ARTISTIC MARKETPLACE: SHARING AND SEALING DRAWING AND SCULPTURE

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ARTISTIC MARKETPLACE: SHARING AND SEALING DRAWING AND SCULPTURE PATTERNS

Zhiwar Anwar Karim

A thesis submitted in fulfilment of the
requirements for the award of the degree of
Bachelor of Computer Science (Software Engineering)

School of Computing
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DEDICATION

This thesis is a heartfelt tribute to my father, whose invaluable teachings instilled in me the profound significance of acquiring knowledge as the foremost pursuit in life. Furthermore, it is dedicated to my mother, whose unwavering guidance illuminated the fact that even the most daunting undertakings can be conquered through the virtue of patience.

ACKNOWLEDGEMENT

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ABSTRACT

Navigating the art market can be challenging for emerging artists due to steep commission fees from traditional galleries, often driving talent away and reducing diversity. To address this, we propose an online marketplace connecting artists directly with buyers, eliminating intermediaries. Our platform, built with Vue.js, TypeScript, Tailwind CSS, Firebase, and Flutter, allows artists to showcase their work, manage sales, and interact with buyers in a fair and creative environment. This approach promotes unique personal expression and supports artists without the limitations of conventional gallery systems.

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list of abbreviations

SRS	-	Software requirement Specification
MVC	-	Model-View-Controller
UML	-	Unified Modelling Language

CHAPTER 1

INTRODUCTION

1.1 Introduction

The art market has gotten more competitive, and budding artists need assistance finding a platform to promote and sell their work. This hinders their capacity to produce cash and establish themselves in the art sector. Moreover, conventional art markets frequently depend on middlemen like galleries, who charge hefty fees on purchases, making it tougher for artists to earn a livelihood. As a consequence, many excellent artists with financial troubles give up on their profession, resulting to a lack of variety and originality in the business. To solve this issue, we suggest building an online marketplace that links artists directly with prospective purchasers, removing the need for middlemen like galleries. Our approach will give budding artists with a forum to promote and sell their work without the financial burden of exorbitant commission costs.

1.2 Problem Background

The increasing rivalry in the art market makes it difficult for budding artists to find places to show and sell their work. Due to this lack of chance, individuals cannot establish themselves in the art world and earn a livelihood. The conventional art market frequently relies on middlemen such as galleries, which charge substantial fees on sales, making it extra difficult for artists to earn a livelihood. The company has to have more variety and uniqueness since many brilliant artists have financial problems and are forced to give up their careers.

1.3 Project Aim

To create an online marketplace that directly connects emerging artists with potential buyers, enabling them to showcase and sell their artwork. The platform will utilize Flutter for cross-platform development, Firebase for real-time database and authentication, and Dart for programming to ensure a seamless user experience.

1.4 Project Objectives

- **Analyze Requirements:** Gather and analyze the requirements needed to develop the proposed Artistic Marketplace app, ensuring a clear understanding of the needs of both artists and buyers.

- **Design the Application:** Using Flutter and Dart, design a mobile application that allows artists to easily display and market their paintings, sculptures, and drawings. Ensure the app is user-friendly, works on both iOS and Android devices, and is fast and reliable.

- **Develop the Application:** Develop the Artistic Marketplace app based on the elicited requirements, implementing features that boost artist-buyer interaction. Integrate tools for artists to showcase their creations, contact potential customers, and receive feedback. Include functionalities for users to write reviews, follow artists, and receive alerts when new artwork is added.

- **Promote Safe Transactions:** Using Firebase, integrate robust authentication techniques and secure payment channels to ensure smooth and safe transactions for both buyers and artists while protecting their financial and personal data.

- **Test and Evaluate:** Test and evaluate the Artistic Marketplace app among targeted users to ensure it meets their needs and expectations, making any necessary adjustments to improve functionality and user experience.

1.5 Project Scope

Market Analysis: Identify competitors, target audiences, and market trends in the online art industry.

User Research: Understand the needs and preferences of artists and art fans for online art sales and purchases.

Design and Usability: Develop a user-friendly and aesthetically pleasing website to encourage engagement and easy navigation.

Security and Privacy: Implement robust security measures to protect users' personal and financial information.

Payment Integration: Set up secure payment gateways for easy transactions between buyers and sellers.

Community Building: Build a community of artists and art enthusiasts through social media integration and user-generated content.

Marketing and Promotion: Plan and execute strategies to reach potential customers and build brand awareness.

Data Analytics: Use data to track user behavior, improve user experience, and optimize marketplace performance.

Legal Compliance: Ensure the platform complies with relevant laws and regulations, such as copyright and tax laws.

Innovation: Explore new features and technologies to enhance the user experience and differentiate the platform from competitors.

Target Users: The app will be used by artists to showcase and sell their artwork, buyers to purchase art, and art enthusiasts to explore and engage with the art community.

1.6 Project Importance

The Develop an online marketplace for up-and-coming artists is crucial for the art world. By offering a specialized forum for these artists to present and sell their work directly to prospective consumers, the initiative solves the difficulties they encounter in locating opportunities and producing cash. The conventional art market often uses intermediaries like galleries, which may restrict the accessibility and economic sustainability of up-and-coming artists.

The internet market provides a fair playing field for all players and removes the need for expensive commissions, opening up new opportunities for these artists. Offering up-and-coming artists a forum to share their distinct viewpoints and ideas promotes variety and originality in the art world. This improves the environment for creating art and helps identify new artists.

The initiative also fits with how the digital era is altering dynamics. Numerous sectors, including the art business, have been changed by online platforms. By removing geographical restrictions and increasing their exposure, the Internet marketplace enables artists to connect with a worldwide audience. It allows collectors and art fans worldwide to find and support up-and-coming artists, establishing a lively and welcoming art community.

1.7 Report Organization

Chapter 1 (Introduction): the chapter is about an overview of the project, and problems, trying to know what would be impact of the offered solutions and clarify goals.

Chapter 2 (Literature study): the chapter is about literature study of the project, case studies, and comparison of existing systems.

Chapter 3 (technique): the chapter is defining technique that has been selected for the project, and a reason for why this approach is chosen.

Chapter 4 (Requirement Analysis and Design): this chapter concentrate on design part of the system using various UML diagrams.

Chapter 5 (Implementation and Testing): the chapter is about translating the design into code, and testing the app after coding, via Test methods, such black, and white box.

Chapter 6 (Conclusion): is a conclusion on the project, and what are the achievements, objectives, and future improvement ideas

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Using these technologies, you can develop a mobile application that is fast, reliable, and user-friendly. The goal is to create an app that launches rapidly and responds promptly to user input. It should be stable, ensuring it does not malfunction or lose data. The application should be easy to use and navigate, offering a seamless user experience. Additionally, it should be cost-effective to develop and maintain, minimizing expenses while maximizing efficiency and transparency.

Case Study (If any)

When Artsy showed up in 2010 it completely changed the art business by providing a global internet platform that links art lovers with real artwork from galleries and independent artists all over the globe. The goal of Artsy, which was founded by Carter Cleveland, Amy Cappellazzo, and Michael Ovitz, is to democratize art and make it available to everybody. Customers may browse art on Artsy by artist, medium, price, and more. Artsy has a huge range of artwork that includes anything from paintings to sculptures and photos. The portal also offers instructional materials, such as articles, films, and lectures, which improve users' comprehension and enjoyment of art. With the use of cutting-edge online technology, Artsy guarantees a smooth browsing and buying experience for customers on desktop and mobile devices, making the process of finding and acquiring art simple and pleasurable.

Saatchi Art was established in 2006 by David Saatchi and has since become a major force in the internet art industry, providing a carefully chosen assortment of original works of art by both renowned and up-and-coming artists. Saatchi Art is an online gallery that is available to users of desktop and mobile browsers. It offers a wide

selection of beautiful paintings, sculptures, photographs, and prints for art fans. Customers may quickly locate art that suits their tastes with the use of efficient search filters based on the names of the artists, the kind of medium, and the price structure. Saatchi Art provides tools including podcasts, articles, and videos in addition to its buying experience, enhancing customers' interaction with art. Saatchi Art improves the whole art-buying experience for its clients by using e-commerce technology to guarantee safe transactions and an intuitive user interface.

Since being established in 2011 by Jonas Almgren, Artfinder has grown to become a preeminent online marketplace that links collectors of art with independent artists all over the globe. Artfinder is an online platform that can be used by both desktop and mobile browsers. Its goal is to increase the accessibility and enjoyment of art purchasing for all users. Users may effortlessly find art by browsing a wide selection of artwork, which includes paintings, sculptures, prints, and pictures. The collection is organized by category, style, size, and price. Artists on Artfinder have personal profiles where they can present their work, establish connections with potential customers, and get advice and assistance with marketing and promotion. With the help of the platform's array of services, musicians may expand their reach and advance their careers by getting access to marketing tools, price guidance, and promotion assistance. Through the use of e-commerce technology, Artfinder guarantees safe transactions and an intuitive user interface, streamlining and elevating the art-buying experience for both consumers and artists.

My Project is an innovative online marketplace that connects buyers and skilled artists directly. Our headquarters is in New York City, founded in 2023 by highly talented artists and savvy entrepreneurs seeking change within the traditional art world.

We provide an attractive variety of features designed with both artist's and buyer's interests in mind:

- Adding favorite artwork items into lists.
- Providing peer reviews.
- Following your famous artist's works.

- Receiving notifications on upcoming pieces available for purchase and offering convenient mobile app suitable refined through an easy interactive interface.

Our mission at My Project aims to facilitate smooth transactions between hardworking artists seeking prospective buyers worldwide while providing easy access towards finding beloved works directly targeted towards passionate collectors, indeed conforming artistic passion contagious and universally impactful through self-expressionism - Everyone certainly deserves this opportunity.
Therefore our overarching ambition remains consistent: "Making art accessible worldwide".

2.1.1 Company Organization Structure

The Art Gallery Viewer app provides users with digital access to a variety of artworks, allowing them to explore paintings, sculptures, and more by well-known artists. Users can save their favorite works, share them, and even purchase related products. Research on the challenges faced by artists informed the project's goals, ensuring the app meets the needs of the artist sector by providing a platform for effective showcasing and connection with art enthusiasts.

2.1.2 Manual Operation

In the development process, manual operations were crucial for understanding the art industry's intricacies and the challenges artists face. This involved extensive research on market trends, competitor analysis, and artist needs. Through this process, key problems such as limited exposure and high commission fees were identified, informing the project's goals. Prospective analysis was conducted to determine effective strategies for addressing these issues and providing solutions beneficial to artists and art enthusiasts. These manual operations ensured that the Art Gallery Viewer application was developed with a clear understanding of the industry's dynamics and tailored to meet the needs of artists and users alike.

2.2 Current System Analysis

The current system study revealed flaws in the platforms used by the art marketplace, including a dearth of thorough instructional materials and a restricted avenue for direct connection between consumers and artists. We examined a number of platforms, including Artsy, Saatchi Art, and Artfinder, and noted areas where the functionality and user experience might be enhanced. Web development frameworks like React and Angular, database management systems like MySQL and MongoDB, and cloud services like AWS and Azure are examples of commonly used technology. An online art market that is more focused on the needs of its users may result from improving communication channels and increasing instructional materials.

Table 2.1 Comparison between systems

Feature	My Project	Artsy	Saatachi Art	Artfinder
Allows artists to create profiles	Yes	Yes	Yes	Yes
Allows artists to upload their artwork	Yes	Yes	Yes	Yes
Allows artists to set prices	Yes	Yes	Yes	Yes
Allows buyers to browse artwork	Yes	Yes	Yes	Yes
Allows buyers to purchase pieces	Yes	Yes	Yes	Yes
Allows buyers to have artwork shipped to their homes	Yes	Yes	Yes	Yes
Allows users to add art to favorites	Yes	No	No	Yes
Allows users to leave reviews	Yes	Yes	Yes	Yes
Allows users to follow artists	Yes	Yes	Yes	Yes
Allows users to be notified of new artwork	Yes	Yes	Yes	Yes
Has mobile app	Yes	Yes	No	Yes
Has a user-friendly interface	Yes	Yes	Yes	Yes
Allows users to communicate directly with artists	Yes	Yes	Yes	No
Provides educational resources	No	Yes	Yes	No

2.3 Comparison between existing systems

A comparison table was created after gathering information and researching existing systems. It illustrates how competitors in the same domain have utilized software solutions to streamline their work and address the problem more effectively. While each competitor followed a different approach to solving the problem, they all focused on leveraging social media platforms to simplify their operations. As for quality, all the software solutions developed by these competitors are tailored to the samedomain.

2.4 Literature Review of Technology Used

Flutter: Google developed the cross-platform mobile development framework known as Flutter. It enables programmers to create native-app-appearing programs for iOS and Android using a single codebase. Across all platforms, Flutter is renowned for its great performance and capacity to provide a consistent user experience.

Firebase: Developed by Google, the Firebase mobile platform is designed to simplify app management while providing numerous utilities like push alerts, user authentication, and real-time data storage features. As it caters to diverse requirements while being highly convenient, Firebase is preferred by many developers working on creating or controlling mobility solutions.

Dart: Google created the programming language Dart for creating desktop, mobile, and online apps. Dart is a compiled language, which means that before it is run, it is changed into machine code. Dart apps are thus quicker than those written in interpreted languages like JavaScript. Dart is also a highly typed language, meaning the types of variables and expressions must be stated. As a result, Dart code is easier to understand and maintain.

Visual Studio Code: Visual Studio Code - are you familiar with it? It is an exceptional code editor created by none other than the tech powerhouse we know as Microsoft.

This innovative application offers superior functionality and unparalleled customization options making lives easier for developers who have become reliant on its capabilities! Highly accessible thanks to its nominal requirements - both in terms of memory usage and increased productivity - VSCode has gained immense popularity among professionals worldwide. So if JavaScript, T ypeScript, C(++), C#, or Python is your go-to programming language VS Code is well worth considering as your code editor. Additionally, the software supports countless extensions to tailor it to play a vital role in your software projects.

Microsoft Asana It is a project management tool that helps teams to track their work and collaborate on projects. Asana is a popular choice for project management because it is easy to use and has a wide range of features. It can be used to track tasks, deadlines, and progress. Asana also allows teams to collaborate on projects by sharing files, comments, and tasks.The technologies mentioned above are only a handful that may be utilized to create a web application. The technology used will rely on the project's unique requirements.

2.5 Chapter Summary

Chapter 2 summarizes the literature review conducted for developing a mobile application. It discusses the objectives of creating a fast, reliable, user-friendly, cost-effective, and high-quality app. Case studies of Artsy and Saatchi Art showcase the use of technology in making art accessible. The chapter also introduces "My Project," an online marketplace with features for artists and buyers. The organizational structure of the Art Gallery Viewer app and a comparison of features among different platforms are presented. Technologies like Flutter, Firebase, Dart, Visual Studio Code, and Microsoft Asana are discussed as potential tools for development.

CHAPTER 3

SYSTEM DEVELOPMENT METHODOLOGY

3.1 Introduction

This chapter serves as an introduction to the project, which aims to establish an online marketplace for up-and-coming artists. I describe the obstacles that emerging artists have in the conventional art market and provide a way to give them a boost by putting them in direct contact with prospective customers. The goals, scale, significance, and structure of the project are covered in this chapter. It also emphasizes the value of Agile technique in overcoming obstacles and realizing project objectives. Software development is one of the many sectors that employ the agile methodology, an iterative approach to project management and product development. Throughout the course of the project, it encourages adaptability, teamwork, and continual progress. Our suggestion to establish an online marketplace for up-and-coming artists is especially pertinent to agile approach, commonly referred to as iterative methodology. I can successfully handle the difficulties and meet the goals stated in my proposal by putting Agile concepts into practice.

