BAXSHIN: END OF WASTAGE

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BAXSHIN: END OF WASTAGE

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A thesis submitted in fulfilment of the
requirements for the award of the degree of
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School of Computing
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DEDICATION

This thesis is dedicated to my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time.

ACKNOWLEDGEMENT

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ABSTRACT

The Baxshin app is a platform that allows users to donate their unwanted items to others to reduce waste and promote sustainability. This report provides a comprehensive analysis of the Baxshin app, including a literature review of research on waste reduction and the use of technology to facilitate the donation of unwanted items, a current system analysis of the app's performance and functionality, and a comparison with similar apps. The report concludes with recommendations for future improvements and developments of the Baxshin app." This abstract provides a clear overview of the main points and focus of the report, including the purpose and goals of the Baxshin app, the key findings of the report, and its conclusions and recommendations.

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ANN	Artificial Neural Network
MAD	Mobile App Development

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Mobile application has gradually become a popular application software because it only requires inexpensive electronic devices such as mobile phones and tablets to operate. This paper therefore presents an Android and IOS mobile app application that allowed users to donate their items, A donation is a gift for charity, humanitarian aid, or to benefit a cause. A donation may take various forms, including alms, services, or goods such as clothing, toys, food, or vehicles. The donation application is an app for both android and IOS systems in which users they can put Items that they don't need to give to those who need it at the same time You can take other people's goods and items. As the app's name suggests, all the equipment that is placed and sold should be sold Be completely free and do not be eligible for any transactions, purchases, or sales. The application uses the appointment system in which if a user wishes would obtain a specific commodity must first send requests to the owner's user, and if the owner The client agreed to the request so the applicant could see all the information of the goods as a detailed information about the donator such as map (Location) and contact information.

1.2 Problem Background

Mobile applications have become increasingly popular due to their compatibility with affordable electronic devices such as mobile phones and tablets. This paper presents an Android and IOS mobile app that allows users to donate their items to those in need. The app is free to use and users can donate goods such as clothing, toys, food, or vehicles. The app uses an appointment system where users can request specific items from the owner's user, and if the owner agrees, the applicant can see all the information of the goods, including detailed information about the donator such as location and contact information. The app is similar to other donation apps such as Buengo, which allows users to sell items they no longer need and donate the earnings to a charity of their choice. Other mobile app ideas include a platform for students to sell, buy, borrow, or lend used school supplies, a parking spot locator app, and a tax management app. Mobile POS (mPOS) terminals are expected to replace contemporary payment techniques due to their mobility, upfront low cost investment, and better user experience.

1.3 Project Aim

The aim of a baxshin project, such as an app or platform that allows users to donatetheir unused or surplus items to others for free, is the overall goal or purpose of theproject. The aim of a baxshin project may be like its objectives, in that it outlines the specific benefits or outcomes that the project is intended to achieve.

1.4 Project Objectives

(a) . The objectives of a baxshin project, such as an app or platform that allows users to donate their unused or surplus items to others for free, can vary depending on the specific goals and focus of the project. Some possible objectives for a baxshin project might include:

(b) Reducing waste and promoting sustainability: One key objective of a baxshin project may be to encourage the reuse of items that would otherwise be discarded, in order to reduce waste and promote a more circular economy.

(c) Providing access to free goods for those in need: Another possible objective of a baxshin project could be to provide access to free goods for individuals or families who may be facing financial challenges or other barriers to accessing the items they need.

(d) Promoting community building and social connections: A baxshin project may also have the objective of promoting social connections and community building by facilitating the exchange of items between individuals.

Supporting local businesses and economies: By allowing individuals to donate or exchange items rather than purchasing new ones, a baxshin project may also have the objective of supporting local businesses and keeping money circulatinthe community.

1.5 Project Scope

The scope of a baxshin project refers to the boundaries and limits of the project and includes both the goals and objectives of the project as well as the resources and activities that will be used to achieve those goals.

In terms of the goals and objectives of a baxshin project, these may include reducing waste and promoting sustainability, providing access to free goods for those in need, and promoting community building and social connections. The scope of the project should be clearly defined to ensure that the project is focused and achievable within the available resources and time frame.

The scope of a baxshin project may also include the specific activities and resources that will be used to achieve the project's goals. This may include the development and maintenance of the baxshin app or platform, as well as any other activities such as marketing or outreach efforts to promote the project. The scope may also include the specific geographical area or target audience for the project, as well as any partnerships or collaborations that are involved.

It is important to clearly define the scope of a baxshin project to ensure that the project is well-defined and focused, and to help ensure the success of the project. By defining the scope, it is possible to identify the resources and activities that are needed to achieve the project's goals, and to allocate those resources in a way that is most likely to lead to success.

1.6 Project Importance

Baxshin projects, such as apps or other platforms that allow users to donate their unused or surplus items to others for free, can have a number of important benefits and impacts.

One key benefit of baxshin projects is that they can help to reduce waste and promote sustainability by encouraging the reuse of items that would otherwise be discarded.

