Software Engineering

Deliverable – 01

Submitted to:

Mam Noreen Jamil

By,

20I 0565 Faizan Pervaz

20I 0879 Haider Yar

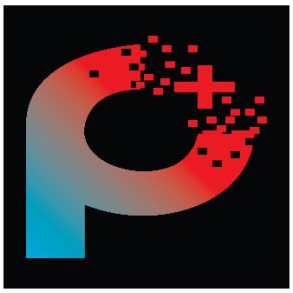
NFT MARKET-PLACE MANAGEMENT SYSTEM

1. Introduction of team

- Team Name:

  The Pixels

- Team Logo:



- Team Photo:

2. Team Lead

Team Member, Haider Yar will serve as team lead.

3. Introduction of Team Members

- ## Faizan Pervaz Biography:

As a student pursuing a bachelor's degree in Computer Science, I am dedicated to developing my skills and knowledge in the field. I am committed to learning and applying new technologies and methodologies to solve complex problems. I am a quick learner and a team player, always willing to collaborate with others to achieve common goals.

- ## Haider Yar Biography:

I am a highly motivated and dedicated individual pursuing a bachelor's degree in Computer Science. My passion for technology, coupled with my strong analytical and problem-solving skills, has led me to excel in my coursework and pursue internships to further develop my skills. I am eager to apply my knowledge and contribute to the tech industry.

- GitHub: @FaizanPervaz
- GitHub: @HaiderYar

4. Assigning Roles

- Product Manager:

A Product Manager in Software Engineering is responsible for overseeing the development and launch of software products that meet the needs of the target market. We would like to give this role to Faizan Pervaz due to his commendable management skills.

- Scrum Master:

A Scrum master's in software engineering is a facilitator and coach who helps development teams to implement and follow the principles and practices of Scrum. We would like to give this role to Haider Yar due to his commendable team skills.

- Analyst/Architect:

An Analyst/Architect in Software Engineering is responsible for designing and overseeing the implementation of software systems that meet business and technical requirements. Faizan Pervaz would be perfect for this position.

- Developer:

  A Developer in Software Engineering is responsible for writing code that enables software applications to function according to their design. Both Team Members would be responsible for that position.

- Faizan Pervaz
- Haider Yar

- Testers:

  A tester is responsible for evaluating and testing software applications to ensure they meet the requirements and specifications of the customer or end-users. Haider Yar would be the Tester of this project.

- UI Designer:

  A Designer in Software Engineering is responsible for creating the visual and user experience design of software applications. Both Team Members would be responsible for that position.

- Faizan Pervaz
- Haider Yar

5. Methods of Communication:

You can contact the team formally through emails at

i200565@nu.edu.pk

i200879@nu.edu.pk

and informally in case of emergency at WhatsApp or Text,

03116395979

03094103399

6. Communication Response Time:

We make it a priority to respond to messages and inquiries in a timely manner, as we understand the importance of effective communication in achieving business goals and building strong relationships. We aim to respond to messages as quickly as possible while also taking the necessary time to provide thoughtful and accurate responses. However, response time may vary depending on the complexity and urgency of the request.

7. Meeting Attendance:

We understand the value of attending meetings and the impact it can have on team collaboration. We are willing to attend meetings as needed to support the team and contribute to the achievement of goals. We believe that it is important to have well-organized meetings with clear agendas, purpose, and outcomes to ensure that everyone's time is used effectively. While we believe that regular attendance at team meetings is important for building trust. We also understand that there may be times when a meeting is not essential to my role or that my attendance may not be necessary. In such cases, we will communicate with the team in advance to ensure that our absence will not hinder progress or negatively impact team dynamics.

8. Running Meetings:

We understand the importance of well-run meetings for effective collaboration and successful outcomes. We are willing to participate in meetings both in-person and online, depending on the needs of the team and the situation. I believe that the timing and location of the meeting should be chosen with consideration for everyone's schedules and availability. Regarding the taking of minutes/notes, I am willing to take on that responsibility if it is required, but I believe it is best practice to rotate that responsibility among team members to ensure shared ownership and accountability. Overall, I am committed to contributing to the success of the team and the organization by actively participating in meetings and supporting their smooth operation.

9. Meeting Preparation:

We believe that preparation is a crucial aspect of running and participating in effective meetings. We always try to review the meeting agenda, relevant documents, and any pre-meeting materials that are shared in advance. This helps us to come to the meeting prepared and ready to contribute to the discussion. We also try to anticipate potential questions, issues, or concerns that may arise during the meeting and prepare accordingly. We believe that effective meeting preparation is essential for ensuring that the meeting runs smoothly, and for maximizing the productivity and effectiveness of the team.

10. Version Control:

As a team, it is important to establish clear guidelines for version control to ensure that all team members are on the same page regarding what to commit, what not to commit, and the content of log messages. Here are some best practices that the team can consider:

- Committing only the source code, dependencies, and resources that are required to build and run the project.
- Avoid committing sensitive or confidential information, such as passwords or private keys.
- Log messages should be clear and descriptive, providing a summary of the changes made in the commit. Like if the commit is related to specific ticket include the ticked number.

By following these best practices for version control, the team can ensure that they are working with the same codebase, streamline their development process, and make it easier to track changes and resolve conflicts. Effective version control practices are essential for successful collaboration and project management.

11. Division of Work:

As a team of two, it is important to divide the work for the NFT Marketplace Management System project in a way that ensures that both team members are contributing equally and effectively to the project. Here are some best practices for dividing the work and identifying stakeholders:

- Identify all stakeholders who will be impacted by the project, such as developers, designers, testers, project managers, and end-users. We would consult with stakeholders to understand their requirements and expectations for the project.
- In dividing the Work, we would consider the strengths and weaknesses of both team members when dividing the work. Assign tasks that are aligned with each team member's skills and expertise. Break the project down into smaller components or modules and assign each component to a team member.
- We would hold a team meeting to discuss the project and assign roles and responsibilities to each team member. We would use individual skill sets and experience to guide the decision of who does what and regularly assess workloads and balance them across team members as needed.

12. Submitting Assignments:

When working as a team of two, it is important to establish clear guidelines for submitting assignments.

We would establish a schedule where we would make it ensure that there is enough time for the team member who is reviewing the submission to provide feedback.

We would Decide who will submit each assignment. It could be the person who worked on the task, or the person who is best at presenting the work.

We will review the submission and provide constructive feedback to help improve future submissions.

13. Contingency Planning:

Contingency planning is an important aspect of any project, and it becomes especially crucial when working in a team of two.

- First of all, we would discuss potential risks.
- We would create a plan if a team member dropout, alone finishing the project is very hard so we would consider finding a replacement team member or seek assistance from the instructor or other resources.
- We will develop a plan for missed meetings. If a team member continues to miss meetings, the remaining team member may need to consider adjusting the workload or finding a replacement.

- If academic dishonesty is suspected, the remaining team members should discuss it with the instructor and follow the academic honesty policy of the university.

14. Project Idea:

Our project idea is to develop a platform that enables the management and trading of NFTs in a marketplace setting. The platform will allow users to create, sell, and buy NFTs and manage their digital assets in a secure and user-friendly environment. The goal of this project is to provide a valuable service to the rapidly growing NFT community and to create a user-friendly platform that simplifies the process of buying and selling NFTs.

15. Competitive Analysis:

Our project vision is to create a user-friendly and secure platform that simplifies the process of buying and selling NFTs in a marketplace setting. The platform will provide users with a seamless and intuitive experience, enabling them to easily create, sell, and buy NFTs and manage their digital assets with confidence.

To achieve this vision, we conducted a competitive analysis of existing NFT marketplaces and found that many existing platforms are overly complex, difficult to use, and lack the necessary features to enable users to manage their digital assets effectively, leading to a loss of trust among users.

Our platform will differentiate itself from existing platforms by providing a simpler and more intuitive user experience, with features such as a customizable dashboard, and integrated wallet to enable seamless transactions.

Overall, our goal is to become the leading NFT marketplace management platform, providing a valuable service to the growing NFT community and enabling users to manage their digital assets with ease and confidence.

16. Intended use of System:

The intended use of our NFT Marketplace Management System is for individuals and businesses to create, buy, and sell NFTs. The stakeholders of our system include artists, collectors, investors, and small business owners looking to leverage the power of NFTs.

The needs of artists and collectors may include an easy-to-use platform to create and sell NFTs. Investors may be looking for a platform for a diverse selection of high-quality NFTs, while small business owners may want a platform that integrates easily with their existing e-commerce and payment systems.

17. Overall Functionality:

The NFT Marketplace Management System will provide a platform for users to buy, sell, and manage their NFTs. The system will have the following features and overall functionality:

- The system will allow users to list their NFTs for sale, manage their listings, and view their sales and earnings history. This will help users easily manage their NFT collections and track their profits.

- The system will facilitate secure and transparent transactions between buyers and sellers and manage the transfer of ownership of NFTs. This will ensure a reliable and trustworthy marketplace for NFTs.
- The system will ensure secure user authentication and data protection.
- The system will have a robust search and discovery mechanism that will help users find the NFTs they are looking for based on various parameters such as artist, genre, price, and popularity.

Overall, the NFT Marketplace Management System will help its users buy, sell, and manage their NFTs more efficiently, securely, and profitably. It will provide a user-friendly platform that makes it easy to buy and sell NFTs, while also ensuring a reliable and trustworthy marketplace for NFTs. The system will help users accomplish their tasks by providing them with the necessary tools and features to manage their NFT collections, track their sales, and make data-driven decisions.