The fundamental principle of Agile methodology is to break down the project into smaller, manageable iterations or sprints. Each iteration focuses on delivering a working product or solution, which in your case, would be a user-friendly and aesthetically pleasing web-based platform for artists and art buyers. Adopting the Agile methodology allows you to continuously improve and refine the platform based on feedback and new information.

One of the primary benefits of Agile methodology is the ability to receive frequent and early feedback from users. This means you can involve artists and art enthusiasts in the development process from the beginning. By engaging with your target audience, conducting user research, and creating user personas and scenarios,

you can ensure that the platform meets artists' and art buyers' specific needs and preferences. The iterative nature of Agile methodology allows you to incorporate this feedback into subsequent iterations, making necessary adjustments and improvements along the way.

Another advantage of Agile methodology is its emphasis on collaboration and cross-functional teams. You can foster effective communication and collaboration by forming a multidisciplinary team comprising developers, designers, artists, and other relevant stakeholders. This collaboration is essential in designing and developing a user-centered web application that maximizes the visibility and sales of emerging artists. The team can work together to address challenges, make informed decisions, and ensure the platform's success through regular meetings, discussions, and feedback sessions.

The agile methodology also promotes adaptability and flexibility. Your online marketplace must keep pace as the art industry and market trends evolve. You can quickly adapt to new requirements, market shifts, and emerging technologies by employing Agile principles. The iterative approach allows you to incorporate new features, innovative technologies, and user feedback into subsequent iterations, ensuring your platform remains relevant and competitive in the dynamic art market.

3.2 Methodology Choice and Justification

The choice of Agile methodology for your online marketplace for emerging artists is justified due to its flexibility, cost-effectiveness, and ability to facilitate testing and debugging in small iterations. Agile methodology aligns well with the objectives of your project and can address the unique challenges faced by artists in the art industry.

One of the key advantages of Agile methodology is its flexibility. You can easily accommodate changes and adjustments based on evolving requirements and user feedback by breaking the project into smaller iterations. This flexibility is crucial

in your online marketplace as you strive to create a platform that meets artists' and art buyers' specific needs and preferences. Agile allows you to respond to their feedback, incorporate new features, and adapt to changing market trends, ensuring your platform remains relevant and competitive.

The iterative nature of Agile methodology enables continuous improvement. Feedback and new information can be incorporated with each iteration, allowing you to refine and enhance the platform as you progress. This iterative approach is precious in developing a user-centric web application, where early delivery of a working product enables early feedback and validation from artists and art buyers. By involving them throughout the development process, you can ensure that the platform meets their expectations and provides a seamless user experience.

The agile methodology also offers cost-effective benefits. By delivering a working product early in the project, you minimize the chances of wasted time and resources on features that may need to be more essential and well-received. Agile's continuous improvement aspect helps identify and address potential defects early on, reducing the risk of costly rework in later stages. Moreover, Agile methodology encourages a focus on designing and development rather than extensive documentation, allowing the team to allocate more time and effort to create a visually appealing and user-friendly platform.

Another advantage of Agile methodology is its ability to facilitate risk management. By breaking the project into iterations, risks can be identified early on and prioritized for resolution. This proactive approach minimizes the chances of project failure and allows for better mitigation of risks throughout the development process. By promptly addressing potential challenges and risks, you increase the likelihood of delivering a successful and robust online marketplace.

3.3 Phases of the Chosen Methodology

Requirement gathering & analysis: Interviews with up-and-coming artists, observations at art events, and evaluations of current platforms were used to collect requirements for the online marketplace. These techniques ensured the platform efficiently addresses the demands of artists by offering insights into their preferences, issues, and industry norms.

Design: I used software tools like Adobe XD to design the platform visually and structurally. These tools helped create mock-ups and blueprints, guiding the implementation phase effectively.

Implementation: I developed the Admin panel using Vue.js for online development and Flutter for mobile app development. I ensured ongoing testing and improvement by delivering functional features in iterations using an incremental approach.

Testing: Using both white box and black box testing approaches, extensive testing was done to verify the platform's quality and functioning. In order to verify that each component functioned as intended and integrated smoothly, white box testing included using unit and integration tests to investigate the core logic and structure of the code. Black box testing was centered on evaluating the platform's usability by mimicking different situations and making sure it satisfied user needs. We were able to quickly detect and address problems thanks to this thorough approach, which made the platform dependable and strong for both artists and art buyers.

Deployment: Set up the necessary infrastructure and deploy the final version of the online marketplace for use by artists and art buyers.

Review: Assess the behavior and viability of the deployed platform, gathering user feedback and monitoring performance metrics for continuous improvement.

Maintenance: Address issues, errors, and bugs that arise after deployment while making necessary updates and enhancements to ensure optimal performance and user satisfaction.

3.4 System Requirement Analysis

This chapter focuses more on analyzing the project's system design, and every design decision and analysis is founded on the project's requirements, which are its fundamental premise and point of origin. The data that was gathered was used for diagrams like use case diagrams, sequence diagrams, activity diagrams, package diagrams, requirements, and analytical results are described. Additionally, the database architecture of the system is covered in this chapter, which aids in our understanding of how effectively the database diagrams' structural organization is done.

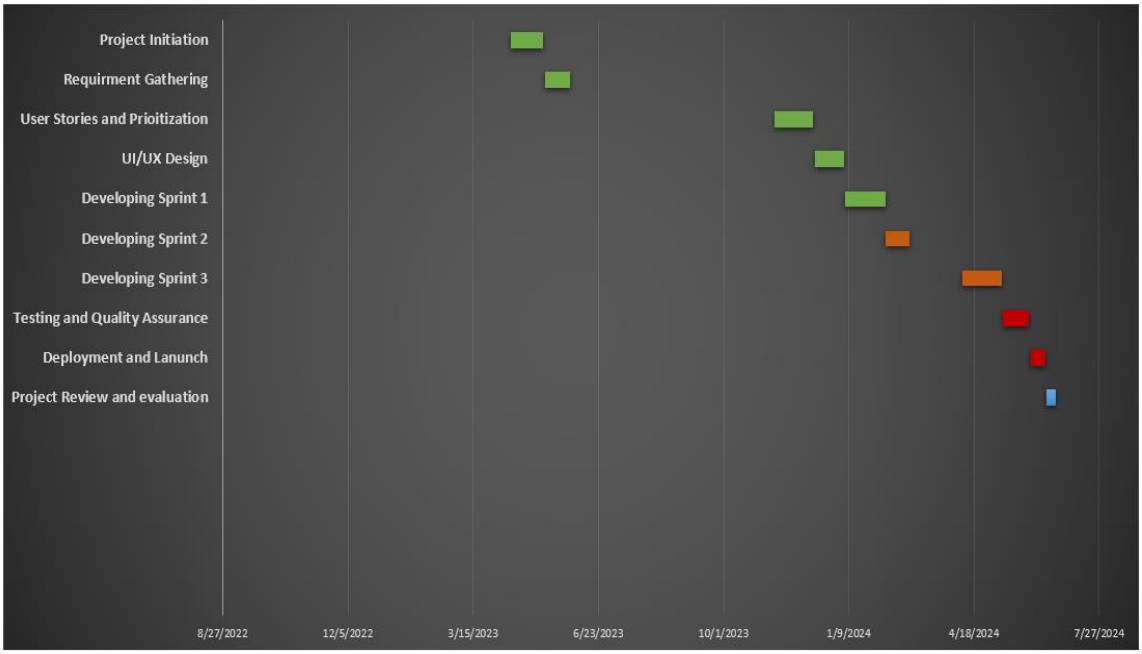


Figure [3.1] Gannt Chart

3.5 Technology used

Flutter, developed by Google, is a cross-platform mobile development framework that allows programmers to create native-looking apps for iOS and Android using a single codebase. Known for its high performance and consistent user experience across platforms, Flutter is popular among developers.

Firebase, also developed by Google, is a mobile platform designed to simplify app management. It offers utilities like push notifications, user authentication, and real-time data storage, making it a preferred choice for developers creating or managing mobile solutions.

Dart is a programming language created by Google for building desktop, mobile, and web apps. It is a compiled language, meaning it is converted into machine code before execution, resulting in faster performance compared to interpreted languages like JavaScript. Dart's strong typing makes its code easier to read and maintain.

Vue.js is a progressive JavaScript framework used for building user interfaces and single-page applications. It is known for its simplicity, flexibility, and integration capabilities with other libraries and existing projects.

Tailwind CSS is a utility-first CSS framework that provides low-level utility classes to build custom designs directly in the markup. It is highly customizable and enables developers to create responsive and consistent designs efficiently.

JavaScript is a versatile programming language primarily used for creating interactive and dynamic web content. It is a core technology of the World Wide Web, alongside HTML and CSS, and is essential for front-end development.

3.6 Chapter Summary

This chapter introduces Agile methodology as the chosen approach for developing an online marketplace for emerging artists. It highlights the benefits of Agile, such as flexibility, collaboration, and adaptability. The chapter outlines the methodology phases: requirement gathering, design, implementation, testing, deployment, review, and maintenance. It also emphasizes the importance of system requirement analysis and discusses the use of various diagrams. Overall, the chapter summarizes Agile methodology and its application to the project

CHAPTER 4

REQUIREMENT ANALYSIS AND DESIGN

4.1 Introduction

Requirement analysis plays a vital role in the process of developing a system as it enables us to completely comprehend the problem at hand. Its main objective is to prevent errors and guarantee the creation of accurate software that is customized to satisfy the client's requirements. To accomplish this, we gather requirements from the client through cautious information acquisition. These requirements are then exhaustively examined to determine the client's exact needs and obtain a profound comprehension of their desired outcome. Additionally, this analysis helps ensure that the proposed solution aligns with the identified requirements. As an essential part of this process, we identify all the relevant parties involved and utilize various software diagrams to illustrate different aspects and functionalities of the software in question.

4.2 Requirement Analysis

After collecting all the necessary information and identifying the different participants and groups involved in the system, a variety of diagrams are generated to depict the structure and functioning of the system. These diagrams are constructed using the information at hand and serve as visual aids to show how the system is structured and operates. By utilizing these diagrams, stakeholders can gain a clear comprehension of the system's organization and behaviour, enabling effective communication and promoting a unified development process.

4.3 Project Design

Project design involves the careful planning and organization of different aspects of a project, including resources, goals, objectives, and budget. In project design, special attention is given to the use of UML class diagrams and use case diagrams. These visual aids help demonstrate the connections between classes, highlighting their relationships and showcasing important attributes and operations of each class. By utilizing these diagrams, project designers can enhance their understanding of the project's structure and how it functions.

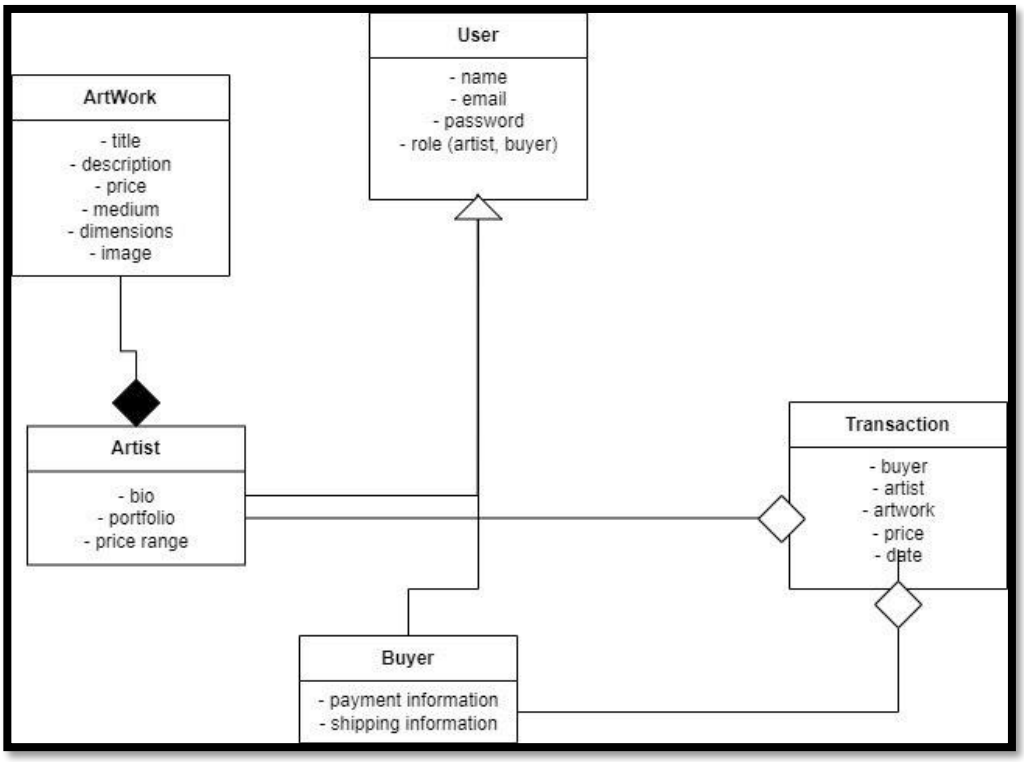


Figure [4.1] Class Diagram

4.4 Database Design

Database design refers to the act of developing a systematic blueprint for the organization and utilization of a database. It entails recognizing the specific data that should be stored in the database, establishing connections between various data components, and making informed choices regarding the most suitable data formats.

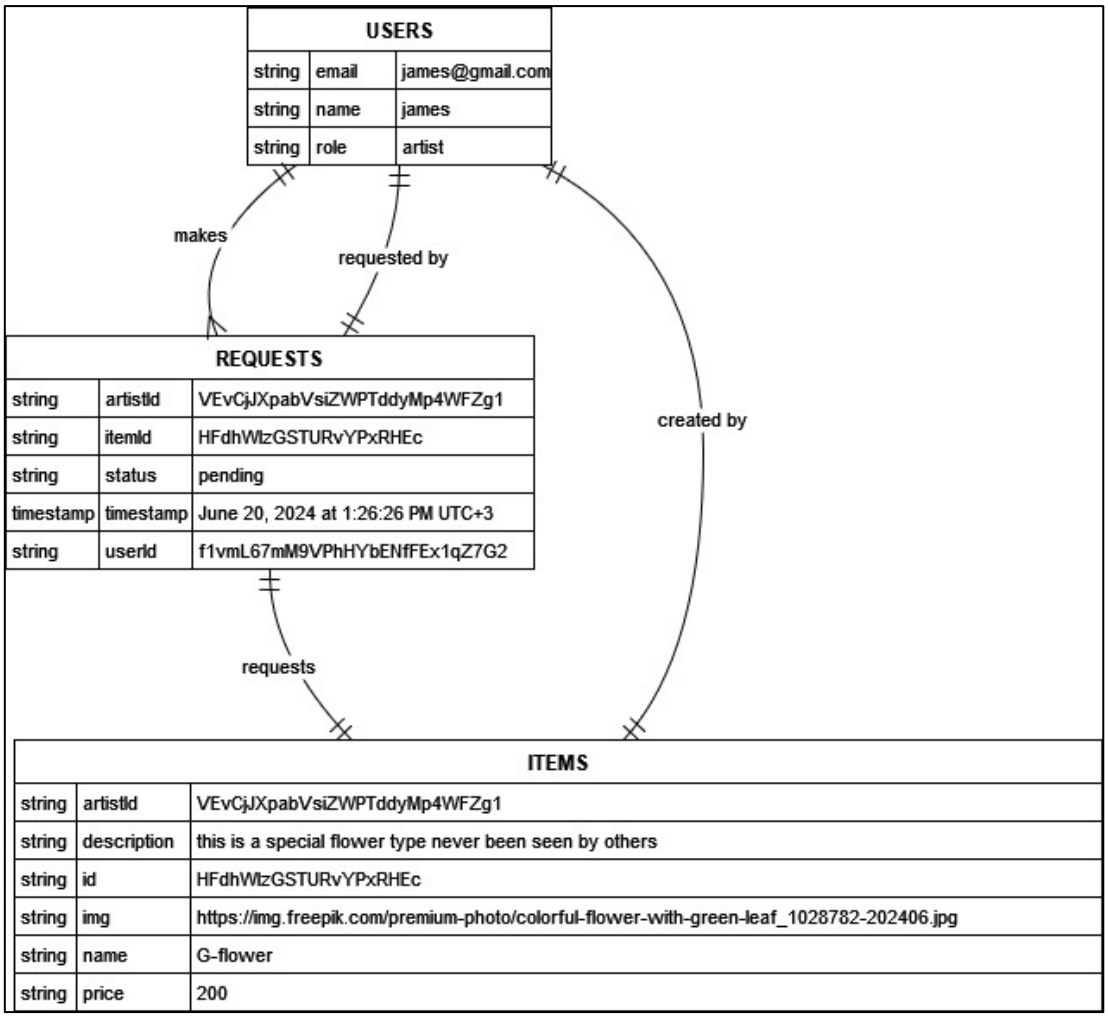


Figure [4.2] Class Diagram

4.5 Interface Design

Creating digital product visuals, including website or mobile app interfaces, comes under the umbrella term of interface design or user interface (UI) design. This creative effort aims to improve natural interaction between end-users while offering aesthetically appealing creations by organizing key visual features strategically on-screen to suit their needs efficiently. Additionally, special consideration must be given when planning different interactions amongst diverse components effectively during UI development; this enhances usability resulting in high levels of customer satisfaction leading them towards continued usage leaving positive feedback.