This can help to reduce the environmental impact of consumerism and contribute to a more circular economy.

In addition, baxshin projects may also have social and economic benefits, such as reducing poverty and inequality by providing access to free goods for those in need. These projects may also promote community building and social connections by facilitating the exchange of items between individuals.

Baxshin projects can also be important in terms of supporting and promoting local businesses and economies. By allowing individuals to donate or exchange items rather than purchasing new ones, these projects can help to support local businesses and keep money circulating within the community.

Overall, baxshin projects can have several important benefits and impacts, including promoting sustainability, reducing poverty and inequality, and supporting local businesses and communities. These projects can be an effective way to encourage reuse and reduce waste, and to promote social and economic benefits for individuals and communities.

1.7 Report Organization

The organization of a report on the Baxshin app may depend on the specific goals and focus of the report. However, here is a general outline that could be followed when writing a report on the Baxshin app:

Introduction: This section should provide an overview of the purpose and goals of the report, as well as a brief introduction to the Baxshin app and its main features and functionality.

Literature review: This section should summarize relevant research on topics such as waste reduction, sustainability, and the use of technology to facilitate the donation of unwanted items. The literature review should provide context for the report and help to establish the importance of the Baxshin app's goals.

Current system analysis: This section should provide a detailed analysis of the Baxshin app's current performance and functionality. This might include metrics such as user numbers, usage patterns, and any issues or challenges that have been identified.

Comparison with similar apps: This section should compare the Baxshin app with other apps that facilitate the donation of unwanted items, such as Freecycle and GiveBack. This comparison should highlight any unique features or functionality of the Baxshin app, as well as any areas where it may be similar or different from other apps.

Conclusion: This section should summarize the main findings of the report and provide recommendations for future improvements or developments of the Baxshin app.

Overall, a report on the Baxshin app should provide a comprehensive overview of the app's features, performance, and potential impact, as well as contextualize these findings within the broader context of waste reduction and sustainability.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The introduction chapter highlights the current lack of a dedicated mobile application for the stray animals domain, with animal shelters and organizations primarily relying on social media for their work. It addresses the misconception that social media alone is sufficient for their needs, emphasizing the need for a more efficient and effective solution. The chapter asserts that the limitations of relying solely on social media can be easily demonstrated, and the subsequent sections will present evidence to support this claim.

The main objectives of the project are outlined, which include reducing and protecting stray animals while establishing better control over their population. The proposed solution aims to address these objectives by taking into account the specific situation and user requirements within the stray animal domain.

The proposed application is characterized by its strengths and weaknesses. It is expected to provide various functionalities that will significantly improve the work of shelters in controlling and collecting stray animals. For example, the inclusion of an animal location marker feature will facilitate precise tracking and identification. However, it is important to acknowledge that the application will also have limitations and face challenges that need to be considered during its development and implementation.

The scope of the application is defined, with a focus on Sulaymaniyah City in Iraq. By narrowing the geographical range, the application can better cater to the specific needs and dynamics of that area, providing targeted support for managing stray animals.

By establishing the context and objectives of the project, the introduction chapter sets the stage for the subsequent sections, which will delve deeper into the issues surrounding the use of social media and present the proposed solution in more detail.

2.1.1 Company Organization Structure

The organizational structure and manual operations of a company are important factors that can impact its efficiency and effectiveness. The organizational structure refers to the way that a company is organized and the relationships between different departments and positions within the company. The manual operations refer to the specific tasks and processes that are carried out by employees in order to achieve the company's goals.

There are several different types of organizational structures that a company can adopt, including functional, divisional, and matrix structures. The functional structure is organized around specific functions or departments, such as marketing, finance, or human resources. The divisional structure is organized around different product lines or geographic regions. The matrix structure combines elements of both the functional and divisional structures, with employees reporting to both functional managers and product or regional managers.

2.1.2 Manual Operation

The manual operations of a company can include a wide range of tasks, depending on the industry and business model of the company. These may include tasks such as product development, sales and marketing, financial management, and customer service. The manual operations of a company can be carried out by employees at different levels of the organization, from entry-level positions to management roles.

In terms of a baxshin app, the organizational structure and manual operations could involve the development and management of the app itself, as well as the processes related to facilitating the exchange of items between users. This could include tasks

such as customer service, moderation, and logistics. It may also be important to have clear policies and procedures in place to ensure the safety and security of users and to prevent fraud or misuse of the platform.

Overall, the organizational structure and manual operations of a company are important considerations that can impact its efficiency and effectiveness in achieving its goals. In the context of a baxshin app, it may be necessary to carefully consider these factors in order to ensure a positive user experience and the success of the platform.

2.2 Current System Analysis

Without more information about the Baxshin app, it is not possible for me to provide a detailed current system analysis. However, some general considerations that might be relevant to a current system analysis of an app like Baxshin could include:

The app's user base and usage patterns: How many people are using the app, and how often do they use it? Are there any demographics that are more likely to use the app?

The app's features and functionality: What features does the app have, and how well do they work? Are there any features that are particularly popular or unpopular?

