose whatever billing option they are most comfortable with and an option of cancelling with free of charge.

The scope of the project is to provide a detailed report on a chose case study along with a presentation that goes through all what is learned from the research and testing all the appropriate decisions made to successfully accomplish the given coursework.

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Introduction

Business Information Systems:

A business information system (BIS) is defined as the network of hardware and software that organizations use to collect their data. A business IS improves decision-making, coordination, control and analysis within organizational settings (Clarke, 2012). The business IS is built up of three main components: Technology (more below), People (which include those working on the IS) and Process (the business models and processes the organizations use).

- Technology:
 - Hardware: the physical servers, hard drives and devices used within organizations.
 - Software: the operating systems and application systems used, which could range from the software business analysts use for creating the information systems or the operating systems installed on the devices the company uses.
 - Data: data is the most integral part of a business IS. Without data, there would be no need for business information systems. Data is stored within databases for the business to make decisions and analyses.

There are multiple business information systems, but the most notable is Transaction Processing Systems (TPS) and Management Information Systems (MIS). They are explained below:

- Transaction Processing System (TPS) supports a business's transactions. TPS automates the process of transitions, eliminating the huge amounts of paperwork that would need to be done. The system records the transactions and creates pay checks, invoices, reminders, and bills (Mahar, 2002).
- Management Information Systems (MIS) is the process of collecting, processing, and storing information or data to support the managerial operations within an organization. MIS is used to automate tasks that would have required funding, saving the organization's time, money, and resources. MIS also increases productivity, and efficiency and increases customer satisfaction.

The above processes include:

- Operational Documents: An agreement between a company or organization and a client is represented by an operational document.
- Operational Databases: Software that is intended to make it simple for users to define, modify, retrieve, and handle data in real time is known as an operational database management system.
- Management Reports: Reporting to management gives decision-makers information on the organization's performance, enabling them to choose the best course for boosting operational effectiveness and making wise choices to maintain competitiveness.

Aims and Objectives:

The case study chosen is regarding Netflix's information system. The project aims to understand the way the IS works and analyse how Netflix's algorithm provides its users with the best experience. Their objectives are:

- Generate as much user income from their systems as possible.
- Develop their existing machine learning algorithm that classifies users into different categories based on their interests to provide the best recommendations.
- Manage the vast library of movies and shows, while allowing the option of expanding the library.
- Evaluate their information system to ensure it is optimized to get as much traction, user satisfaction and revenue as possible.

The main aim of this project is to analyse the system, create Unified Modelling Language (UML) diagrams and a user interface, and extract the functional/non-functional requirements from the case study.

Submission Structure:

Introduction:

Talks about the scope of the project and explain all the topics which will be discussed in this project.

Project Management:

We will be talking about the methods used for completing the project with a good success rate.

Case Study:

Talks about different functionalities and systems used for increasing their business and popularity.

UML Schematic Models:

The UML schematic models explain all the functionalities of the information system.

Conclusions:

It concludes the work done by the group and its members.

References:

If any information is referenced, it lists the citations in a Harvard referencing format.

Appendix:

The appendix covers the meeting minutes, assessment forms, member reflection statements and PowerPoint slides that review the report.

Project Management

Project Management:

Project management can be defined as the process, method, skills, knowledge, and experiences to complete projects within a finite number of resources. To completely understand what makes up project management, one must understand what constitutes a project. Projects as temporary endeavours to create products, services and/or processes. All projects have a team, a budget, a schedule, and requirements that need to be met (Project Management Institute, 2022). To complete a project, someone must take the initiative and lead the team until the goal is achieved. A project manager would oversee making sure that the requirements are met within the resources provided. A project manager would follow multiple project management strategies to ensure the project's completion. Project management strategies and tools are as follows:

Activity List:

The name is a clear indication of what activity lists could mean. Essentially, it is a list of activities that could occur during the duration of the projects along with a description, estimated duration, who will do the activity and activity predecessors. Activity lists contain task dependencies representing the order in which the activities/tasks must be done. This allows the team to work on the tasks in order of priority, giving the team the fastest route through the project. Some tasks can be run simultaneously as well as in parallel.

Figure 1 shows the list of the activities that our group must complete for this submission.

Task Description	No of days	Dependency
1. Write the introduction		
1.1 Define Business Information System	1	
1.2 Define TPS and MIS	1	
1.2.1 Define Operational Documents	1	
1.2.2 Define Operational Databases	1	
1.2.3 Define Management Reports	1	
1.3 Write the aim and objective	1	2.1
1.4 Mention the Submission Structure	1	
2. Write a Case study		
2.1 Construct a case study	1	
2.2 List functional requirements	1	2.1
2.3 List non functional requirements	1	2.1
2.4 Write business case statement	1	2.1
2.5 Collect information	3	
3. Create a working plan		
3.1 Define and Prepare activity list	1	2
3.2 Define and Create a Gantt chart	1	2
3.3 Define and Create a WBS	1	2, 3.1
3.4 Define and Create a Risk Matrix	1	2, 3.2
4. Create UML Schematic models		
4.1 Define UML	1	2
4.2 Define the UML schematic models	1	2
4.3 Create a UCD	1	2
4.3.1 Create 4-6 Use Case Descriptors	1	2
4.4 Create a Class Diagram	1	2, 4.3
4.5 Create an Entity Relationship diagram	1	2, 4.3
4.6 Create 4-6 Activity Diagrams	2	2, 4.3, 4.4
4.7 Create 4-6 Sequence Diagrams	2	2, 4.3, 4.4
4.7.1 Create corresponding Collaboration Diagrams	2	2
4.8 Create User Interfaces	2	2
5. Give Conclusions		
5.1 Write a conclusion linking the tasks to other modules	1	1, 2, 3, 4
5.2 Write a reflection	1	1, 2, 3, 4
5.3 Give references	1	1, 2, 3, 4
6. Appendix		
6.1 Mention the minutes of group meetings	1	
6.2 Self-Assessment Form with reflective statement	1	
6.3 Peer Assessment Forms	1	1, 2, 3, 4

Work Breakdown Structure (WBS):

Once again, the name is a giveaway of what a WBS is. A work breakdown structure is a breakdown of the work that needs to be done within a project. The process of breaking tasks down is a common productivity technique that allows tasks to be more manageable and approachable. The International Journal of Engineering Research and Applications says that

the work breakdown structure " represents the sum total decomposition of all work that the project encompasses, from beginning to end." (Devi T.R, 2012).

Figure 2 is the WBS we created for completing this submission.

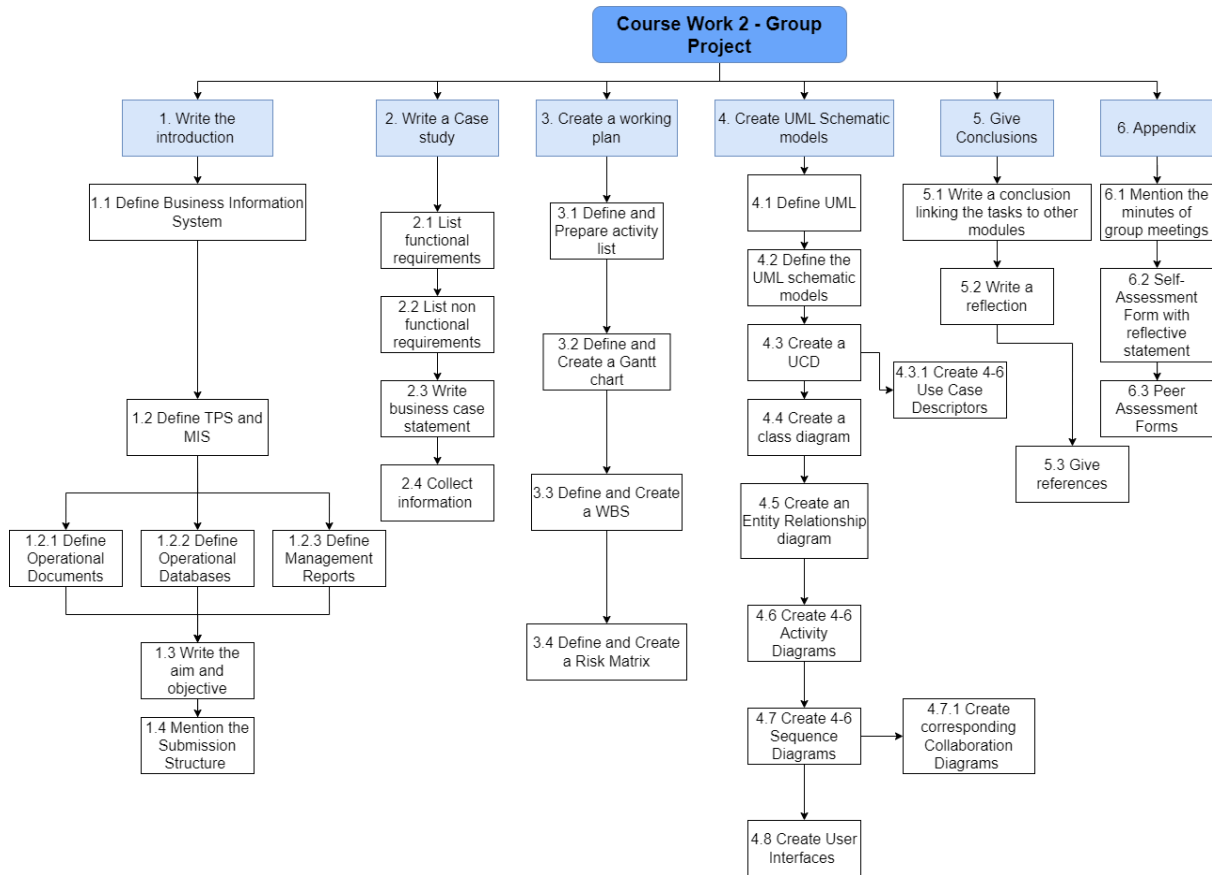


FIGURE 2 – WORK BREAKDOWN STRUCTURE (WBS)

Gantt Chart:

Gantt Charts are the most common way of displaying all the tasks that need to be done over a period. Each activity is a horizontal bar; its position and length determine the task's start, duration, and end dates. Jonathan Sutherland and Diane Canwell say, “they provide a graphical illustration of a schedule, which assists the planning, coordination and tracking of each task within an overall project.” Gantt chart contains the following:

- Slack, also known as float is the amount of time a task can be delayed without impacting the project's overall progress.
- Critical Path/Critical Activities: sequence of interdependent tasks that determine the duration of the project. If there are any delays in the critical path, the whole project gets delayed too.

Legend	Description
	Milestone
	Activity Time (Days)
	Slack Time

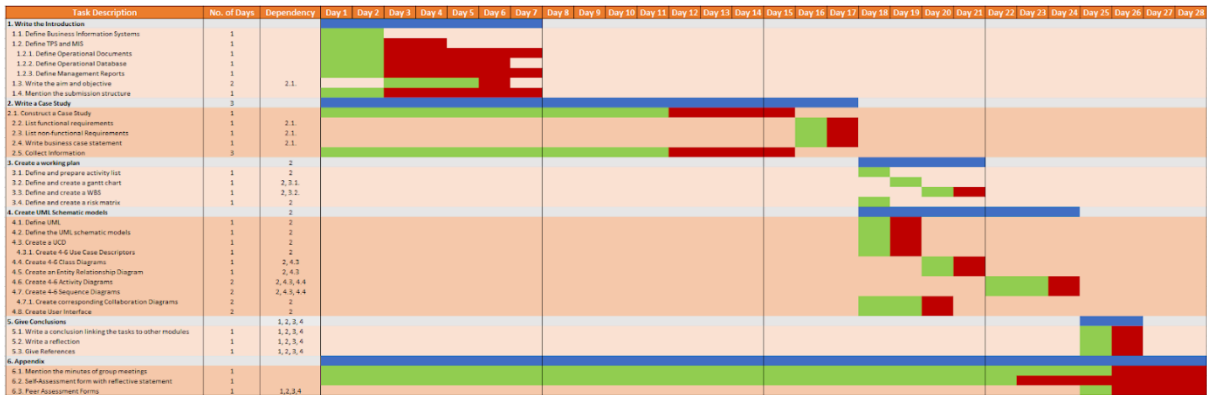
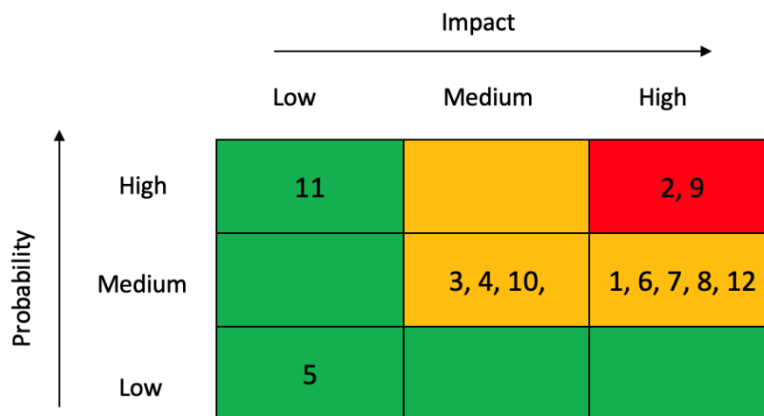


FIGURE 4 – GANNT CHART

Risk Matrix:

To understand what a risk matrix is, first one must understand the meaning of risk. A risk is defined as anything that has the ability to threaten an organization and its ability to generate profits. ac

Figure 4 shows how each risk can be placed in a risk matrix and figure 5 is a simplified risk analysis diagram.