18. Main Components of the system:

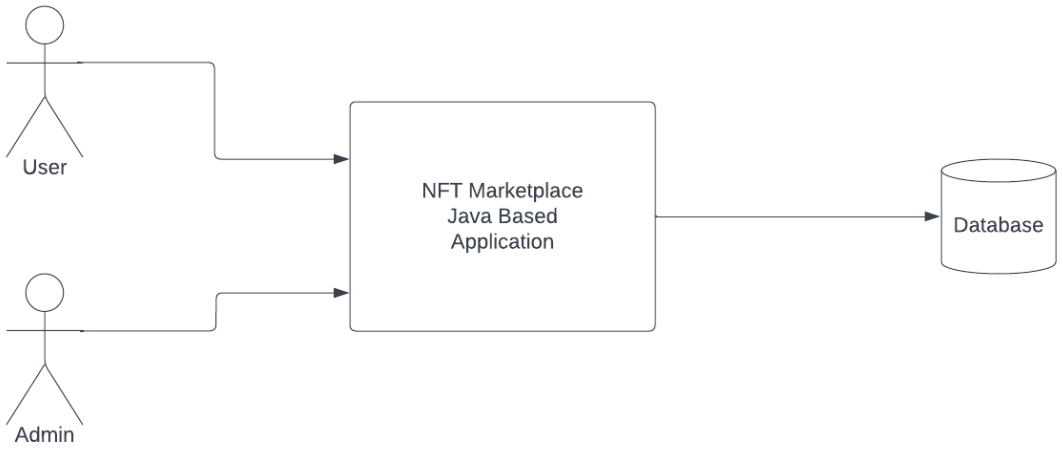
The NFT Marketplace Management System can be broken down into several logical or architectural components. The breakdown of the system components is based on the functional requirements of the system, as well as the need for scalability, modularity, and maintainability.

The main components of the system are:

- User Interface Component:
  This component is responsible for providing the user interface for the system, including the design and layout of the web pages, the navigation menu, and the user input forms. The user interface component will be developed using modern desktop development technologies such as JavaFX.
- Authentication and Authorization Component:
  This component is responsible for managing user authentication and authorization and ensuring secure access to the system. We will use MySQL database to make the authentication secure.
- Database Management Component:
  This component is responsible for managing the system's data, including user profiles, NFT listings, transactions, and sales history. The database management component will use database technologies such as MySQL.
- Payment and Transaction Management Component:
  This component is responsible for managing payments and transactions between buyers and sellers, including the processing of payments, handling of disputes, and resolution of issues related to the transfer of ownership of NFTs.
- API’s Component:
  This component is responsible for providing real-time analytics on various NFT sales, profits, and overall performance. Implementing this API would help users to get Realtime analytics of various NFTs.

The rationale for this breakdown is to provide a modular and scalable architecture that can be easily maintained and extended as the system evolves. Each component is designed to be loosely coupled, allowing for easier testing, debugging, and maintenance. The breakdown also ensures that each component has a well-defined set of responsibilities, making it easier to identify and resolve issues or bugs. Finally, the breakdown provides a clear separation of concerns, making it easier to assign development tasks to different team members based on their areas of expertise.

19. Preliminary Architecture:



20. Process Methodology:

Agile methodologies are flexible and can be adapted to suit your team's needs. By following this Scrum methodology, the team can work together to develop an NFT Marketplace management system in an iterative and flexible manner, allowing for continuous improvement and collaboration.

- Project Planning:

  Begin by identifying the scope and objectives of the project. Discuss the project timeline, roles and responsibilities, communication channels, and project metrics. Document these details in a project plan.

- Requirements Gathering:

  Identify the functional and non-functional requirements of the system. Engage stakeholders and end-users to ensure all requirements are captured accurately.

- Sprint Planning:

  Based on the requirements gathered, plan the sprints. Define the sprint goals and deliverables, and estimate the effort required for each sprint.

- Scrum Meetings & Execution:

  The team holds daily scrum meetings, also called stand-ups, to stay aligned and address any blockers that are preventing them from making progress. Assign

tasks and start working on them. Hold daily stand-up meetings to track progress and discuss any issues.

- Sprint Review:

  At the end of each sprint, hold a sprint review meeting to review the deliverables and get feedback from the stakeholders. Use this feedback to improve the product.

- Release Management & Testing:

  Once all the sprints are completed, integrate the completed work, and test the system. Once it passes all the tests, deploy it to the production environment.

- Maintenance:

  Once the system is deployed to the production environment, monitor the system, identify, and fix any issues, and continuously improve the product based on user feedback.

Software Engineering

Deliverable – 02

Submitted to:

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System's functional requirements:

1. User Management: The system should allow users to create and manage their accounts. Users should be able to log in, log out, and reset their passwords.
2. NFT Creation and Management: The system should allow users to create, manage and sell NFT's. The system should provide features like uploading NFT's, setting prices, and providing a description.
3. Search and Filtering: The system should provide the ability to search and filter NFT's based on various criteria like name, category, artist, and price.
4. Admin Dashboard: The system should provide an admin dashboard to manage user accounts, NFT's, transactions, and other important data.
5. Analytics and Reporting: The system should provide analytics and reporting features to track the performance of NFT's. Users should be able to view data like total sales, average price, and top-selling NFT's.
6. Payment Gateway Integration: The system should integrate with a payment gateway to facilitate secure transactions between buyers and sellers. The system should provide options for buyers to pay using different payment methods.

Non-functional requirements:

Non-functional requirements of a NFT Marketplace Desktop based software engineering project may include:

Product Requirements:

Performance: The system should be fast and responsive, able to handle a large number of users and transactions without slowdowns or crashes.

Scalability: The system should be scalable, able to handle increasing numbers of users and transactions as the marketplace grows.

Reliability: The system should be reliable, able to operate without interruption or downtime, and should be able to recover quickly from failures.

User Interface: The system should have an intuitive and user-friendly interface, with clear navigation and easy-to-use features.

Organizational Requirements:

Maintainability: The system should be easy to maintain, with clear documentation, modular code, and version control.

Support: The system should be supported by a dedicated team, providing timely assistance, and resolving user issues quickly.

Training: The system should be easy to use, with training and support provided to users as needed.

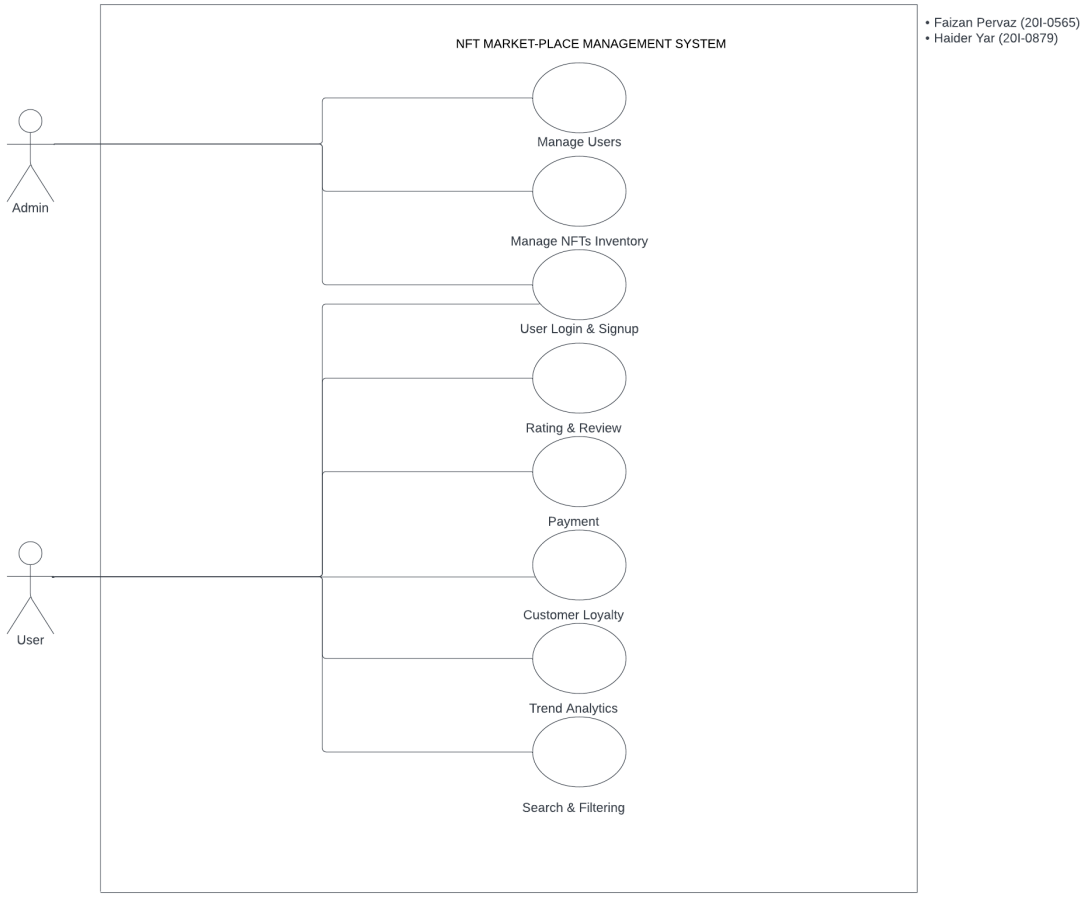
External Requirements:

Security: The system should be secure, protecting user data and preventing unauthorized access or data breaches.

Privacy: The system should respect user privacy, complying with relevant data protection laws and regulations.

Performance Standards: The system should comply with performance standards like response time, throughput, and availability, ensuring that it meets the needs of users and stakeholders.

Use Case Diagram:



Use Cases:

- Manage Users:

The admin can manage all the registered users currently registered in the database of the NFT Marketplace. Admin can access all the users and all the functionalities of the user. He can delete or update all the users.

- Manage NFT Inventory:

The admin can manage all the NFT's that the users have listed on the application. He can delete or update all the NFT's currently present on the marketplace.

- User Login & Signup:

User can login using his username and password or even signup for a new profile. Incase of Signing up, User must enter name, password, email, and age, etc. Admin also has the access.

