WEB- SYSTEM FOR SELLING ARTISTIC PAINTINGS FOR PEOPLE WITH SPECIAL NEEDS

WEB PROJECT (1)

FWD291

Full Stack Web Developer

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In the end, the support and help from people around us we think it is necessary to thank them, we thank our professors and colleagues who have been supportive of us throughout the project.

Abstract

We recognized the need for a platform to empower individuals with disabilities and support their artistic talents. Through developing this web-based system, our team aims to address the socio-economic challenges faced by people with special needs in expressing their creativity and gaining meaningful employment.

Our system provides an inclusive and accessible digital marketplace specifically designed for artists with diverse abilities to display market and sell their paintings.

By leveraging modern web technologies, our solution aims to promote cultural enrichment, empowerment and social inclusion for users. This project represents our effort to utilize technical skills learned in our academic program to positively impact the community. We hope that our system serves as a step towards greater accessibility, opportunities and recognition for disabled artists.

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Chapter 1: Introduction

1.1 Introduction

The web-based system we propose is designed to provide assistance to individuals with disabilities, commonly referred to as "people of determination," who are actively seeking employment opportunities. This innovative platform focuses on harnessing their artistic talents by allowing them to submit their own artistic paintings for display and potential sale. By doing so, the system aims to serve as a valuable resource that not only facilitates income generation but also promotes the development and refinement of their artistic skills.

The primary objective of this web-based system is to address the unique challenges faced by people of determination when seeking employment. Traditional job search methods may not always cater to their specific needs or provide opportunities that align with their artistic abilities. This system aims to bridge this gap by providing a dedicated platform that showcases their artistic talent and connects them with potential employers or buyers who appreciate their work.

By leveraging the power of the web, this system offers a user-friendly interface where individuals with disabilities can easily upload their artwork and create a comprehensive profile highlighting their artistic skills. The system provides a space for them to showcase their unique style, technique, and creativity, giving them a platform to express themselves artistically.

1.2 Problem Definition

People with disabilities face great challenges in displaying and selling their artwork due to physical or mental disability, and difficulty accessing or dealing with traditional platforms. These difficulties prevent them from achieving independence and investing in effective artistic talent. There is an urgent need to provide a dedicated electronic web system through which they can display and sell their paintings easily and securely, giving

them the opportunity to achieve financial returns, improve the quality of life, and become financially independent.

The electronic system includes several tasks:

1. Artwork Display:

The website allows showcasing the artwork created by artists with disabilities. The artwork is presented attractively and professionally to capture the attention of potential buyers.

2. User Account Creation:

The website enables artists with disabilities to create personal accounts containing their personal information and details about their artwork. They can upload images, describe the artwork, set prices, and communicate with buyers.

3. Purchasing and Payment:

The website provides a secure and reliable interface for purchasing and making payments. Buyers can browse the artwork, select pieces they wish to purchase, and complete the buying process easily and securely.

4. Communication between Artists and Buyers:

The website facilitates direct communication between artists and buyers. Buyers can ask questions or request more information about the artwork before making a purchase. Similarly, artists can respond to inquiries, provide advice or guidance to buyers.

5. Promotion and Marketing:

The website promotes and markets the artwork of artists with disabilities to the target audience. Digital marketing tools and social media platforms can be utilized to promote the artwork and attract buyer interest.

6. Shipping and Delivery:

The website can provide options for shipping and delivering the artwork to buyers. Shipping and delivery processes are organized reliably and efficiently to ensure safe delivery of the artwork to buyers.

7. Order and Sales Management:

The website offers an interface for managing orders and sales. Artists can monitor the status of orders, track sales, and generate financial reports to track their performance and improve their marketing strategies.

8. Customer Support:

The website provides customer support to resolve issues or answer inquiries that may arise during or after the purchasing process. Contact methods such as email or live chat are provided to communicate with the support team.

9. Awareness and Education:

The website can serve as a source of awareness and education about issues related to individuals with disabilities and inclusive art. Educational resources and specialized articles can be provided to increase general awareness and encourage the community to support and respect the rights of artists with disabilities.

1.3 Project Objectives

A specially designed electronic system aims to achieve several goals for people with disabilities. Its main objective is to promote inclusive employment by providing job opportunities that enhance their technical abilities and serve as an alternative to traditional employment options. The system also contributes to the development of their artistic skills

by encouraging them to create and showcase their artwork, thereby exploring their creativity.

Additionally, the system offers a sustainable source of income by marketing and selling their artworks to interested individuals. It provides people with disabilities a platform to express themselves and share their artistic visions with the public, thus increasing awareness and appreciation for their abilities.

In general, the system aims to empower people with disabilities to pursue their artistic passions and achieve well-being and independence by providing equal and supportive opportunities for them.

1.4 Project Scope

The project scope for our web-based system for displaying artistic paintings for people with special needs includes defining the specific features and functionalities that will be developed. This encompasses aspects such as artwork display, user account creation, purchasing and payment processes, communication between artists and buyers, promotion and marketing strategies, shipping and delivery options, order and sales management, customer support services, and awareness and education initiatives. The scope also outlines the boundaries of the project by specifying what will not be included, ensuring a clear focus on the core objectives of enhancing accessibility and inclusivity in art appreciation for individuals with special needs. By defining the project scope, we aim to create a well-deSfined roadmap for the development process, guiding us towards successfully implementing a user-friendly platform that caters to the unique requirements of our target audience .

1.5 Project Timeline

PROJECT TIMELINE

JANUARY 2024	FEBRUARY 2024	MARCH 2024	APRIL 2024	MAY 2024
01	02	03	04	05
- Project inception meeting with supervisor - Finalize project objectives, scope and timeline - Commence literature review and research	- Complete literature review - Define system requirements - Draft functional and non-functional requirements - Design system architecture	- Define use cases and flow charts - Design class, sequence and activity diagrams - Design relational database schema - Draft user interface prototypes	- Develop project management and version control plans - Draft full system design chapter - Implement revisions based on supervisor feedback	- Complete initial coding and testing - Finalize report draft for submission - Compile references and appendices

Figure 1.5-1 Project Timeline

Task Name	Task ID	Task ID2	Start	Days
Project start date:		45305		
Scrolling increment:		5		
Chapter 1 : INTRODUCTION			15/01/2024	
INTRODUCTION	wafaa			3
PROBLEM DEFINITION	Reema	Milestone		1
PROJECT OBJECTIVES	Raneem	Low Risk		10
PROJECT SCOPE	Reem	Milestone		1
DOCUMENT ORGANIZATION	Anoud	Med Risk		6
CHAPTER 2: LITERATURE REVIEW			05/02/2024	
INTRODUCTION	Reema	High Risk		13
BACKGROUND	Raneem	On Track		9
RELATED WORK AND SIMILAR SYSTEMS	wafaa	Low Risk		11

CHAPTER 3: PROJECT			15/03/2024				
REQUIREMENTS		On Track		4			
Functional Requirements And Non-Functional Requirements	Reema	Med Risk		8			
Use Case Diagram	Raneem	On Track		15			
Flow Chart	Anoud	Goal		7			
DEVELOPMENT METHODOLOGY	wafaa	Low Risk		6			
CHAPTER 4: SYSTEM DESIGN			04/04/2024				
ARCHITECTURAL DESIGN	all	Med Risk		5			
OBJECT ORIENTED DESIGN	all	High Risk		5			
Class Diagram	all	Milestone		8			
Sequence Diagram	all	High Risk		9			
Activity Diagram	all	On Track		10			
DATABASE DESIGN	all	Milestone		12			

1.6 Document Organization

Chapter 1: introduces the project by focusing on creating a web-based system to assist individuals with disabilities in showcasing their artistic talents for employment opportunities. It addresses the challenges faced by people of determination and aims to bridge the gap by providing a platform for them to display and potentially sell their artwork. The chapter outlines the primary objective, which is to promote inclusive employment and support the development of artistic skills among individuals with disabilities.