Risk Description	Potential Impact on the Project	Likelihood of Occurrence	Difficulty of Timely Anticipation	Overall Threat
1) Late submission	Medium	High	Low	Medium
2) Unequal participation of group members	High	High	Low	High
3) Poor communication between group members	Medium	Medium	Medium	Medium
4) A group member falling sick	Medium	Medium	High	Medium
5) Referencing the work in the wrong way	Low	Low	Low	Low
6) Not providing quality content	High	Medium	Low	Medium
7) No proper understanding of work	High	Medium	Medium	Medium
8) A domineering teammate	High	Medium	Medium	Medium
9) No proper time management	High	High	Low	High
10) Leadership issues	Medium	Medium	Low	Medium
11) Limited resources to complete the project	High	Low	High	High
12) Free riders	Medium	High	Low	Medium

FIGURE 6 – RISK ANALYSIS

Case Study

Netflix Case Study

Netflix is a subscription-based streaming service. It provides users access to vast video content repositories on any device capable of streaming the service.

Netflix Subscriptions

Members are required to create an account through the desktop or mobile version of Netflix. While creating an account, they will be prompted to select a subscription plan that includes 'Basic', 'Standard', and 'Premium' where the Transaction Process System (TPS) will allocate them their membership automatically after a successful payment. Each plan consists of different features and streaming capabilities at different price points. Basic plays video at a resolution of 720p, allowing the account to be used only on one device. Standard plays video at a resolution of 1080p and allows the account to be used simultaneously by up to 2 users utilising different devices. Premium plays video at a resolution of 4K + HDR and allows the account to be used simultaneously by up to 4 users utilising different devices. Therefore, Members are given the option to choose based on their monthly budget. Netflix will charge their members on a monthly basis with their preferred selected payment method (Credit / Debit Card or PayPal) that the member has selected during the initial steps in creating the account. When the user has successfully created an account, they can cancel a subscription at any time without facing hidden penalties or charges (Netflix, 2023).

Netflix Recommender System

Recommender systems typically do the heavy lifting of providing users with relevant subsets of items. If the user wants to search for anything in particular, it displays tv shows and movies similar to the search. Netflix uses a cluster system that groups users based on their viewing preferences; it utilises a collection of machine-learning algorithms to compute user information and movie classifications.

The Netflix recommender system assists members in discovering content they may enjoy throughout their long-term subscriptions. This is one of the most challenging problems for Netflix for many reasons; every person is unique and has interests that can vary from every person. The recommender system is needed most when customers are unsure what to watch. The system would allow users to experience different shows of the same interest; thus, they'll get the most out of Netflix's services. Netflix is a service that generates revenue from users' monthly subscriptions, so users' satisfaction is closely managed to ensure members consistently retain and prolong their subscriptions with Netflix (Lamkhede and Das, 2019).

For new users, there is a specific list of movies that are shown because the user would not have any preferences. As the user searches for media and watches media, their preferences is updated and the algorithm can assign them to their cluster.

Searches

Netflix consists of three different searches that members interact with; they are "fetch", "find", and "explore" (Lamkhede and Das, 2019).

Fetch: This search method includes users having a clear intent of retrieving a specific item from the catalogue. One example: if a user wants to watch "Stranger Things", the user may issue a query of "Stranger Things" in the search bar thus, the user wants the system to return

the entity immediately. This method is the most commonly used and traditional information retrieval technique that relies on lexical matching.

Find: this method involves users having an idea of a certain entertainment need but does not have a specific item in mind. An example would be Chris Pratt. The actor is featured in various movies, and TV shows the user may want to watch. A user expectation would require an understanding of the query and relevant items are returned. This search system enables users to narrow the choice to a single video.

Explore: this method requires the user to send queries about an item in a much broader spectrum or content in a general area. An example would be a search for horror movies or comedy films. The role of the search system is to provide relevant results and lead users to a title they would choose to watch. This search method blends lexical and behavioural results to provide a richer and more meaningful experience.

Netflix Media Library

Netflix is a major video-on-demand service provider that hosts a vast collection of movies and films in various genres, giving its members the freedom to enjoy. Netflix works closely with film aggregators or distributors to fill its huge library of video content. Film aggregators are third-party services that collect and acquire rights to large library films from producers and distributors. They are hired to aid them in getting their projects posted on major networks such as Netflix (Paquette, 2022a). On the other hand, film distributors work closely with producers to secure distribution rights and handle the coordination of releases of films towards theatres or media channels like Netflix (Paquette, 2022b).

Business Case Statement

Netflix's utilisation of the Recommender Systems has satisfied the needs and expectations of its users. However, there are quite a few issues. Every user on Netflix's platform is unique and has diverse interests that alter between individuals, and this could be an issue for the user if they have been grouped into the wrong cluster by the cluster system where the machine-learning algorithms could potentially incorrectly compute the user's information and classify tv shows and movies that are not relevant to the user's interest. Netflix's Media Library does not have every title that has been released due to exclusive rights created before Netflix in a specific country/region or by other companies such as Amazon Prime Video owning the exclusive rights to the title.

Netflix's Recommender System is likewise beneficial to the user since it eases the choices in selecting a movie or tv show to watch due to the cluster system. Netflix's Media Library has a vast collection of films and movies, providing the privilege for users to be entertained by. The Search functionality by Netflix is advantageous since it dynamically searches films, movies, genres as well as Actors/Actresses that play a role or even by a brief description of the movie that the user might be interested in based on their behaviour and lexical activity.

Functional Requirements:

For a system or piece of software to fulfil the needs and expectations of its users, it must meet certain criteria known as functional requirements. These specifications outline what the system must do, how it must act, and what features or tasks it must be able to carry out.

1. Netflix's algorithms can be grouped into five main categories: Collaborative Filtering, Content-Based Filtering, Hybrid Filtering, Natural Language Processing, and Deep Learning. Collaborative and content-based filtering provide recommendations based on user behaviour and content attributes. Hybrid filtering combines both to provide more personalised recommendations. Natural Language Processing allows users to search using natural language. Deep Learning analyses user behaviour to provide accurate recommendations.
2. Netflix offers users different plans and allows them to subscribe to their preferred plan. The users can choose the plan based on how many devices they want to use the application and how many profiles they would require once they're done choosing the plan, they can make the payment.
3. Netflix requires a payment system that will read user card details to process the payment. The user is given the option to choose their preferred payment type. The user uses this system whenever they need to subscribe to the platform or renew their existing subscription. Payments are done on a monthly basis and the amount is automatically deducted from the account stored in the database.
4. Netflix requires a database that handles a large amount of and stores all the details regarding each user, user profiles, the user's watch and search history and stores all of the movies, shows etc., it is critical for seamless use and amazing user experience.
5. Netflix requires a robust recommender system that will use machine learning algorithms and compute user preferences based on their search and watch history. This system groups users based on their watch history and gives relevant recommendations. This functionality makes sure that users enjoy their subscription throughout and renew their subscription further.
6. Netflix requires a Search functionality that will help users easily find the movie or show they're looking for. The search includes three ways users can interact: Fetch, Find and Explore. The Fetch method returns the result based on the lexical method (searching using exact or nearly exact matches of search terms), the find method returns the results based on the understanding of the user query and explore method returns results based on lexical and behavioural results (gives results based more on the user's behaviour).
7. Netflix has a user management system where users can edit personal information like passwords, email, and communication preferences. The users can even modify the

roles and permissions apart from that users can even change their card details and payment options. All changes made here are updated in the database.

Non-functional Requirements:

To satisfy the needs and expectations of its users, a system or piece of software must meet non-functional criteria, which do not specify any particular capability or behaviour. Non-functional requirements, as opposed to specifying what the system should accomplish, instead describe how it should operate. Non-functional requirements often concern the system's usability, performance, security, and other elements that impact the user's experience.

- Performance: the system should be fast and responsive with minimal downtime to allow users to enjoy seamless streaming and prevent loss of revenue.
- Scalability: The system should handle large amounts of traffic and users, and avoid performance issues and/or crashes, specifically when it is peak usage time.
- Security: the system should protect user data and payment details to maintain data security and privacy laws.
- Availability: the system should be available 24/7 to ensure users can access uninterrupted streaming. Netflix should have backup and recovery measures in place in case of a disaster or a system failure.
- Usability: the system should be easy to use and navigate with clear instructions to minimize confusion or errors.
- Compatibility: the system should be compatible with a majority of devices (phones, tablets, computers, TVs, etc.) to provide flexibility for their users.
- Adaptability: the system should be able to adapt to changing user requirements and preferences, as well as new developments in the field of technology or industry trends.
- Accuracy: the systems recommendations algorithms should be accurate with minimal errors or biases to provide users with relevant and unique content recommendations.
- Privacy: the system should respect user privacy and follow the country's data protection laws but ask for user consent to secure data and limit data sharing.

Primary Data Collection:

There are multiple methods for primary data collection, here are a few of them explained in detail.

Interviews:

An interview is a formal way to collect information, usually conducted by an interviewer to an interviewee. Information is collected by asking questions or having a discussion with the interviewee. (Merriam-Webster, 2019). There are multiple types of interviews: Personal, Evaluation, Structured, Counselling, Unstructured, Public, Formal, Informal, General and Stress. The most general types of interviews are as follows:

- Structured Interviews: these types of interviews contain a standard list of questions, including some follow-up questions.
- Unstructured Interviews: these types of interviews are not planned before and seem like a “free-flowing conversation” between the interviewer and interviewee (Zhang, 2009).

Questionnaires:

A questionnaire is another form of collecting information. It consists of a set of questions that is used to collect statistics or personal opinions from the individuals doing the questionnaire (Merriam-Webster, 2023).

A screenshot of the questionnaire on user satisfaction with Netflix is attached in the appendix.

Focus Groups:

A focus group is a small group of people who are shown something (such as a product), and their responses are studied to determine the response of the public to the item (Merriam Webster, 2023). The responses gathered by the focus groups can be used to improve the product.

Document Analysis:

Document analysis is a procedure for reviewing/evaluating documents. The documents' data are analysed to understand what the document entails (Glenn, 2009).

UML Schematic Models

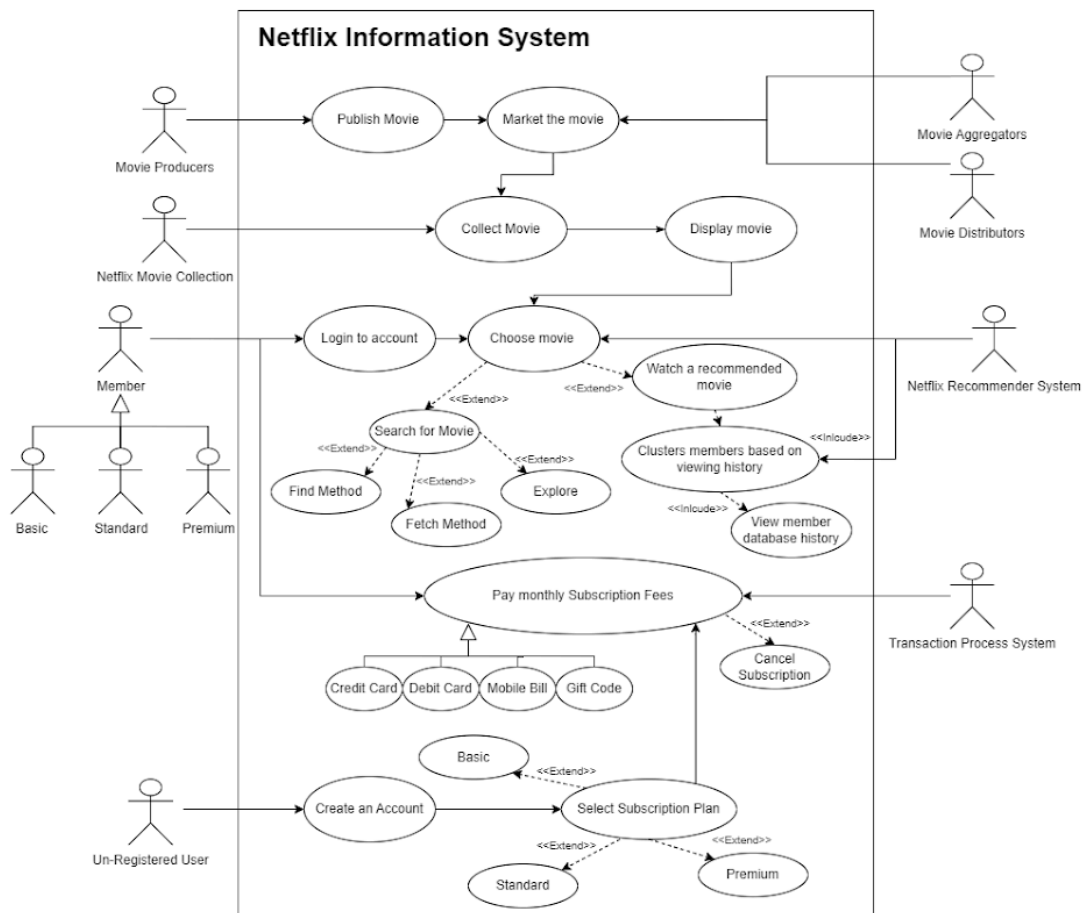
UML Diagrams

What are UML Diagrams?

Unified Modelling Language, UML for short, is a set of graphical notations used in software development to model and design software systems (Reggio et al., 2013). The following are some commonly used UML diagrams:

Use Case Diagrams:

Use case diagrams are used to represent the functional specifications of a system. They outline the several scenarios or use cases in which a user engages with the system. Use case diagrams are often used at the start of a software development project to understand the functional requirements of the system (Reggio et al., 2013).



The table below shows the use case descriptors:

Use Case	Description
----------	-------------

<p>Create Account (Kurt Patawaran)</p>	<p>An unregistered user must create an account to use Netflix's Service; throughout the process, the user must select a membership plan and their preferred mode of payment.</p>
<p>Clusters members based on viewing history. (Laraib Syed)</p>	<p>Netflix uses complex machine learning algorithms which take in the member's prior watch history to create clusters of members and provide them with media that best fit their unique preference.</p>
<p>Pay Monthly Subscription Fees (Sindhu Gunda)</p>	<p>Netflix offers users four payment methods, they can pay using credit card, debit card, gift code or mobile billing, user can do the payment and also add billing for every month using any of these methods and also has an option to change the billing method later.</p>
<p>Login to account (Awais Ali)</p>	<p>Registered users can sign into their Netflix account on a device such as a smartphone through the application or a personal computer by the web browser using the email and password they chose and picked when signing up for the service. Users can get help in case they forget their email/password via email or text message (SMS) verification.</p>

Class Diagrams:

Class diagrams are used to represent a system's structure. They act as a representation of the classes, interfaces, and connections between components. In object-oriented software development, class diagrams are frequently used to define and implement the data model of the software system (Reggio et al., 2013).