The app's performance and reliability: Does the app perform well, or are there issues such as bugs or slow loading times?.

The app's design and user experience: Is the app easy to use and navigate? Is it visually appealing?

The app's success in achieving its goals: Is the app successfully helping people donate their unwanted items and reduce waste, or are there challenges that are preventing it from achieving these goals?.

By gathering this information, you can get a better understanding of how the Baxshin app is currently functioning and where it may need improvement.

2.3 Comparison between existing systems

Here are two examples of apps like Baxshin that facilitate the donation of unwanted items:

Freecycle: This is a global network of groups that allow people to give away or receive items for free, with the goal of reducing waste and promoting sustainability. Users can post listings for items they no longer need, and others in the same group can claim these items and arrange to pick them up.

GiveBack: This is an app that allows users to donate their gently used clothing and other household items to charitable organizations. Users can schedule a pickup or drop off their donations at a designated location, and the app helps to connect them with local charities that can put the items to good use.

When comparing these apps to Baxshin, it is important to consider factors such as the types of items that can be donated, the process for donating items, and the target audience. For example, Freecycle allows users to give away a wide range of items, while GiveBack is focused specifically on clothing and household items.
Additionally, Freecycle relies on local groups to facilitate the donation process, while Giveback offers pickup or drop-off options. Finally, Baxshin, Freecycle, and Giveback may have different target audiences, with Baxshin potentially appealing to a more general audience, while Freecycle and Giveback may be more focused on specific types of items or charitable causes.

Here are some additional points of comparison between Baxshin, Freecycle, and GiveBack:

Geographical coverage: Baxshin, Freecycle, and GiveBack may have different levels of geographical coverage, with some apps being available in more regions or countries than others.

Types of items that can be donated: As mentioned earlier, Baxshin, Freecycle, and GiveBack may have different restrictions on the types of items that can be donated.
For example, Baxshin may allow users to donate a wide range of items, while Freecycle and GiveBack may have more specific restrictions.

Donation process: The process for donating items may also differ between Baxshin, Freecycle, and GiveBack. For example, Baxshin may allow users to search for nearby users who are looking for specific items, while Freecycle and GiveBack may use a more traditional posting and claiming model.

User experience: The user experience of the different apps may also differ, with some apps being easier to use or having more features than others.

Overall, it is important to consider a wide range of factors when comparing Baxshin, Freecycle, and GiveBack, including the types of items that can be donated, the donation process, and the user experience.

Here are a few more points of comparison between Baxshin, Freecycle, and GiveBack:

Target audience: Baxshin, Freecycle, and GiveBack may have different target audiences, with some apps appealing more to certain demographics or users with specific needs or interests.

Charitable giving: Baxshin, Freecycle, and GiveBack may have different approaches to charitable giving. For example, Baxshin may allow users to donate items directly to other users, while Freecycle and GiveBack may focus more on connecting users with charities or other organizations that can put the donated items to good use.

Social features: The apps may also have different social features, such as the ability to connect with other users or share listings on social media.

Cost: Baxshin, Freecycle, and GiveBack may have different costs associated with using the app, such as fees for posting listings or making donations.

By considering these and other factors, you can get a better understanding of how Baxshin, Freecycle, and GiveBack compare in terms of their features, target audience, and overall approach to facilitating the donation of unwanted items.

2.4 Literature Review of Technology Used

It is not possible for me to provide information about the specific technologies used by Baxshin, Freecycle, and GiveBack without access to more information about the apps. However, it is likely that all three apps use a range of technologies to power their features and functionality.

For example, all three apps may use web or mobile app development technologies such as HTML, CSS, and JavaScript to create their user interfaces and provide users with a seamless experience. They may also use databases to store user and item information and may use server-side technologies such as PHP or Python to process user requests and retrieve data from the databases.

In addition to these technologies, Baxshin, Freecycle, and GiveBack may also use a range of other technologies to support their specific features and functionality. For example, they may use location services to help users find items or donors in their area, or they may use messaging or notification systems to help users communicate with each other.

Overall, it is likely that all three apps use a combination of technologies to provide users with a convenient and efficient way to donate unwanted items and reduce waste.

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CHAPTER 3

SYSTEM DEVELOPMENT METHODOLOGY

3.1 Introduction

A system development methodology refers to the framework that is used to guide the process of developing an information system. It includes a set of practices, procedures, and tools that are used to design, develop, and maintain the system.

There are many different system development methodologies to choose from, each with its own set of advantages and disadvantages. Some common methodologies include:

Waterfall: This is a linear approach that involves completing one phase of the development process before moving on to the next. It is suitable for projects with well-defined requirements and a stable environment.

Agile: This is a flexible approach that involves ongoing iteration and collaboration between cross-functional teams. It is suitable for projects with rapidly changing requirements and a complex environment.

Scrum: This is a framework for agile development that involves short cycles of work, called sprints, and regular meetings to review progress and adapt to changing requirements.