Chapter 2: delves into the literature review, background study, related work, and similar systems. It provides a comprehensive understanding of foundational concepts, theories, and historical context relevant to the project. The chapter aims to explore existing research and knowledge pertinent to the subject matter to inform the project's objectives and methodologies effectively.

Chapter 3: focuses on project requirements and system analysis. It discusses the feasibility study, functional and non-functional requirements, high-level architecture, and development methodology. The chapter aims to define the scope of the project, outline key requirements for the deliverables, and provide insights into the design and development process of the proposed web-based system.

Chapter4: In this chapter presents the system design considering the main dimensions of our proposed system. Further, it discusses the various aspects of system design, including architectural, object-oriented, Database design, and user interface design.

Chapter 2: Literature Review

2.1 Introduction

The literature review and background study chapter play a crucial role in providing a comprehensive understanding of existing research, theories, and knowledge relevant to our project's subject matter. This section serves as the foundation for our exploration into the background information necessary for contextualizing the objectives and methodologies of our web-based system for displaying artistic paintings for people with special needs. By delving into foundational concepts, theories, and historical context pertinent to our project, we aim to gain valuable insights that will inform the development and implementation of our innovative platform. Through this literature review, we seek to identify best practices, learn from prior research and similar systems, and leverage existing knowledge to create a robust and effective solution that caters to the unique needs of individuals with disabilities.

2.2 Background

We were exploring opportunities for our graduation project where we could apply our technical skills to positively impact our community. After some research, we discovered how individuals with disabilities often face challenges participating in cultural and creative activities due to physical, financial or social barriers.

We were inspired by initiatives we found that were using digital platforms to increase arts accessibility worldwide. Through web-based galleries, personalized creative tools and virtual communities, people of all abilities were gaining new avenues to experience and share in visual arts. However, we noticed a lack of centralized high-quality offerings tailored for our local population.

This gave us the idea to develop a custom web application targeting this niche. Through our coursework, we had learned best practices for designing intuitive interfaces, structuring dynamic content management systems, and optimizing websites for assistive technologies. We were confident we could leverage these skills to build an engaging online art showcase and marketplace.

Further background reading helped establish a strong understanding of disability issues, art therapy benefits, and entrepreneurship barriers facing socially disadvantaged groups in our society. We aimed to ground our project concept and features firmly based on real user needs and feedback.

As web developer students with a drive for learning through hands-on projects, we saw this as an ideal opportunity to both sharpen our technical skills and contribute value through a meaningful community-focused application.

2.3 Related work and Similar Systems

This section reviews prior research, studies, projects, and similar systems related to the topic of the graduation project will be discussed. Discussion includes the overview of the system, their features, advantages, and disadvantages.

1) **Creative Growth**.

Figure 2.3-11 Creative Growth.

About the project:

This website seeks to display the art of creative growth for people of determination in the state of California. The center aims to provide artists with special needs and provide

them with a space full of joy for creativity to flourish. Artistic shots are shown on a regular basis But part of the money for selling paintings goes back to the artist himself, and the other part goes back to the site .

Goals:

1. Enabling artists with developmental or mental disabilities to work and become self-reliant

2. Creative Growth seeks artistic communication between artists with disabilities and the broader artistic community, with the aim of increasing understanding and appreciation of their abilities and creativity.

3. Creative Growth works to provide opportunities to display and promote the work of artists with disabilities, with the aim of encouraging interest, purchase and professional support.

The importance of the project:

It is a website that seeks to empower and promote artists with disabilities, enhance understanding and appreciation of their artistic abilities, and help them achieve success and independence in the field of art and culture.
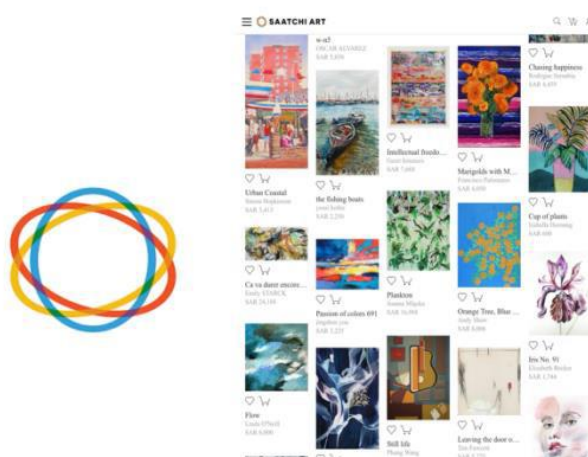
2) Saarhi art

Figure 2.3-2 2 Saarhi art

It is an online arts website that serves as a global marketplace for contemporary art. Founded in 2006, it offers a platform for artists to showcase and sell their artwork directly to a global audience.

The main objectives of the project:

1. The website aims to provide an interface for artists to display their artwork and communicate with a global audience. Artists can create a gallery of their work and display it professionally and clearly.

2.Saatchi Art offers artists an opportunity to sell their work directly to potential buyers around the world. The site contains thousands of different artworks in various styles and media.

3. The site is interested in encouraging new artists and providing opportunities for emerging artists to display their work and reach a wider audience. It also provides opportunities to mentor emerging artists and develop their careers.

Target groups:

The category is artists with special needs and art community buyers and investors.

3) ArtPal

It is an online platform for selling artwork. The platform aims to support artists and enable them to showcase and sell their artwork to a wider audience.

Benefits:

1. ArtPal provides a simple and easy-to-use interface.

2. Artists can reach a global audience through the platform.

3. ArtPal does not impose monthly fees; it only takes a commission when artwork is sold.

Drawbacks:

1. ArtPal imposes a commission on sales.

2. There is significant competition on the ArtPal platform.

3. Artists are responsible for managing their own gallery on ArtPal.

Canvas Art

It is a Saudi Arabian online store specializing in the sale of art canvases. It is one among several e-commerce stores in the Kingdom of Saudi Arabia that offers a wide variety of art canvases.

Pros:

1. Canvas Art provides a wide selection of art pieces.

2. The store is committed to offering high-quality artwork.

3. It offers flexible delivery options and multiple payment methods.

Cons:

1. The prices of art canvases at Canvas Art can be high.

2. They may charge a commission on sales.

2.4 Summary

This chapter provided our team with valuable insights gathered from reviewing literature in both theoretical and applied works. The key findings from our background study and related projects analysis will help strengthen our system requirements. We have a more informed understanding of user needs and technical considerations to develop a impactful solution catering to people with special needs.

Chapter 3: Project Requirements and System Analysis

3.1 Introduction

In this chapter, the proposed system is analyzed by a comprehensive discussion of feasibility study and functional and non-functional requirements. Further, it discusses the high-level architecture and the development methodology to be followed to achieve the project.

3.2 Requirements

In This section we summarizes the functional and non-functional requirements of the projects' deliverables. Depending on the nature of the requirements, they will be categorised in to two categories, functional and non-functional.

3.2.1 System Hardware and Software

Hardware:

We utilized laptops with Core i5 processors, 8GB RAM, and SSD storage to carry out the work.

Software:

We installed XAMPP on our machines to test the backend functionalities. We also used Draw.io to document requirements and design workflow diagrams and database schemas.

Methodology:

We conducted interviews with potential users to understand their needs and pain points. We also examined similar platforms to identify best practices. We documented all requirements and designed workflow diagrams and database schemas.

Technology Stack for Minimum Viable Product (MVP):

Front-end:

We plan to use HTML, CSS, and JavaScript for the front-end interfacing.

Back-end:

We plan to use PHP with MySQL for the back-end.

Additional Considerations:

We expect that various additional plugins and libraries may be required as well.

This report summarizes our initial phase of analysis and planning. In the second phase next term, we will focus on building out the core features and functionalities of the web application to launch a basic version. Ongoing testing and feedback will help us refine and enhance the system over multiple iterations.