Figure 8 shows the class diagram based on the case study we chose.

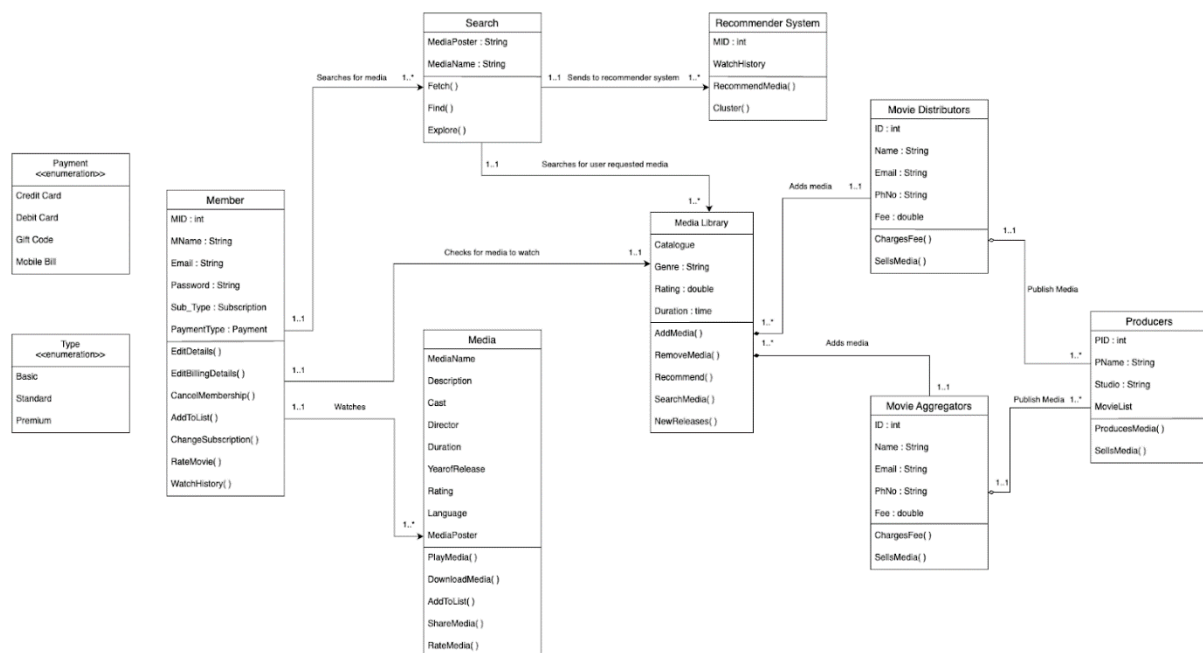


FIGURE 8 – CLASS DIAGRAM

Entity Relationship Diagrams:

Entity Relationship Diagrams, or ERD, is a graphical representation of the relationships between people, things, concepts, or events within an Information System. Businesses use ERD to lay the groundwork of their relational database because it is a data modelling technique. ERD diagrams are used as a visual aid for those creating an organisations database and the ERD can also be used to identify the requirements of the information system the organisation requires (Biscobing, 2019).

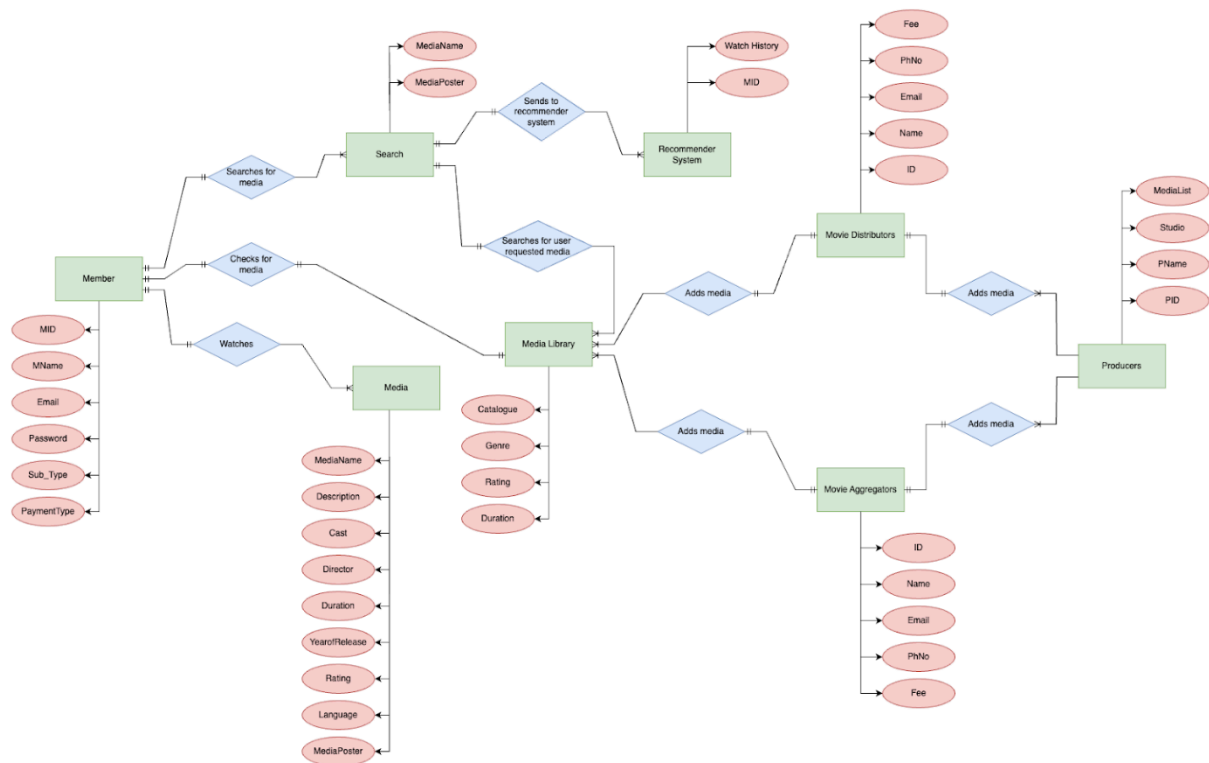


FIGURE 9 – ERD

Activity Diagrams:

Activity diagrams are used to show the business operations or workflows in a system. They act as a representation of a system's processes, decisions, and actions. The workflow of the system is frequently designed and implemented using activity diagrams (Reggio et al., 2013).

The following figures are the activity diagrams created by each member of our group.

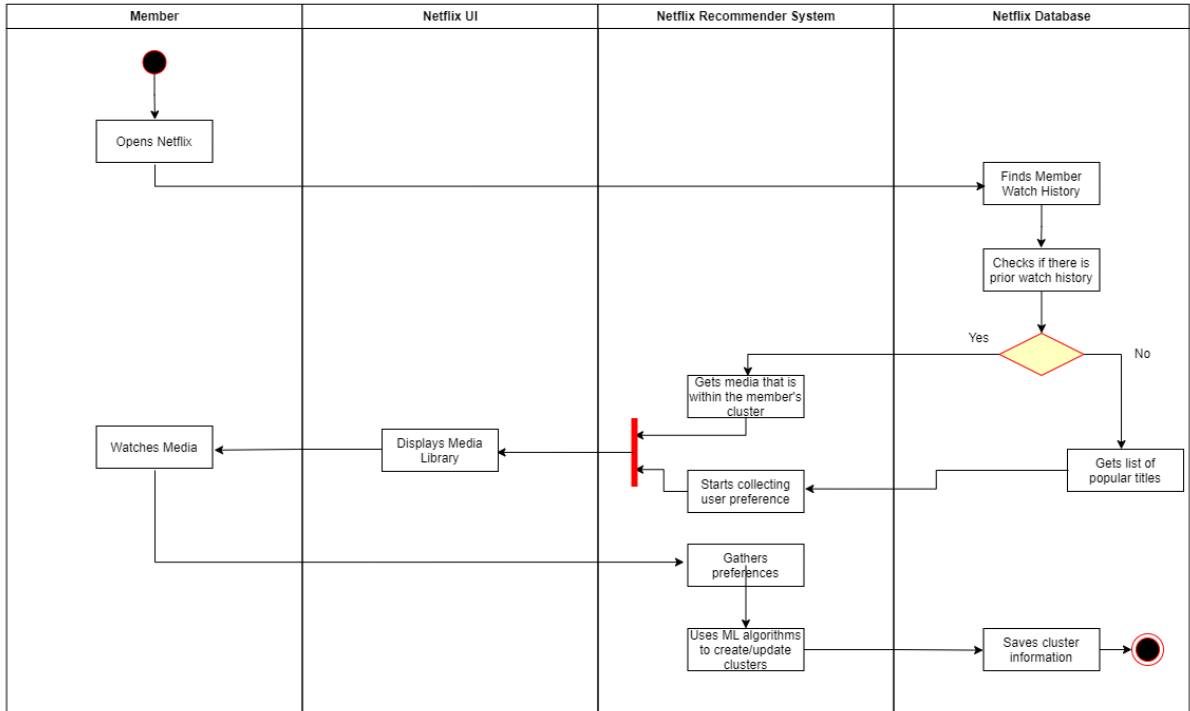
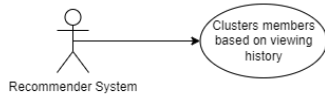