Lean: This methodology focuses on maximizing value and minimizing waste by continuously improving processes and removing unnecessary steps.

When selecting a system development methodology for the Baxshin app, it is important to consider the specific needs and constraints of the project, as well as the

experience and preferences of the development team. It may also be beneficial to consider the preferences of the users and stakeholders of the app.

3.2 Methodology Choice and Justification

On the Insert tab, the galleries include items that are designed to coordinatewith the overall look of your document. You can use these galleries to insert tables, headers, footers, lists, cover pages, and other document building blocks. When you create pictures, charts, or diagrams, they also coordinate with your current document look. You can easily change the formatting of selected text in the document text by choosing a look for the selected text from the Quick Styles gallery on the home tab.

3.3 Phases of the Chosen Methodology

There are several phases that can be involved in the development of the Baxshin app. These phases may vary depending on the specific system development methodology being used, but generally, the process can be broken down into the following steps:

- Planning: In this phase, the scope and objectives of the app are defined, and a project plan is created to guide the development process. This may include identifying the target audience, researching similar apps or services, and determining the key features and functionality that the app should have.

- Analysis: In this phase, the requirements for the app are gathered and analyzed. This may involve conducting market research to understand the needs and preferences of potential users, as well as identifying any technical or logistical constraints that may impact the development of the app.

- Development: In this phase, the app is actually developed, including all necessary design and programming work. This may involve creating the user interface, integrating any necessary APIs or other external services, and testing the app to ensure that it functions as intended.

- Testing: Once the app is developed, it is thoroughly tested to identify and fix any issues or bugs. This may include both functional testing, to ensure that the app performs as intended, and user acceptance testing, to gather feedback from potential users.

- Deployment: Once the app has been developed and tested, it is ready to be deployed and made available to users. This may involve uploading the app- to-app stores, setting up any necessary servers or infrastructure, and promoting the app to potential users.

- Maintenance: Even after the app has been launched, it will be necessary to continue to maintain and update it over time to ensure that it continues to meet the needs of users and address any issues that may arise.

Here are a few additional steps that might be included in the development process for the Baxshin app:

- Documentation: Throughout the development process, it is important to document all aspects of the app, including its design, functionality, and any technical details. This documentation can be useful for future reference and maintenance, as well as for communicating the details of the app to stakeholders.

- User training: Depending on the complexity of the app, it may be necessary to provide user training to help people understand how to use it effectively. This could involve creating user manuals, providing online tutorials or videos, or hosting in-person training sessions.

- Marketing and promotion: In order for the app to be successful, it will be necessary to promote it to potential users. This may involve creating marketing materials, such as a website or social media posts, as well as reaching out to media outlets or other influencers to get the word out about the app.

- Data analysis and feedback: Once the app is launched, it will be important to continuously monitor its usage and gather feedback from users. This can help identify any issues or areas for improvement, as well as provide insight into the needs and preferences of the user.

3.4 Technology Used Description

Table 3.4 Technology Used Data

Firebase	Firebase is a cloud-based platform that provides a number of tools and services for building and managing mobile and web applications. It includes features such as a real-time database, user authentication, and cloud storage, which can be easily integrated into a Flutter app.

Google Maps Api	Google Maps API is a set of programming tools that allows developers to incorporate Google Maps into their own web or mobileapplications. It can be used to display maps, as well as to provide directions and other location-based functionality. By using the Google Maps API, the Baxshin app can provide users with mapsand directions to help them find and donate items to others in their community.

(a) Flutter framework Flutter is a mobile application development framework created by Google. It uses the Dart programming language and allows developers to create natively compiled apps for mobile, web, and desktop from a single codebase. Flutter has several features that make it a popular choice for app development, including a fast development cycle, customizable widgets, and hot reloading, which allows developers to make changes to the code and see the results immediately.

(b) Firebase Firebase is a cloud-based platform that provides a number of tools and services for building and managing mobile and web applications. It includes features such as a real-time database, user authentication, and cloud storage, which can be easily integrated into a Flutter app.

(c) Google Maps Api Google Maps API is a set of programming tools that allows developers to incorporate Google Maps into their own web or mobile applications. It can be used to display maps, as well as to provide directions and other location-based functionality. By using the Google Maps API, the Baxshin app can provide users with maps and directions to help them find and donate items to others in their community.

3.5 System Requirement Analysis

System requirements and analysis for Baxshin application:

Donation listings: Donors should be able to browse a list of items that are needed by community members and choose to contribute items from their own home or purchase items to be delivered directly to the recipient. The donation listings should include information about the item, such as the quantity needed, size, and any other relevant details.

Payment processing: Users should be able to make secure payments through the application to cover the cost of purchased items or delivery fees.

Delivery logistics: The Baxshin application should have a system in place to manage the delivery of donated items to recipients. This could include coordinating with local businesses and organizations to facilitate pick-up and drop-off of donations, or using a third-party delivery service.

Security: The Baxshin application should have measures in place to ensure the security of user data and payment information. This could include encryption of data in transit and at rest, as well as secure authentication for users.