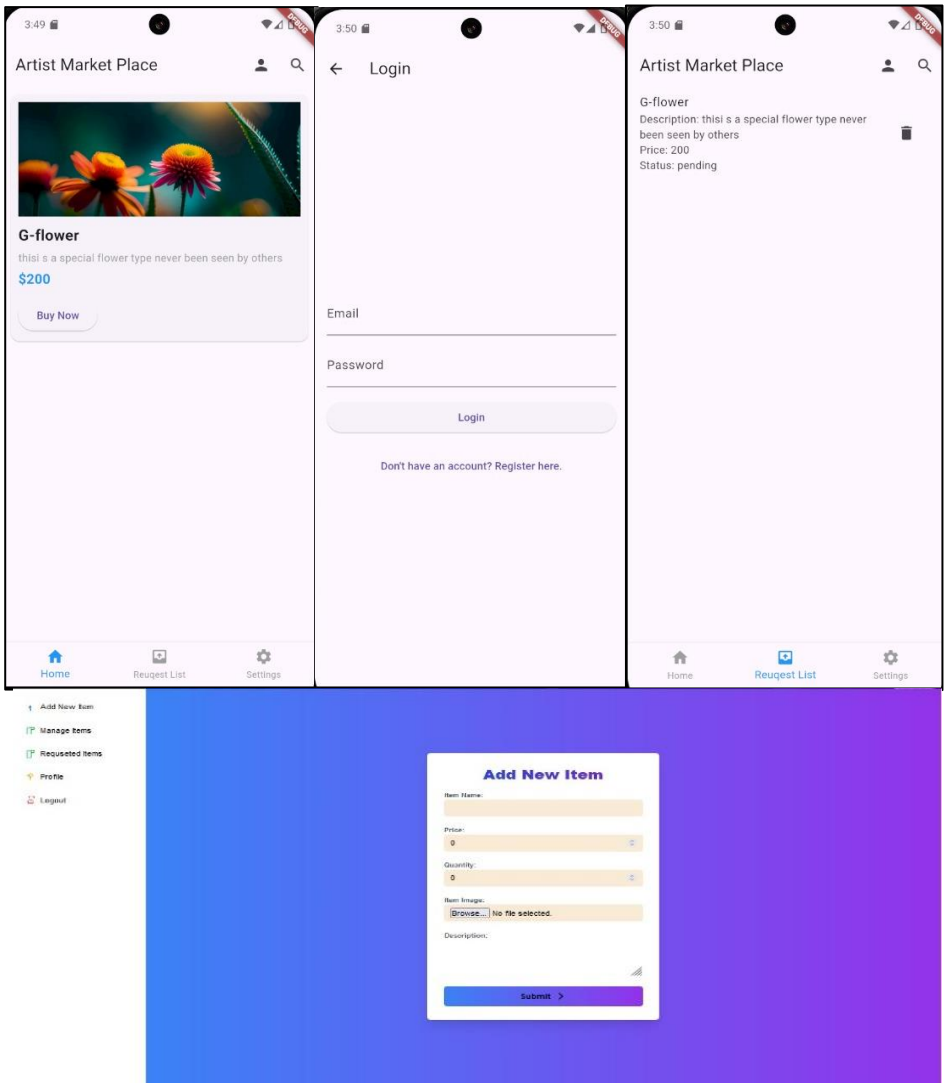


Figure [4.5] UI Design

Use case Diagram:

To identify a system's requirements and how they connect to the demands of the system's users, a use case diagram is employed. The main benefit of a use case diagram is that it helps to clearly describe how a system works to different stakeholders, including users, project managers, and developers. The use case diagram of the system is shown in the image below.

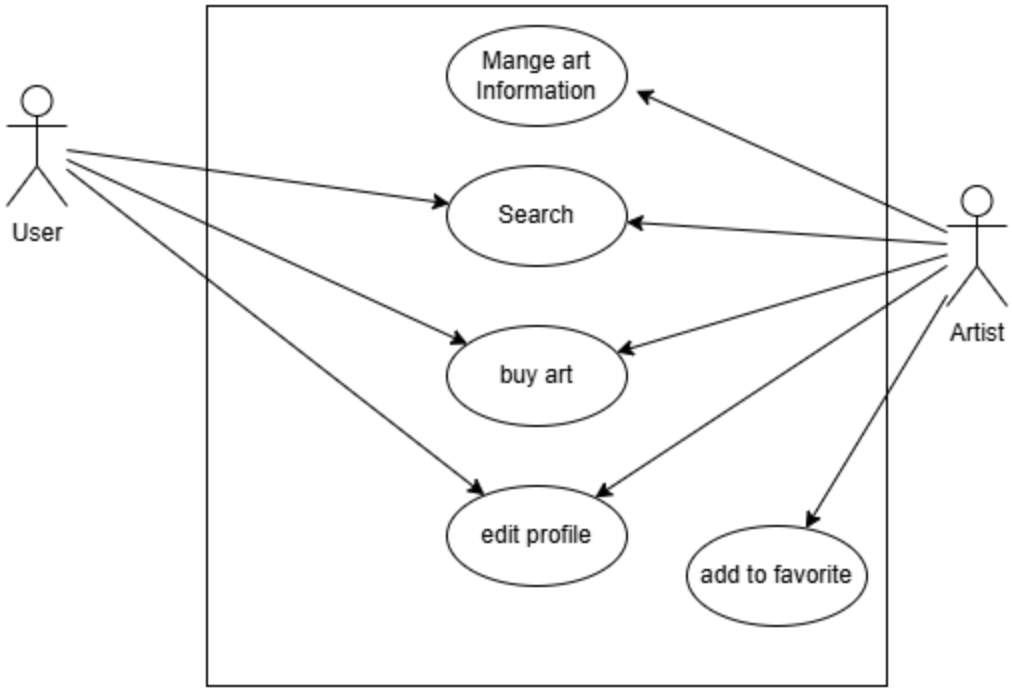


Figure [4.2] Use Case Diagram UC001

Table 4.1 Actors and Their Role

No	Actor	Role
1	User	Normal User can Buy Art , edit Profile and More
2	Artist	Can Add Art , Search , add to Favorite

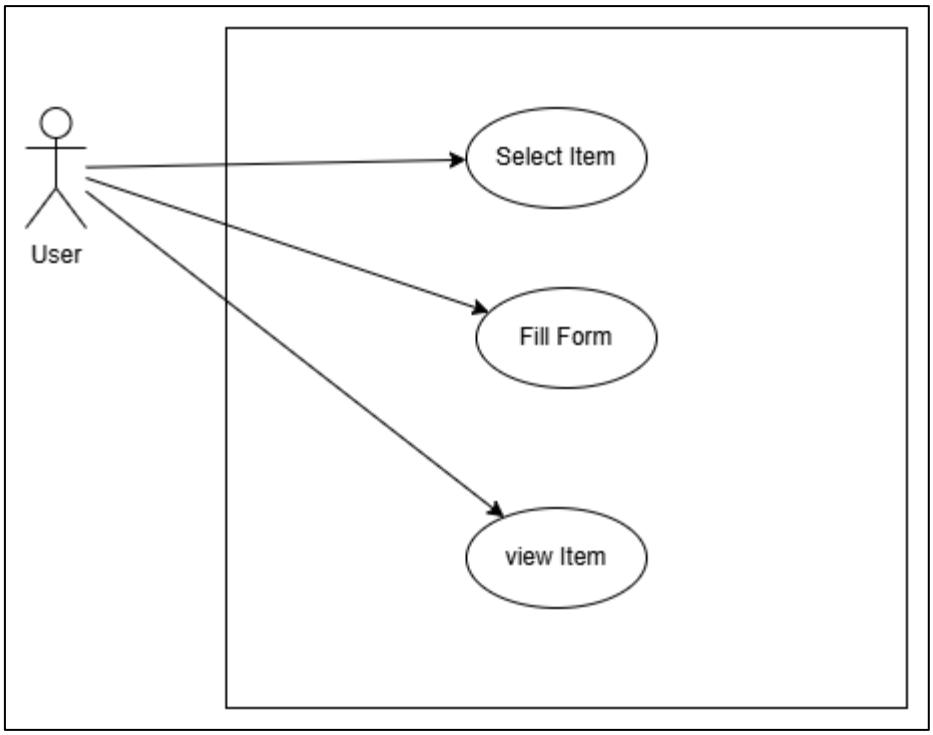


Figure [4.3] Use Case – Upload for sale **UC002**

Sequence Diagram

The links and timing of interactions between parts or components in a system are shown using sequence diagrams, a specific kind of visual representation.
How the system functions and what processes are are shown in the sequence diagram below. This diagram is responsible for adding Art that Artistic want to share for adoption by people that like Art.

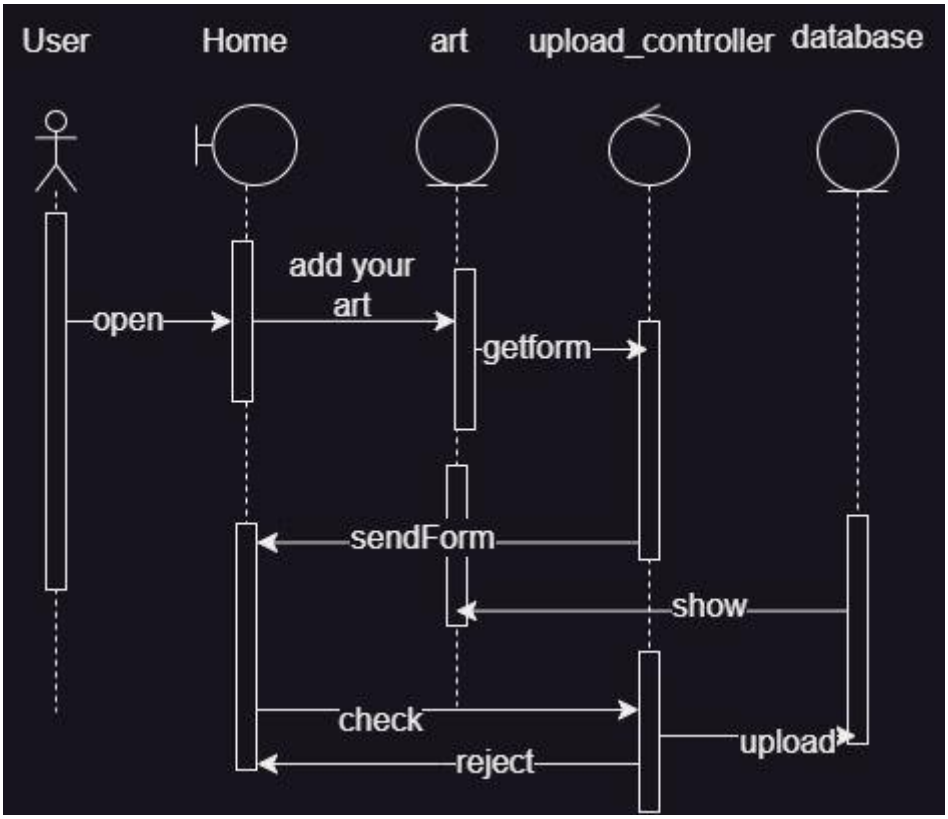


Figure [4.4] Sequence Diagram – Add Art

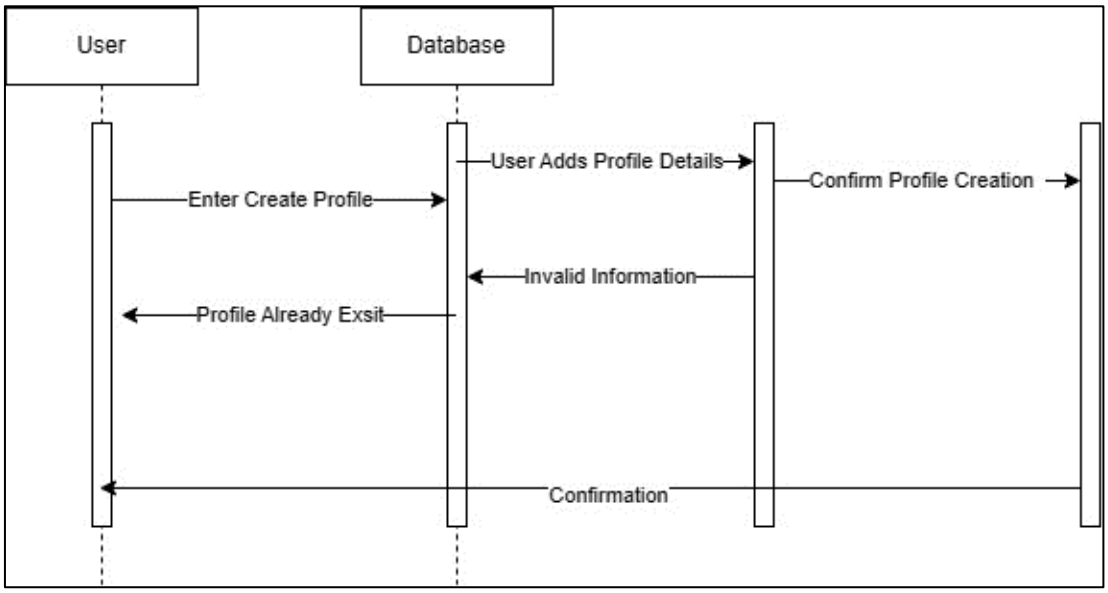


Figure [4.5] Sequence Diagram – Create Profile

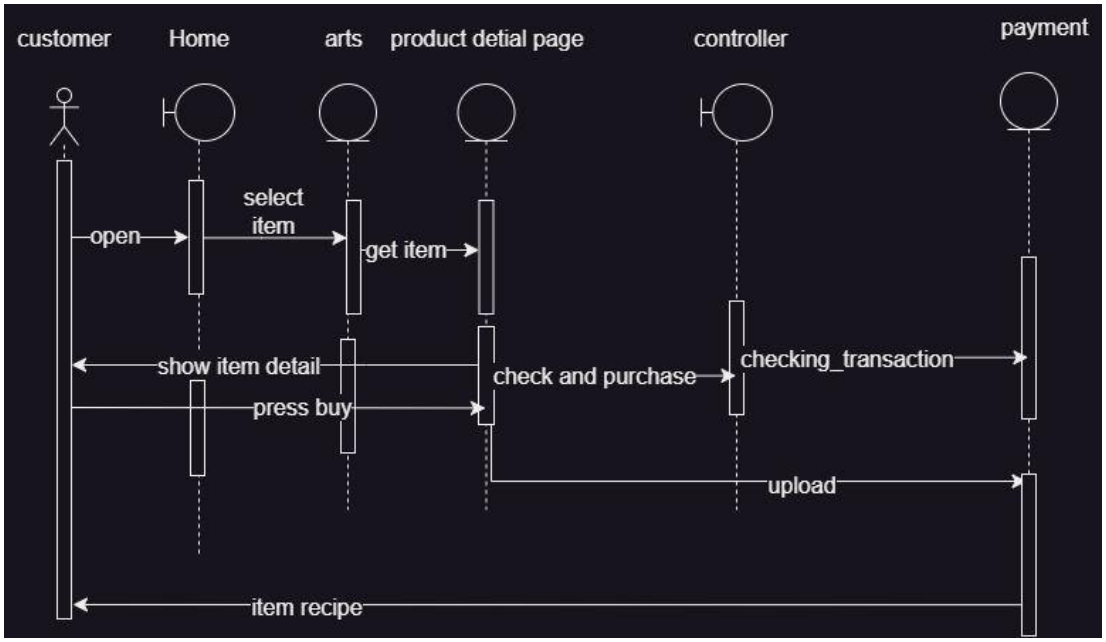


Figure [4.6] Sequence Diagram- Upload for sales

Activity Diagram

An activity diagram is a kind of visual used in software engineering. It is used to demonstrate the flow of events or activities inside a system. Examples of activity diagrams for the suggested solution are shown below.