3.2.2 Functional Requirements

1. User Registration and Profile Creation: Users should be able to create an account and provide relevant information such as personal details, contact information, and artistic skills.

2. Artwork Submission: Users should be able to upload their artistic paintings through a user-friendly interface. The system should support various image formats and provide options for adding descriptions and tags to the artwork.

3. Artwork Management: Users should be able to edit, delete, or update the information associated with their submitted artwork.

4. Artwork Display: The system should provide a visually appealing gallery of artwork, allowing users to browse and view paintings submitted by people of determination.

5. Search and Filter: Users should be able to search for specific artwork based on keywords, artist name, or other relevant criteria. The system should also provide filtering options to refine search results.

6. Artist Profile: Each user should have a dedicated profile page that showcases their artwork, bio, and contact information. Users should be able to customize their profile settings.

7. Sales and Transactions: The system should support the sale of artwork, providing users with options to set prices, manage inventory, and handle transactions securely.

8. Notifications: Users should receive notifications about sales, comments, likes, and other activities related to their artwork or profile.

9. Social Interaction: Users should be able to interact with each other through comments, likes, shares, and private messaging.

10. Accessibility Features: The web-based system should be designed with accessibility in mind, ensuring compatibility with assistive technologies and providing features like text-to-speech, high contrast modes, and keyboard navigation.

3.2.3 **Non-Functional Requirements**

1. Usability: The system should have an intuitive and user-friendly interface, making it easy for people of determination to navigate, upload artwork, and manage their profiles.

2. Performance: The system should be responsive and provide fast loading times for artwork and profile pages. It should be able to handle a large number of concurrent users without significant performance degradation.

3. Security: The system should implement secure authentication and authorization mechanisms to protect user accounts and sensitive information. It should also have measures in place to prevent unauthorized access, data breaches, and malicious activities.

4. Scalability: The system should be designed to handle a growing number of users and artwork submissions. It should be able to scale its resources, such as storage and processing power, to accommodate increased demand.

5. Compatibility: The web-based system should be compatible with different web browsers, operating systems, and devices to ensure a wide reach and accessibility for users.

6. Data Backup and Recovery: The system should regularly backup user data to prevent loss in case of system failures or data corruption. It should also have a recovery mechanism in place to restore data if needed.

7. Performance Tracking and Analytics: The system should track and analyze user interactions, artwork views, sales, and other relevant metrics to provide insights for system improvements and business decision-making.

8. Multilingual Support: The system should support multiple languages to cater to a diverse user base.

9. Privacy: The system should adhere to privacy regulations and provide users with control over their personal information. It should have a clear privacy policy and obtain consent for data collection and usage.

10. Support and Documentation: The system should have comprehensive documentation and provide reliable customer support to assist users in case of any issues or queries.

3.3 System Design

This section highlights the design of the proposed system by illustrating the application flow via flowchart and use case diagram.

3.3.1 Use Case Diagram

Use case diagrams visually depict the interactions between system users and the system itself.
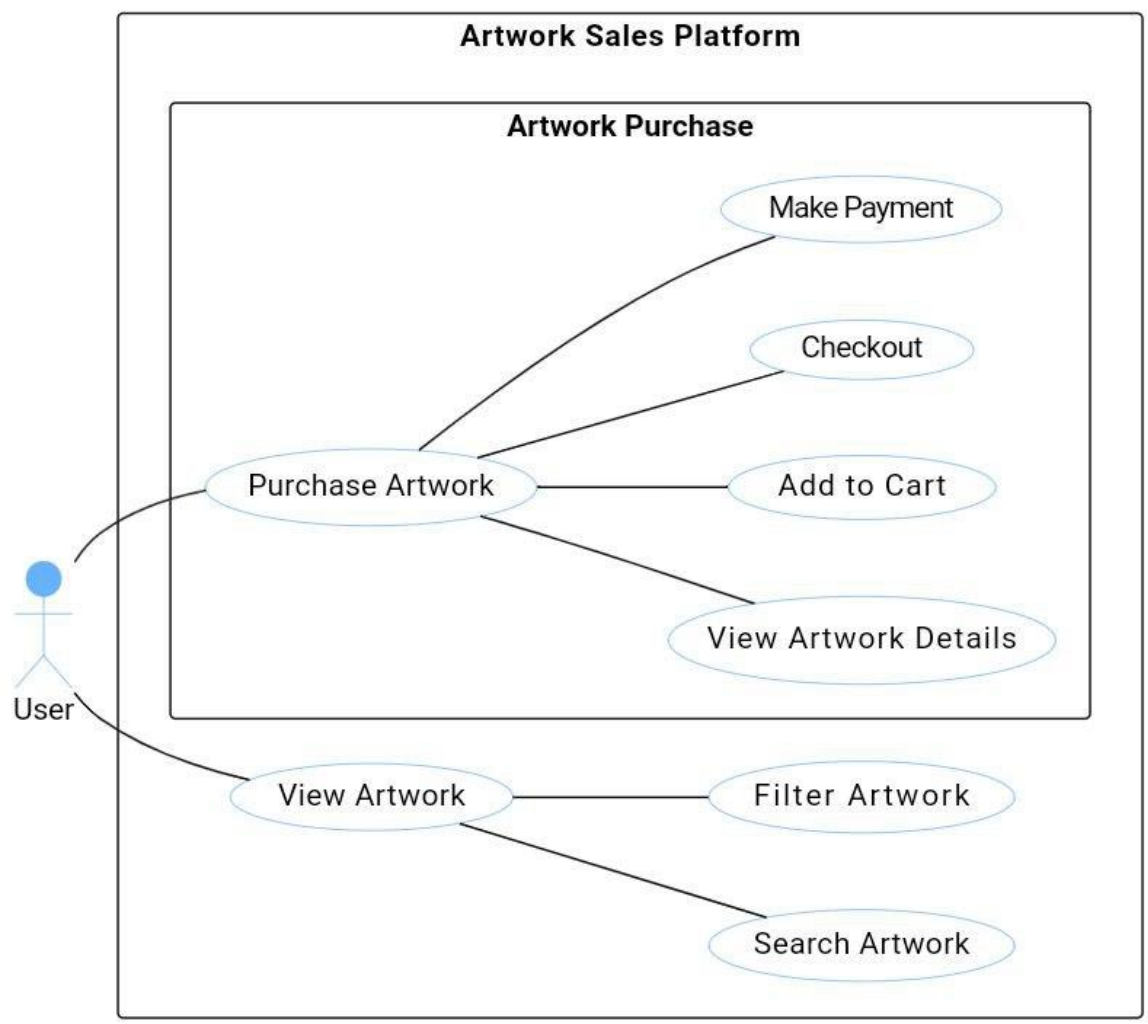
Figure 3.3-1 Use Case Diagram
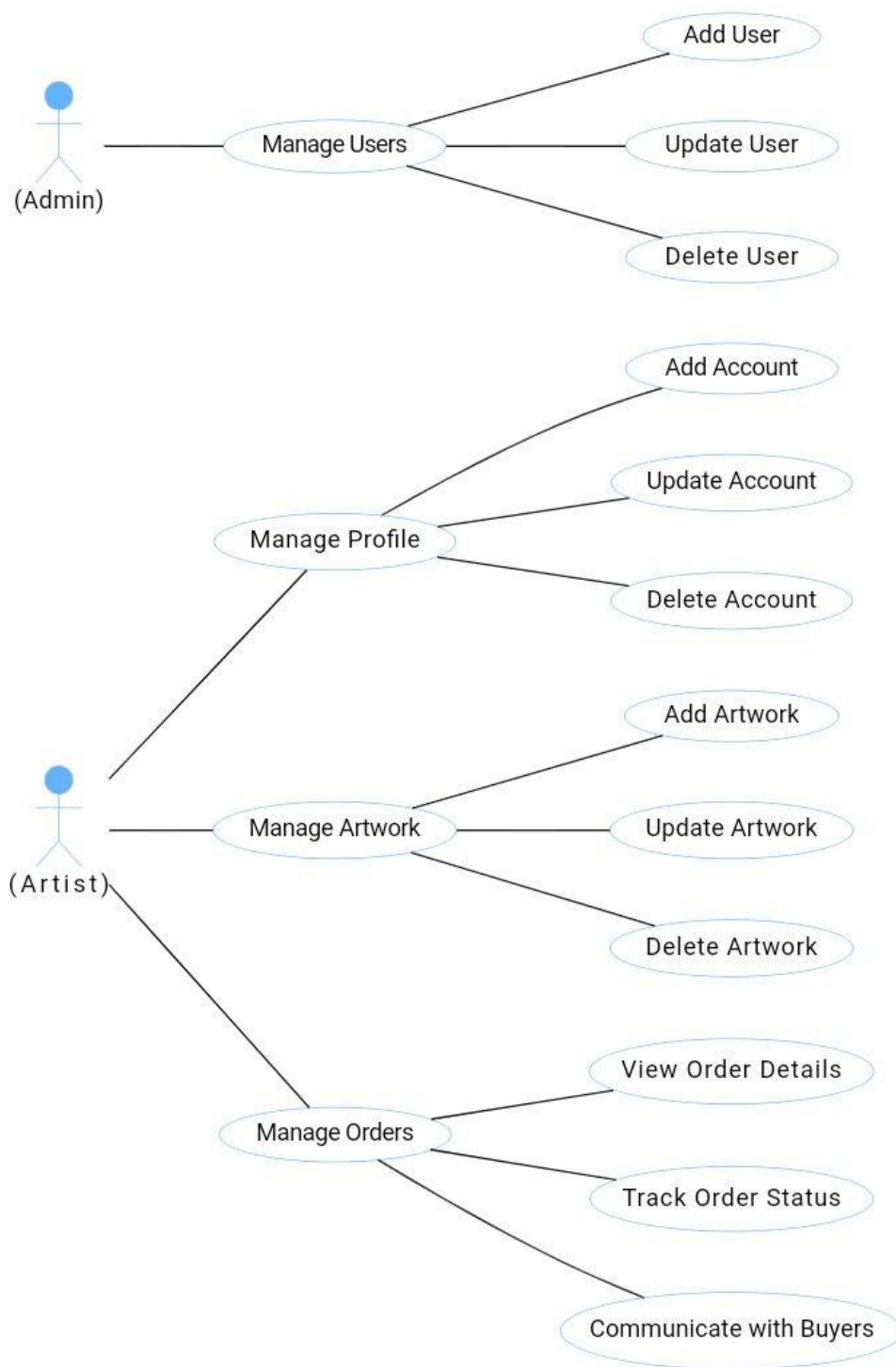
Figure 3.3-2 use case diagram 2