Performance: The Baxshin application should be able to handle a high volume of users and donations without experiencing significant delays or errors. This will require careful consideration of the hardware and software requirements to ensure that the system can scale to meet demand.

Overall, the Baxshin application has the potential to greatly reduce wastage by connecting donors with those in need and facilitating the distribution of goods and items that would otherwise go unused. By providing a platform for charitable giving, we hope to make a positive impact in our community and reduce the burden on local resources.

CHAPTER 4

REQUIREMENT ANALYSIS AND DESIGN

4.1 Introduction

The Requirements and Analysis phase of the Baxshin application development process is a crucial step in ensuring that the application meets the needs of the target audience and the overall goals of the project. During this phase, the development team will gather and evaluate information about the user's needs and goals, as well as the constraints and limitations of the project. The main objectives of this phase are to understand the problem that the Baxshin application is intended to solve, define the scope of the project, identify the requirements, perform a feasibility study, develop a requirements document, and use case analysis, identify, and prioritize requirements, and identify any potential constraints or dependencies.

During this phase, the development team will work closely with stakeholders such as end-users, business analysts, and project managers to gather and document the requirements for the application. They will also conduct a thorough analysis of the requirements, feasibility, and potential risks to ensure that the project is viable and can be completed within the constraints of the project. The result of this phase is a comprehensive document that outlines all the requirements and constraints of the project, which will serve as a guide for the development and testing phases of the project.

4.2 Requirement Analysis

Once The Requirements and Analysis phase of the Baxshin application development process is a crucial step in ensuring that the application meets the needs of the target audience and the overall goals of the project. During this phase, the development team will gather and evaluate information about the user's needs and goals, as well as the constraints and limitations of the project.

1. Understand the problem: The development team will identify the user needs, goals and objectives of the project, and understand the problem that the Baxshin application is intended to solve.

2. Define the scope: The team will establish the boundaries of the project, including the features and functionality that will be included in the application.

3. Identify requirements: The team will gather information about the functional and non-functional requirements of the application, including data or initialization sequences, performance requirements, and user interfaces.

4. Perform a feasibility study: The team will evaluate the technical, operational, and economic feasibility of the project, and identify any potential risks or challenges that may arise during the development process.

5. Develop a requirements document: The team will create a comprehensive document that details all the requirements and constraints of the project, including any that may be delayed until future versions of the system.

6. Use case analysis: The team will identify and document the use cases of the system, including the actors and their interactions with the system.

7. Identify and prioritize requirements: The team will identify the most critical requirements and prioritize them based on their importance to the project's success.

8. Identify any potential constraints or dependencies: The team will identify any potential constraints or dependencies that may affect the development process, such as platform compatibility or internet connectivity.

9. Perform a cost-benefit analysis: The team will evaluate the costs and benefits of the project and determine whether the benefits outweigh the costs.

The Requirements and Analysis phase is critical to ensure that the Baxshin application meets the needs of the target audience and the overall goals of the project. The team will use the information and analysis from this phase to guide the design and development of the application.

4.3 Project Design

Project The Project Design phase of the Baxshin application development process builds on the information gathered during the Requirements and Analysis phase to create a detailed plan for the development and implementation of the application. The main objectives of this phase are to:

1. Develop a system architecture: The development team will create a high-level design of the system, including the overall structure, components, and interfaces that make up the application.

2. Design the user interface: The team will create detailed wireframes, mock-ups, and prototypes of the user interface, taking into account the user requirements and usability best practices.

3. Design the database: The team will design the database schema and data model to support the storage and retrieval of data for the application.

4. Define the development process: The team will establish a development process, including the tools, methodologies, and standards that will be used to build and test the application.

5. Identify any external dependencies: The team will identify any external dependencies, such as third-party libraries or services, that are required for the application to function.

6. Develop a detailed project plan: The team will develop a detailed project plan, including the tasks, milestones, and timelines for the development, testing, and deployment of the application.

7. Create detailed design documents: The team will create detailed design documents, including system architecture diagrams, user interface specifications, and database designs, that will serve as a guide for the development and testing phases of the project.

The Project Design phase is critical to ensure that the Baxshin application is developed and implemented according to the specifications and requirements identified during the Requirements and Analysis phase. The detailed project plan and design documents will provide a clear roadmap for the development team to follow and will help to ensure that the application is developed and effectively.