- Rating & Review:

A user rates and reviews an NFT they have purchased, providing feedback on the quality of the product and the seller's performance.

- Customer Loyalty:

The platform rewards loyal users with discounts and incentives, promoting user retention and engagement.

- Trend Analytics:

User can see the Trend Analytics bar where analyzation of trends in the marketplace, identifying popular categories, styles, and artists, is done by using the data of different users.

- Search & Filtering:

A user searches for NFTs using keywords or filters like artist, category, or price range, finding the NFTs that best meet their needs.

- Payment:

A user browses the marketplace, finds an NFT they want to buy, and completes the purchase using a payment gateway.

User Stories:

1. User Management:

   As an admin, I want to manage all the registered users in the NFT Marketplace, So that I can access their information and perform necessary actions like updating or deleting users.

   - Preconditions:
     I. The admin has logged in to the NFT Marketplace Management System.

II. There are registered users in the NFT Marketplace database.

- Postconditions:
  I. The admin can view and access all the registered users.
  II. The admin can perform necessary actions like updating or deleting users.

2. NFT Inventory Management:

   As an admin, I want to manage all the NFTs listed on the NFT Marketplace by the users, so that I can remove or update the NFTs.

   - Preconditions:
     I. The admin has logged in to the NFT Marketplace Management System.
     II. There are NFTs listed on the NFT Marketplace by the users.
   - Postconditions:
     I. The admin can view and access all the NFTs listed on the NFT Marketplace by the users.
     II. The admin can perform necessary actions like updating or deleting NFTs.

3. User Login & Signup

   As a user, I want to login to the NFT Marketplace Management System using my username and password, so that I can access my profile and buy/sell NFTs.

   - Preconditions:
     I. The user is registered in the NFT Marketplace database.
   - Postconditions:
     I. The user is logged in to the NFT Marketplace Management System.
     II. The user can access his profile and buy/sell NFTs.

4. Rating & Review

   As a user, I want to rate and review the NFTs I have purchased, so that I can provide feedback on the quality of the product and the seller's performance.

   - Preconditions:
     I. The user has purchased an NFT from the NFT Marketplace.
   - Postconditions:
     I. The user can rate and review the NFT they have purchased.
     II. The rating and review are displayed on the NFT's page.

5. Customer Loyalty

   As a user, I want to receive discounts and incentives for being a loyal customer, So that I am motivated to use the NFT Marketplace more often.

   - Preconditions:
     I. The user has made multiple purchases on the NFT Marketplace.
   - Postconditions:
     I. The user receives discounts and incentives for being a loyal customer.
     II. The user is more likely to continue using the NFT Marketplace.

6. Trend Analytics

As a user, I want to see the Trend Analytics bar on the NFT Marketplace, so that I can identify popular categories, styles, and artists.

- Preconditions:
  I. The user is logged in to the NFT Marketplace Management System.
- Postconditions:
  I. The user can see the Trend Analytics bar on the NFT Marketplace.
  II. The user can identify popular categories, styles, and artists.

7. Search & Filtering

As a user, I want to search for NFTs using keywords or filters like artist, category, or price range, so that I can find NFTs that meet my needs.

- Preconditions:
  I. The user is logged in to the NFT Marketplace Management System.
- Postconditions:
  I. The user can search for NFTs using keywords or filters like artist, category, or price range.
  II. The user can find NFTs that meet his needs.

8. Payment

As a user, I want to complete the purchase of an NFT using a payment gateway, So that I can securely buy NFTs on the NFT Marketplace.

- Preconditions:
  I. The user has found an NFT they want to purchase on the NFT Marketplace.
- Postconditions:
  I. The user completes the purchase of an NFT using a payment gateway.
  II. The purchased NFT is added to the user's inventory.

Product Backlog:

ID	As a….	I want to be able to….	So that ….	Priority	Sprint	Status
1	Admin	Login to my account	I can see all registration	High	1	Planned
2	Admin	Approve or reject NFTs submissions	I can ensure quality and appropriate content	High	2	Planned
3	Admin	Monitor the user activity	I can ensure ethical use of the marketplace	High	2	Planned
4	Admin	Manage the marketplace analytics	I can identify and address areas for improvement	High	2	Planned
5	Admin	Manage user accounts	I can ensure appropriate usage and access	High	3	Planned

6	Admin	Manage and update policies and terms and conditions	I can ensure fair use of marketplace	High	3	Planned
7	Admin	Enable refunds and dispute resolution	I want to ensure transparency and fair use of the marketplace	High	5	Planned
8	Admin	Offer secure NFTs storage	I want to ensure reliable storage for NFTs	High	4	Planned
9	User	Purchase NFTs	I can buy NFTs with convenient payment method	High	1	Planned
10	User	View NFT images and details	I can get a better understanding of the NFT	High	1	Planned
11	User	Sort and filter NFT search results	I can find NFTs based on specific criteria	Medium	1	Planned
12	User	Put NFT on my watchlist	I can keep track of the NFT I am interested in	Medium	2	Planned
13	User	Receive notifications for the NFTs I am interested in	I can stay informed about the NFT prices and availability	Medium	2	Planned
14	User	Sell NFTs on the marketplace	I can earn some money by selling my NFTs	High	3	Planned
15	User	Manage my NFTs	I can keep track of my NFTs and its value	Medium	3	Planned
16	User	Transfer the ownership to other users	I can sell or gift NFTs depending on my decision to other users	High	4	Planned
17	User	View my transaction history	I can keep track of my NFT sales and purchases	Low	4	Planned
18	User	Track and view of NFT shipping and status	I want to know when my NFT will arrive	Low	5	Planned
19	User	Search and browse for specified artists' NFTs	I can find my favorite artists' NFTs	Low	5	Planned
20	User	Ask and contact users	I can get more information about a specific NFT	Low	5	Planned
21	User	Use an intuitive and user-friendly UI	I can easily navigate through and use marketplace	High	6	Planned
22	User	Receive support for resolving issues in the marketplace	I can get help in resolving marketplace related issues	Medium	6	Planned
23	User	Find popular and trending NFTs	I can find NFTs that are currently trending	Medium	7	Planned
24	User	Give suggestions and feedback for the marketplace	I can provide help in making the marketplace better	Low	8	Planned
25	User	Receive guidelines on NFT selling and buying	I can learn how to browse through and navigate through the marketplace efficiently	Low	9	Planned
26	User	Receive rewards for the usage of the marketplace	I can get some rewards and bonuses for frequent usage of the marketplace	Medium	10	Planned
27	User	Set prices for my NFTs	I can receive fair compensation for my artwork	High	1	Planned
28	User	Manage my NFTs listings	I can be informed about NFTs revenue and sale	Medium	3	Planned
29	User	Create and manage my profile	I can display my artwork	High	5	Planned

30	User	Receive feedback on my artwork	I can learn how to improve my artwork	Medium	6	Planned
31	User	Receive rewards for selling my NFTs on the marketplace	I can get bonuses for being active on the marketplace	Medium	10	Planned
32	User	Get notified for new features and updates on the marketplace	I can stay informed about the opportunities and changes in the marketplace	Low	13	Planned

Spring Backlog:

For the first sprint of the NFT Marketplace Management System, the following subset of user stories could be implemented:

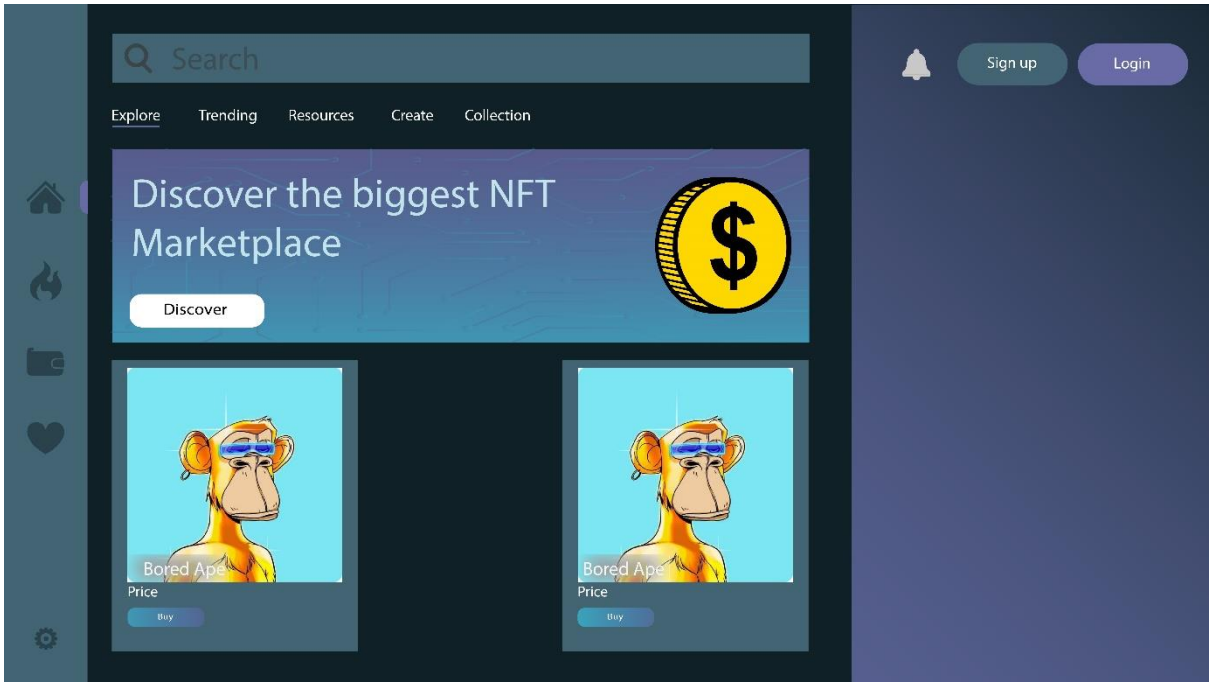
- User Login & Signup
- Search & Filtering
- Payment

ID	User Story	Task	Owner	Status	Estimated Effort	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
1	User Login & Signup	Create Signup Page	Faizan	Planned	6	3	-	-	-	-	-
		Create Login Page	Haider	Planned		-	3	-	-	-	-
2	Search & Filtering	Implement Search Functionality	Faizan	Planned	12	-	6	-	-	-	-
		Implement Filter Functionality	Haider	Planned		-	-	4	2	-	-
3	Payment	Integrate Payment Gateway	Faizan	Planned	8	-	-	-	4	-	-
		Implement Purchase Functionality	Haider	Planned		-	-	-	-	4	-

These user stories provide the essential functionalities for users to access and buy NFTs from the marketplace. The first user story allows users to create a profile or login using their credentials. The second user story allows users to search for NFTs using keywords or filters, making it easier to find the NFTs they are interested in. The third user story enables users to complete the purchase of an NFT using a payment gateway, which is the ultimate goal of the marketplace.