3.3.2 **Flow Chart**
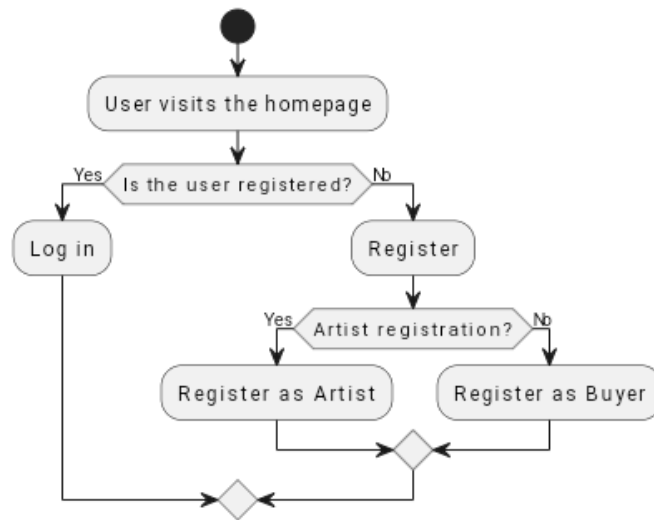
3.3.2.1 Homepage Navigation

Figure 3.3-3   Flow Chart 1

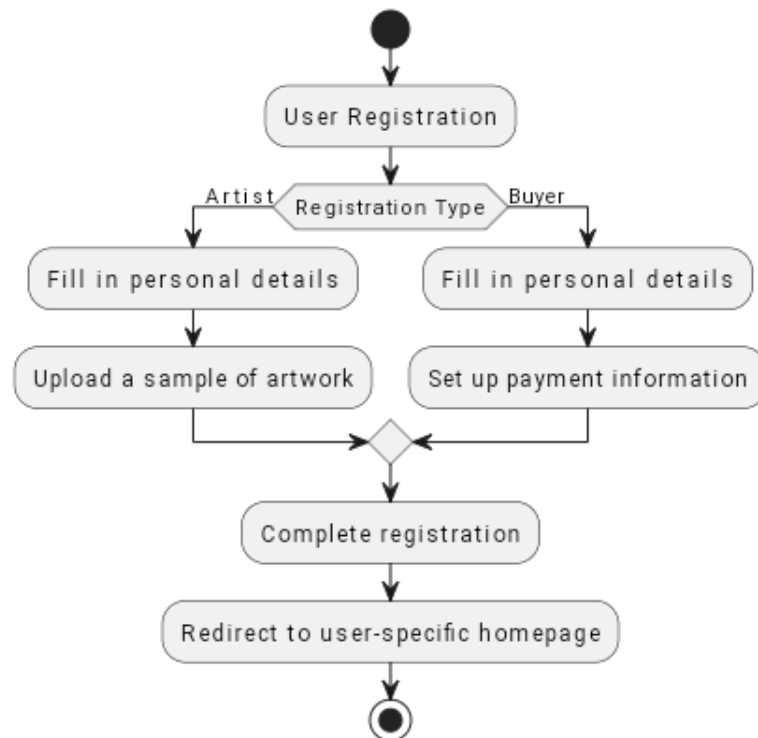### 3.3.2.2 User Registration

Figure 3.3-4 Flow Chart 2

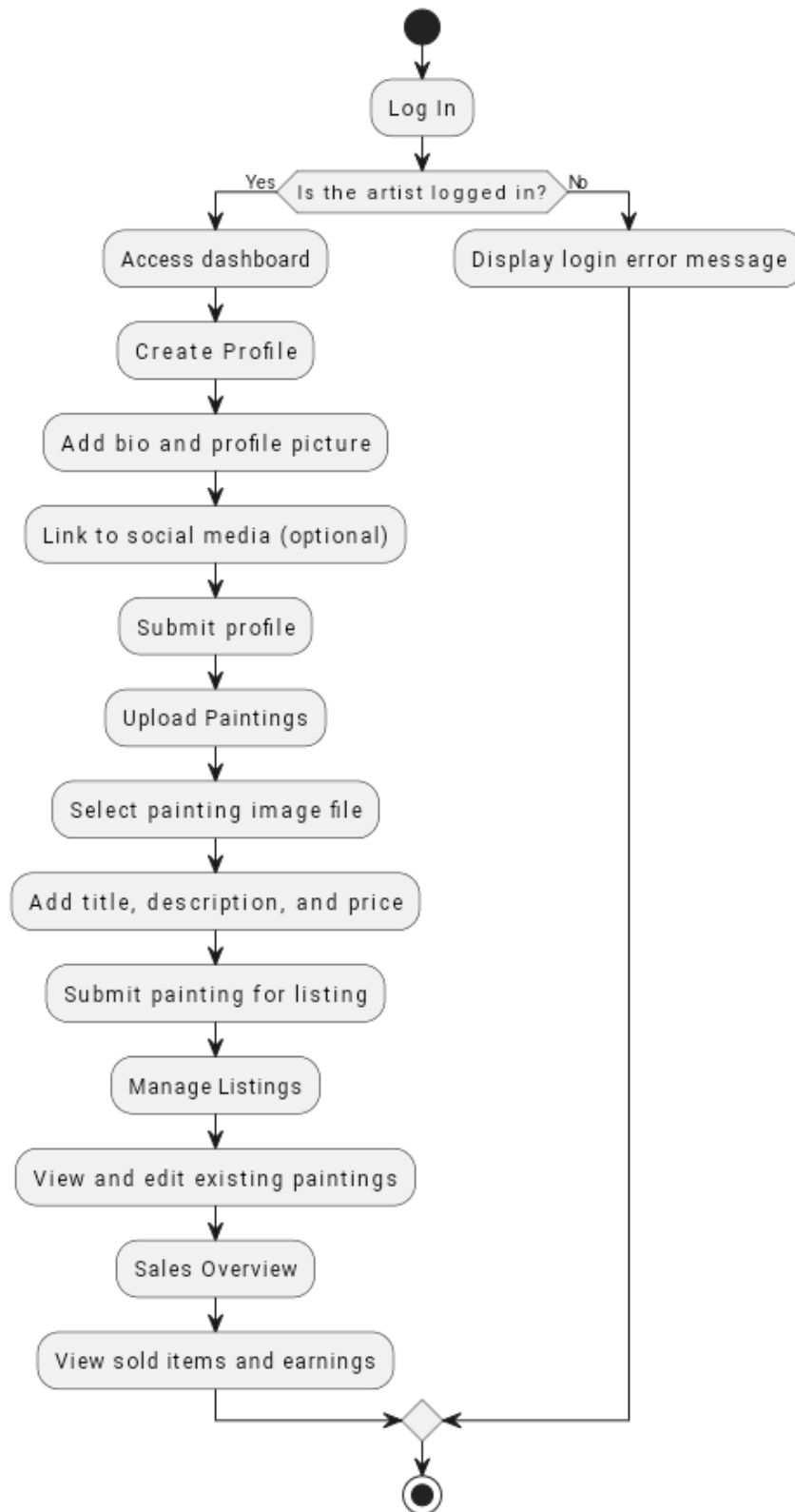### 3.3.2.3 Artist Profile Management