FIGURE 10 – ACTIVITY DIAGRAM BY LARAIB SYED M00792761

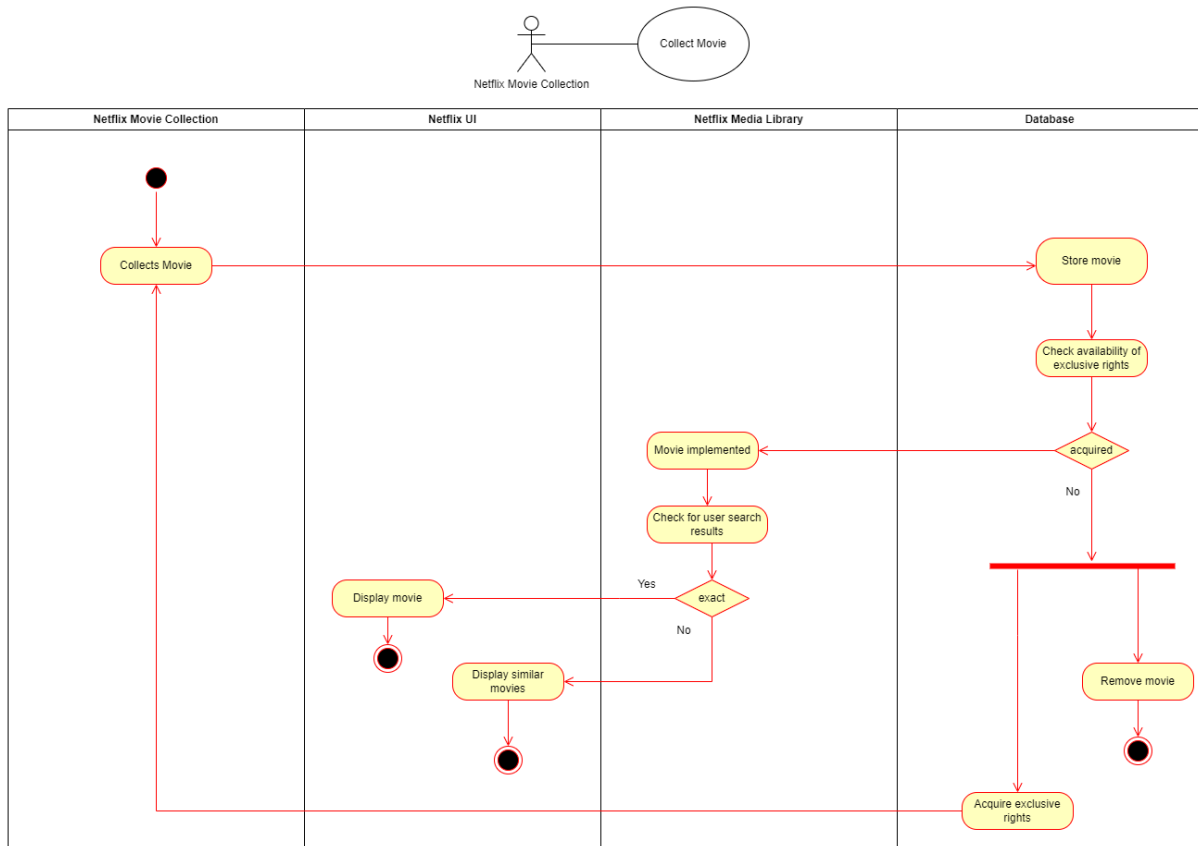


FIGURE 11 – ACTIVITY DIAGRAM BY AWAIS ALI M00848104

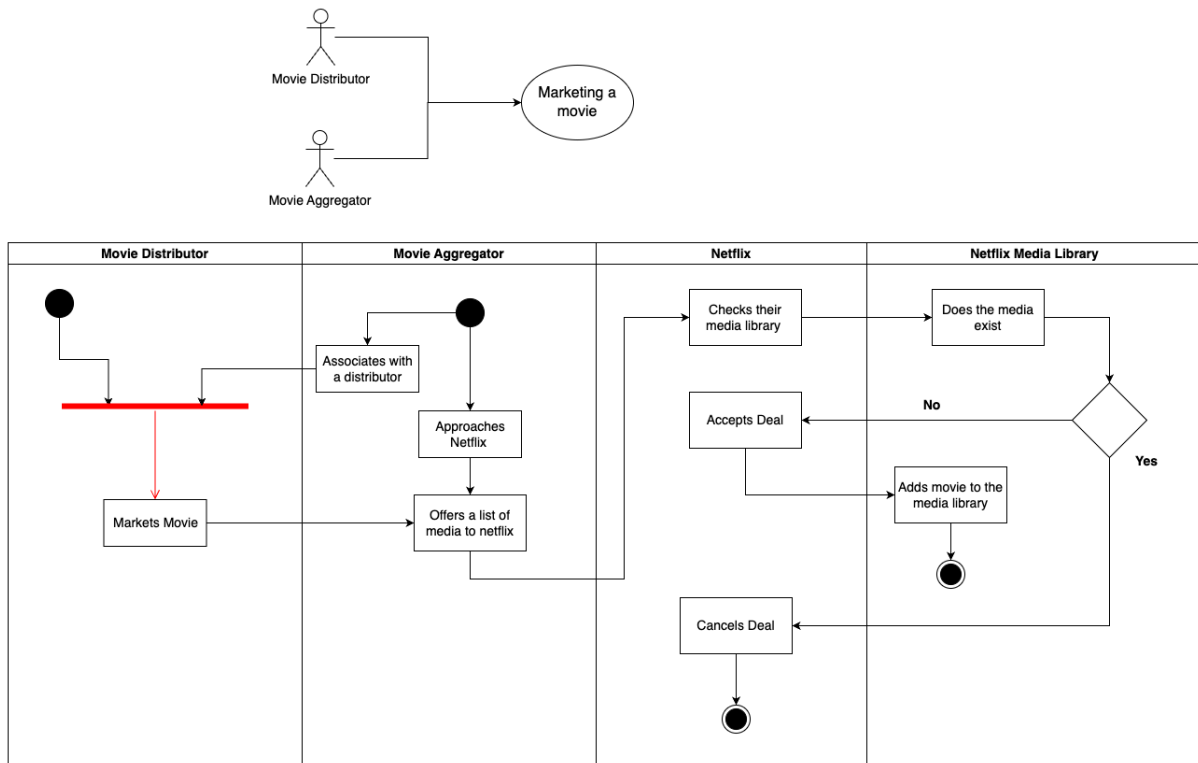


FIGURE 12 - ACTIVITY DIAGRAM BY SINDHU GUNDA M00849661

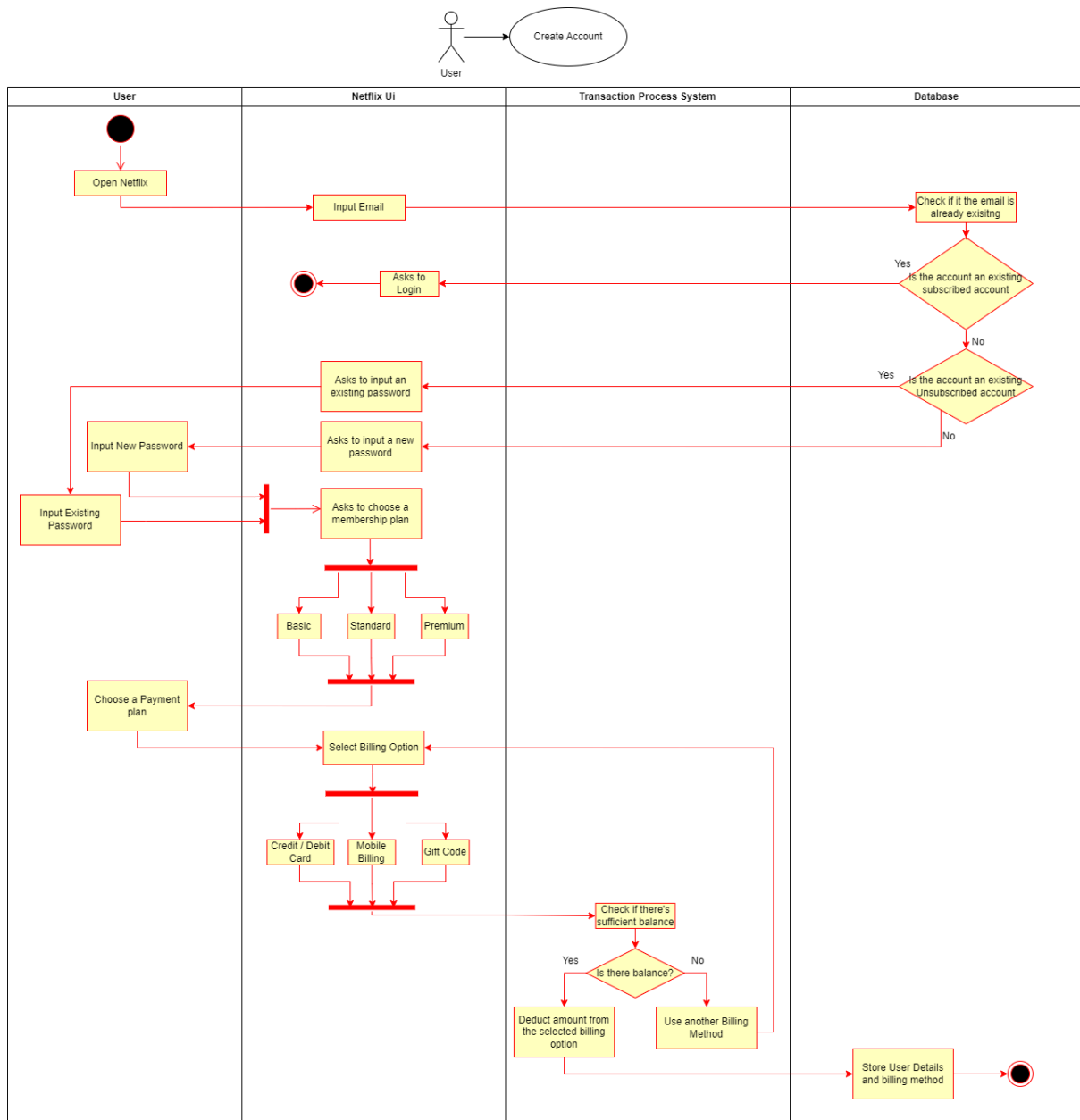


FIGURE 13 – ACTIVITY DIAGRAM BY KURT PATAWARAN M00850500

Sequence Diagrams:

Sequence diagrams are used for modelling a system's changing behaviour. They show how different system components interact with one another over time. The system's functionality is often designed and implemented using sequence diagrams (Reggio et al., 2013).

The following figures are the sequence diagrams each group member created.