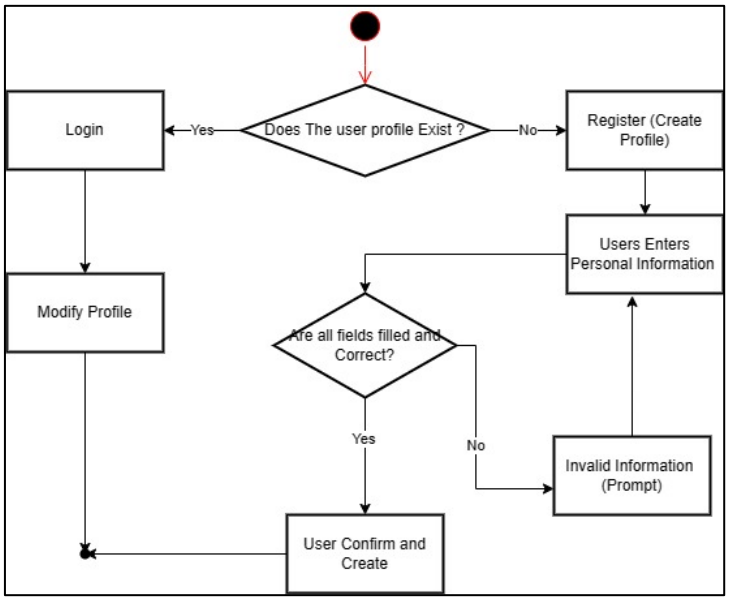


Figure [4.7] Activity Diagram – Create Profile

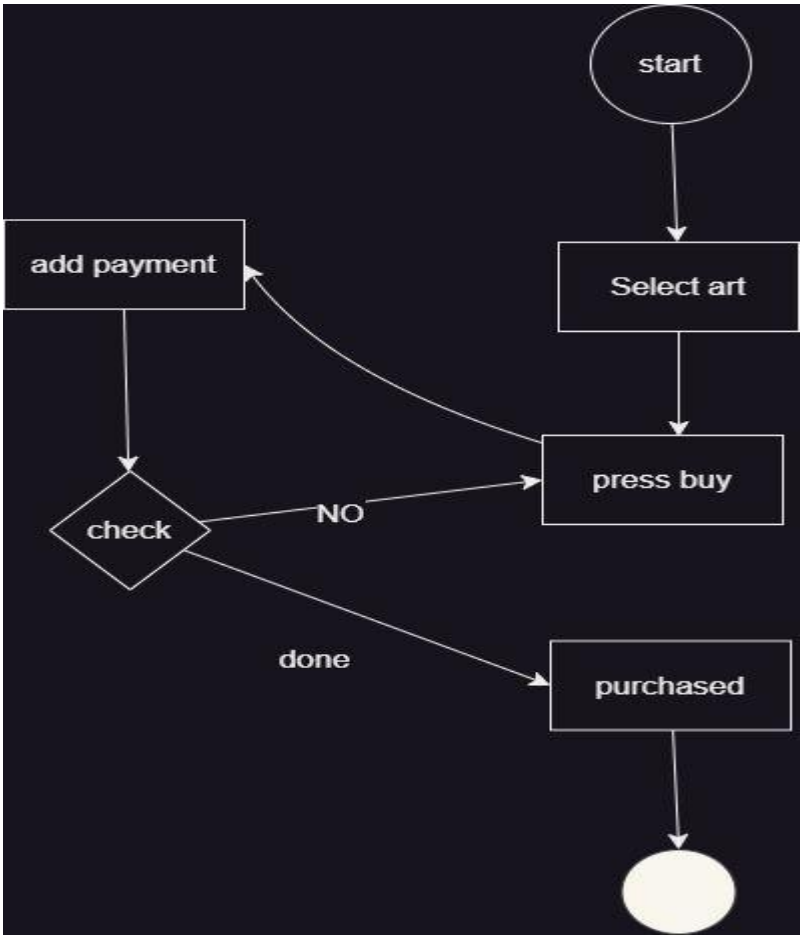


Figure [4.8] Activity Diagram- Buy item

4.6 Chapter Summary

Chapter 4 focuses on requirement analysis and design, emphasizing the importance of understanding client needs and using various diagrams to illustrate system structure and functionality. It covers requirement analysis, project design, database design, and interface design and introduces use cases, sequences, and activity diagrams. The chapter highlights the significance of accurate software development and effective communication to satisfy client requirements.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Introduction

The project's implementation and testing phase is a crucial step in creating the internet marketplace for up-and-coming artists. This stage includes converting design requirements into functional code and doing thorough testing to make sure the platform achieves its goals. Coding is required for the platform's different components, including user interfaces, backend systems, database integration, and security measures, throughout the implementation phase. Adhering to proper coding techniques and paying close attention to detail, every feature and functionality specified during the design process is implemented. After the platform is put into use, extensive testing is done to confirm its dependability, performance, and usefulness. Unit testing, integration testing, system testing, and user acceptability testing are all included in this to find and fix any problems or defects. Through rigorous platform implementation and testing, our goal is to establish a strong and intuitive online marketplace that supports up-and-coming artists and offers a smooth shopping experience for customers.

5.2 Coding of System Main Functions

Test Case ID	Test Case Description	Test Steps	Expected Results	Actual Results
TC-1	User Login	1. Open the Art & Stuff platform. 2. Enter a valid username and password. 3. Click the "Login" button.	The user should be logged in and redirected to the main page.	The user was logged in and redirected to the main page.
TC-2	User Registration	1. Open the Art & Stuff platform. 2. Click the "Register" button. 3. Enter a unique username, email address, password, and confirm password. 4. Click the "Register" button.	The user should be registered and automatically logged in.	The user was registered and automatically logged in.
TC-3	Add Item	1. Log in to the platform. 2. Click the "Add Item" button. 3. Enter item details like title, description, category, price, and condition. 4. Upload photos of the item. 5. Click the "Submit Item" button.	The item should be added to the user's profile and displayed in the marketplace.	The item was added to the user's profile and displayed in the marketplace.
TC-4	Manage Items	1. Log in to the platform. 2. Go to the "My Items" section. 3. Edit item details (title, description, etc.) or delete the item.	The user should be able to edit or delete their listed items.	The user was able to edit or delete their listed items.
TC-5	User Requests Purchase	1. Log in to the platform. 2. Find an item of interest. 3. Click the "Request Purchase" button. 4. (Optional) Enter a message for the seller. 5. Submit the request.	A purchase request notification should be sent to the seller and displayed in the buyer's "Requests" section.	A purchase request notification was sent to the seller and displayed in the buyer's "Requests" section.
TC-6	Seller Responds to Request	1. Log in to the platform. 2. Go to the "Requests" section. 3. View the purchase request for a specific item. 4. Choose to "Accept" or "Reject" the request. 5. (Optional) Enter a message for the buyer explaining the decision.	The seller should be able to accept or reject the purchase request. - Accepted: The buyer should receive a notification and be directed to payment options. - Rejected: The buyer should receive a notification explaining the rejection.	The seller was able to accept or reject the purchase request. (Fill in details about buyer notification and payment options based on your platform functionality).
TC-7	View Purchase Results	1. Log in to the platform. 2. Go to the "Orders" section. 3. View details	The user should be able to view purchase details (item, buyer/seller information, status).	The user was able to view purchase details.

		of completed or pending purchases.		
TC-8	Generate Description	1. Log in to the platform. 2. Click the "Add Item" button. 3. Enter basic item details (title, category, etc.). 4. Click the "Generate Description" button (if offered).	The platform should generate a suggested description based on the entered details.	The platform generated a suggested description. (Optional: Specify the level of detail or customization offered).

5.3 Interfaces of System Main Functions

The main function and interfaces of the system guarantee intuitive interaction between budding artists and the internet marketplace. It is simple for users to add and manage products for sale, submit buy requests, and examine transaction data. Artwork data such as title, description, and images may be listed by vendors, and purchasers can request purchases with optional notes to sellers. Requests for purchases may be answered by sellers, and both parties can see the specifics of purchases in the "Orders" area. Furthermore, a function called "Generate Description" helps merchants list items more quickly by providing suggested item descriptions based on supplied information. Smooth interactions are made possible by these interfaces, which foster a thriving online art community.

5.4 Testing

In the testing stage, I carried out a number of tests to make sure that important features like user registration, product inclusion, and other crucial functionalities worked and were reliable. I investigated the platform's behavior in detail without going into its core workings by using techniques like black-box testing. I made sure that new users could register successfully and log in without experiencing any problems. In a similar manner, I verified that sellers could list their artworks without difficulty and that all pertinent information was appropriately recorded and presented by testing the product adding process. Furthermore, in order to evaluate the platform's resilience in

harsh environments and make sure it could efficiently handle a variety of inputs, I used methods like boundary testing. With the end goal of improving the platform's overall quality and user experience, I tried to find and fix any possible problems or defects using these thorough testing techniques.

5.4.1 Black box Testing

Black box testing is a technique that looks at a software system's functioning without looking at its core code. Black box testing treats the system as a "black box" whose internal workings are unknown, with the tester concentrating only on the inputs and outputs. Testing the user registration operation is an example of black box testing in the context of our online marketplace for up-and-coming artists. In order to complete this test, email addresses, and usernames. After that, the tester watches the system's reaction to see whether it successfully registers new users, manages validation issues, and gives the user the right feedback. Regardless of the underlying code implementation, we can make sure that the user registration process works as intended by using black box testing.

5.4.1.1 System Flow

System flow testing, a kind of black box testing, assesses the system's overall functionality from the viewpoint of the user. It focuses on evaluating the flow of operations and changes between various system displays or components. System flow testing makes sure users can move across the platform quickly and easily in our online marketplace for up-and-coming artists. Testing the procedure for introducing a new product to the market is an example of system flow testing. The tester starts by signing into the platform, going to the "Add Item" area, filling out the required item information, adding photos, and submitting the item. After that, the tester confirms that the item is shown appropriately in the marketplace and in the user's profile. System flow testing makes sure that, from the beginning to the end of a user's trip, everything works smoothly and uninterruptedly, offering a satisfying user experience.

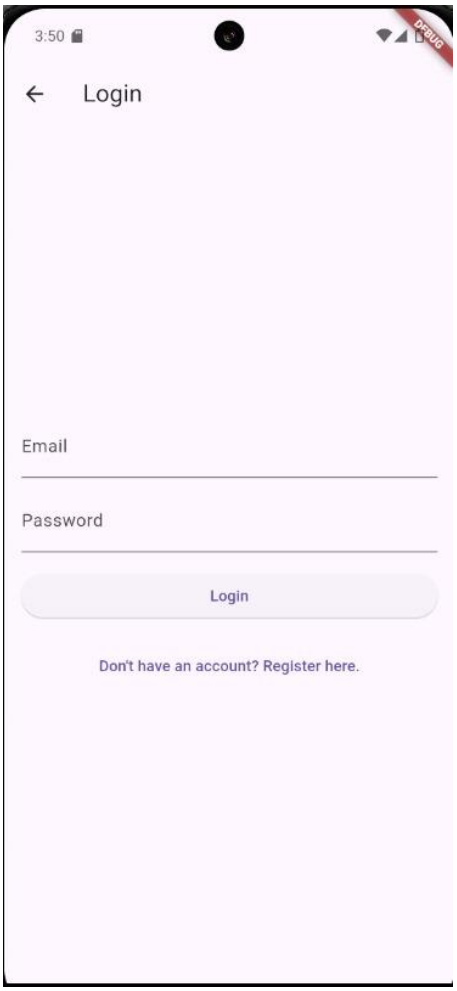


Figure [5.1] Class Diagram

5.4.1.2 Input Output Verification

Black box testing includes input-output verification, which is crucial in making sure the system generates the desired outputs for a given set of inputs. With no knowledge of the system's core operations, this testing approach assesses how the system handles inputs and produces matching outputs. Verification of input-output guarantees that user activities produce desired results in the context of our online marketplace for up-and-coming artists. A new user account should be successfully created by the system and a confirmation message should be sent when a user submits a registration form with proper input data, such as a distinct username, email address, and password. In contrast, the system should provide relevant error warnings and stop

account creation if the user enters erroneous input data, such as a duplicate username or an inappropriate email format. Maintaining data integrity and user satisfaction, input-output verification ensures that the system operates as intended.

5.4.1.3 Error Messages

An important part of black box testing is error message testing, which assesses the precision, understandability, and potency of error messages that the system generates when it encounters erroneous input from users or unexpected system failures. We use error message testing in our online marketplace for up-and-coming artists to make sure that consumers who run into problems when interacting with the site get useful and helpful feedback. The system needs to provide a succinct and unambiguous error message informing the user that their selected username is not available and offering assistance in choosing an other username, in the event that they try to register using their current username. Analogously, the system need to display an error notice urging the user to confirm their login information and try again if they input the wrong password while logging in. In the end, error message testing contributes to the platform's overall usability and dependability by improving user experience by assisting users in comprehending and resolving problems successfully.

5.4.2 White box Testing

White box testing, often referred to as structural testing or glass box testing, looks at the underlying logic and architecture of the program under examination. White box testing is concerned with the internal workings of the program, as opposed to black box testing, which concentrates on the system's operation as seen by the user. Specifically for our online marketplace for up-and-coming artists, white box testing entails going over the source code to make sure it is logically sound, adheres to coding standards, and isn't full of bugs. In order to guarantee thorough test coverage, white box testing also involves methods like code coverage analysis, in which the tester assesses whether portions of the code have been run. White box testing allows us to

find and fix any problems with the internal workings of the program, therefore guaranteeing its dependability and resilience.