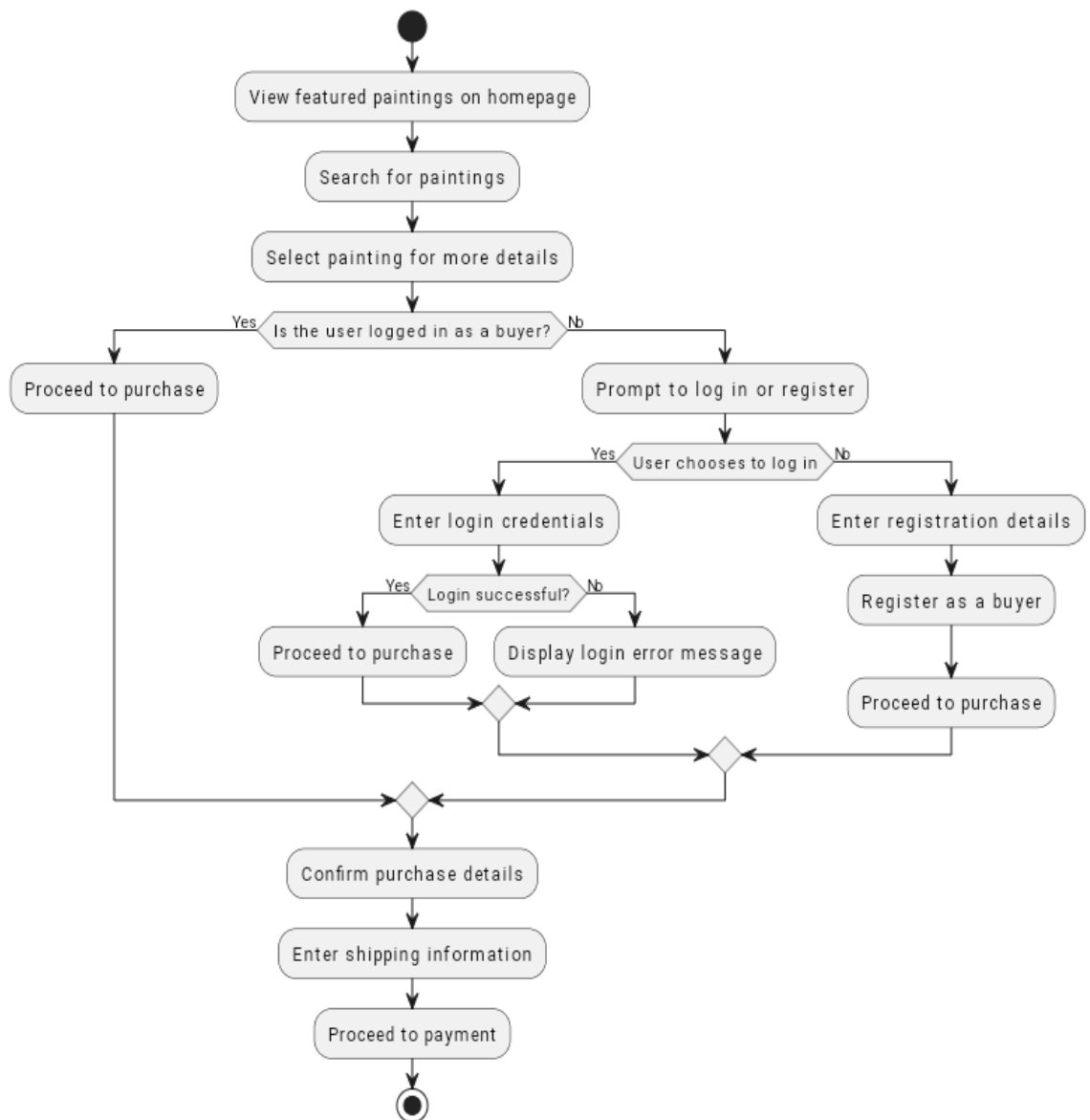
Figure 3.3-5 Flow Chart 3

3.3.2.4 Browsing and Purchasing

Figure 3.3-6 Flow Chart 4
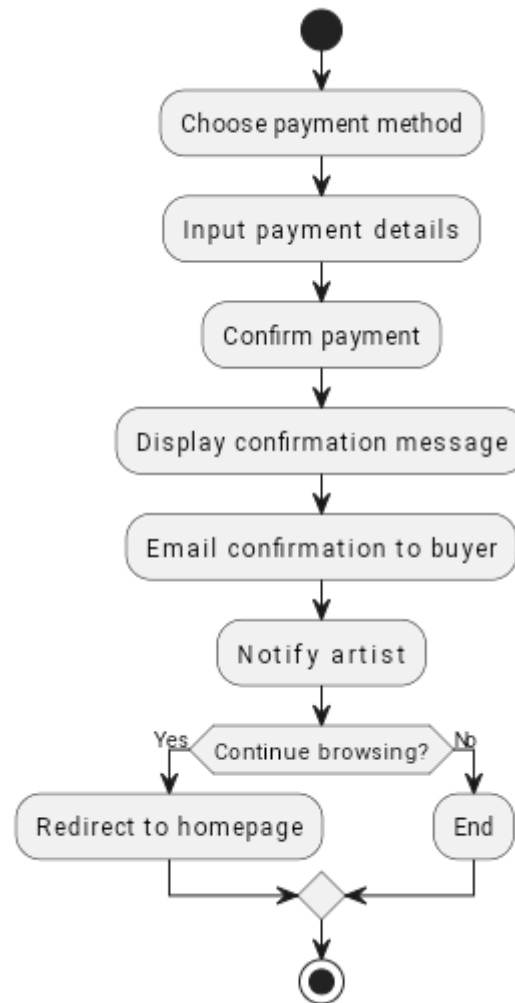
3.3.2.5 Payment Processing

Figure 3.3-7 Flow Chart 5

3.4 Development Methodology

There are different types of methodologies in SDLS.