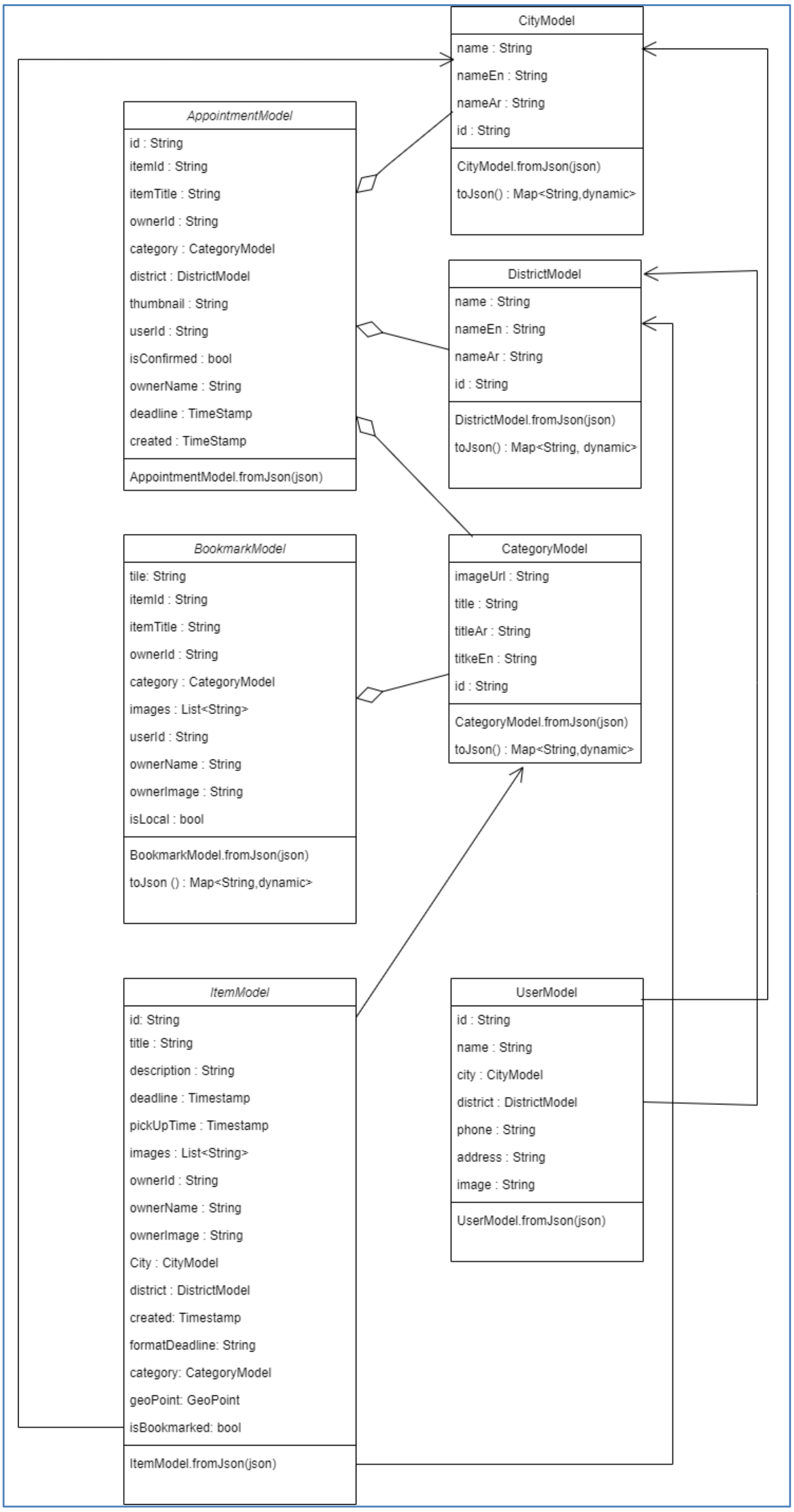


Figure 4.1 The app

4.4 Interface Design

The Interface Design phase of the B application development process focuses on creating the visual and interactive elements of the application that users will interact with. The main objectives of this phase are to:

1. Design the user interface: The development team will create detailed wireframes, mockups, and prototypes of the user interface, considering the user requirements and usability best practices. The team will design the layout, navigation, and overall look and feel of the application to ensure a consistent and user-friendly experience.

2. Design the interactions: The team will design the interactions and animations that will be used within the application, such as button clicks, scrolling, and transitions, to make the application more engaging and interactive.

3. Design the visual elements: The team will design the visual elements, such as icons, images, and typography, to ensure that the application is aesthetically pleasing and easy to read.

4. Optimize for different devices: The team will optimize the interface design for different devices, such as smartphones, tablets, and desktop computers, to ensure that the application is responsive and looks good on different screen sizes and resolutions.

5. Test the interface design: The team will test the interface design with a sample group of users to gather feedback and make any necessary adjustments before development begins.

6. Create detailed interface design documents: The team will create detailed interface design documents, including wireframes, mockups, and interactive

prototypes, that will serve as a guide for the development and testing phases of the project.

The Interface Design phase is critical to ensure that the Baxshin application is user-friendly and visually appealing. A well-designed interface can improve the user's experience and increase the chances of the application's success. This phase is also a crucial step to make sure that the application's design is consistent across different platforms and devices

4.5 Chapter Summary

The Requirements and Analysis chapter of the Baxshin application's software requirements specification (SRS) document is an essential part of the development process. This chapter outlines the requirements and constraints of the project and provides a comprehensive guide for the development and testing phases of the project.