5.4.3 User Testing

User testing, sometimes referred to as usability testing, is analyzing the program from the viewpoint of its intended users in order to gauge its general usability, intuitiveness, and simplicity of use. User testing looks at how effectively the program satisfies the requirements and expectations of its intended users, as opposed to other testing techniques that concentrate on the technical features of the program. User testing for our online marketplace for up-and-coming artists entails gathering a broad range of users buyers and artists alike to engage with the site and provide input on their experiences. Common actions including creating an account, putting products for sale, exploring the marketplace, and making purchases are required of testers. In order to find any usability problems, navigational challenges, or opportunities for development, their interactions and comments are closely monitored and documented. To make sure the program is intuitive, user-friendly, and fits the demands of its intended audience, user testing is essential.

Table UC001_01: e.g. request item (item id)

Test Case ID	**Input data**	**Expected result**	**Actual result**	**Pass / Fail**
TC001_01_01	Item_id	Available in list	selected	Pass
TC001_01_02	Item_id	Not selected	No item selected	Pass

Table UC001_02: e.g. request item (buying)

Test Case ID	**Input data**	**Expected result**	**Actual result**	**Pass / Fail**
TC001_02_01	item name	Selected =null	No art selected	Pass
TC001_02_02	item name	drawing	Selected from drawing	Pass

5.5 Chapter Summary

The project's testing and implementation phases are critical to the growth of the online marketplace for emerging musicians. In order to make sure the platform meets its objectives, extensive testing is carried out at this phase, which also involves translating design requirements into functional code. Proper coding methods and attention to detail are used while creating the platform's many components, which include user interfaces, backend systems, database integration, and security measures. Extensive testing is conducted after deployment to validate the reliability, performance, and usability of the platform. To find and fix any problems or flaws, this comprises unit testing, integration testing, system testing, and user acceptability testing. The goal is to create a strong and user-friendly online marketplace that promotes up-and-coming artists and provides consumers with a flawless buying experience via meticulous implementation and testing.

CHAPTER 6

CONCLUSION

6.1 Introduction

In conclusion, the identified problem in the art market regarding the limited opportunities for budding artists to promote and sell their work has led to a lack of variety and originality in the industry. The proposed solution of building an online marketplace that connects artists directly with potential buyers addresses this problem by eliminating the need for intermediaries like galleries and reducing financial burdens on artists.

Through case studies and analysis of the current system, it has become apparent that existing art markets heavily rely on intermediaries, leading to high commission costs and limited exposure for artists. By leveraging mobile applications, the proposed solution aims to create a fast, reliable, user-friendly, cost-effective, and high-quality platform for artists to showcase and sell their artwork.

The methodology, Agile, is suitable for this project as it allows for iterative development, frequent user feedback, and collaboration among cross-functional teams. By breaking the project into smaller iterations, artists and art buyers can actively participate in the development process, ensuring the platform meets their needs and preferences. The adaptability and flexibility inherent in Agile methodology enable the online marketplace to evolve alongside the dynamic art market, incorporating new features and technologies to remain competitive.

In the requirements analysis phase, a thorough examination of client needs and careful information acquisition will ensure accurate software development. Software diagrams will be utilized to depict the structure and functionalities of the proposed system, aligning it with the identified requirements.

By implementing this proposed solution, budding artists will have a dedicated platform to showcase their talent, promote their work, and sell directly to interested buyers. This will provide them with financial opportunities and contribute to the art market's diversity and originality. Ultimately, developing this online marketplace will empower artists, revolutionize the art industry, and foster a vibrant and inclusive artistic community.

6.2 Achievement of Project Objectives

The aim becomes more apparent that the suggested solution would be a suitable alternative for the present issue related Artists after collecting requirements from stakeholders to understand the specific challenges that we have, assessing their needs, and comparing existing systems. To understand how to create the system, what are behaviors and structures of the suggested system, and how exactly the system should operate, architectural design patterns and detail designs of the proposed solution have been produced.

6.3 Suggestions for Future Improvement

As soon as PSM2 starts up, work begins on the remaining details of the construction design and detail design before turning the suggested solution into a fully functioning and useful mobile application, adding payment method . Create a user-friendly UX/UI to make the program functional and easy for people to use.

REFERENCES

"Artsy is a global online art marketplace that links art enthusiasts with authentic pieces of art from galleries and independent artists all around the globe" (Artsy, n.d.).

"Saatchi Art is a prominent online store dedicated to showcasing unique works of art from budding creators and established artists" (Saatchi Art, n.d.).

Schwaber, K., & Beedle, M. (2001). Agile software development with Scrum. Prentice Hall.

Turner, R., & Ramesh, B. (2000). The impact of agile development methods on software quality. IEEE Software, 17(4), 25-31.

Google Developers. (2023, January 25). Flutter. Retrieved June 23, 2023, from https://flutter.dev/

Palmer, W. (2018). The artist's guide to marketing and self-promotion. New York, NY: Watson-Guptill.

Artnet News. (2022, January 20). The rise of the online art marketplace. Artnet News.

Appendix A Software Requirement Specification

1. INTRODUCTION

1.1 Purpose

The project's software requirements specification (SRS) document outlines the functions and development procedures for the software. The functioning of the product and its requirements to satisfy stakeholders' needs were the main topics of this document. Through this documentation, we are able to better comprehend the software by learning what data must be acquired about the product. This document's objective is to demonstrate product information that is necessary prior to the design phase, such as learning about the product's goal, target market, hardware requirements, software needs, and functionality.

1.2 Scope

Market analysis: Conduct a thorough market analysis to identify potential competitors, target audiences, and market trends in the art industry.

User research: Conduct user research to understand about the requirements and preferences of artists and art fans for online art sales and purchases.

Design and usability: Develop a user-friendly and aesthetically pleasing website that encourages engagement and easy navigation for users.

Security and privacy: Implement robust security and privacy safeguards to safeguard users' personal and financial information.

Payment integration: Integrate payment gateways to make it easy for buyers to make purchases and for sellers to receive payments.

Community building: Build a community of artists and art enthusiasts through social media integration and user-generated content.

Marketing and promotion: Develop a marketing and promotion plan to reach potential customers and build brand awareness.

Data analytics: Use data analytics to track user behavior and preferences, improve user experience, and optimize the marketplace for better performance.

Legal compliance: Ensure the platform complies with all relevant laws and regulations, such as copyright and tax laws.

Innovation: Explore innovative features and technologies to enhance the user experience and differentiate the platform from competitors.

1.3 Definitions, Acronyms and Abbreviation

Definitions of all terms, acronyms and abbreviation used are to be defined here.

1.4 References

- Schwaber, K., & Beedle, M. (2001). Agile software development with Scrum. Prentice Hall.
- Turner, R., & Ramesh, B. (2000). The impact of agile development methods on software quality. IEEE Software, 17(4), 25-31.
- Google Developers. (2023, January 25). Flutter. Retrieved June 23, 2023, from https://flutter.dev/
- Palmer, W. (2018). The artist's guide to marketing and self-promotion. New York, NY: Watson-Guptill.
- Artnet News. (2022, January 20). The rise of the online art marketplace. Artnet News.

1.5 Overview

The project aims to develop a mobile application that serves as an online marketplace connecting emerging artists directly with potential buyers. This platform allows artists specializing in drawings, paintings, and sculptures to showcase, promote, and sell their artwork. By eliminating intermediaries like galleries, the marketplace provides artists with a fair platform to reach a global audience, enhancing their visibility and economic opportunities.

Overall Description

Use Case Diagram: A graphical representation known as a use case diagram determines a system's needs and how they relate to its users.

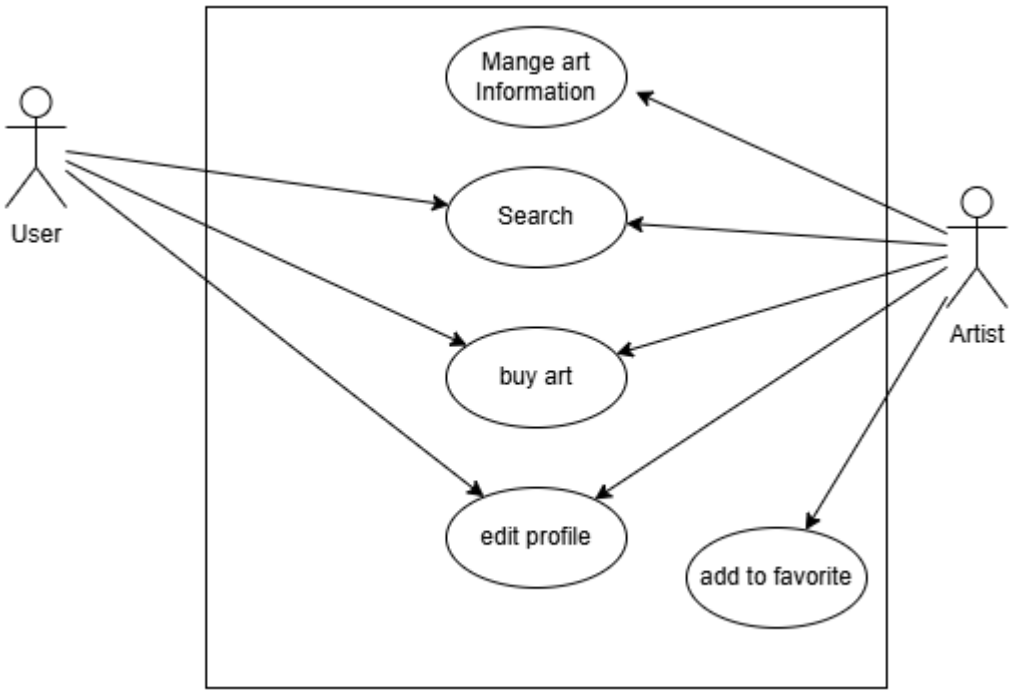


Figure 2.1: Use Case Diagram of <Artistic Marketplace App >

1.6 Product Perspective

The app's perspective is to help Artistic easier by providing some functionalities, as shown in the above use case diagram.

A use case diagram's key advantage is that it aids in clearly explaining a system's operation to various stakeholders, including consumers, project managers, and developers, and below figure is a use case diagram of the system.

1.6.1 System Interfaces

1.6.2 User Interfaces

The software user interface should provide what users need, and the software has to be used so that different types of users can understand the functionalities of the software. In the user interface, we provide registration, login, and visit as guests, having lots of buttons not preferable by users. Hence, each user interface includes some features and functionality that users do not feel about the complexity of the UI for the software.

1.6.3 Hardware Interfaces

The Artistic Marketplace software is a mobile application, and the app Since the SMART system is a web-based system, the system shall be able to send requests to the server whenever data is needed. Besides, the system shall be able to receive responses from the server.

1.6.4 Software Interfaces

i are using NoSQL database firebase for the software interface

1.6.5 Communication Interfaces

The SMART system must use the HTTPS protocol to connect to the server and external online service server.

1.6.6 Memory

Maximin 100MB

1.6.7 Operations

The platform provides a number of user-initiated features, including the ability to post artwork, make purchases, maintain profiles, and send messages to artists directly from users. The majority of interactive operations take place on weekends and during nights, which are also prime times for exceptional occasions like live auctions. In order to minimize user inconvenience, unattended operations like planned upgrades and nighttime data processing are carried out during off-peak hours. In addition to generating statistics and reporting on user interaction and performance, the platform features content control to ensure rules are followed. It also allows automatic alerts for new messages and sales. With regular data backups, contingency plans for system failures, and redundant servers guaranteeing ongoing availability and data integrity, backup and recovery activities are essential. An artist may, for instance, submit a fresh

painting, get an automatic notice of a sale, and have confidence in the platform's dependability and data security due to the system's redundant servers and nightly backups.

1.6.8 Site Adaptation Requirements

requirement of the app: it support android V10 and above

Minimum 100mb of ram required, size of display not matter the app is responsive

Define and specify here...

1.7 Product Functions

- *Upload arts for sale*
- *Create profile for artists*
- *Payment*
- *Purchase items*

1.8 User Characteristics

Artists:

Users: Emerging artists in drawings, paintings, and sculptures.

Traits: Tech-savvy creatives seeking visibility and sales opportunities.

Needs: Easy art promotion, sales management, and secure transactions.

Buyers:

Users: Art enthusiasts and collectors.

Traits: Diverse demographics comfortable with online shopping.

Needs: Access to diverse artworks, secure transactions, and artist information

1.9 Constraints

The restrictions listed in this paragraph will restrict the developer's possibilities when the online marketplace for up-and-coming artists is developed. Global copyright laws, data security, and financial rules pertaining to online transactions must all be complied with by the platform. It should be designed to work well without the need for specialist hardware on common consumer electronics, such as PCs and smartphones. In order to enable simultaneous user interaction on the platform without causing performance deterioration, the system should support parallel processes. It needs audit features to keep track of and record every transaction, user activity, and system modification for accountability and debugging. To handle conflicts between buyers and sellers, regulate content, and manage user accounts, administrative control mechanisms must be put in place. Scalability and maintainability may be ensured by developing the platform using widely-used higher-order programming languages like Python, JavaScript, or Ruby. In order to ensure that users may regularly use the platform without interruption, it must provide excellent dependability with an uptime of at least 99.5%. Its operation is crucial since the platform is the main sales channel for up-and-coming musicians; any outages or problems with performance might have a big effect on the artists' ability to make a living. To safeguard user data and financial information from breaches and unauthorized access, the platform must also include strong security measures, such as data encryption, secure user authentication, and frequent security audits. These limitations are essential to guarantee the platform's dependability, security, and compliance with all applicable laws and regulations while offering a flawless user experience. For instance, connecting with payment gateways and guaranteeing data encryption would provide consumer confidence and transaction security in addition to ease.

1.10 Assumption and Dependencies

The section below covers the variables that may impact the SRS requirements, such as the accessibility of operating systems like as iOS and Android and the dependability of users' online connection. Additionally, it depends on the security procedures in place at the moment, as well as stability in industry trends and outside firms that handle things like content moderation and shipment. To guarantee the platform's effective development and operation, any changes to these elements could need matching revisions to the requirements.