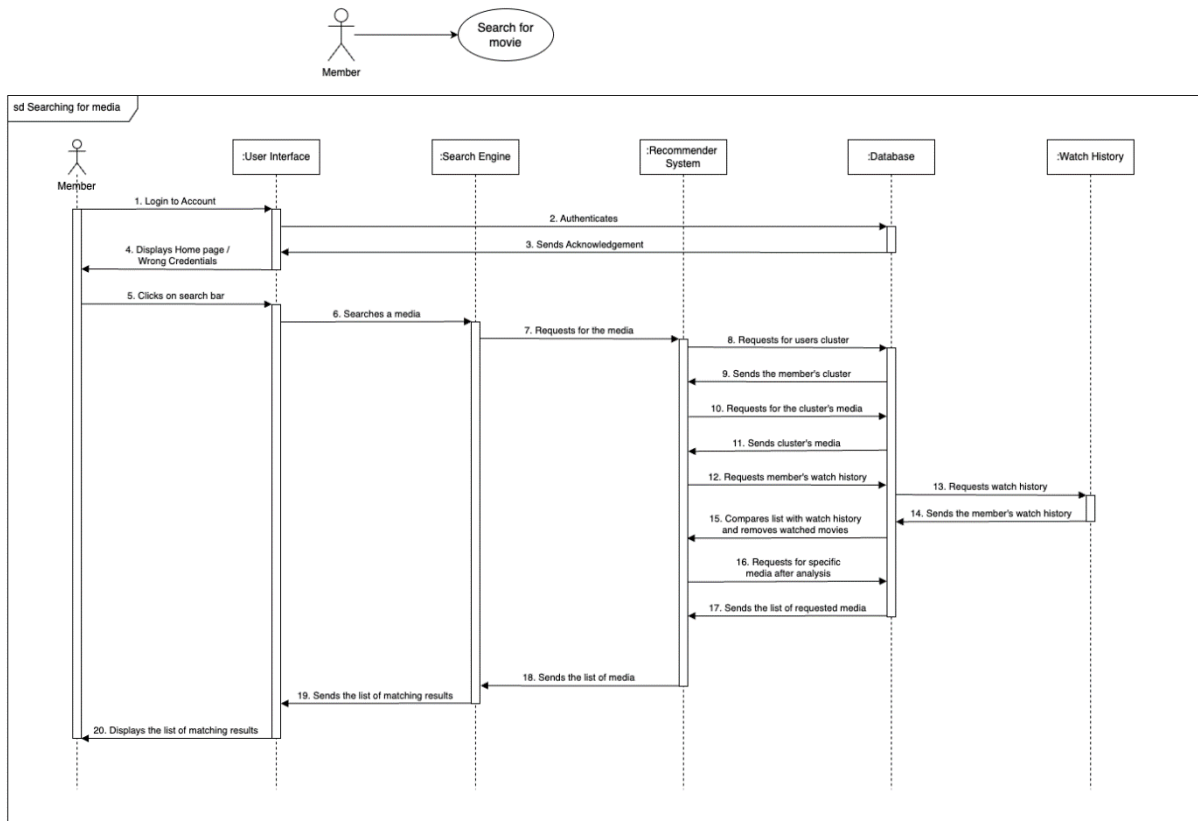


FIGURE 14 – SEQUENCE DIAGRAM BY SINDHU GUNDA M00849661

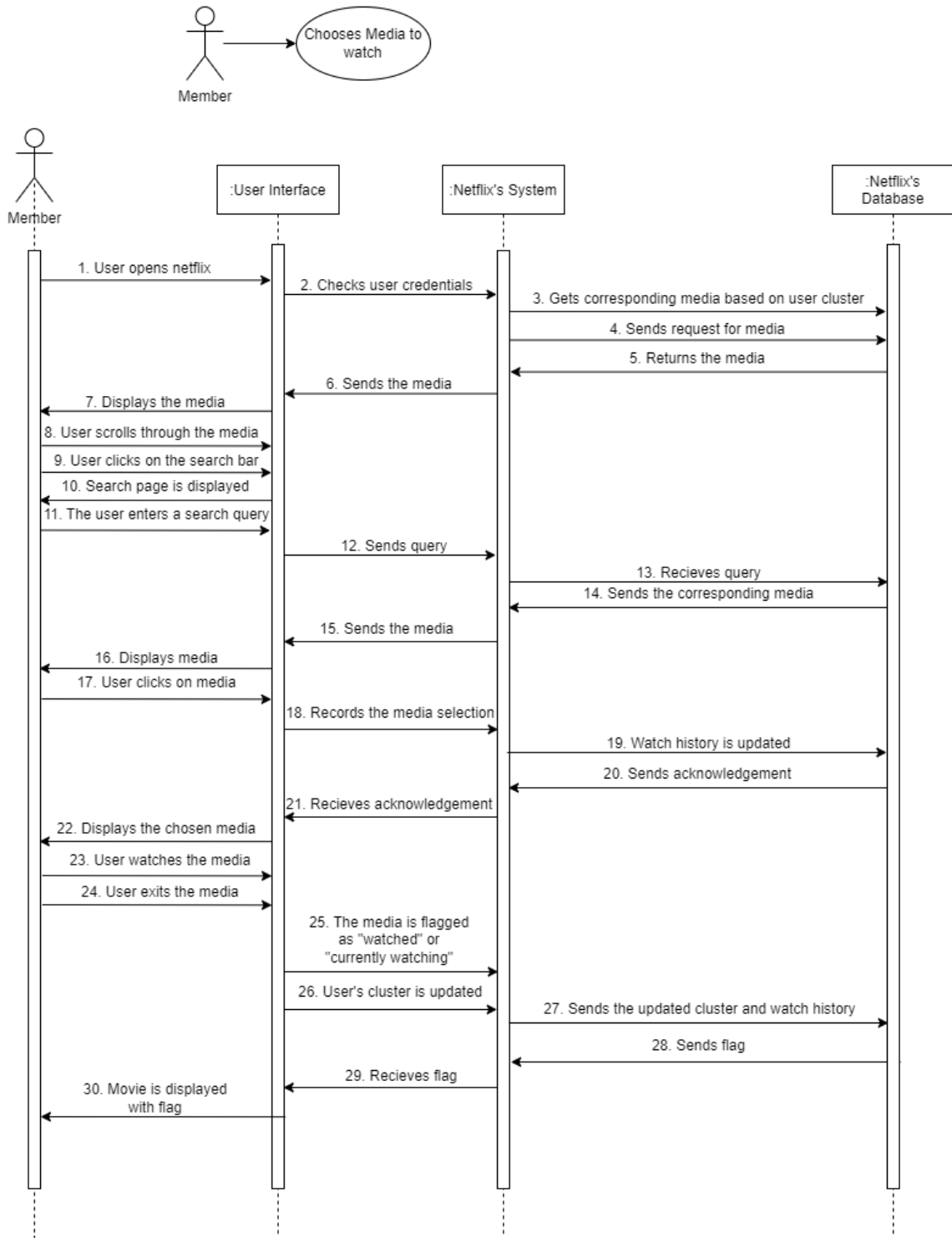


FIGURE 15 – SEQUENCE DIAGRAM BY LARAIB SYED M00792761

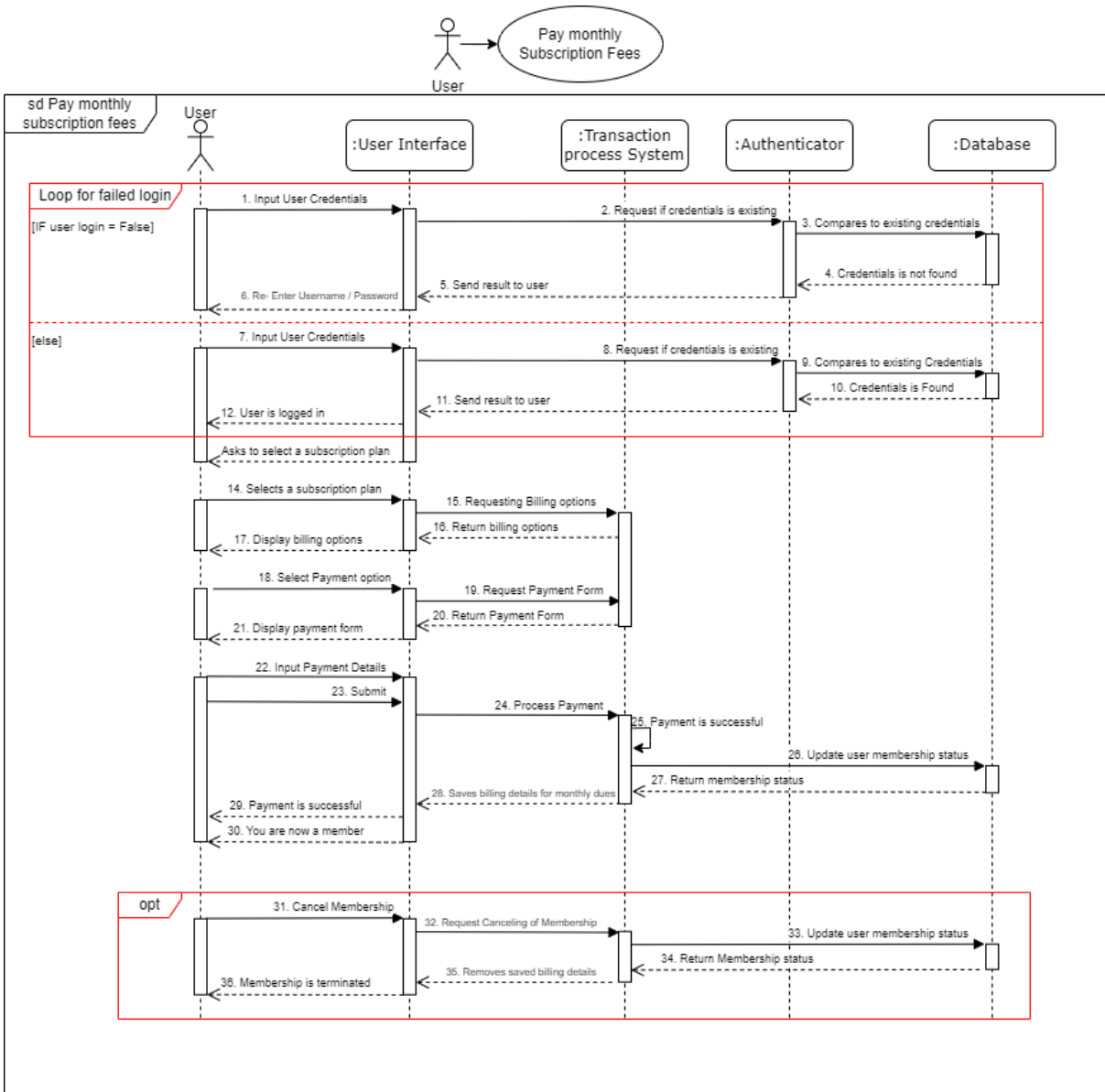


FIGURE 16 – SEQUENCE DIAGRAM BY KURT PATAWARAN M00850500

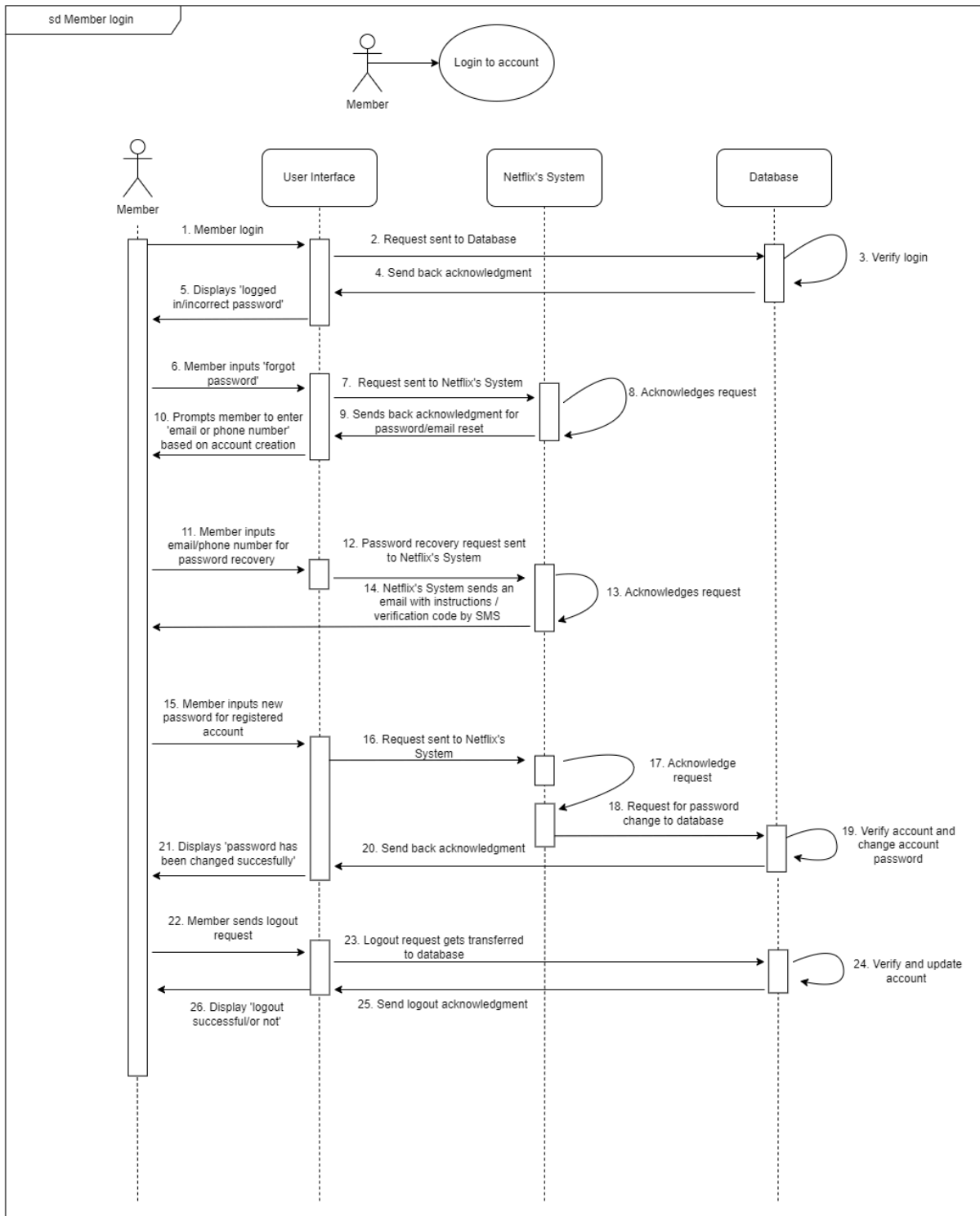
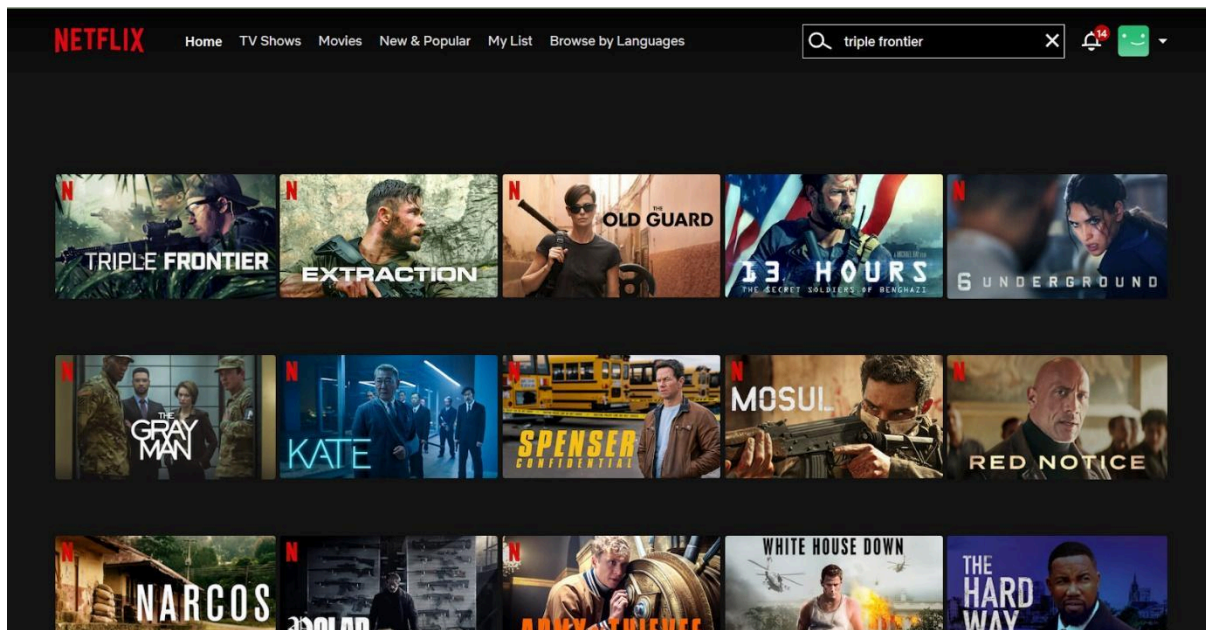


FIGURE 17 – SEQUENCE DIAGRAM BY AWAIS ALI M00848104

Netflix User Interface :

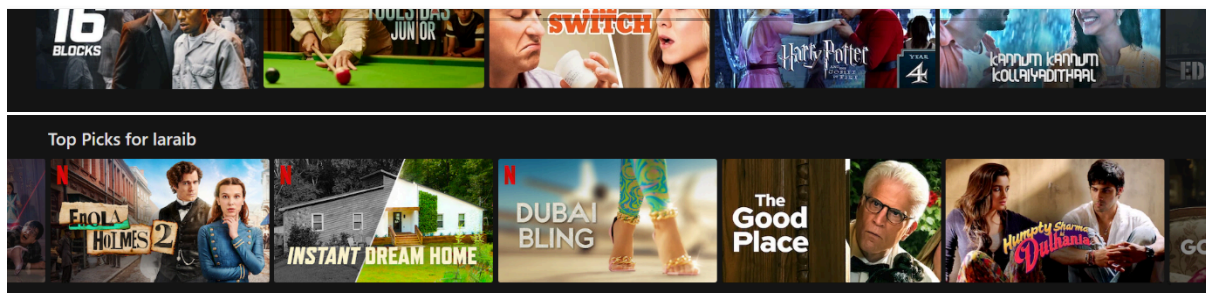
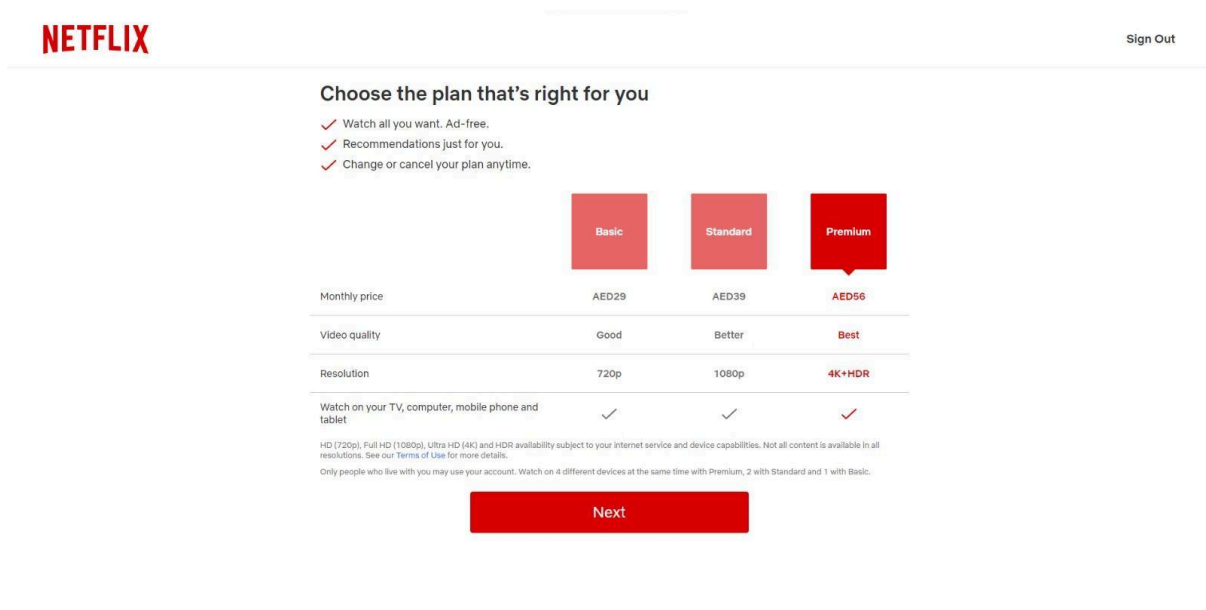
The following figures are screenshots taken from the Netflix website (all credits go to Netflix).