The main objectives of the Requirements and Analysis phase are to understand the problem that the Baxshin application is intended to solve, define the scope of the project, identify the requirements, perform a feasibility study, develop a requirements document, and use case analysis, identify, and prioritize requirements, and identify any potential constraints or dependencies.

During this phase, the development team will work closely with stakeholders such as end-users, business analysts, and project managers to gather and document the requirements for the application. They will also conduct a thorough analysis of the requirements, feasibility, and potential risks to ensure that the project is viable and can be completed within the constraints of the project.

The result of this phase is a comprehensive document that outlines all of the requirements and constraints of the project, which will serve as a guide for the development and testing phases of the project. This document will be used to ensure that the Baxshin application meets the needs of the target audience and the overall goals of the project.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Introduction

This chapter focuses on the implementation and testing of the Baxshin mobile application system. It discusses the core functions of the system, including the user interface and the underlying code base. The chapter also explores the testing methodologies employed to ensure the reliability and functionality of the system. Additionally, it provides an overview of the testing process, including black-box testing and user acceptance testing. Finally, a summary of the chapter concludes the discussion.

5.2 Coding of System Main Functions

The user interface (UI) is a critical component of the Baxshin mobile application system. It serves as the primary means of interaction between users and the application. The UI should be intuitive, visually appealing, and user-friendly to enhance the overall user experience. Through the UI, users can easily navigate the app's features and functionalities.

The Baxshin UI incorporates a clean and modern design, with a focus on simplicity and ease of use. The interface includes various screens and elements that allow users to perform key actions, such as logging in, adding items for donation, requesting items, editing their profile, and communicating with other users. Each screen is designed to provide clear and concise information while maintaining a consistent visual style throughout the applicatio

5.3 Interfaces of System Main Functions

The Baxshin mobile application system's code base forms the foundation of its functionality. It encompasses the back-end and front-end development components necessary for the system to operate seamlessly. The code base is structured using best pract The "Contact Us" feature allows users to reach out to the Baxshin support team for any inquiries, feedback, or assistance they may require. It provides users with a convenient way to communicate their concerns, ensuring prompt and effective support.

The login functionality is a crucial part of the Baxshin system, as it enables users to securely access their accounts. The login process utilizes proper authentication measures, such as encrypted passwords and secure token-based authentication, to ensure the privacy and security of user data.

The "Add Item for Donation" feature allows users to list items they wish to donate. This functionality includes options for providing detailed descriptions, uploading images of the items, and specifying relevant information, such as the item's condition or size. By adding items for donation, users contribute to the inventory available for others to request.ices to ensure maintainability, scalability, and security.

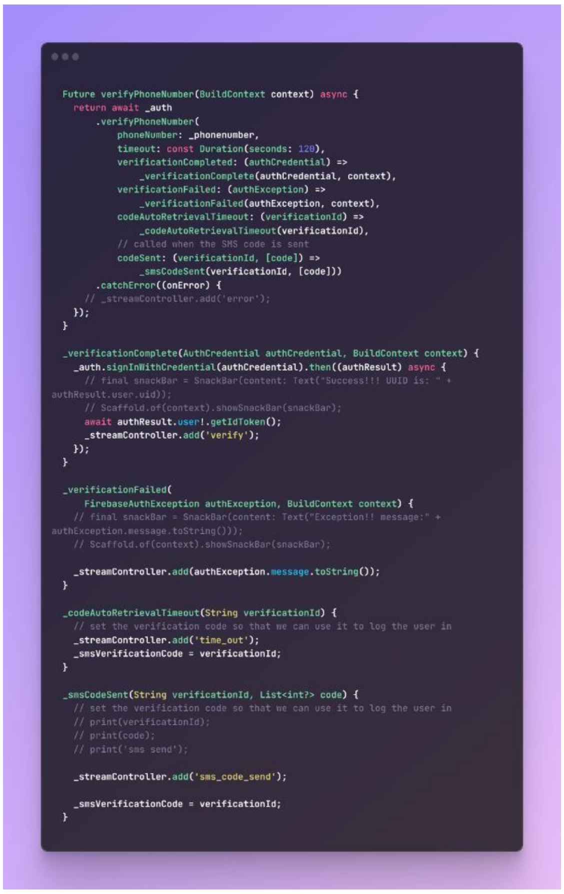
5.4 Testing

To ensure the reliability and functionality of the Baxshin mobile application system, comprehensive testing is conducted. This section discusses two key testing methodologies employed during the system's development: black-box testing and user acceptance testing.

5.4.1 Black box Testing

Black-box testing involves examining the system's functionalities from an external perspective without knowledge of its internal structure. Testers focus on validating the expected inputs and outputs of the system to ensure its proper functioning. Black-box testing assesses the user interface, core functionalities, and overall system behavior.