1.11 Apportioning of Requirements

We will add payment in future

2. SPECIFIC REQUIREMENTS

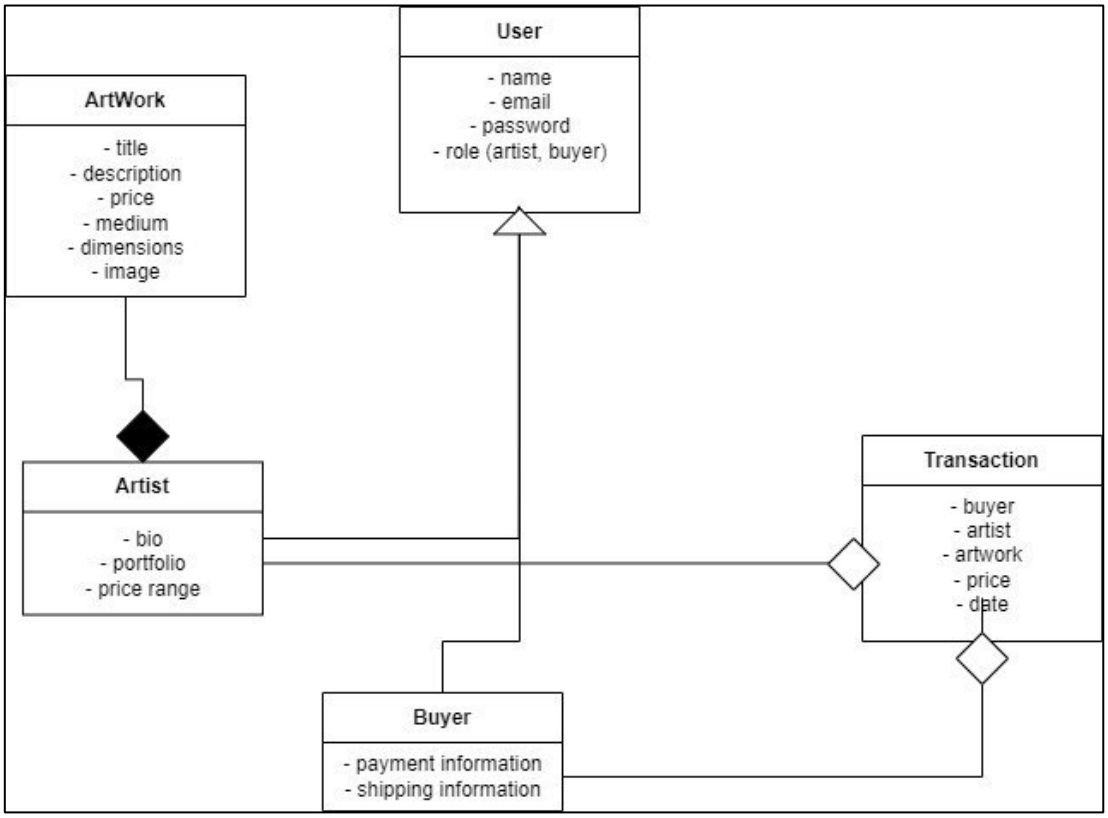


Figure 3.1: Domain Model of < >

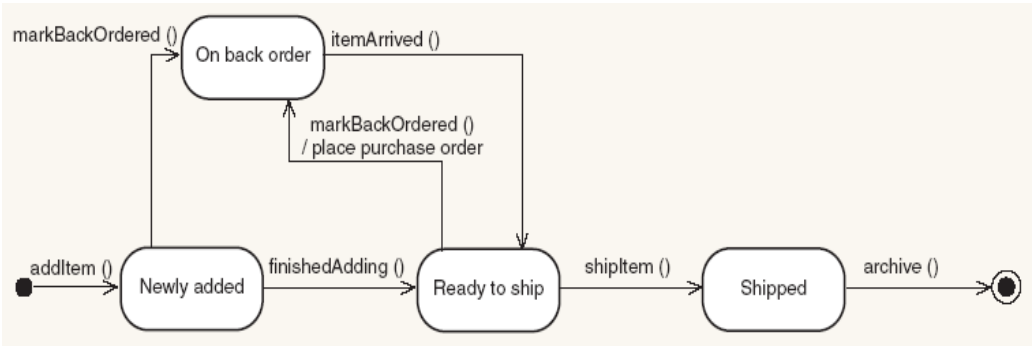


Figure 3.2: State Machine Diagram of < >

2.1 External Interface Requirements

2.1.1 User Interfaces

Provide the details for Section 2.1.2.

2.1.2 Hardware Interfaces

Provide the details for Section 2.1.3.

2.1.3 Software Interfaces

Provide the details for Section 2.1.4.

2.1.4 Communication Interfaces

Provide the details for Section 2.1.5.

2.2 System Features

2.2.1 Module < >

State briefly the functional requirements (use cases) that are available in this module. Better to include the diagram of the specific module (or the example of Customer Support System – by subsystem, see example below) from the overall use case diagram in Figure 2.1.

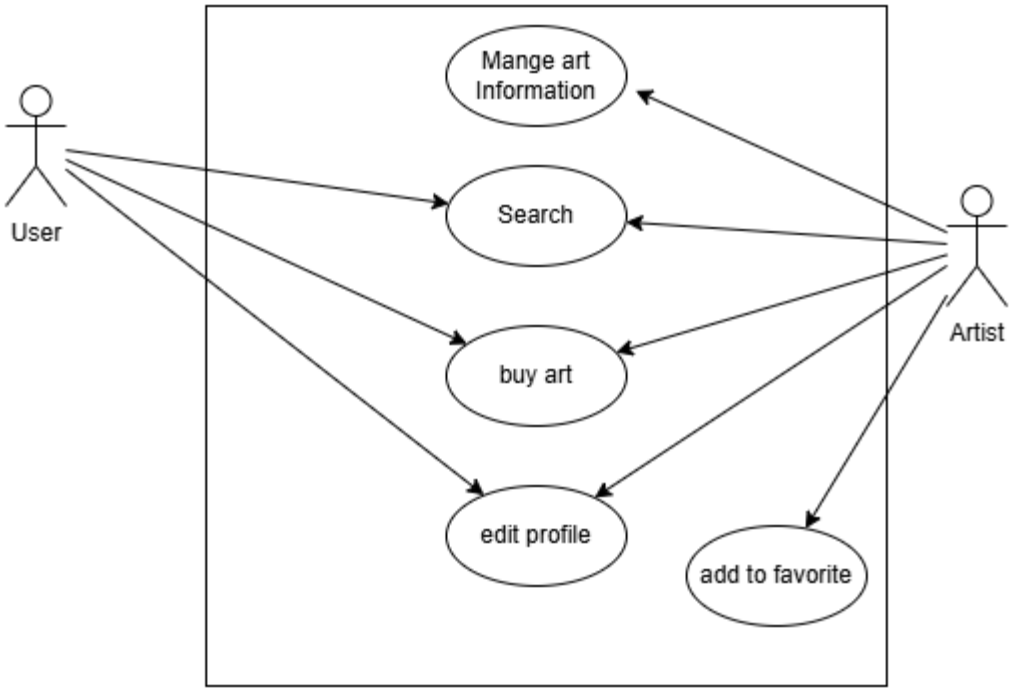


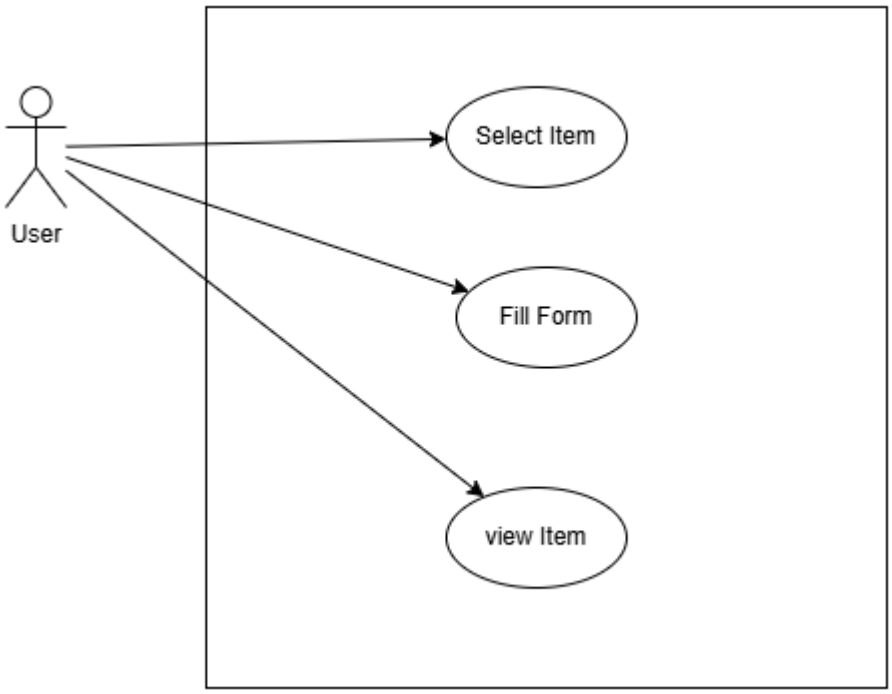
Figure 3.2: <art sale app>

2.2.1.1 UC001: Use Case < >

Provide code for each use case such as UC001 and so on… Include Use Case Description for each use case as in the example below. Ensure each use case has its

own unique ID and the name of the heading above corresponds to the name of use case in the use case diagram (refer to Figure 2.1). Different scenarios of a use case require separate use case descriptions.

Table 3.1: Use Case Description for <upload art>



Include system sequence diagram and activity diagram for each respective use case. See example below for Telephone Order scenario of Create New Order use case for both diagrams. Consider to include different scenarios example telephone vs. Web order scenario in different diagrams if applicable.

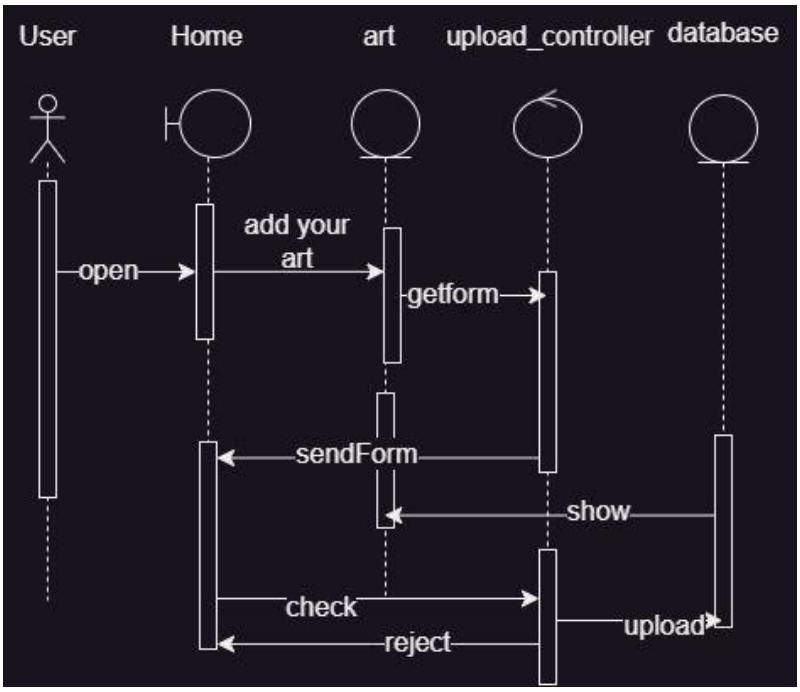


Figure 3.3: System Sequence Diagram of <upload art>

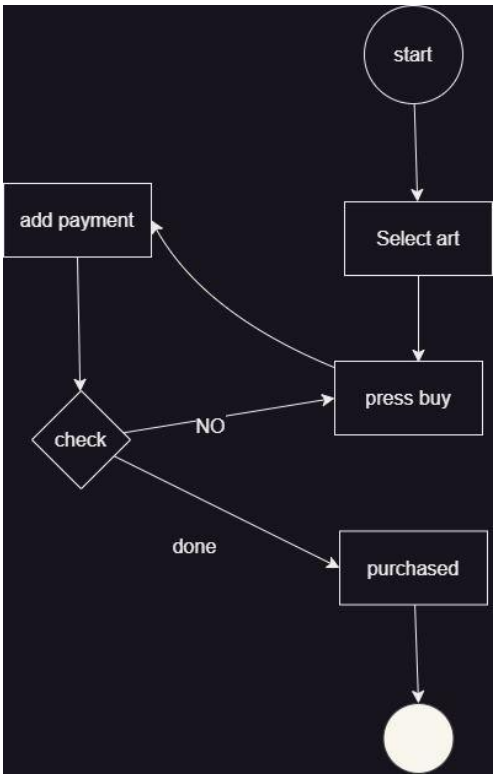
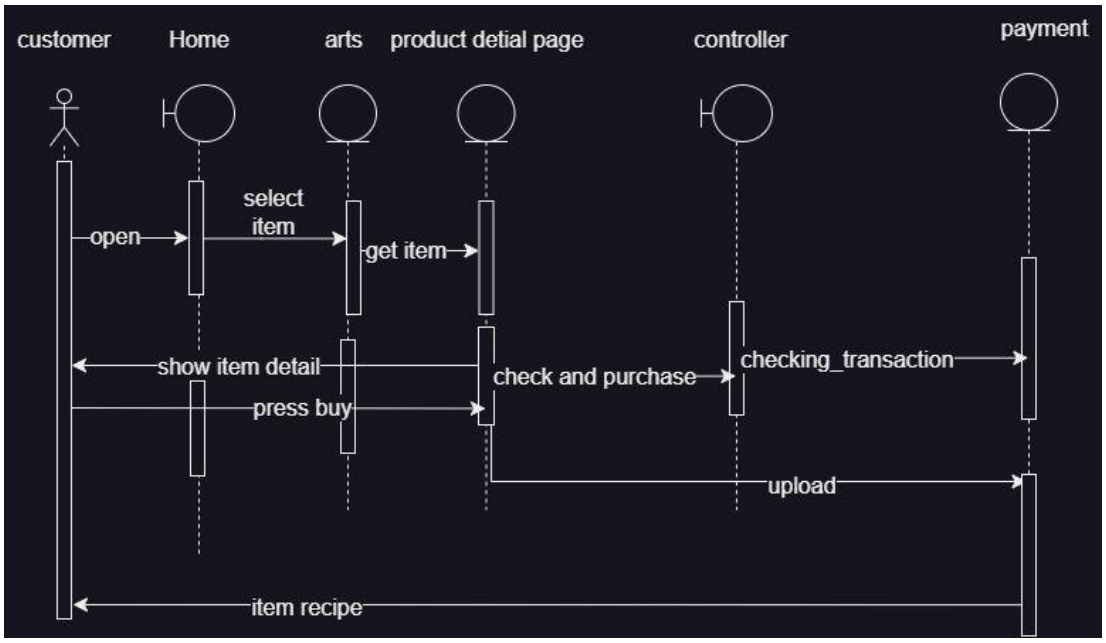


Figure 3.4: Activity Diagram of <Name of Use Case/Scenario if more than one scenario>

2.2.1.2 UC002: Use Case <purchase product>



2.2.1.3 UC003: Use Case <Name of Use Case3>

2.2.2 Module < >

2.2.2.1 UC004: Use Case <Name of Use Case4>

Performance Requirements

State and refer to the specific functional requirement that is related to this non-functional requirement (if any).

2.3 Design Constraints

Explain any constraints imposed by the organization where the software product will be used such as the system must adhere to certain organizational standard and other related non-functional requirements.

2.4 Software System Attributes

Indicate any specific attributes that the customers/users request such as system must be attractive and easy to use for any specific customers.

2.5 Other Requirements

State here other quality characteristics or non-functional requirements for either customers/users or developers such as adaptability, flexibility, interoperability, maintainability, portability, reliability, reusability and usability.

Appendix B Software Testing Documentation

1. Specific Requirements

1.0 System Overview

The online marketplace is designed as a mobile application that serves as a platform for emerging artists to showcase and sell their artworks directly to buyers. It aims to democratize access to the art market by eliminating traditional intermediaries like galleries, thus empowering artists economically and increasing their visibility globally.