1- V-model Development Methodology

2- Parallel Development Methodology

3- Iterative Development Methodology

4- Agile Development Methodology

5- System proto-typing Development Methodology

6- Throwaway Prototyping Development Methodology

7- Waterfall Methodology

Waterfall Methodology

In this project, we will use this type because this model provides a structured approach through discrete phases that are easy to understand and interpret, provides easily identifiable milestones in the development process, and can be suitable for projects where scope requirements have been defined.

The waterfall methodology in developing the web system for panels for people of determination relies on organized and sequential stages, starting from collecting requirements all the way to periodic maintenance. The main steps include requirements gathering, system design, implementation, testing, deployment, and maintenance. This methodology aims to achieve structure and sequence in development, identify early requirements, improve product quality, ensure clarity and manage risks, which helps in developing a system that effectively meets the needs and expectations of people with special needs.
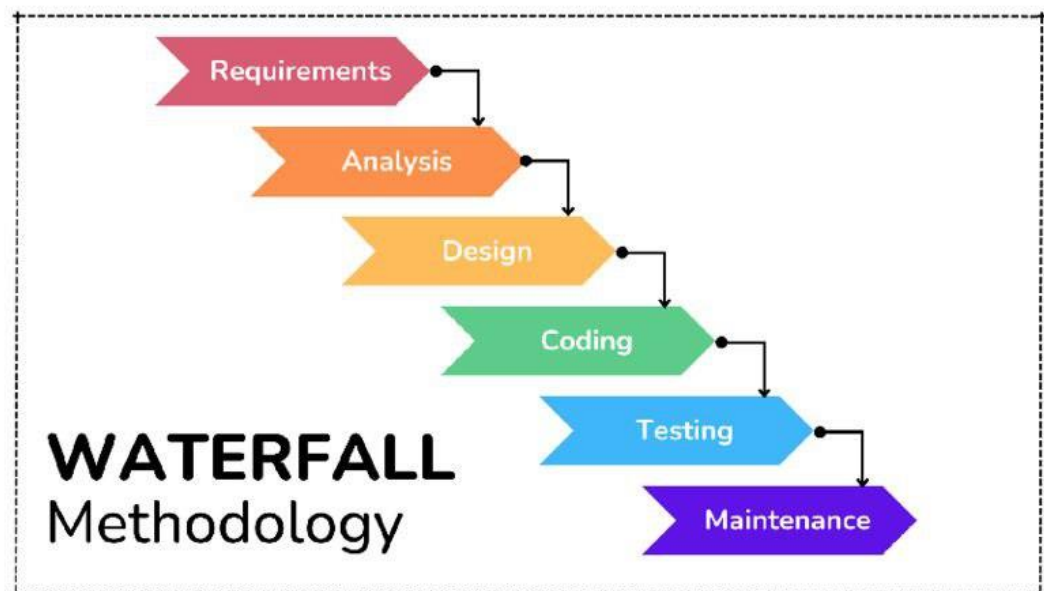
3.4.1 **Waterfall Methodology**

Figure 3.4-1 Waterfall Methodology

o Compare Methodologies:

Table 2   Compare Methodologies

Ability to develop systems	Waterfall	Parallel	V-Model	Iterative	System Proto-typing	Throwaway Prototyping	Agile Develop-ment
With unclear user requirement	Poor	Poor	Poor	Good	Excellent	Excellent	Excellent
With unfamiliar technology	Poor	Poor	Poor	Good	Poor	Excellent	Poor
That are complex	Good	Good	Good	Good	Poor	Excellent	Poor
That are reliable	Good	Good	Excellent	Good	Poor	Excellent	Good
With a short time schedule	Poor	Good	Poor	Excellent	Excellent	Good	Excellent
With schedule visibility	Poor	Poor	Poor	Excellent	Excellent	Good	Good

3.5   Summary

The chapter concludes with a summary of the project requirements and system analysis, encapsulating key insights and decisions that inform the subsequent phases of system development.

Chapter 4: System Design

4.1 Introduction

This chapter presents the system design considering the main dimensions of our proposed system. Further, it discusses the various aspects of system design, including architectural, object-oriented, Database design, and user interface design.

4.2 Architectural design

The proposed system is designed with a distributed architecture featuring three primary components: a web application, a database, and a payment gateway. The web application serves as the user interface, allowing artists to create profiles, showcase their artworks, and buyers to browse and purchase. The database stores all relevant data, including artwork details, user information, and transaction records. The payment gateway ensures secure and efficient payment processing. The system adheres to accessibility guidelines to ensure ease of use for users with disabilities.