These user stories are estimated to have a cumulative size of about 1/4 of the total project, making them a good choice for the first sprint. Implementing these user stories will provide a working prototype that can be tested and improved in the subsequent sprints.

Prototype:


Search
Sign up
Login
Explore
Trending
Resources
Create
Collection
Discover the biggest NFT Marketplace
Discover
Bored Ape
Price
Buy
Bored Ape
Price
Buy

Software Engineering

Deliverable – 03

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By,

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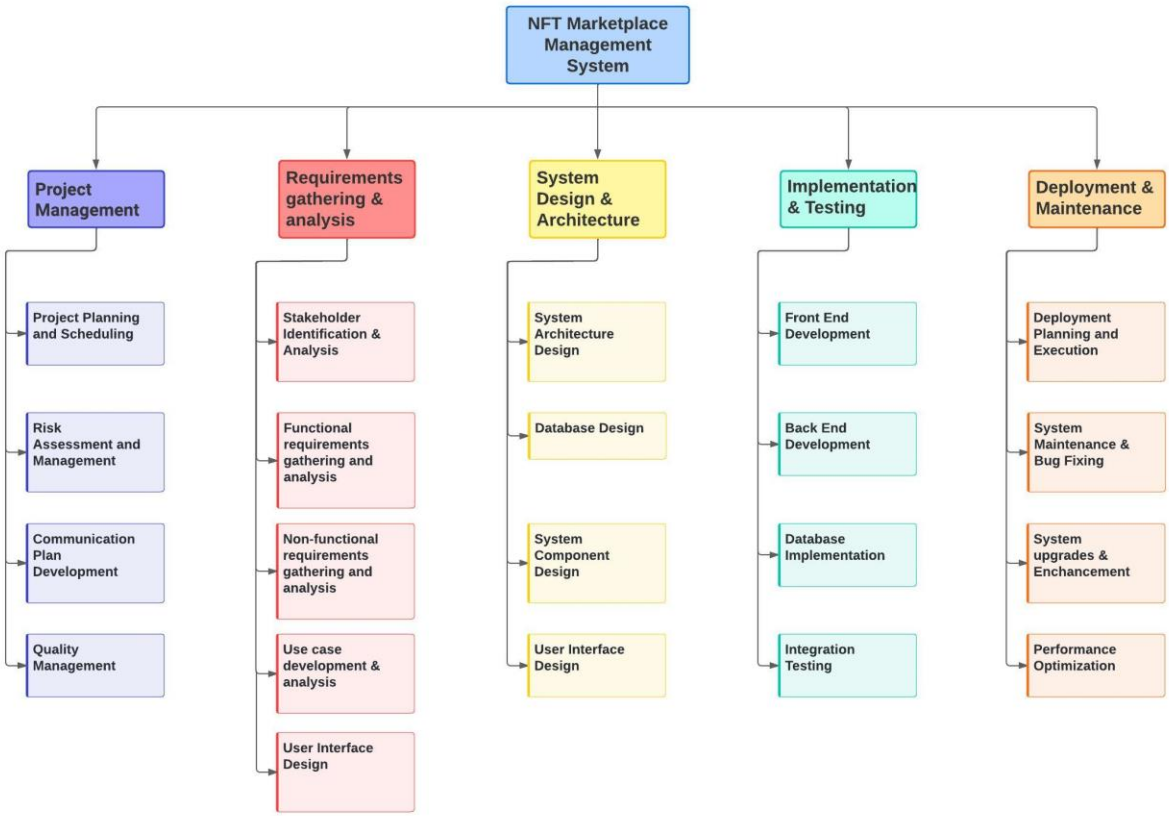
I. Software Project Plan

1. Work Breakdown Structure:



2. Gannt Chart:

ID	Task	Lead	Start	End	Status	Weeks																																		
						Week1							Week2							Week3							Week4							Week5						
						1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1	**Initiation Management**	Faizan Pervaz	15/3/2023	22/3/2023	Plan	-	-	-	-	-	-	-																													
					Actual	.	.	.																																	
2	**Planning**	Faizan Pervaz	18/3/2023	22/3/2023	Plan				-	-	-	-	-																													
					Actual				.	.	.	.	.																													
3	**Analysis & Design**	Haider Yar	23/3/2023	28/3/2023	Plan									-	-	-	-	-	-																							
					Actual									.	.	.	.	.	.																							
4.1	**Front-end Implementation**	Faizan Pervaz	29/3/2023	4/4/2023	Plan															-	-	-	-	-	-	-																
					Actual															.	.	.	.	.	.	.																
4.2	**Backend Implementation**	Haider Yar	5/4/2023	11/4/2023	Plan																						-	-	-	-	-	-	-								
					Actual																						.	.	.	.	.	.	.								
5	**Testing**	Haider Yar	12/4/2023	15/4/2023	Plan																													-	-	-	-				
					Actual																																				
6	**Evaluation**	Faizan Pervaz	16/4/2023	18/4/2023	Plan																																	-	-	-
					Actual																																				

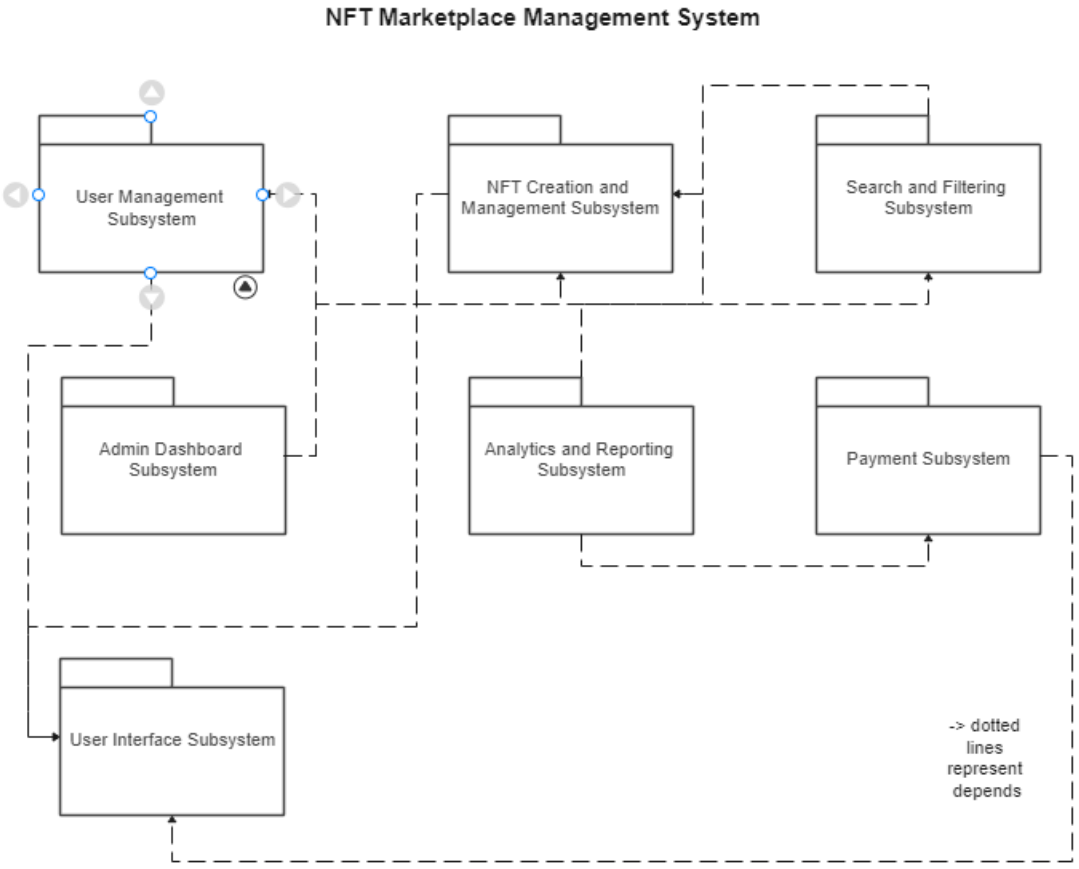
II. System Architecture

1. Subsystems:

Major subsystems of system:

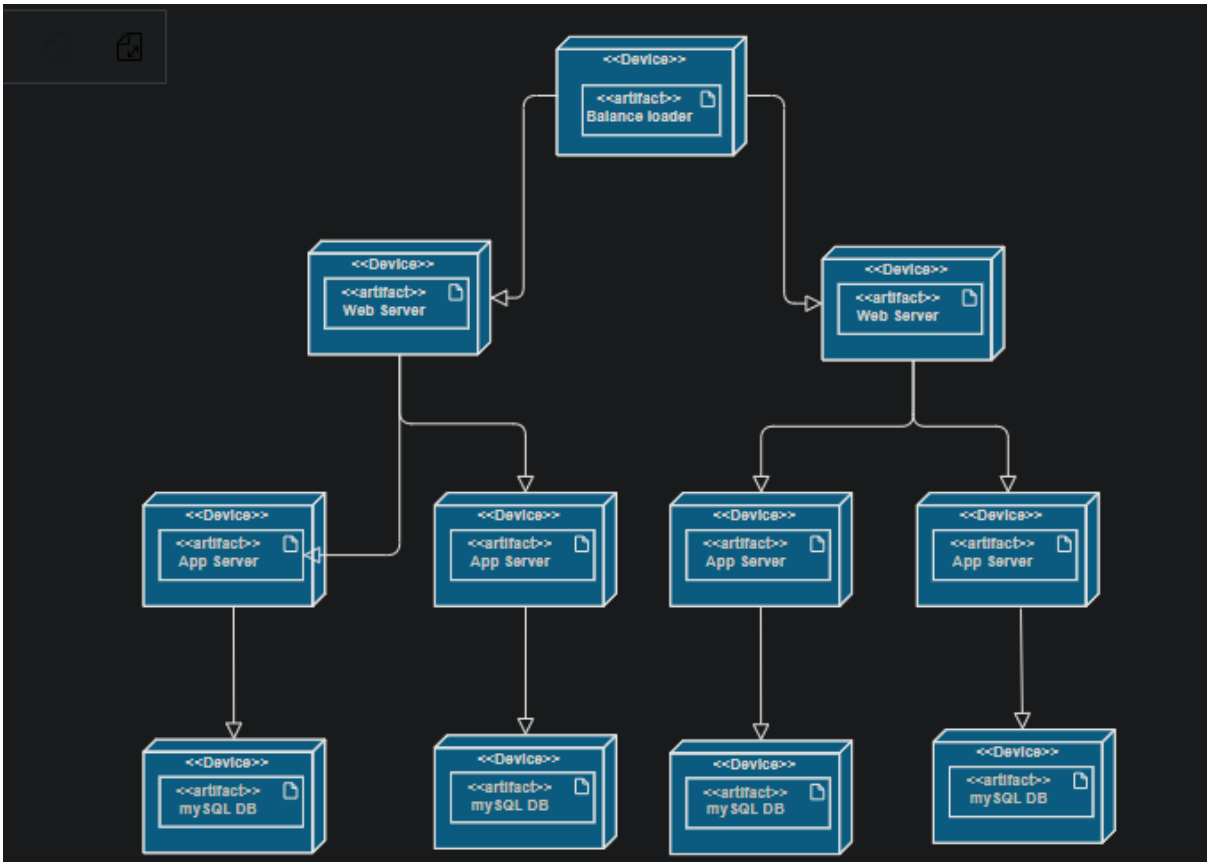
- User Management Subsystem
- NFT Creation and Management Subsystem
- Search and Filtering Subsystem
- Admin Dashboard Subsystem
- Analytics and Reporting Subsystem
- Payment Subsystem
- User Interface Subsystem
- Maintainability Subsystem
- Support Subsystem

2. UML Package Diagram:



- The User Management Subsystem depends on the User Interface Subsystem for the user login, logout, and password reset functionality.
- The NFT Creation and Management Subsystem depends on the User Interface Subsystem for the NFT upload functionality.
- The Admin Dashboard Subsystem depends on the User Management Subsystem, NFT Creation and Management Subsystem, and Search and Filtering Subsystem for user account management, NFT management, and data retrieval, respectively.
- The Search and Filtering Subsystem depends on the NFT Creation and Management Subsystem for access to NFT data.
- The Analytics and Reporting Subsystem depends on the NFT Creation and Management Subsystem for access to NFT data, and on the Payment Gateway Integration Subsystem for transaction data.
- The Payment Gateway Integration Subsystem depends on the User Interface Subsystem for user payment details and transaction processing.

3. Deployment Diagram



4. Architecture Design:

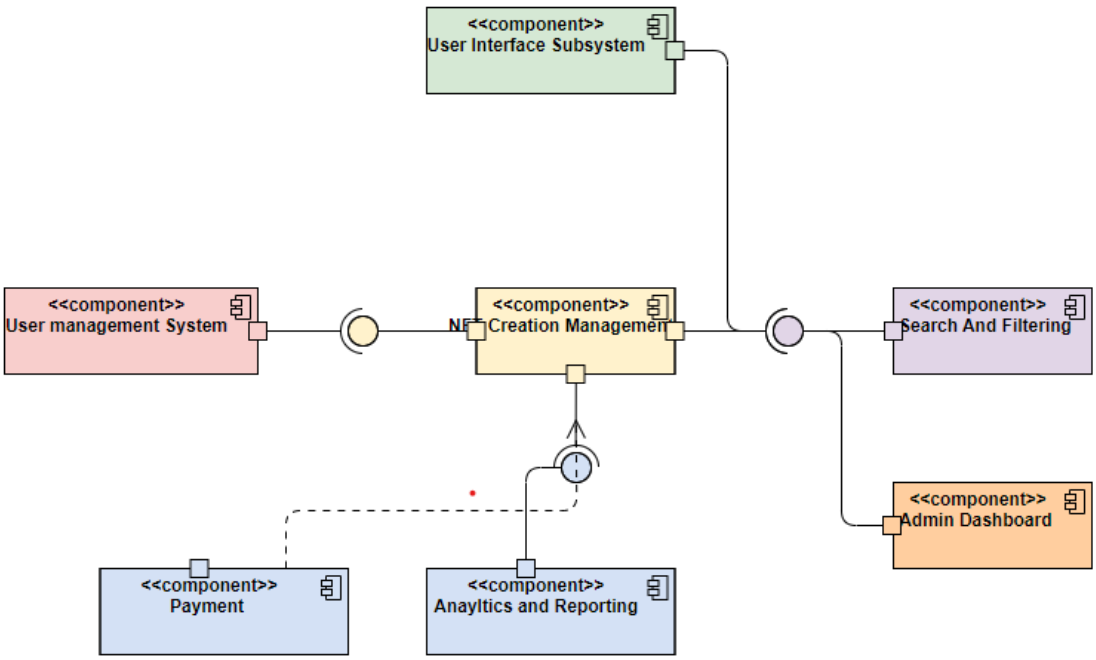
We have used Model-View-Controller (MVC) Architecture in NFT Marketplace Management System.
In a Model-View-Controller (MVC) architecture, the system is divided into three components: the model (data), the view (user interface), and the controller (business logic).

In NFT Marketplace Management System, the application is designed with MVC architecture as follows:

Model: The model represents the data and business logic of the application. The model would include the NFT creation and management subsystem, which would be responsible for managing NFT data, setting prices, and providing descriptions.
View: The view represents the user interface of the application. The view would include the user interface subsystem, which would provide an intuitive and user-friendly interface for users to interact with the system.
Controller: The controller represents the business logic of the application, which processes user input and updates the model and view accordingly. The controller would include the user management subsystem, search and filtering subsystem, admin dashboard subsystem, analytics and reporting subsystem, and payment subsystem.
controller would receive input from the user interface (view) and update the model accordingly. The controller would also receive updates from the model and update the view accordingly. This separation of concerns allows for easier maintenance and modification of the system.
In summary, the application of the MVC architecture in your NFT Marketplace Management System would allow for a clear separation of concerns between the data, user interface, and business logic, leading to a more maintainable and flexible system.

5. Component Diagram:

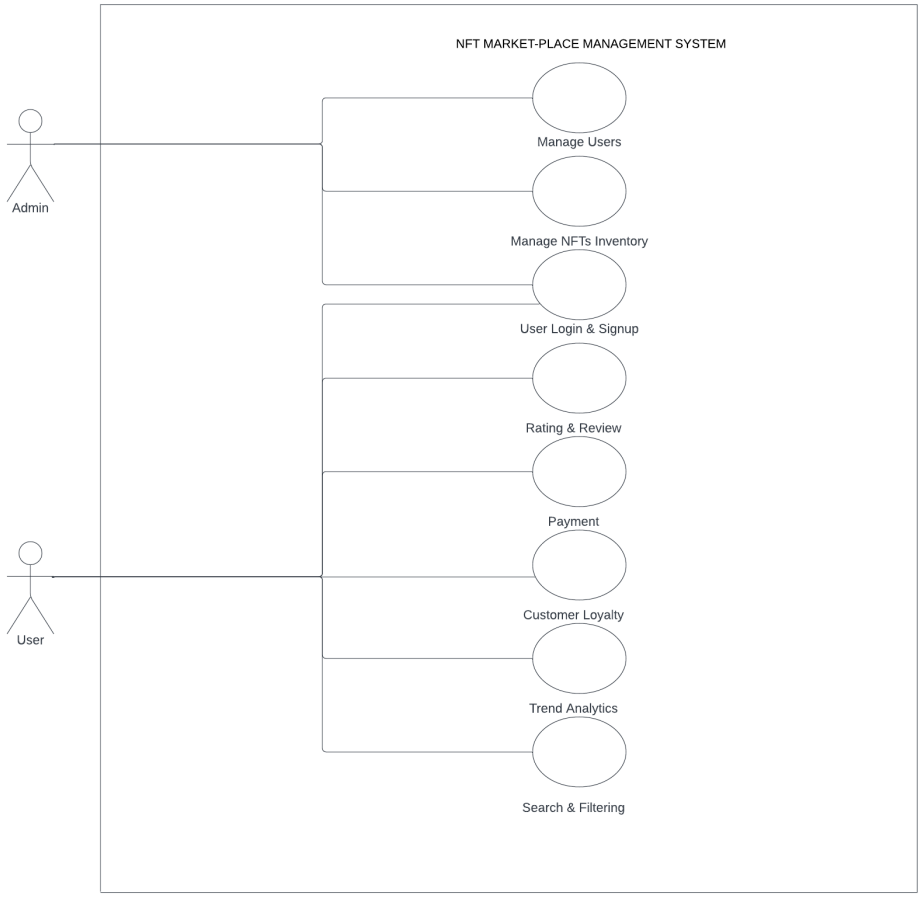
1. User Management Component
Dependencies: Database Component, Security Component, Email Component
2. NFT Creation and Management Component
Dependencies: Database Component, Storage Component
3. Search and Filtering Component
Dependencies: Database Component
4. Admin Dashboard Component
Dependencies: Database Component, Analytics and Reporting Component
5. Analytics and Reporting Component
Dependencies: Database Component
6. Payment Gateway Integration Component
Dependencies: Payment Gateway API Component, Database Component, Security Component
7. User Interface Component
Dependencies: User Management Component, NFT Creation and Management Component, 8. Search and Filtering Component, Admin Dashboard Component, Analytics and Reporting Component, Payment Gateway Integration Component