1.1 Test TC001 for Module <user>: <Name of Use Case select-art item (UC001)>

UC001_01: e.g. request item (item id)

Test Case ID	Input data	Expected result	Actual result	Pass / Fail
TC001_01_01	Item_id	Available in list	selected	Pass
TC001_01_02	Item_id	Not selected	No item selected	Pass

UC001_02: e.g. request item (buying)

Test Case ID	Input data	Expected result	Actual result	Pass / Fail
TC001_02_01	item name	Selected =null	No art selected	Pass
TC001_02_02	item name	drawing	Selected from drawing	Pass

1.2 Test TC002 for Module1: <Name of Use Case (upload item)>

UC002_01: e.g. upload item(img)

Test Case ID	Input data	Expected result	Actual result	Pass Fail
TC002_01_01	Img type	Png,jpg	Get user info	Pass
TC002_01_02	imgName	norule	ok	Pass
TC002_01_03	ImgSize12mb	Maximum 2mb	Not accepted	Pass

UC002_02: e.g. upload item (itemName)

Test Case ID	Input data	Expected result	Actual result	Pass / Fail
TC002_02_01	Shoes	accepted	Show name	Pass
TC002_02_02	#$$shoes	Format wrong	Item notcomplete	Pass

1.3 Test TC003 for Module1: <Name of Use Case (Add Product)>

UC003_01: e.g. add product(any)

Test Case ID	Input data	Expected result	Actual result	Pass Fail
TC003_01	{image,name,title,id}	Successfully upload product details	Get user info	Pass
TC003_02	{ }	Error message indicating missing required fields	ok	Pass
TC003_03	{image,name,title,id}	unsupported format (e.g., .gif, .bmp	Not accepted	Fail

1.4 Test TC004 for Module1: <Name of Use Case (Accepting a Product)>

UC003_01: e.g. add product(any)

Test Case ID	Input data	Expected result	Actual result	Pass Fail
TC004_01	- Seller receives a product request for a listed item.	Seller chooses to "Accept" the request.	Get user info	Pass
TC004_02	- Seller receives a product request for a listed item.	- Seller chooses to "Reject" the request.	ok	Pass

2.0 TEST APPROACH ANALYSIS

UC001: selected Item

Item_id

EP class 1 (valid): < Item_id =”1dse_Image_item”

EP class 2 (invalid): Item_id =”Null”

BVA values for Item_id**:** Null 1dse_Image_item

Buy item

EP class 1 (valid): categorytype =sculptor

EP class 2 (valid): categorytype = draw

EP class 3 (invalid): categorytype =”null”

BVA values for categorytype sculptor, daraw, null

UC002: Upload Item

img

EP class 1 (valid): img =”example.png’

EP class 2 (valid): img =”example.jpeg”

EP class 2 (invalid): img =”example.web”

BVA values for img**:** example.png, example.jpeg, example.web

itemName

EP class 1 (valid): Itemname = “ monaliza”

EP class 2 (invalid): Itemname =”empty”

EP class 2 (invalid): Itemname =”$35c”

BVA values for ItemName: 35c, monaliza, empty

Appendix C Software Design Documentation

1. INTRODUCTION

1.1 Purpose

The project's software requirements specification (SRS) document outlines the functions and development procedures for the software. The functioning of the product and its requirements to satisfy stakeholders' needs were the main topics of this document. Through this documentation, we are able to better comprehend the software by learning what data must be acquired about the product. This document's objective is to demonstrate product information that is necessary prior to the design phase, such as learning about the product's goal, target market, hardware requirements, software needs, and functionality.

1.2 Scope

Market analysis: Conduct a thorough market analysis to identify potential competitors, target audiences, and market trends in the art industry.
User research: Conduct user research to understand about the requirements and preferences of artists and art fans for online art sales and purchases.
Design and usability: Develop a user-friendly and aesthetically pleasing website that encourages engagement and easy navigation for users.
Security and privacy: Implement robust security and privacy safeguards to safeguard users' personal and financial information.
Payment integration: Integrate payment gateways to make it easy for buyers to make purchases and for sellers to receive payments.
Community building: Build a community of artists and art enthusiasts through social media integration and user-generated content.
Marketing and promotion: Develop a marketing and promotion plan to reach potential customers and build brand awareness.
Data analytics: Use data analytics to track user behaviour and preferences, improve user experience, and optimize the marketplace for better performance.

Legal compliance: Ensure the platform complies with all relevant laws and regulations, such as copyright and tax laws.

1.3 Definitions, Acronyms and Abbreviation

Definitions of all terms, acronyms and abbreviation used are to be defined here.

1.4 References

- Schwaber, K., & Beedle, M. (2001). Agile software development with Scrum. Prentice Hall.
- Turner, R., & Ramesh, B. (2000). The impact of agile development methods on software quality. IEEE Software, 17(4), 25-31.
- Google Developers. (2023, January 25). Flutter. Retrieved June 23, 2023, from https://flutter.dev/
- Palmer, W. (2018). The artist's guide to marketing and self-promotion. New York, NY: Watson-Guptill.
- Artnet News. (2022, January 20). The rise of the online art marketplace. Artnet News.

1.5 Overview

The project aims to develop a mobile application that serves as an online marketplace connecting emerging artists directly with potential buyers. This platform allows artists specializing in drawings, paintings, and sculptures to showcase, promote, and sell their artwork. By eliminating intermediaries like galleries, the marketplace provides artists with a fair platform to reach a global audience, enhancing their visibility and economic opportunities

2. SYSTEM ARCHITECTURAL DESIGN

2.1 Architecture Style and Rationale

Architectural Design and Reason We chose MVC as an appropriate design for our project because it focuses primarily on how the software interacts with the system. Users want to use a useable program to feel comfortable. Thus we place more emphasis on user interfaces. The following are some benefits of the MVC pattern: Since the code is separated into three parts, it is much easier to divide and organize the functionality of web applications into large-scale apps. The main benefit of employing the MVC pattern is that it makes it easier to locate certain code sections and add new features rapidly. The MVC pattern provides a developer with instructions on transforming their concepts into code, which is helpful in the early stages of program creation. It is also a great way to simplify code duplication and simplify program maintenance. MVC allows for adding and updating new views without ever affecting the main design. As a result, the application is more flexible and scalable.

2.2 Architecture Model

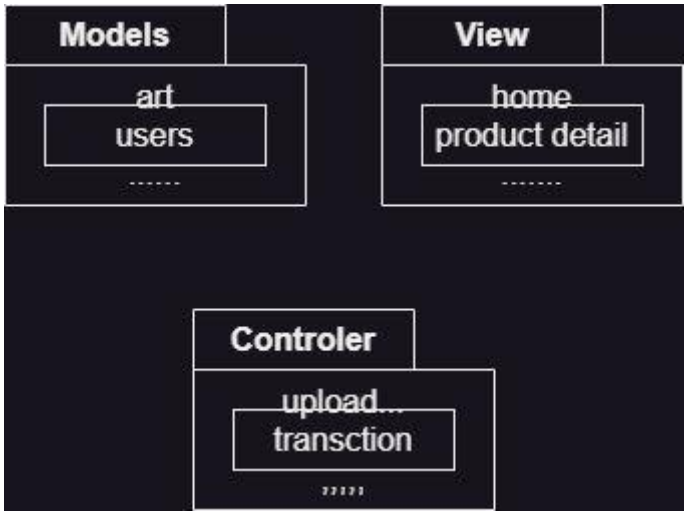


Figure 2.1: Component Model of <Name of the System>

2.3 Use Case Diagram

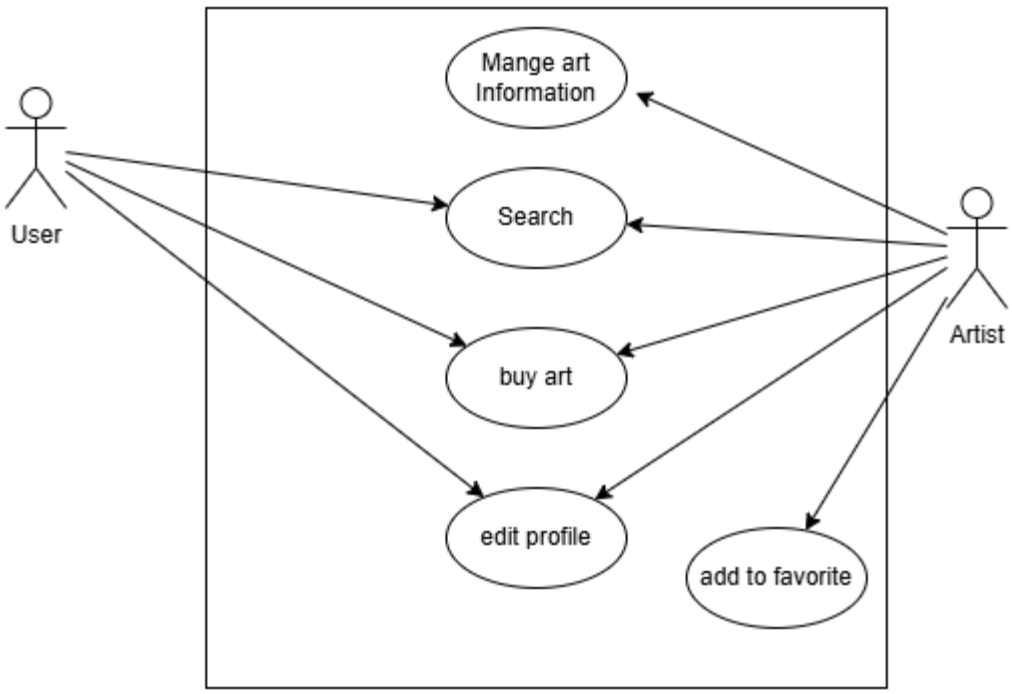


Figure 2.2: Use Case Diagram of <Name of the System>

3. DETAILED DESCRIPTION OF COMPONENTS

3.1 Complete Package Diagram

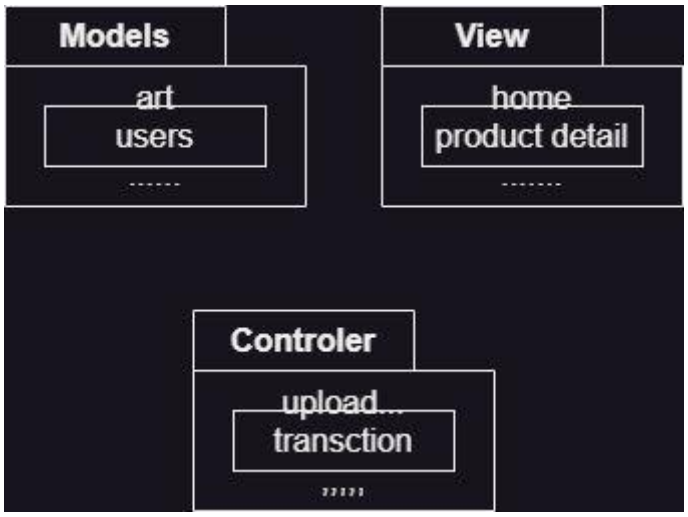


Figure 3.1: Subsystem of <Name of the System>

3.2 Component Model

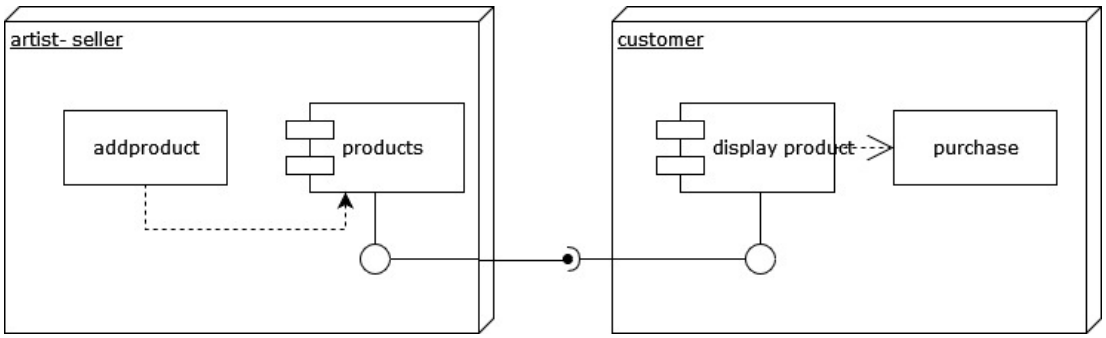
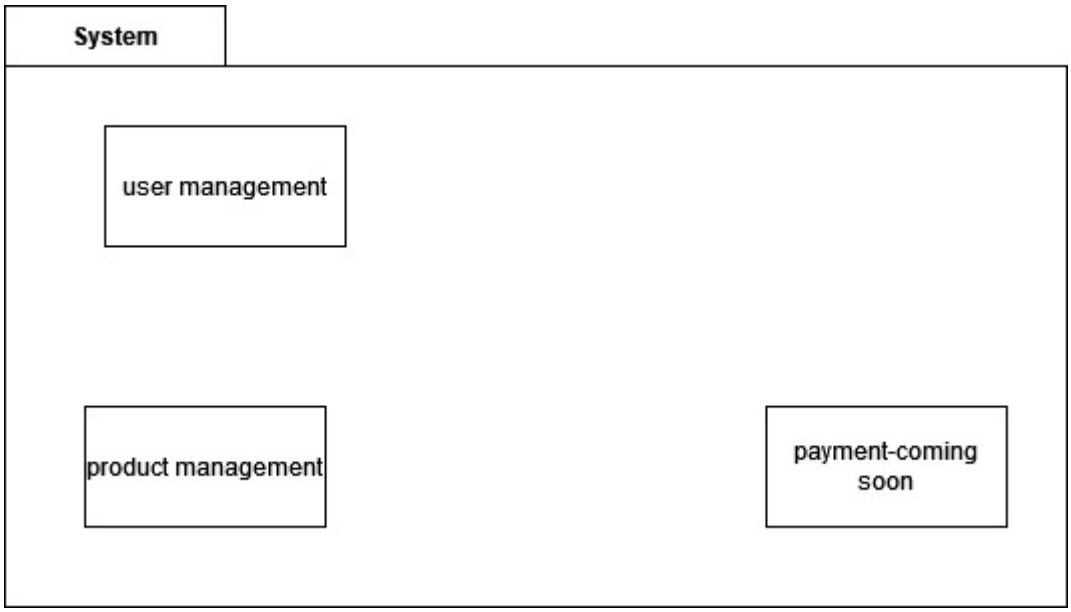


Figure 3.2: Component Diagram of

3.3 Detailed Description

The detail description pf the project , is all about , how exactly each part of the system built, as shown in the diagram, most focus is on how an artist share his her product, then a customer can do several operation on it.

3.3.1 Subsystem <Name of Subsystem1>



3.3.1.1 P001: Package <user management>

User management is mostly about how the admin handle the situation and user accounts like check if necesory after an artist or a user register and they might did something out of the software rules , and removing their account is a simple example

3.3.1.2 P001: Package <product management>

User management is mostly about how the products that are being uploaded by artists and all its operaiotions from uploading it till selling it.

3.3.1.3 P001: Package <payment management>

This subsystem will be added soon because in Kurdistan most people use first Iraqi bank and fast pay not other credit card, and getting their api is costly.