4.3 Object Oriented Design
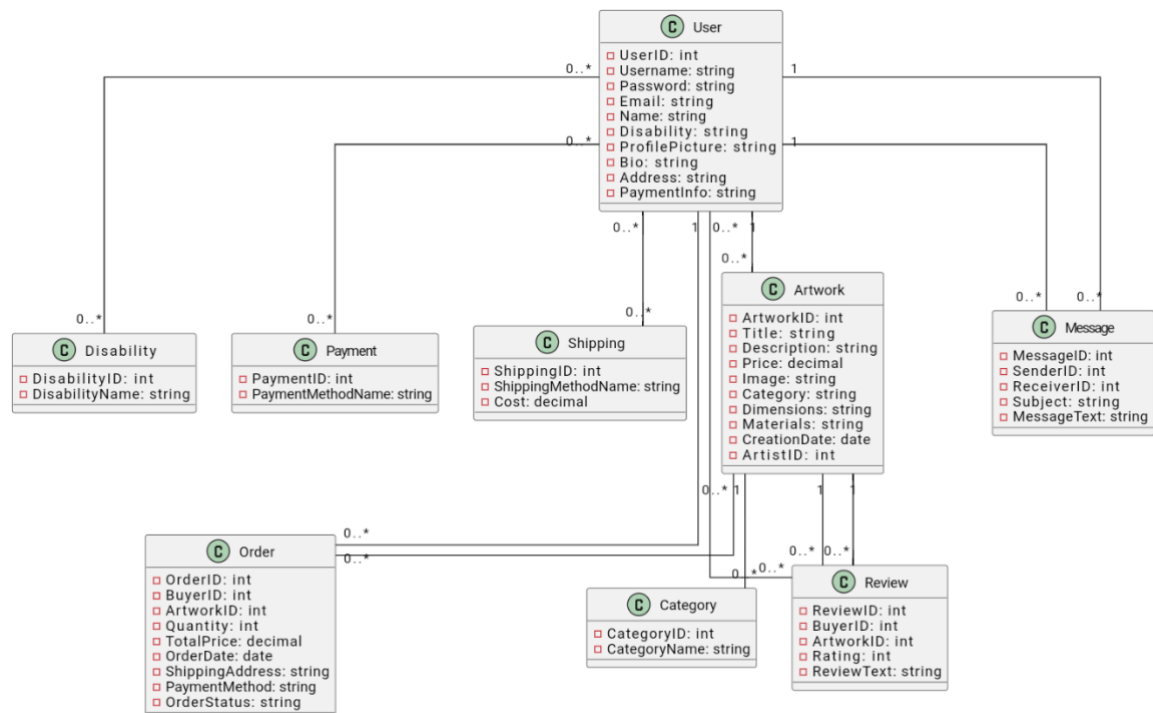
4.3.1 Class Diagram

Figure 4.3-1 Class Diagram

4.3.2 **Sequence Diagram**

4.3.2.1 Sequence Diagram 1: User Registration and Login
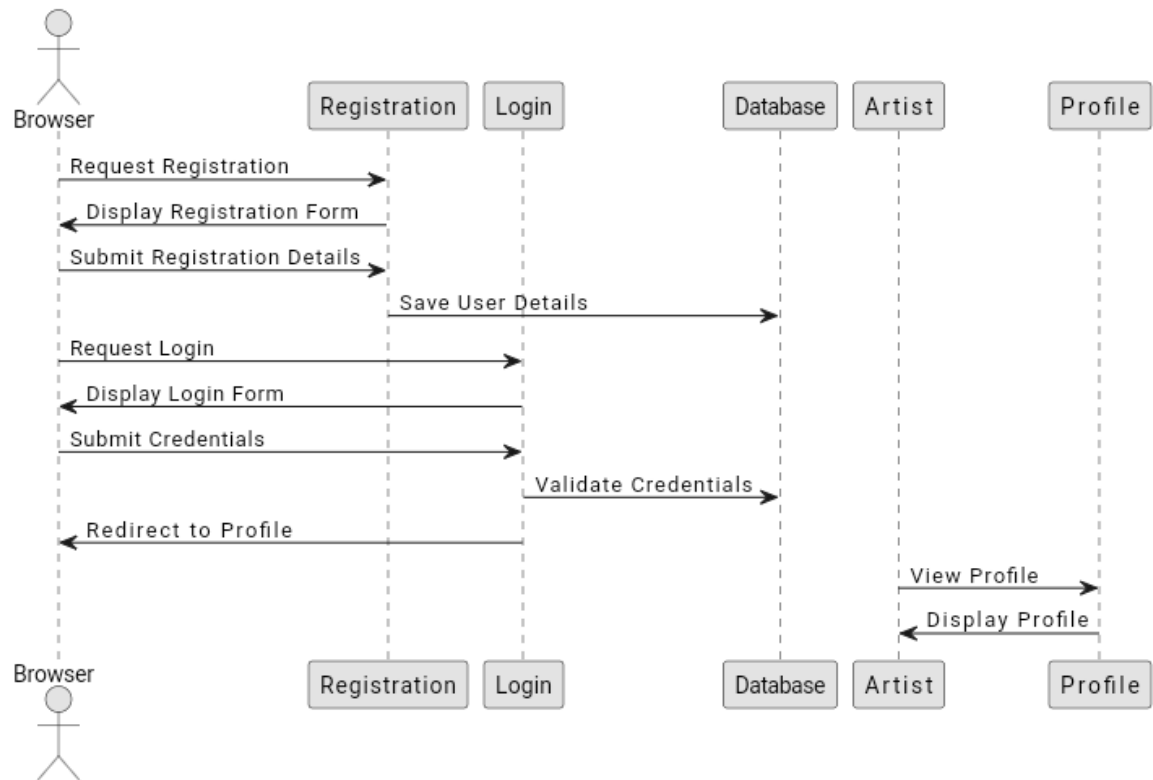
.

Figure 4.3-2 Sequence Diagram 1

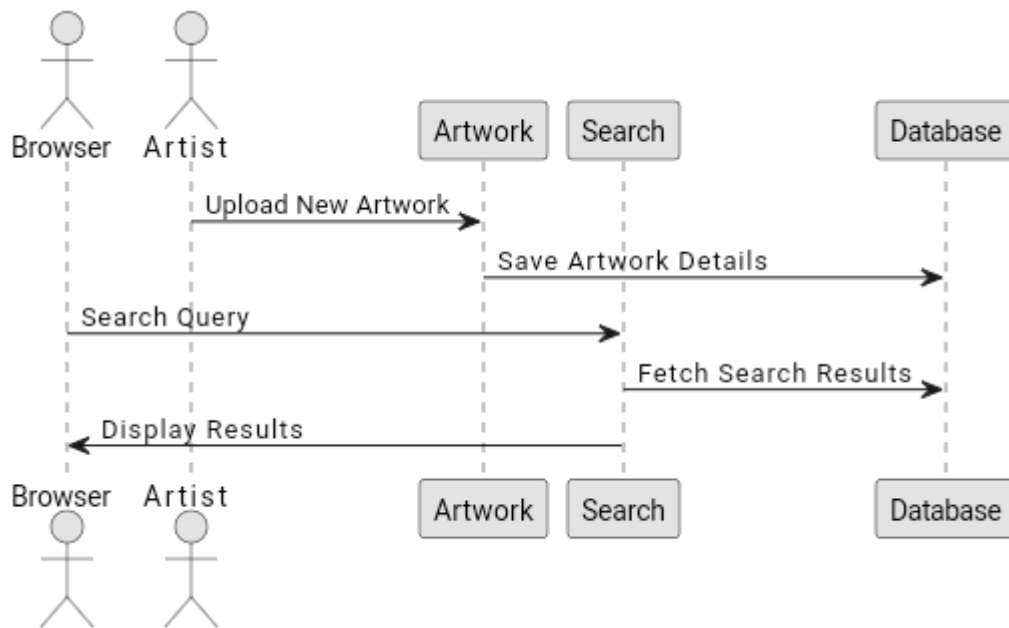## 4.3.2.2 Sequence Diagram 2: Artwork Upload and Search