Search Functionality - Sindhu Gunda M00849661



Recommendations - Laraib Syed M00792761

Choose Subscription Plan - Kurt Patawaran M00850500



Login Page - Awais Ali M00848104

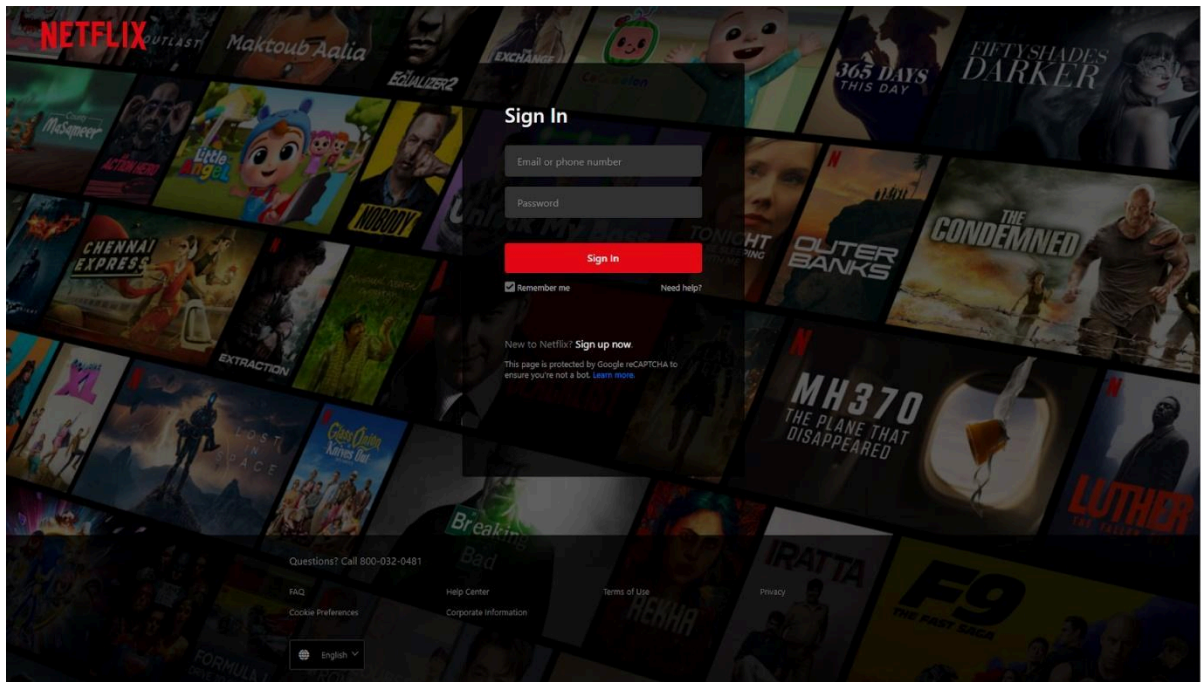


FIGURE 21 – LOGIN

Conclusion

People, in general, are relatively satisfied with their experience with Netflix. The fact that Netflix caters to large audiences thanks to its information systems that has drastically improved overall customer satisfaction. However, with our recent findings collected from our survey with a sample size of 142 audiences ranging from different ages says that the media library is slowly ruining the experience of using Netflix, arguably the main reason for that would be the cause of the sudden surge of Netflix's self-produced "Netflix Originals" and removing movies that are outsourced from different distributors and producers. The reason for these complaints is that Netflix's Originals are mainly aimed at an audience suited for today's younger generations. Moreover, Members are delighted with the quality and ease of navigation throughout the Netflix UI and the experience they receive from being able to search actors in all the movies that they have acted to recommendations that are spot on to their interests. Overall members of Netflix are generally satisfied with what Netflix has to offer and they are willing to continue prolonging their subscription with Netflix.

Everyone in our group enjoyed this group project, learning many things and sharing our knowledge with everyone else. This project has taught all the team members to work in a group, taught the leader how to manage a group, taught others how to work in the absence

of the leader, learnt how to do proper time management, even if we delayed our schedule we managed to finish the work on time by improvising our schedule we have followed agile methods so that we can change our plans as per the work we have left to do and to make our work better, and most importantly it taught everyone how to adjust and work with everyone in the group. Everyone in the group got to evaluate each other's work and improvise it according to everyone's feedback. This project taught everyone how to tell others about their mistakes without being rude. Not just CST2310 but previously in our year one, we also worked in groups but had a few conflicts, some issues with group members, issues like unequal group participation and even free riders; this year, we learnt from all the mistakes we made in our first year and made sure not to repeat it this year. Even all the proposals and reports we made in year two helped us to expertise this project report. Overall, everyone learnt management skills as well as UML skills.

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Appendix

Minutes of the Meeting:

Minutes of the Meeting

Date: 14 / 02 / 2023

Time of Meeting: 12:30

Duration: 1 Hour

Members Present:

- Awais Ali
- Kurt Patawaran
- Laraib Syed
- Sindhu Gunda

Apologies From: n/a.

Items Discussed:

- Went through the coursework guidelines.
- Discussed on what topic to research, finalized with researching about Netflix's information systems.
- Started with case study

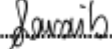
Problems Encountered:

- n/a.

Tasks Deliverables for next meeting:

- Completed Case Study

Name of Student:Laraib Syed.....

Student Signature:.....

Name of Student:Sindhu Gunda.....

Student Signature:.....

Name of Student:Kurt Eaq Patawaran.....

Student Signature:.....

Name of Student:Awais Ali.....

Student Signature:.....

FIGURE 22 – MEETING 1

Minutes of the Meeting

Date: 21 / 02 / 2023

Time of Meeting: 12:30

Duration: 1 Hour

Members Present:

- Awais Ali
- Kurt Patawaran
- Laraib Syed
- Sindhu Gunda

Apologies From: n/a.

Items Discussed:

- Finalized the case study.
- Proceeded with the definition of BIS.
- Distributed tasks for each member to finish for the week in "Writing a Case study" and "Creating a working plan".
- Created a survey on Netflix consumption.

Problems Encountered:

Tasks Deliverables for next meeting:

- Completed Case Study
- Present completed individual tasks.
- Analyse the collected data from the survey.

Name of Student:Laraib Syed.....

Student Signature:.....

Name of Student:Sindhu Gunda.....

Student Signature:.....

Name of Student:Kurt Earl Patawaran.....

Student Signature:.....

Name of Student:Awais Ali.....

Student Signature:.....

FIGURE 23 – MEETING 2

Minutes of the Meeting

Date: 28 / 02 / 2023

Time of Meeting: 10:30

Duration: 3 Hours

Members Present:

- Awais Ali
- Kurt Patawaran
- Laraib Syed
- Sindhu Gunda

Apologies From: n/a.

Items Discussed:

- Finalized case study.
- Written the Functional and Non-functional requirements.
- Defined primary data collection.
- Defined UML

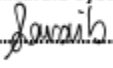
Problems Encountered:

- Insufficient information in the business case statement

Tasks Deliverables for next meeting:

- Complete the definitions of the UML diagrams
- Complete the Use Case Diagram + Use Case Descriptors
- Complete the Class Diagram

Name of Student:Laraib Syed.....

Student Signature:.....

Name of Student:Sindhu Gunda.....

Student Signature:.....

Name of Student:Kurt Earl Patawaran.....

Student Signature:.....

Name of Student:Awais Ali.....

Student Signature:.....

FIGURE 24 – MEETING 3

Minutes of the Meeting

Date: 07 / 03 / 2023

Time of Meeting: 10:30

Duration: 3 Hours

Members Present:

- Awais Ali
- Kurt Patawaran
- Laraib Syed
- Sindhu Gunda

Apologies From: n/a.

Items Discussed:

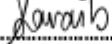
- Complete the definitions of the UML diagrams
- Complete the Use Case Diagram + Use Case Descriptors
- Complete the Class Diagram
- Completed Business Case Statement

Problems Encountered:

Tasks Deliverables for next meeting:

- Complete Activity Diagrams
- Complete Sequence Diagrams
- Create Powerpoint

Name of Student:Laraib Syed.....

Student Signature:.....

Name of Student:Sindhu Gunda.....

Student Signature:.....

Name of Student:Kurt Earl Patawaran.....

Student Signature:.....

Name of Student:Awais Ali.....

Student Signature:.....

FIGURE 25 – MEETING 4

Minutes of the Meeting

Date: 15 / 03 / 2023

Time of Meeting: 8:30

Duration: 4.5 Hours

Members Present:

- Awais Ali
- Kurt Patawaran
- Laraib Syed
- Sindhu Gunda

Apologies From: n/a.

Items Discussed:

- Complete Activity Diagrams
- Complete Sequence Diagrams
- Complete PowerPoint
- Completed HCI
- Complete Conclusion

Problems Encountered:


Tasks Deliverables for next meeting:

- Submission

Name of Student:Laraib Syed.....

Student Signature:.....

Name of Student:Sindhu Gunda.....

Student Signature:.....

Name of Student:Kurt Earl Patawaran.....

Student Signature:.....

Name of Student:Awais Ali.....

Student Signature:.....

FIGURE 26 – MEETING 5

Self-Assessment Forms:

Self Assessment Template

Using the scale of 0 to 5 please provide a critical appraisal of what has been achieved, and of your contribution and of the other team members' contribution.

0 = Absent (or Very Poor)

1 = Poor

2 = Satisfactory

3 = Good

4 = Very Good

5 = Excellent

Self Assessment

1. How would you rate your technical contribution to the group work?4.....
2. How would you rate your contribution in terms of organisation?5.....
3. How would you rate your contribution in terms of communication?5.....
4. The holistic view of things argues that group work has more benefits than drawback and that groups always achieve more and better results than people working as individuals. Please rank the following in order of importance in the context of group work (using 1 for the most important):

Benefit	Ranking
Sharing of knowledge	3
Sharing the work load	1
Enhancing Communication	5
Compromise/Listening to others	7
Obtaining additional perspectives	6
Providing Mutual Support	2
Learning from teaching others	4

Please insert your name and your Student Number below

- Name: ...Sindhu Gunda
- Student No: ...M00849661.....

FIGURE 27 – SINDHU'S SELF-ASSESSMENT FORM

Self Assessment Template

Using the scale of 0 to 5 please provide a critical appraisal of what has been achieved, and of your contribution and of the other team members' contribution.

- 0 = Absent (or Very Poor)
- 1 = Poor
- 2 = Satisfactory
- 3 = Good
- 4 = Very Good
- 5 = Excellent

Self Assessment

1. How would you rate your technical contribution to the group work? ... 4.....
2. How would you rate your contribution in terms of organisation?5.....
3. How would you rate your contribution in terms of communication? ...5.....
4. The holistic view of things argues that group work has more benefits than drawback and that groups always achieve more and better results than people working as individuals. Please rank the following in order of importance in the context of group work (using 1 for the most important):

Benefit	Ranking
Sharing of knowledge	3
Sharing the <u>work-load</u>	1
Enhancing Communication	7
Compromise/Listening to others	2
Obtaining additional perspectives	5
Providing Mutual Support	4
Learning from teaching others	6

Please insert your name and your Student Number below

- Name:.....Laraib Syed.....
- Student No:.....M00792761.....

FIGURE 28 – LARAIB'S SELF-ASSESSMENT FORM

Self Assessment Template

Using the scale of 0 to 5 please provide a critical appraisal of what has been achieved, and of your contribution and of the other team members' contribution.

0 = Absent (or Very Poor)

1 = Poor

2 = Satisfactory

3 = Good

4 = Very Good

5 = Excellent

Self Assessment

1. How would you rate your technical contribution to the group work? ...5.....
2. How would you rate your contribution in terms of organisation? ...5.....
3. How would you rate your contribution in terms of communication? ...5.....
4. The holistic view of things argues that group work has more benefits than drawback and that groups always achieve more and better results than people working as individuals. Please rank the following in order of importance in the context of group work (using 1 for the most important):

Benefit	Ranking
Sharing of knowledge	1
Sharing the work load	5
Enhancing Communication	2
Compromise/Listening to others	4
Obtaining additional perspectives	7
Providing Mutual Support	6
Learning from teaching others	3

Please insert your name and your Student Number below

- Name:.....Kurt Earl Patawaran
- Student No:.....M00850500.....

FIGURE 29 – KURT'S SELF-ASSESSMENT FORM

Self Assessment Template

Using the scale of 0 to 5 please provide a critical appraisal of what has been achieved, and of your contribution and of the other team members' contribution.

0 = Absent (or Very Poor)

1 = Poor

2 = Satisfactory

3 = Good

4 = Very Good

5 = Excellent

Self Assessment

1. *How would you rate your technical contribution to the group work?4.....*
2. *How would you rate your contribution in terms of organisation?3.....*
3. *How would you rate your contribution in terms of communication? ...2.....*
4. *The holistic view of things argues that group work has more benefits than drawback and that groups always achieve more and better results than people working as individuals. Please rank the following in order of importance in the context of group work (using 1 for the most important):*

Benefit	Ranking
Sharing of knowledge	4
Sharing the work load	3
Enhancing Communication	2
Compromise/Listening to others	2
Obtaining additional perspectives	2
Providing Mutual Support	4
Learning from teaching others	3

Please insert your name and your Student Number below

- Name:.....Awais Ali.....
- Student No:.....M00848104.....

FIGURE 30 – AWAIS’S SELF-ASSESSMENT FORM

Reflective Statements:

Sindhu Gunda - M00849661

This group coursework was fun to work. I have learned a lot and helped others as well. We all split tasks and worked together; we met whenever possible and worked together, which was the fun part. Deciding on the case study was challenging as we did not find the one, we wanted and finally decided to write it ourselves. All of us could put the work together as we planned everything and implemented it on time. I had a few issues with the activity diagram, which the other teammates helped me resolve. Although I made many modifications to my sequence diagram, it went well. The workflow went smoothly, as we had no communication issues, and we all understood our work. If anyone had any doubts, we helped each other. Overall, we all helped each other and gave our best to this project.

Kurt Earl Patawaran - M00850500

Participating in this group coursework was fun especially when grouped with people who share common goals. I've learned a lot and managed to improve my skills. Initial steps on tackling the coursework were difficult due to the wide scope of research, we had to search and create our own case study, through countless modifications made to our study we were able to proceed and finish other tasks and deliver our project.

Laraib Syed – M00792761

This coursework two was beneficial and amazing as we got to work in a group. It was a fun learning experience for all of us as we worked together most of the time and helped each other. The primary area we faced trouble was finding a case study; it took time to decide what our case study would be on, and then it took much time to find a case study which we did not need and had to write ourselves by collecting information from multiple references. The UML part of work was fine, as we already did the same things for our first coursework. Adding the definitions was easy, but finding the ones we did not know about was tricky as we needed determine out whether it was correct. Altogether we had fun, and we completed the work on time.