3.3.1.4 Class Diagram

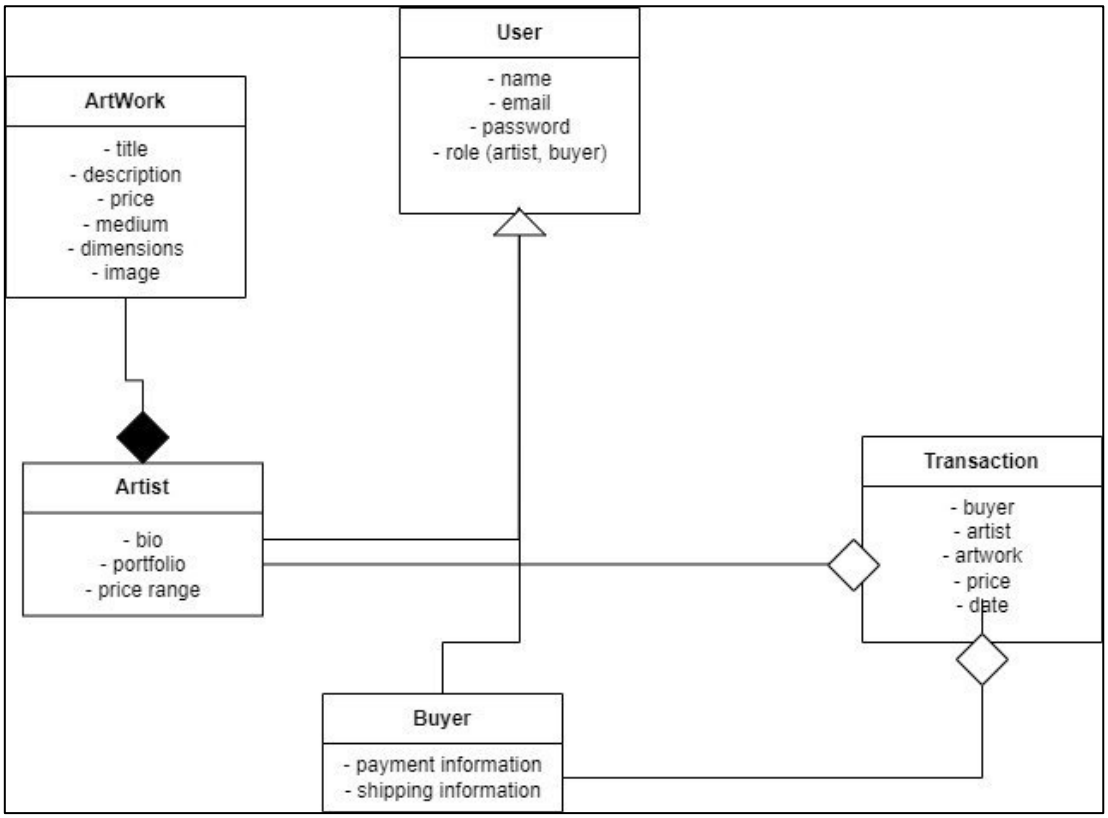
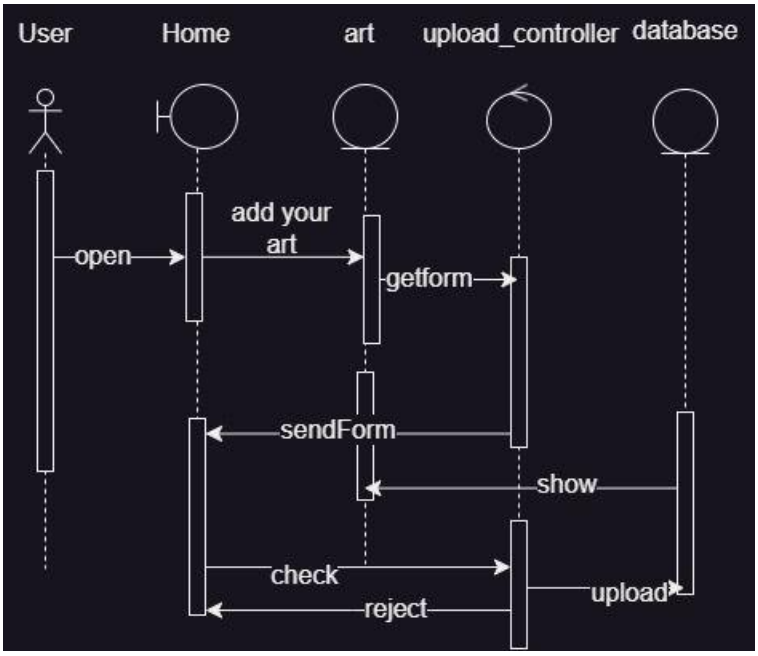


Figure 3.2: Class diagram for <sale app>

3.3.1.5 Sequence Diagrams



a) SD001: Sequence diagram for upload product

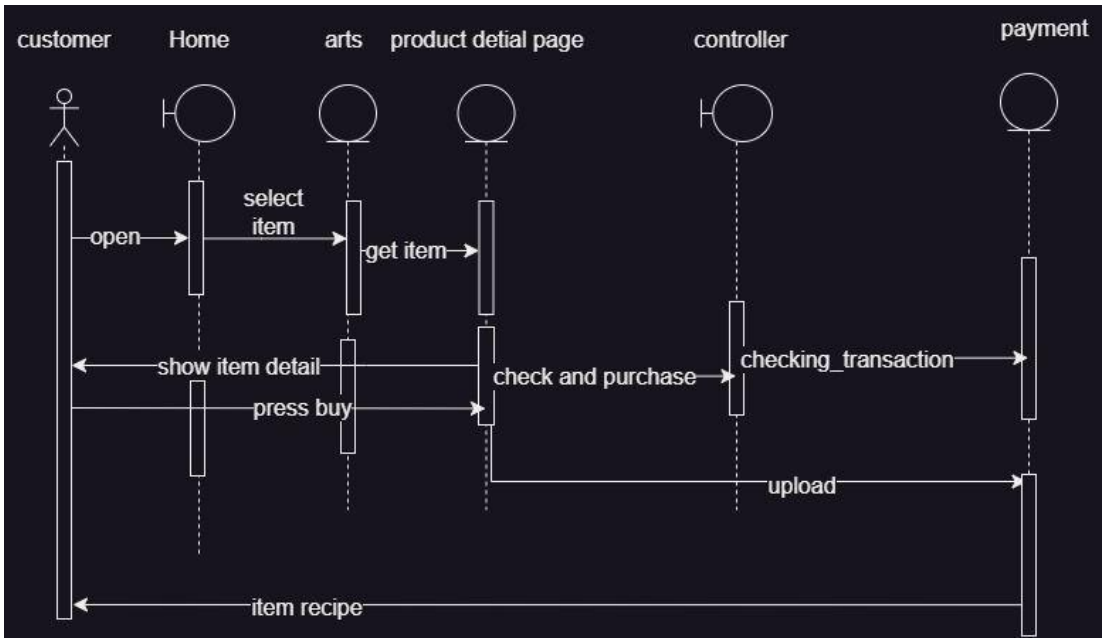


Figure 3.3: Sequence Diagram of <purchase arts >

/

3.3.2 Subsystem <Name of Subsytem2>

3.3.2.1 P002: Package <MVC art sale>

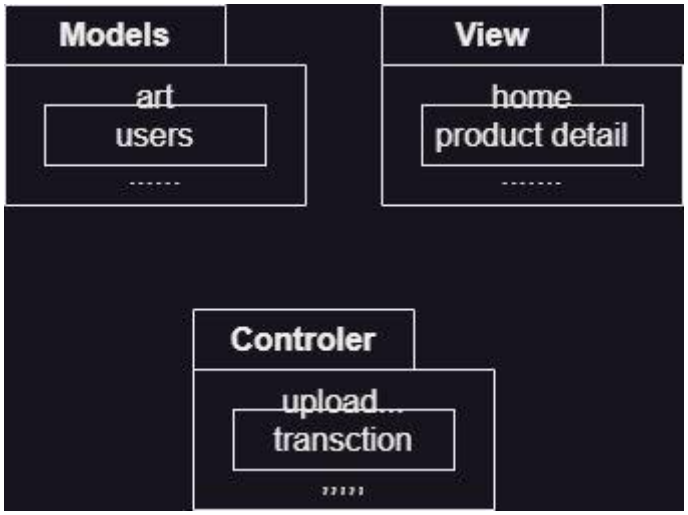


Figure 3.4: Sequence Diagram of <Cancel an Order scenario>

3.3.3 Subsystem <Name of *n* Subsystem>

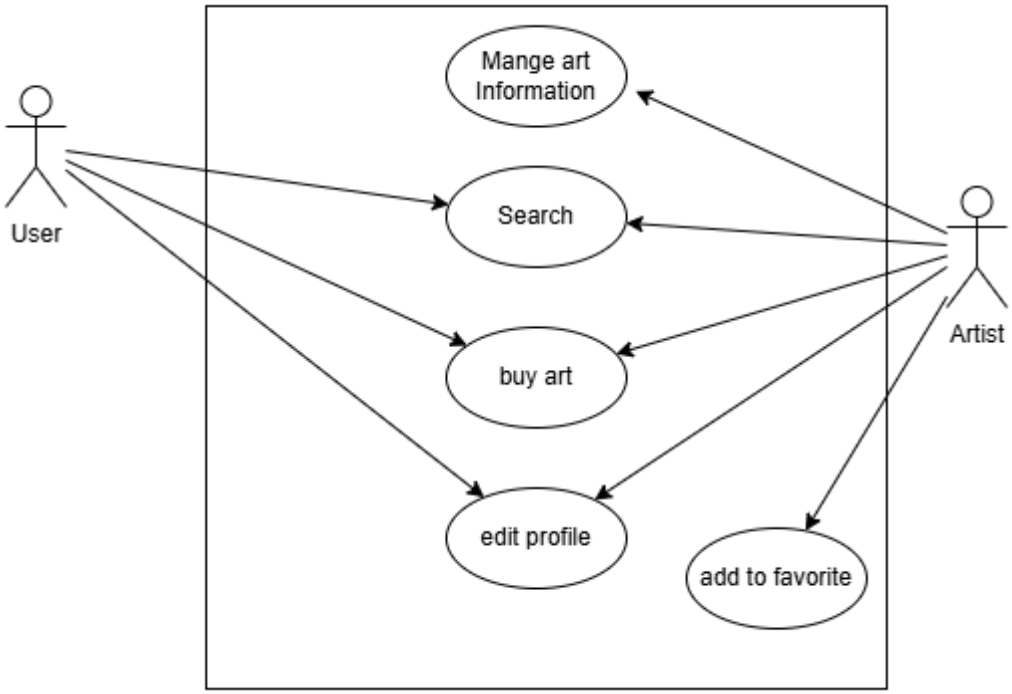


Figure 3.5: Use case Diagram of <Cancel an Order scenario>

4. DATA DESIGN

4.1 Data Description

Table	Columns	Description
User	id	Unique identifier for the user (auto-generated)
	name	Name of the user
	email	Email address of the user
	password	Password for the user account
	role	User role (artist or buyer)
Artwork	id	Unique identifier for the artwork (auto-generated)
	title	Title of the artwork
	description	Description of the artwork
	price	Price of the artwork
	medium	Medium used to create the artwork (e.g., oil on canvas, watercolor)
	dimensions	Dimensions of the artwork
	image	Image file name or URL for the artwork
	artist_id	Foreign key referencing the user table (id of the artist who created the artwork)
Transaction	id	Unique identifier for the transaction (auto-generated)
	artwork_id	Foreign key referencing the artwork table (id of the artwork being sold)
	buyer_id	Foreign key referencing the user table (id of the user who bought the artwork)
	payment_info	Payment information provided by the buyer
	shipping_info	Shipping information provided by the buyer
	status	Status of the transaction (e.g., pending, completed, canceled)

4.2 Data Dictionary

Column Name	Data Type	Description
id	INT	Unique identifier (primary key)
artwork_id	INT	Foreign key referencing the Artwork table (artwork being sold)
buyer_id	INT	Foreign key referencing the User table (buyer who purchased the artwork)
payment_info	TEXT	Encrypted payment information provided by the buyer
shipping_info	TEXT	Buyer's shipping address
status	VARCHAR(255)	Status of the transaction (e.g., pending, completed, canceled)

Column Name	Data Type	Description
id	INT	Unique identifier (primary key)
name	VARCHAR(255)	User's full name
email	VARCHAR(255)	User's email address
password	VARCHAR(255)	Hashed password for security
role	VARCHAR(10)	User's role (artist or buyer)

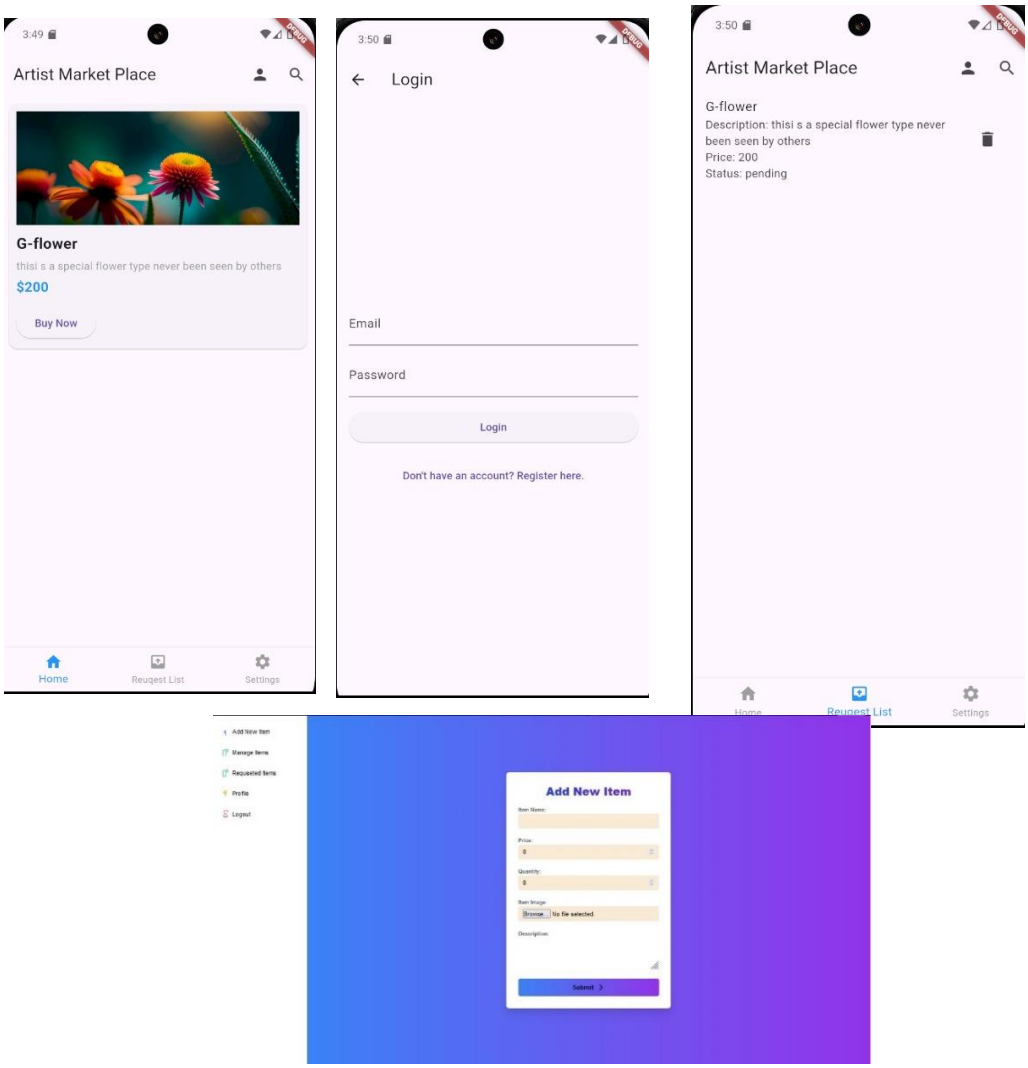
Column Name	Data Type	Description
id	INT	Unique identifier (primary key)
title	VARCHAR(255)	Title of the artwork
description	TEXT	Detailed description of the artwork
price	DECIMAL(10,2)	Price of the artwork
medium	VARCHAR(255)	Medium used to create the artwork
dimensions	VARCHAR(255)	Dimensions of the artwork (e.g., width x height)
image	VARCHAR(255)	File name or URL for the artwork image
artist_id	INT	Foreign key referencing the User table (artist who created the artwork)

5. USER INTERFACE DESIGN

5.1 Overview of User Interface

I am going to design a flexible and usable user interface for an art sale app. I will use clear and concise language, simple and intuitive navigation, and a variety of visual elements. I will make the app responsive and mobile-first. I will also consider the needs of different users, use relevant keywords, provide clear instructions, and offer support. I believe that by following these principles, I can create an app that is easy to use and enjoyable for users

5.2 Screen Images



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