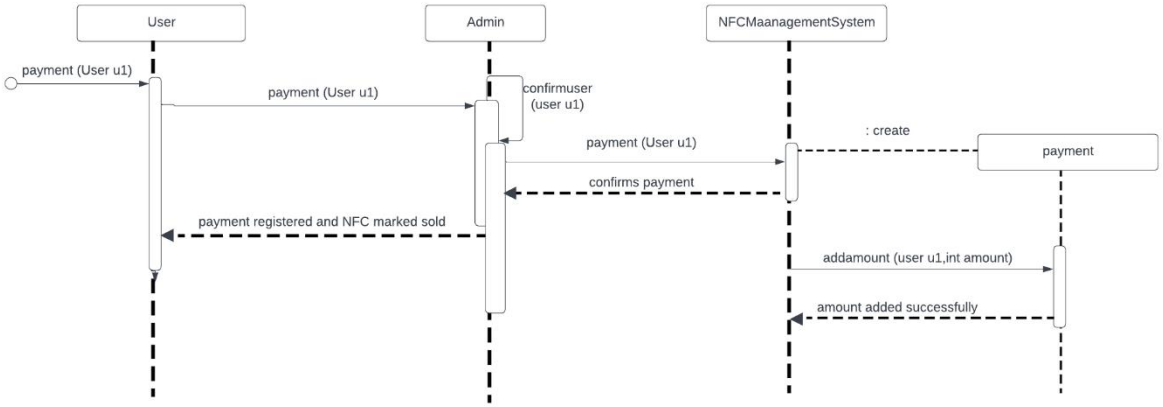
III. Design

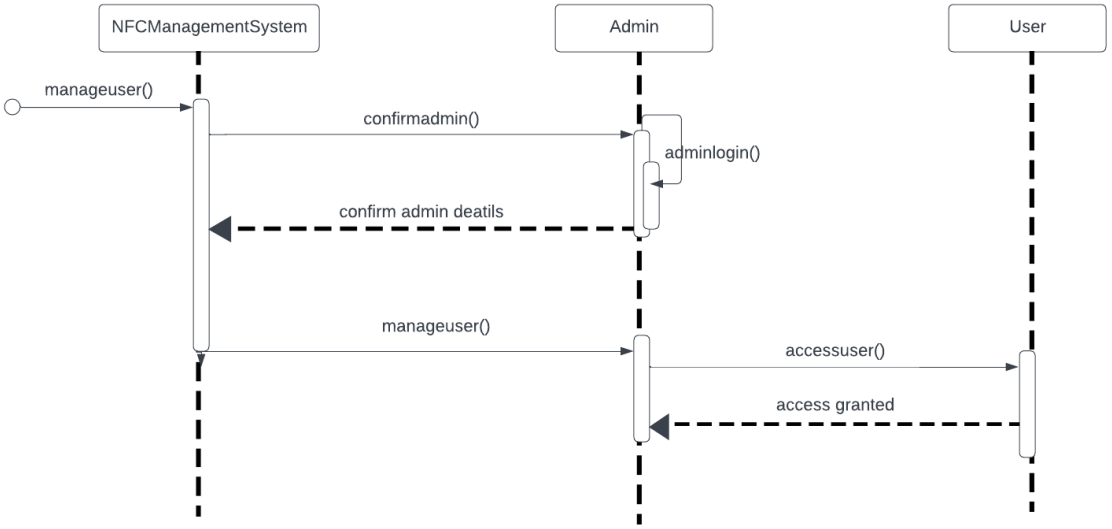
1. Use Case Diagram:

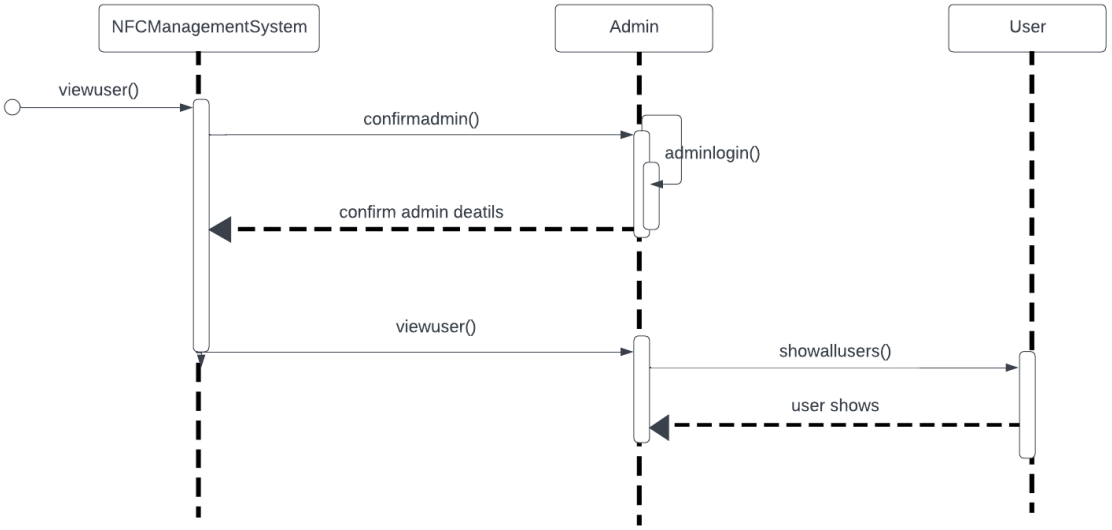
• Faizan Pervaz (20I-0565)
• Haider Yar (20I-0879)

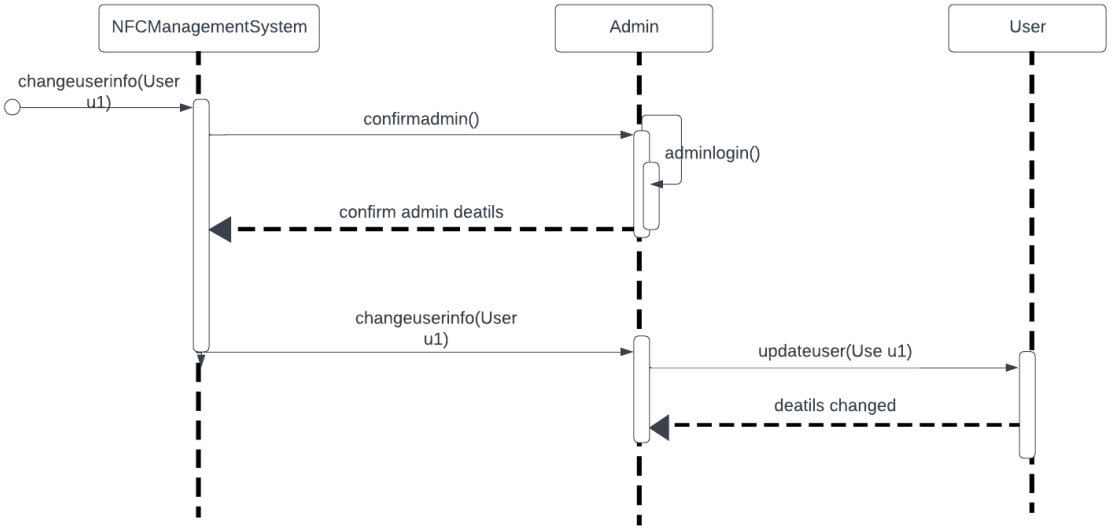


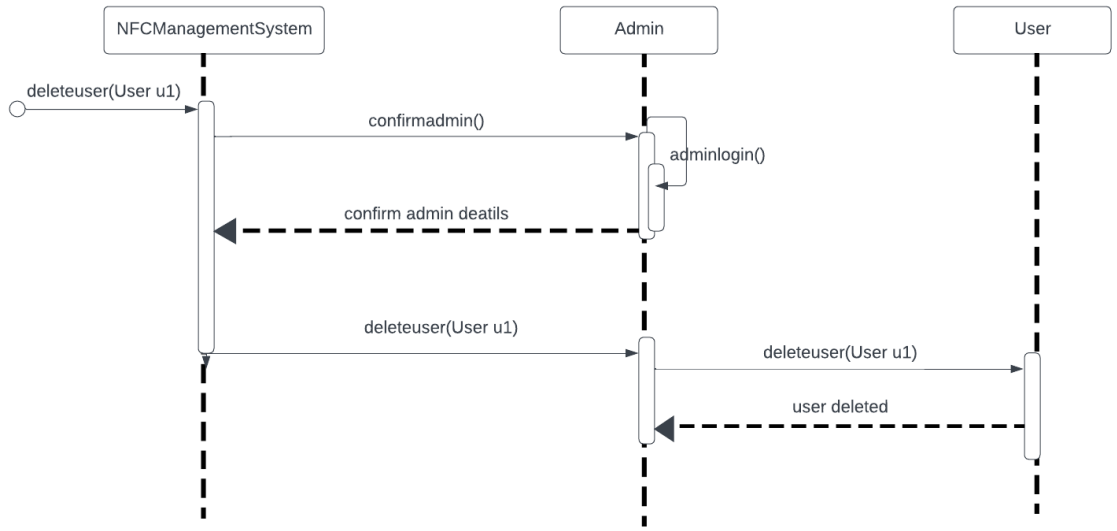
2. Sequence Diagrams:

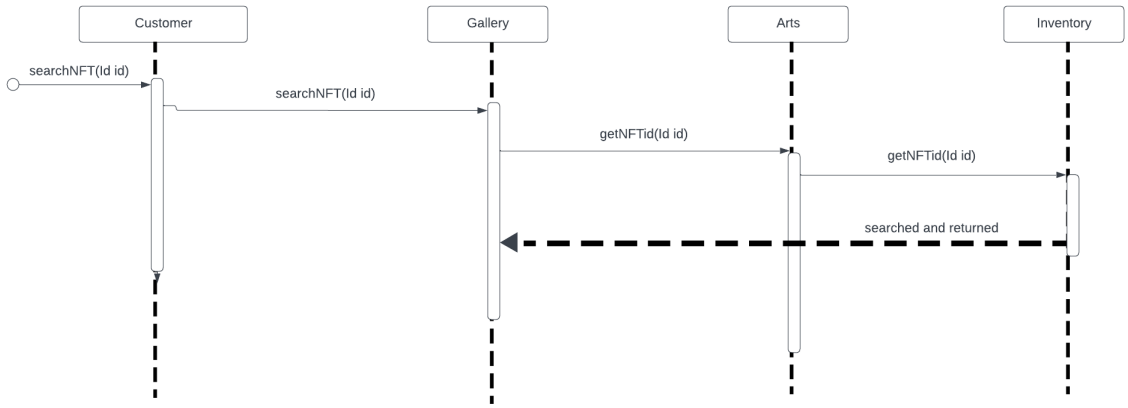



NFCManagementSystem
Admin
User
manageuser()
confirmadmin()
adminlogin()
confirm admin deatils
manageuser()
accessuser()
access granted

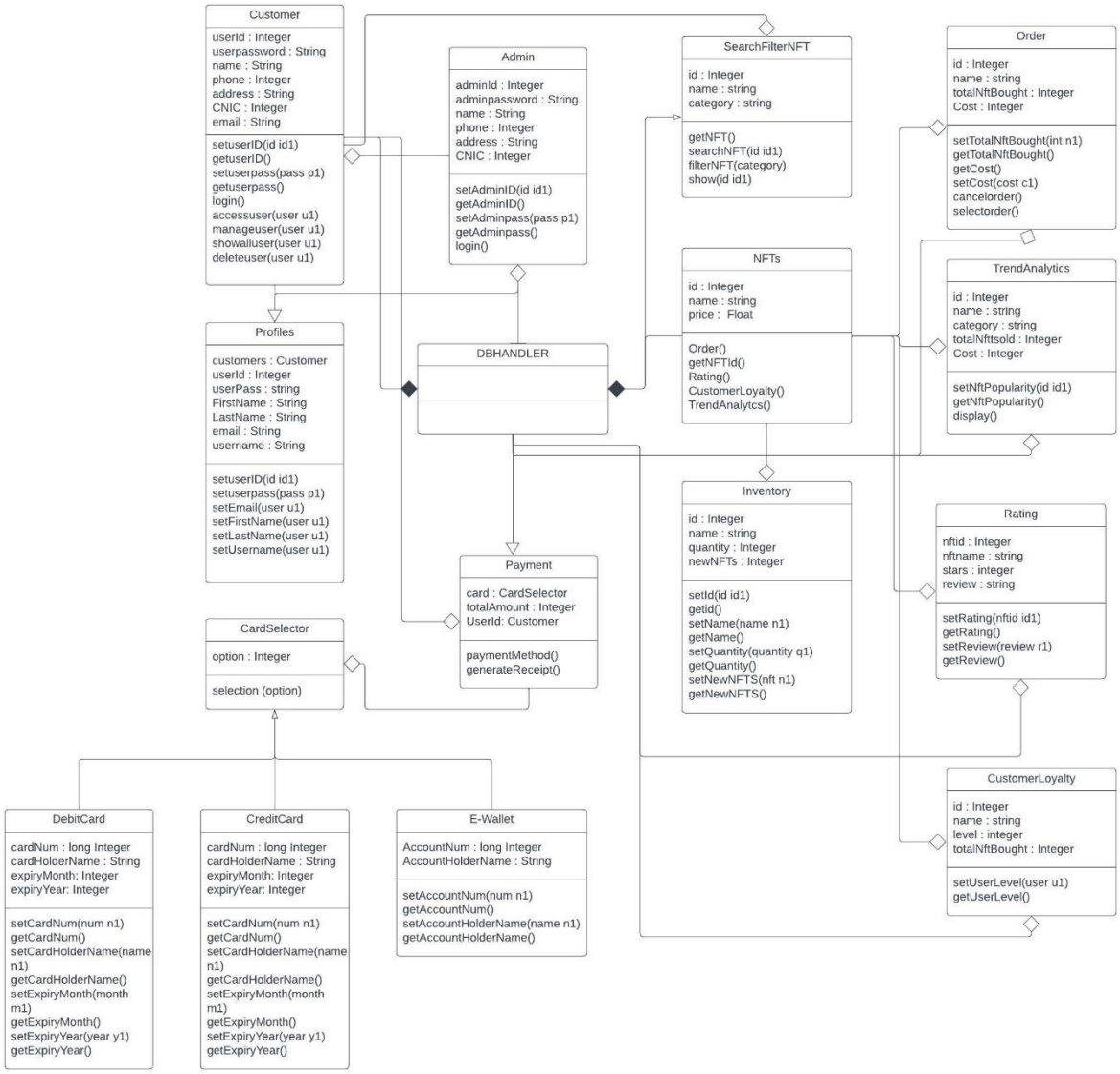

NFCManagementSystem
Admin
User
viewuser()
confirmadmin()
adminlogin()
confirm admin deatils
viewuser()
showallusers()
user shows


NFCManagementSystem
Admin
User
changeuserinfo(User u1)
confirmadmin()
adminlogin()
confirm admin deatils
changeuserinfo(User u1)
updateuser(Use u1)
deatils changed


NFCManagementSystem
Admin
User
deleteuser(User u1)
confirmadmin()
adminlogin()
confirm admin deatils
deleteuser(User u1)
deleteuser(User u1)
user deleted


Customer
Gallery
Arts
Inventory
searchNFT(Id id)
searchNFT(Id id)
getNFTid(Id id)
getNFTid(Id id)
searched and returned

3. Class Diagram :



IV. Sprint 1

1. Module To Develop:

We developed User management module.

2. User Stories:

Story ID: 1 **Story Title: User Management**

User Story:

As an admin,
I want to manage all the registered users in the NFT Marketplace,
So that I can access their information and perform necessary actions like updating or deleting users.

Importance

High

Estimate

Acceptance Criteria:

I know I am done when,

- The NFT Marketplace Management System should have a user management feature accessible only to the admin.
- The admin should be able to view a list of all registered users in the system.
- The user information displayed should include name, email, and registration date.
- The admin should be able to search for a specific user using their name or email address.
- The admin should be able to update user information such as their name or email address.
- The admin should be able to delete a user from the system.
- A confirmation message should be displayed to the admin before deleting a user, asking them to confirm their action.
- The admin should not be able to delete their own account from the system.

Story ID: 2 **Story Title: User Login & Signup**

User Story:

As a user,
I want to login to the NFT Marketplace Management System using my username and password,
So that,
I can access my profile and buy/sell NFTs.

Importance

High

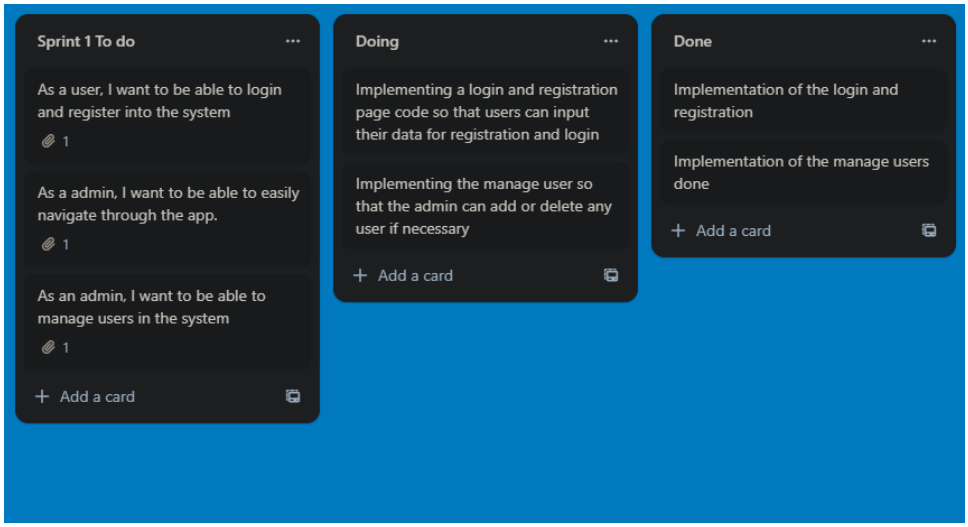
Estimate

Acceptance Criteria:

I know I am done when,

- The NFT Marketplace Management System should have a login and signup feature for users.
- The login page should have input fields for the user's username and password.
- The system should verify that the username and password entered are correct and match the information stored in the database.
- If the username and password are correct, the user should be redirected to their profile page.
- The profile page should display the user's information, including their name, email, and any NFTs they own or have listed for sale.
- If the username and password are incorrect, the user should be shown an error message and prompted to try again.
- The signup page should have input fields for the user's name, email, username and password.