Awais Ali - M00848104

This Group Coursework helped me learn how to work on a project with multiple people and coordinate tasks accordingly. The course strengthened my understanding of diagrams such as Activity Diagrams, WBS, and Sequence Diagrams. There were some issues, such as time management due to a busy schedule and we were having trouble picking a case study for the coursework. To conclude, I enjoyed and a satisfied with working with my team on this coursework.

I look forward to further implementing the knowledge I gained from this experience in my academic studies.

Peer Assessment Template

Using the scale of 0 to 5 please provide a critical appraisal of what has been achieved, and of your contribution and of the other team members' contribution.

0 = Absent (or Very Poor)

2 = Satisfactory

4 = Very Good

1 = Poor

3 = Good

5 = Excellent

Member name: Laraib Syed

Member Student No:...M00792761...

1 How would you rate the above member's technical contribution to the group work?.....4.....

2 How would you rate the above member's contribution in terms of organisation?5.....

3. How would you rate the above member's contribution in terms of communication? ...5.....

Member name: Kurt Patawaran

Member Student No:...M00850500...

1 How would you rate the above member's technical contribution to the group work?...4.....

2 How would you rate the above member's contribution in terms of organisation?4.....

3. How would you rate the above member's contribution in terms of communication? ...5.....

Member name: Awais Ali

Member Student No:...M00848104.....

1 How would you rate the above member's technical contribution to the group work?...2.....

2 How would you rate the above member's contribution in terms of organisation?1.....

3. How would you rate the above member's contribution in terms of communication? ...1.....

Any additional comments?

Please insert your name and your Student Number below

- Name:.....Sindhu Gunda.....
- Student No:M00849661.....

FIGURE 32 – PEER ASSESSMENT BY SINDHU

Peer Assessment Template

Using the scale of 0 to 5 please provide a critical appraisal of what has been achieved, and of your contribution and of the other team members' contribution.

0 = Absent (or Very Poor)
2 = Satisfactory
4 = Very Good

1 = Poor
3 = Good
5 = Excellent

Member name SINDHU GUNDA Member Student No:.....M00849661.....

1 How would you rate the above member's technical contribution to the group work?.....4.....

2 How would you rate the above member's contribution in terms of organisation?5.....

3. How would you rate the above member's contribution in terms of communication?5.....

Member name KURT PATAWARAN Member Student No:.....M00850500.....

1 How would you rate the above member's technical contribution to the group work?...4.....

2 How would you rate the above member's contribution in terms of organisation?5.....

3. How would you rate the above member's contribution in terms of communication? ...5.. ..

Member name AWAIS ALI Member Student No:.....M00848104.....

1 How would you rate the above member's technical contribution to the group work?.....3.....

2 How would you rate the above member's contribution in terms of organisation?4.....

3. How would you rate the above member's contribution in terms of communication?3.....

Any additional comments?

Please insert your name and your Student Number below

- Name:.....Laraib Syed.....|
- Student No:.....M00792761.....

FIGURE 33 – PEER ASSESSMENT BY LARAIB

Peer Assessment Template

Using the scale of 0 to 5 please provide a critical appraisal of what has been achieved, and of your contribution and of the other team members' contribution.

0 = Absent (or Very Poor)

2 = Satisfactory

4 = Very Good

1 = Poor

3 = Good

5 = Excellent

Member name Sindhya Gunda

Member Student No: M00849661

- 1 How would you rate the above member's technical contribution to the group work? 5
- 2 How would you rate the above member's contribution in terms of organisation? 5
3. How would you rate the above member's contribution in terms of communication? 5

Member name

Laralb Syed

Member Student No: M00792761

- 1 How would you rate the above member's technical contribution to the group work? 5
- 2 How would you rate the above member's contribution in terms of organisation? 5
3. How would you rate the above member's contribution in terms of communication? 5

Member name

Awais Ali

Member Student No: M00848104

- 1 How would you rate the above member's technical contribution to the group work? 2
- 2 How would you rate the above member's contribution in terms of organisation? 2
3. How would you rate the above member's contribution in terms of communication? 3

Any additional comments?

Please insert your name and your Student Number below

- Name: Kurt Earl Patawaran
- Student No: M00850500

FIGURE 34 – PEER ASSESSMENT BY KURT

Screenshots of the PowerPoint:



Introduction

What is Business Information Systems or IS?
How a company collect and use data

The 2 main information systems:

1. Transaction Processing System
2. Management Information System

Aims and Objectives:
The main aim is to construct UML diagrams for the chosen case study and analyse their systems.

Structure:

- Project Management
- Case Study
- UML Diagrams

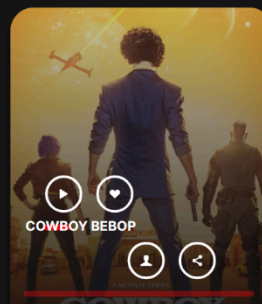
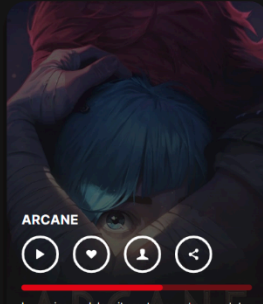
The slide features a grid of nine Netflix show posters arranged in three rows and three columns. The first row contains 'Daredevil', 'The Rain', and 'Tribes of Europe'. The second row contains 'The Old Guard', 'Stranger Things', and 'Squid Game'. The third row contains 'Deadwind', 'The Witcher', and 'The Irregulars'.

Project Management

Project management can be defined as the process, method, skills, knowledge and experiences to complete projects within a finite number of resources.

Methods used to plan our coursework include:

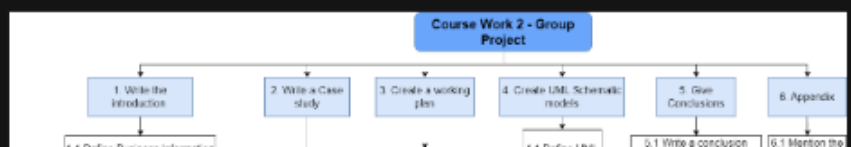
- Activity Lists
- Work Breakdown Structure
- Gantt Chart
- Risk Analysis



Activity List

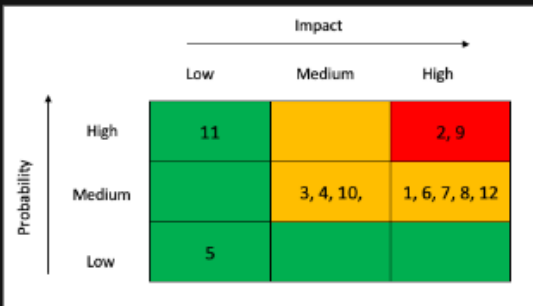
Activity Lists is a list of activities that could occur during the duration of the projects along with a description, estimated duration, who will do the activity and activity predecessors

Task Description	No of days	Dependency
1. Write the introduction		
1.1 Define Business Information System	1	
1.2 Define TPS and MIS	1	
1.2.1 Define Operational Documents	1	
1.2.2 Define Operational Databases	1	
1.2.3 Define Management Reports	1	
1.3 Write the aim and objective	1	2.1
1.4 Mention the Submission Structure	1	
2. Write a Case study		
2.1 Construct a case study	1	
2.2 List functional requirements	1	2.1
2.3 List non functional requirements	1	2.1
2.4 Write business case statement	1	2.1
2.5 Collect information	3	
3. Create a working plan		
3.1 Define and Prepare activity list	1	2
3.2 Define and Create a Gantt chart	1	2
3.3 Define and Create a WBS	1	2, 3.1
3.4 Define and Create a Risk Matrix	1	2, 3.2
4. Create UML Schematic models		
4.1 Define UML	1	2
4.2 Define the UML schematic models	1	2
4.3 Create a UCD	1	2
4.3.1 Create 4-6 Use Case Descriptors	1	2
4.4 Create a Class Diagram	1	2, 4.3
4.5 Create an Entity Relationship diagram	1	2, 4.3
4.6 Create 4-6 Activity Diagrams	2	2, 4.3, 4.4
4.7 Create 4-6 Sequence Diagrams	2	2, 4.3, 4.4
4.7.1 Create corresponding Collaboration Diagrams	2	2
4.8 Create User Interfaces	2	2
5. Give Conclusions		
5.1 Write a conclusion linking the tasks to other modules	1	1, 2, 3, 4
5.2 Write a reflection	1	1, 2, 3, 4
5.3 Give references	1	1, 2, 3, 4
6. Appendix		
6.1 Mention the minutes of group meetings	1	
6.2 Self-Assessment Form with reflective statement	1	
6.3 Peer Assessment Forms	1	1, 2, 3, 4



Risk Matrix

A risk matrix is a structured approach to identifying risks and their impact on the project/organization and providing a detailed contingency plan to combat the risks or have a backup plan to deal with them.



Risk Description	Potential Impact on the Project	Likelihood of Occurrence	Difficulty of Timely Anticipation	Overall Threat
1) Late subscription	Medium	High	Low	Medium
2) Unequal participation of group members	High	High	Low	High
3) Poor communication between group members	Medium	Medium	Medium	Medium
4) A group member falling sick	Medium	Medium	High	Medium
5) Reiterating the work in the wrong way	Low	Low	Low	Low
6) Not providing quality content	High	Medium	Low	Medium
7) No proper understanding of work	High	Medium	Medium	Medium
8) A demotivating atmosphere	High	Medium	Medium	Medium
9) No proper time management	High	High	Low	High
10) Leadership issues	Medium	Medium	Low	Medium
11) Limited resources to complete the project	High	Low	High	High
12) Free rides	Medium	High	Low	Medium

Case Study

The case study is regarding Netflix and their systems.

Functional Requirements:

- Create a machine learning algorithm to cluster users based on viewing preferences
- Allow users to subscribe to the platform
- Process payments
- Store all the user details as well as media details
- Allow the users to search their media library
- Manage all the user information and subscriptions

Non-functional Requirements:

- Performance
- Scalability
- Security
- Availability
- Usability
- Compatibility
- Adaptability
- Accuracy
- Privacy

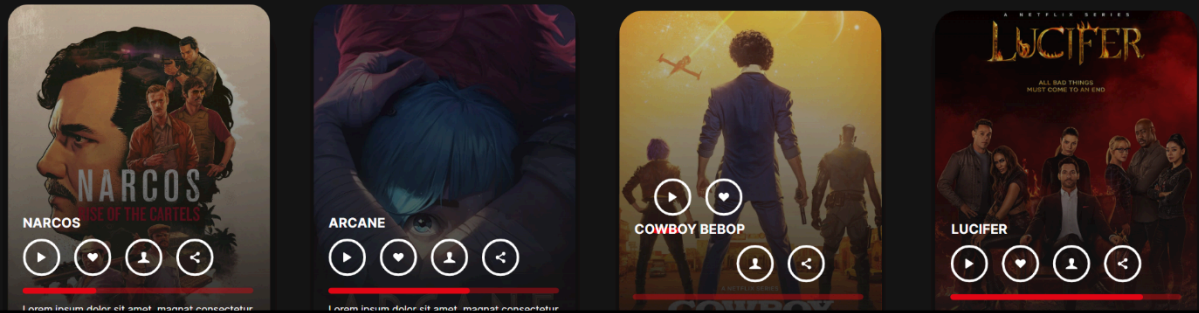


UML Diagrams

Unified Modelling Language, UML for short, is a set of graphical notations used in software development to model and design software systems (Reggio et al., 2013).

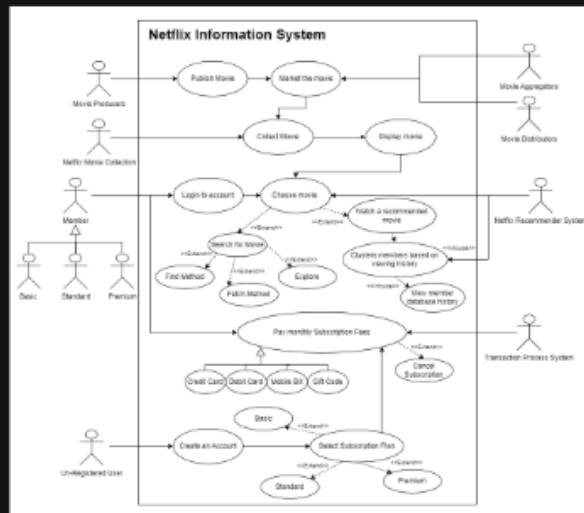
The following UML diagrams are used:

- Use Case Diagrams or UCDs
- Class Diagrams with their corresponding ERD
- Activity Diagrams
- Sequence Diagrams

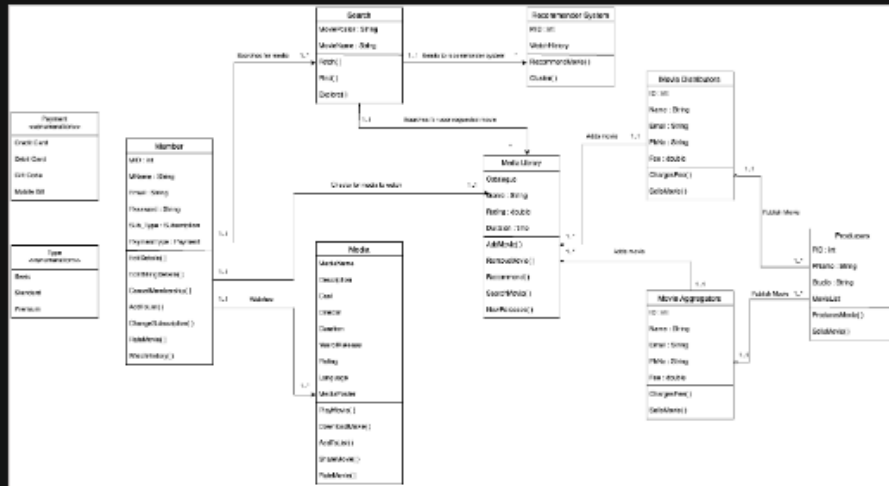


Use Case Diagram

Use Case	Description
Create Account (Kurt Patrawan)	An unregistered user must create an account to use Netflix's Service; throughout the process, the user must select a membership plan and their preferred mode of payment.
Clusters members based on viewing history (Laraib Syed)	Netflix uses complex machine learning algorithms which take in the member's price watch history to create clusters of members and provide them with media that best fit their unique preference.
Pay Monthly Subscription Fees (Sindhu Gunda)	Netflix offers users four payment methods, they can pay using credit card, debit card, gift code or mobile billing, user can do the payment and add billing for every month using any of these methods and also has an option to change the billing method later.
Login to account (Awaiz Ali)	Registered users can sign into their Netflix account on a device such as a smartphone through the application or a personal computer by the web browser using the email and password they chose and picked when signing up for the service. Users can get help in case they forget their email/password via email or text message (SMS) verification.