Figure 4.3-3 Sequence Diagram 2

4.3.2.3 Sequence Diagram 3: Payment and Notifications
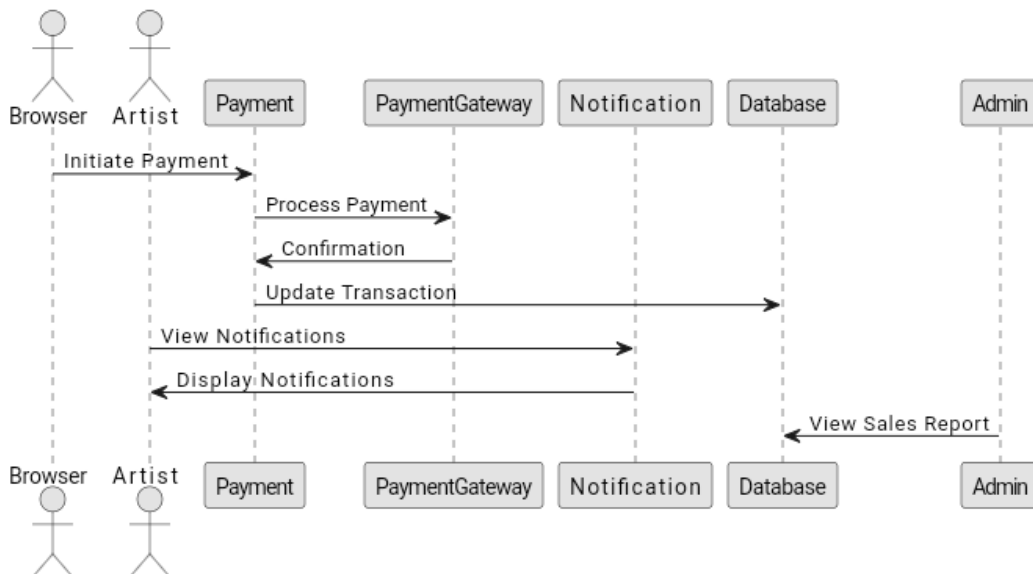

Figure 4.3-4 Sequence Diagram 3

4.3.3 **Activity Diagram**

Activity diagrams represent the workflow or procedural logic of a system, capturing the sequence of activities and decision points involved in a process.
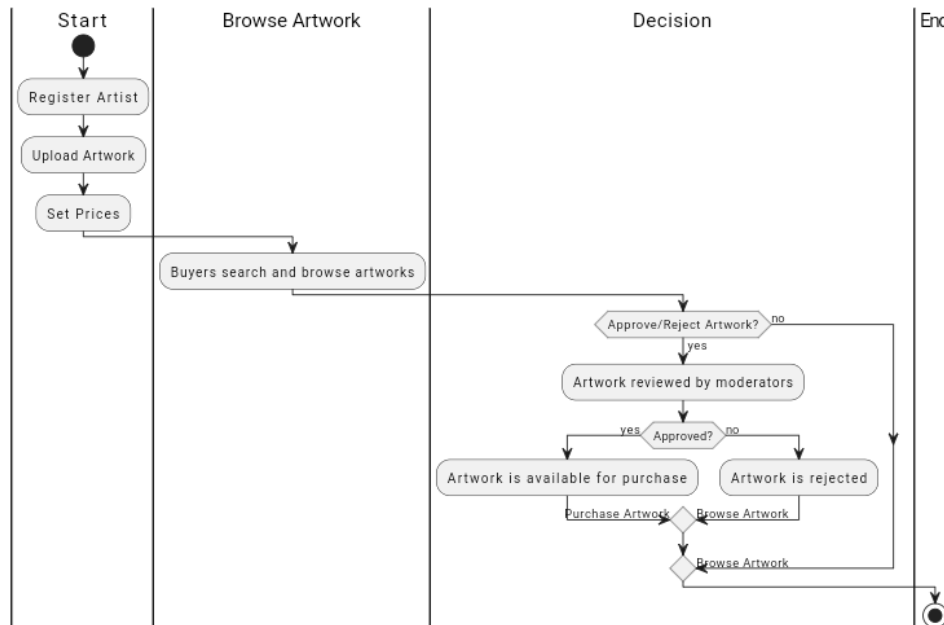
4.3.3.1 Activity Diagram 1: Artist Activities

Figure 4.3-5 Activity Diagram 1: Artist Activities

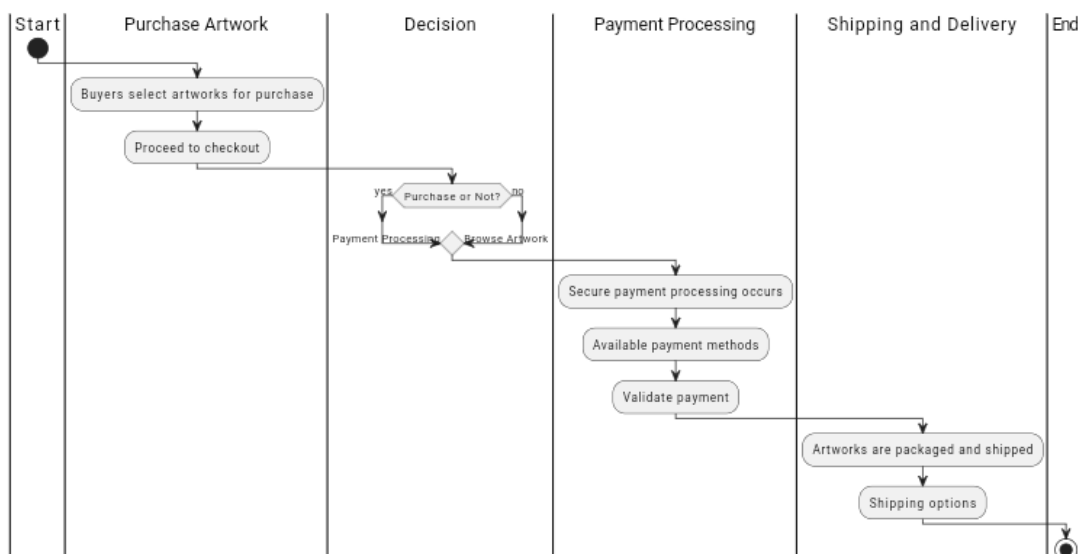#### 4.3.3.2 Activity Diagram 2: Buyer and System Activities

Figure 4.3-6 Activity Diagram 2: Buyer and System Activities

4.4 Database Design

This section focuses on the design of the system's database, including the creation of entity-relationship diagrams (ERDs) and schema definitions.
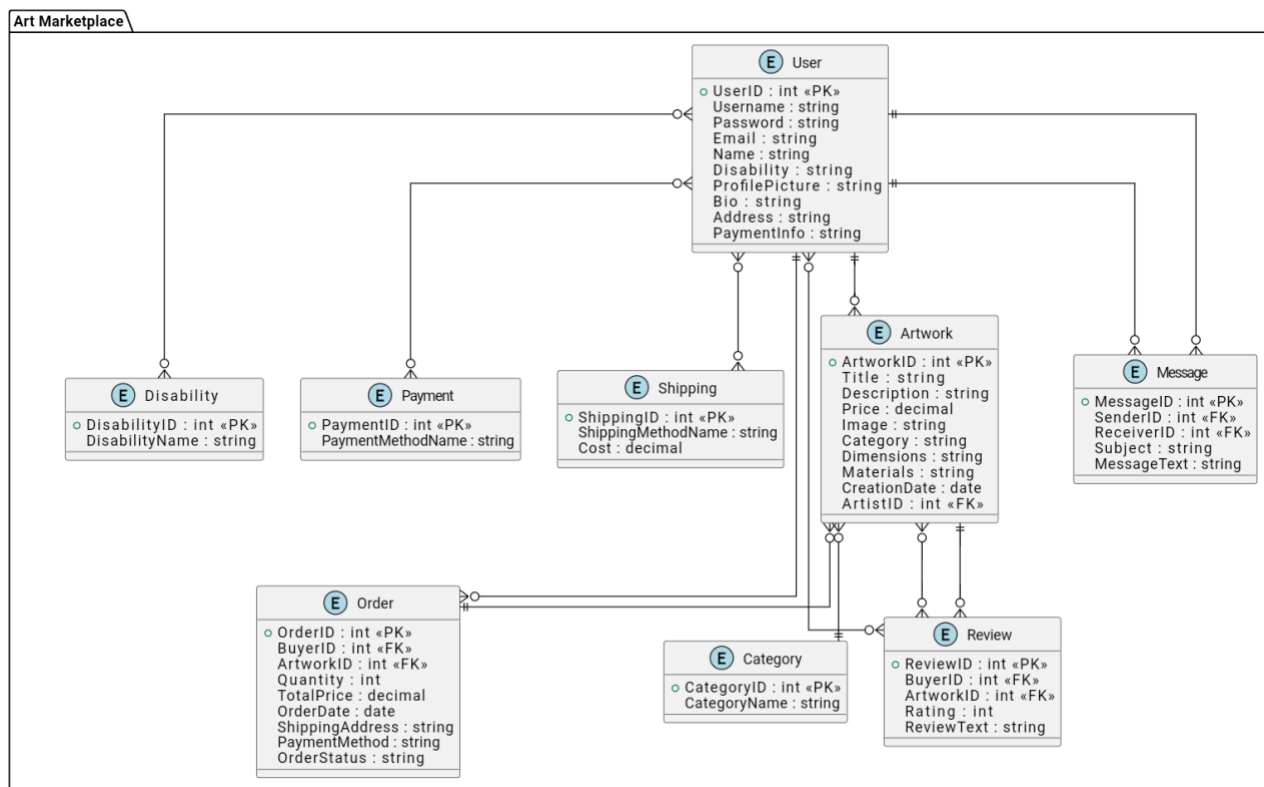

Figure 4.4-1 Entity-relationship diagrams (ERDs)

References

[1] P. Likarish, E. Jung, D. Dunbar, T. E. Hansen, and J. P. Hourcade, "B-APT: Bayesian Anti-Phishing Toolbar," 2008 IEEE International Conference on Communications, 2008, pp. 1745-1749, doi: 10.1109/ICC.2008.335.

[2] Phishing website dataset available at https://www.kaggle.com/

[3] http://s3.amazonaws.com/alexa-static/top-1m.csv.zip

[4] . https://github.com/mitchellkrogza/Phishing.Database/blob/master/phishing-domains-ACTIVE.txt