3. Scrum Board:

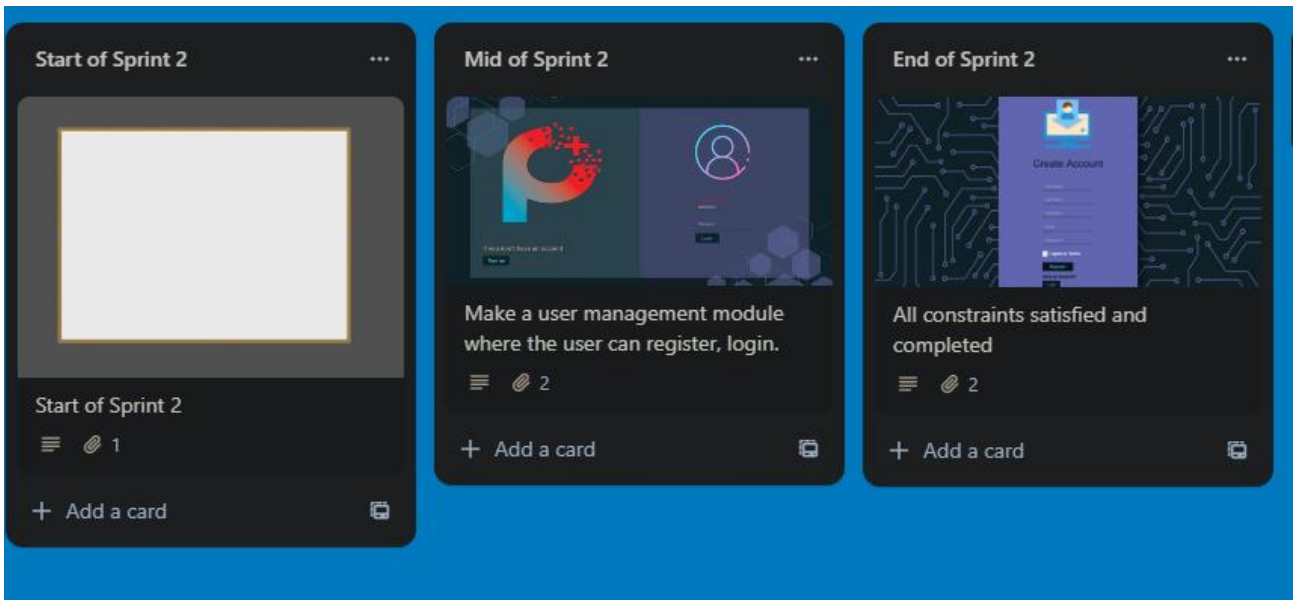


V. Sprint 2

1. Module to be Implemented:

User management module where we have implemented the login and registration of the user into the system.

2. Scrum Board:



Story ID: 3 **Story Title:** User-friendly interface

User Story:

As an admin
I want to be able to easily navigate through and understand the software interface.
So that I will be able to efficiently manage and provide support to the concerned department

Importance

High

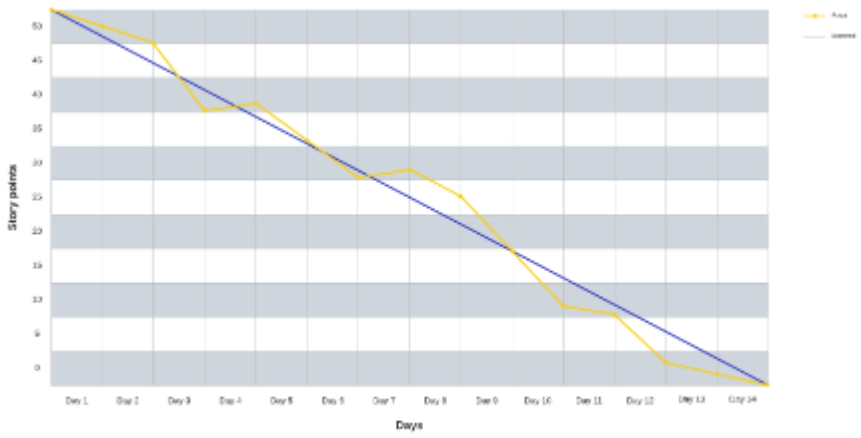
Estimate

Acceptance Criteria:

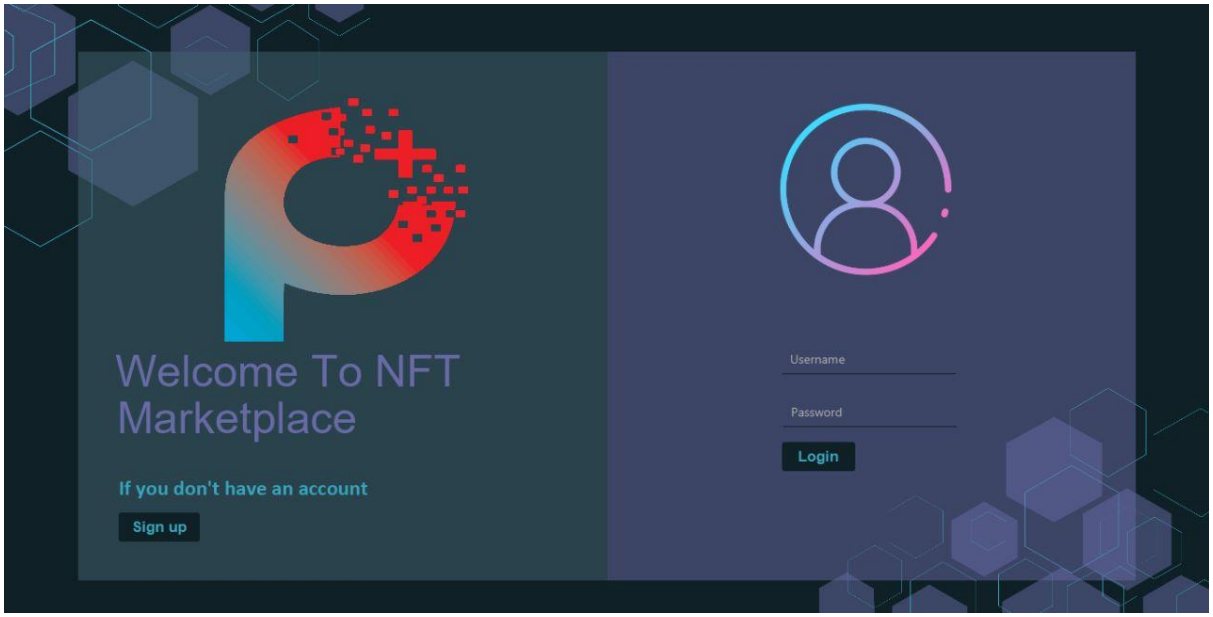
I know I am done when,

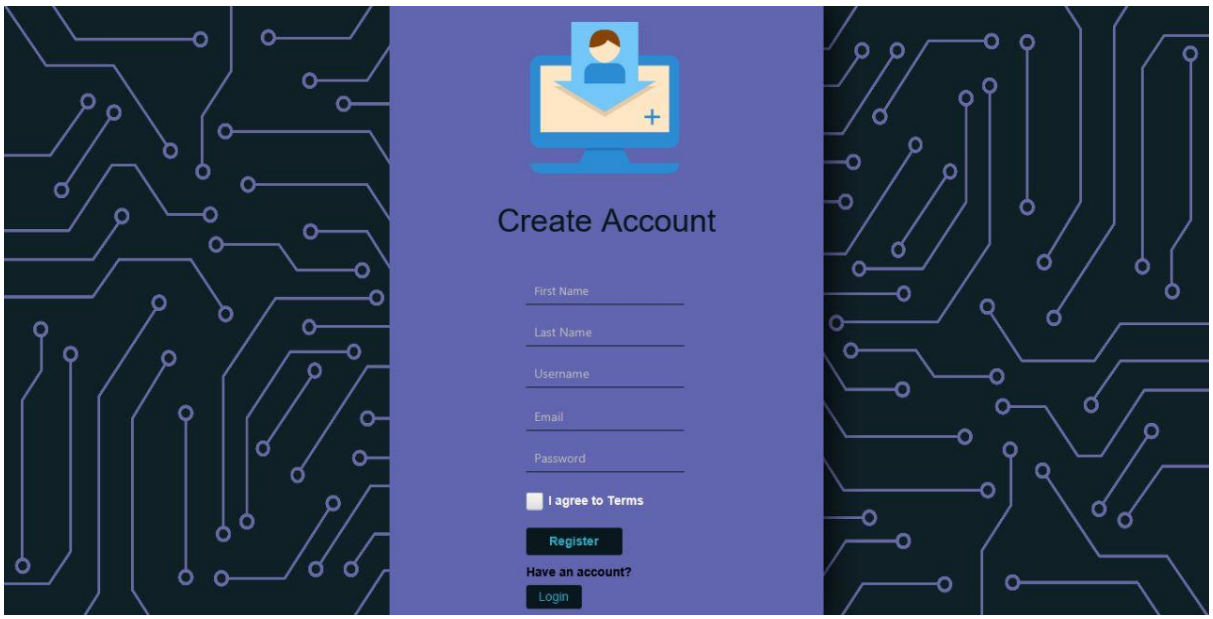
- The interface should be easy to navigate, with clear labels and organized layout.
- The font size and style should be legible and not cause eye strain.
- The interface should be responsive and adjust to different screen sizes.
- The design elements should be consistent throughout the interface to ensure a
- professional and cohesive look.

3. Burndown Chart:



4. Actual implementation screenshots:


Welcome To NFT Marketplace
If you don't have an account
Sign up
Username
Password
Login


Create Account
First Name
Last Name
Username
Email
Password
I agree to Terms
Register
Have an account?
Login