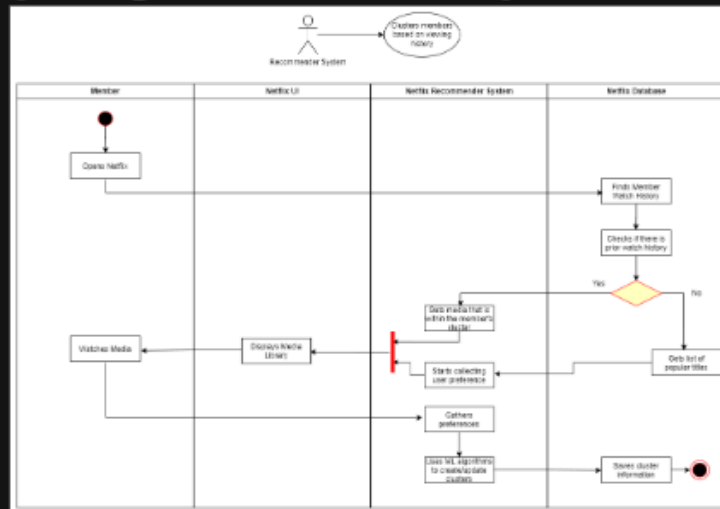
Class Diagram



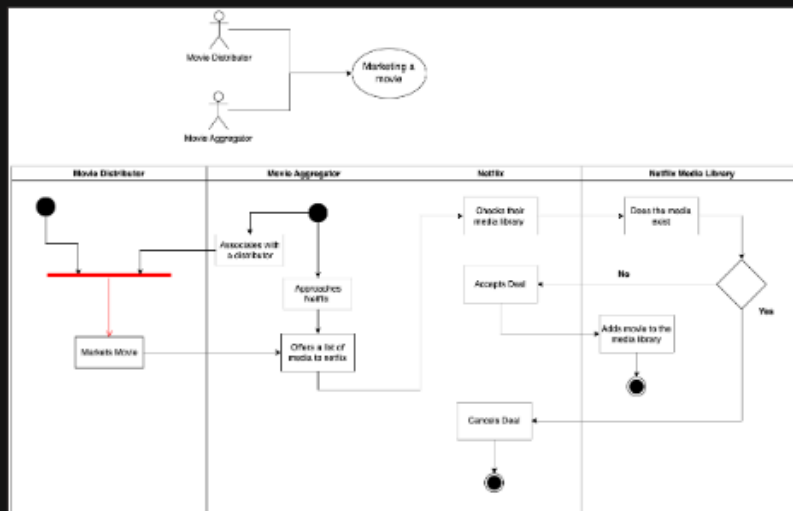
Entity Relationship Diagram



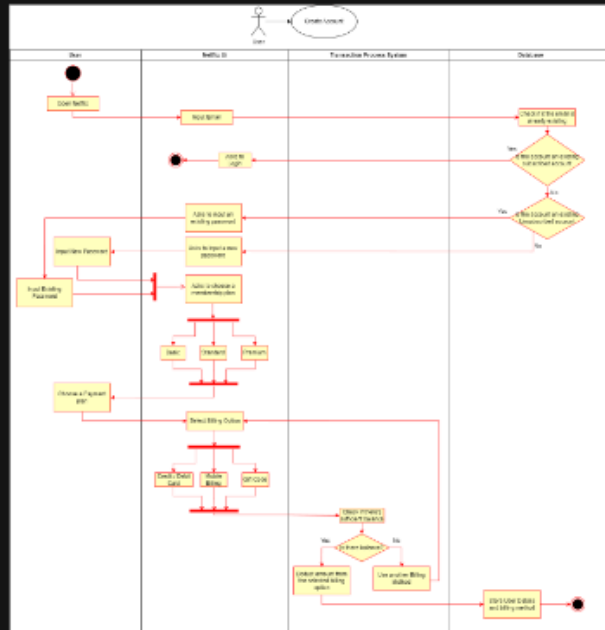
Activity Diagram 1 - Laraib Syed M00792761



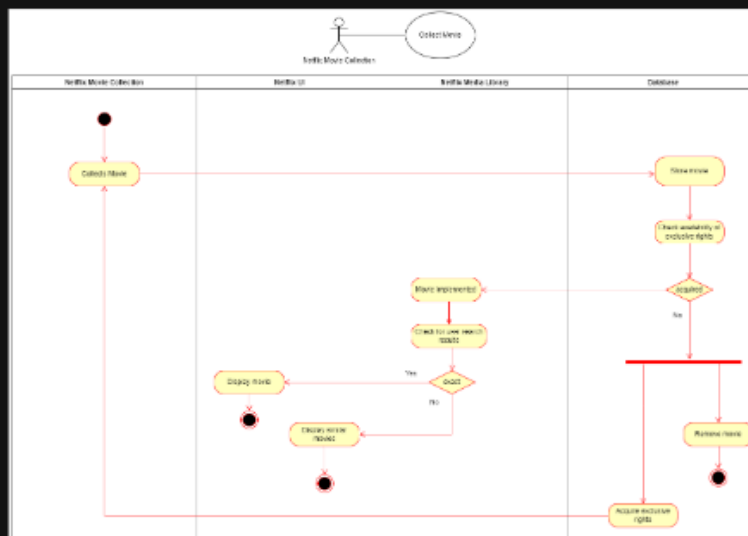
Activity Diagram 2 - Sindhu Gunda M00849661



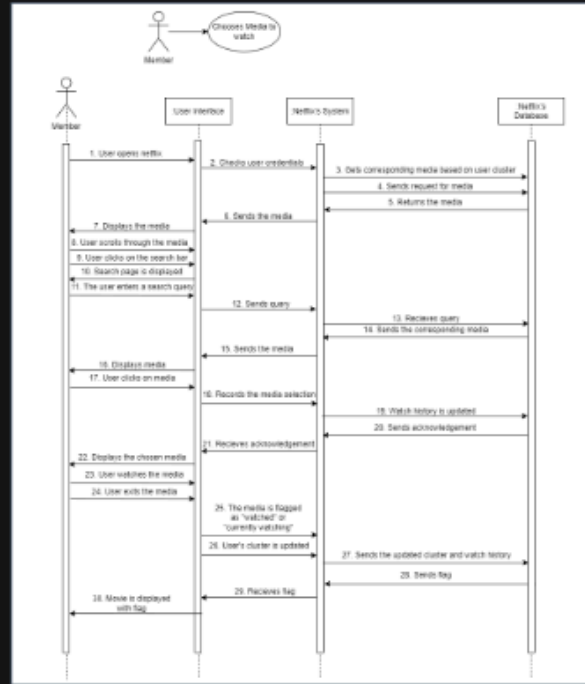
Activity Diagram 3 - Kurt Patawaran M00850500



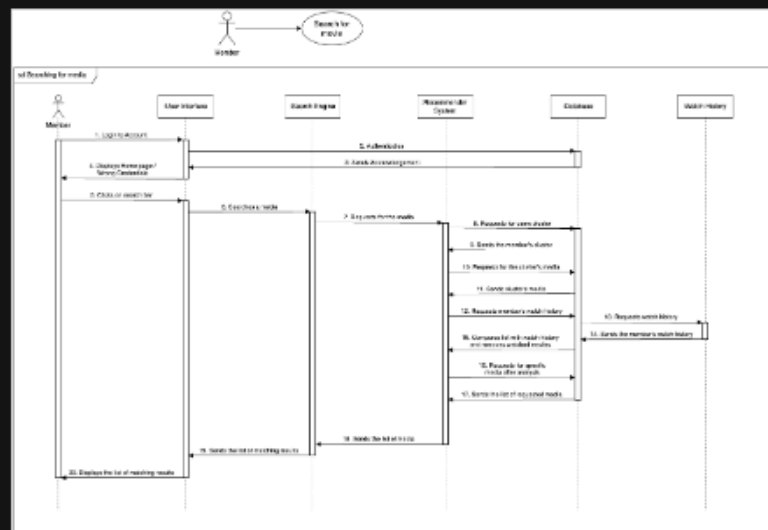
Activity Diagram 4 - Awais Ali M00848104



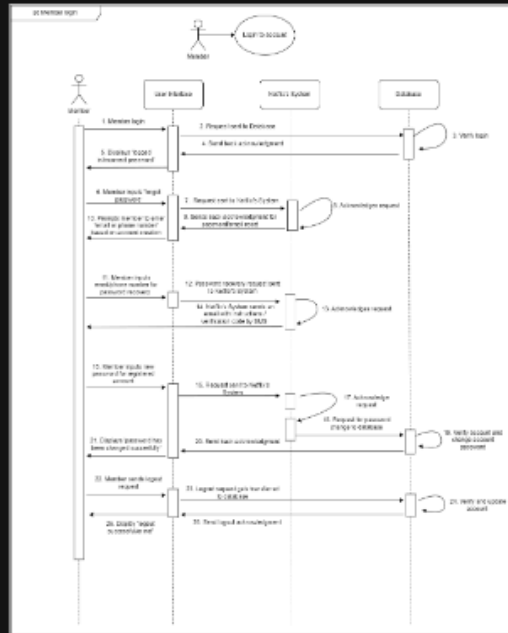
Sequence Diagram 1 - Laraib Syed M00792761



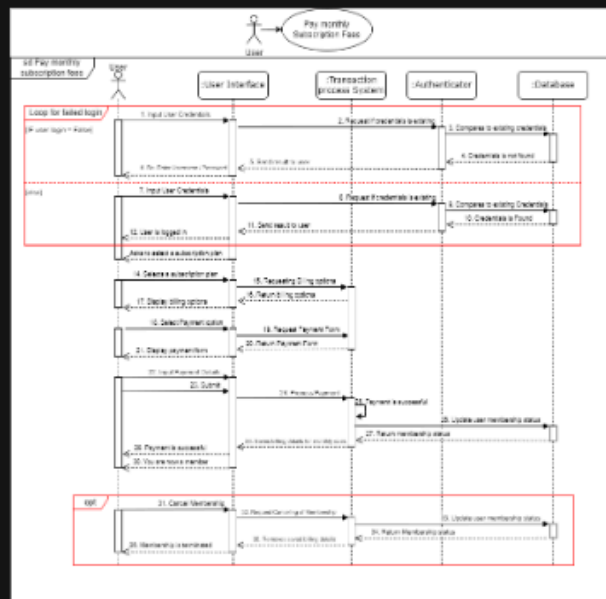
Sequence Diagram 2 - Sindhu Gunda M00849661



Sequence Diagram 3- Awais Ali M00848104



Sequence Diagram 4 - Kurt Paratawan M00850500



Survey Conducted on Netflix:

We surveyed Netflix, and we received 142 responses. These responses helped us better understand Netflix and everyone's opinion on Netflix. Below is the picture of the form and the questions we have asked everyone.

Netflix Consumption

Please fill out this form if you are currently using or have used netflix! By filling this form, you are giving us consent to use this data for our research for our coursework. Please do not hesitate to contact us if you have any questions!

- Kurt Patawaran KP888@live.mdx.ac.uk
- Laraib Syed LS1179@live.mdx.ac.uk
- Sindhu Gunda SG1592@live.mdx.ac.uk
- Awais Ali AA5267@live.mdx.ac.uk

laraisyed92@gmail.com (not shared) Switch account

* Required

Is Netflix the only video on demand service you are subscribed to? *

Yes

No

If you've answered no, what other streaming services do you use?

Disney+

Amazon Prime

OSN+

Hulu

HBO Max

CrunchyRoll

Other: _____

What subscription plan are you subscribed to in Netflix? *

Basic - AED 29

Standard - AED 39

Premium - AED 56

I share with someone else

I don't know

Other: _____

How long have you been subscribed to Netflix? *

I'm a new subscriber

0-1 Years

1-2 Years

3+ Years

How often do you use Netflix on a weekly basis? *

0-2 Hours

2-4 Hours

4-6 Hours

6+ Hours

How many people are using the same profile? *

I use it alone

I share it with one person

I share it with multiple people

FIGURE SEQ FIGURE * ARABIC 36 – SURVEY CONDUCTED

Do you think your recommended movies and shows are relevant to your interests? *

- Yes
- No
- Sometimes
- Other: _____

Do you believe that Netflix's library of movies and shows are extensive(huge variety) or could be improved? *

- It's extensive
- It could be improved
- I dislike it
- No Opinion
- Other: _____

Do you find the shows/movies you are searching for easily? *

- Yes
- No
- Occasionally
- Other: _____

Are the search results relevant to your search query? *

- Yes
- No
- Sometimes
- Other: _____

Do you search for specific movies/shows often or do you just watch what is on your home page? *

- I search for specific things
- I just watch what I see on my home page
- A bit of both
- Other: _____

Are you satisfied with your experience on Netflix? *

- Very Satisfied
- Satisfied
- No Opinion
- Dissatisfied
- Very Dissatisfied

Based on your previous answer, please elaborate on why you chose your answer. *

Your answer _____

Thank you for filling out our form!

Submit

Clear form