The Baxshin system undergoes rigorous black-box testing to identify any inconsistencies or errors. Testers simulate various user scenarios, interact with different features, and validate the expected outcomes. This testing approach helps uncover potential usability issues, functional bugs, and performance bottlenecks.



```
Future verifyPhoneNumber(BuildContext context) async {
  return await _auth
      .verifyPhoneNumber(
          phoneNumber: _phonenumber,
          timeout: const Duration(seconds: 120),
          verificationCompleted: (authCredential) =>
              _verificationComplete(authCredential, context),
          verificationFailed: (authException) =>
              _verificationFailed(authException, context),
          codeAutoRetrievalTimeout: (verificationId) =>
              _codeAutoRetrievalTimeout(verificationId),
          // called when the SMS code is sent
          codeSent: (verificationId, [code]) =>
              _smsCodeSent(verificationId, [code]))
      .catchError((onError) {
    // _streamController.add('error');
  });
}

_verificationComplete(AuthCredential authCredential, BuildContext context) {
  _auth.signInWithCredential(authCredential).then((authResult) async {
    // final snackBar = SnackBar(content: Text("Success!!! UUID is: " +
authResult.user.uid));
    // Scaffold.of(context).showSnackBar(snackBar);
    await authResult.user!.getIdToken();
    _streamController.add('verify');
  });
}

_verificationFailed(
    FirebaseAuthException authException, BuildContext context) {
  // final snackBar = SnackBar(content: Text("Exception!! message:" +
authException.message.toString()));
  // Scaffold.of(context).showSnackBar(snackBar);

  _streamController.add(authException.message.toString());
}

_codeAutoRetrievalTimeout(String verificationId) {
  // set the verification code so that we can use it to log the user in
  _streamController.add('time_out');
  _smsVerificationCode = verificationId;
}

_smsCodeSent(String verificationId, List<int?> code) {
  // set the verification code so that we can use it to log the user in
  // print(verificationId);
  // print(code);
  // print('sms send');

  _streamController.add('sms_code_send');

  _smsVerificationCode = verificationId;
}
```

5.1 Figure The code of black box testing

5.4.1.1 System Flow

User acceptance testing (UAT) involves evaluating the system's usability and performance in real-world scenarios by involving end-users. This testing phase ensures that the system meets the users' requirements, expectations, and preferences. Testers observe users' interactions, collect feedback, and assess their overall satisfaction with the system.

The Baxshin system undergoes UAT to gather valuable insights from target users. Testers conduct surveys, interviews, and usability tests to evaluate the system's ease of use, responsiveness, and overall user experience. Feedback collected during UAT helps identify areas for improvement and optimize the system based on user preferences.

5.5 Chapter Summary

This chapter provided an overview of the implementation and testing phase of the Baxshin mobile application system. It discussed the core functions of the system, including the user interface and the underlying code base. The chapter outlined the specific functionalities, such as contacting support, logging in, adding items for donation, requesting items, editing profiles, receiving requests, messaging between users, and Firebase configuration.

Furthermore, the chapter delved into the testing methodologies employed to ensure the reliability and functionality of the system. Black-box testing was conducted to validate the expected inputs and outputs of the system, while user acceptance testing involved real users to evaluate the system's usability and performance.

By implementing a robust system and conducting thorough testing, the Baxshin application aims to provide a user-friendly and efficient platform for users to donate and receive items for free. The next chapter will focus on the system's deployment and the overall conclusion of the project.

CHAPTER 6

CONCLUSION

6.1 Introduction

in conclusion, the Baxshin application is a platform that allows users to donate free items to others who need them. The development of this application would involve a detailed requirements and analysis phase, in which the user needs and goals, as well as the constraints and limitations of the project, would be identified and evaluated. This would include gathering information about functional and non-functional requirements, performing a feasibility study, creating a requirements document, documenting use cases, identifying and prioritizing requirements, identifying potential constraints and dependencies, and performing a cost-benefit analysis.

The development team would need to consider all the relevant requirements and constraints during the development process to ensure that the application meets the needs of the target audience and the overall goals of the project. The application would likely have a fast response time, high throughput, efficient memory usage, scalability, low latency, and robust error handling mechanisms. Additionally, it would have a user-friendly interface, and use flutter and firebase as its development platform. The application would also have features such as location-based services, SMS notifications.

6.2 Achievement of Project Objectives

The Baxshin application, if developed and implemented successfully, could achieve the following:

1. Facilitate the donation of free items to those in need: By providing a platform for users to donate their unused or unwanted items, the application could help to redistribute resources and aid those who need it.

2. Reduce waste: By encouraging the reuse of items instead of disposing of them, the application could help to reduce the amount of waste in the community.

3. Promote community engagement: By connecting users with others in their local area, the application could foster a sense of community and encourage people to engage with their neighbors and local organizations.

4. Encourage sustainability: By promoting the reuse of resources, the application could contribute to a more sustainable society.

5. Cost-effective: By providing a platform for free donations, the application could help to save money for people who are in need.

6. Improve the lives of people in need: By providing resources to those who need it, the application could help to improve the lives of people in the community.

7. Create a positive impact: By promoting the sharing of resources and encouraging community engagement, the application could have a positive impact on society.

It's important to note that these are examples of achievements that the Baxshin application could have, but the actual impact may vary depending on the specific implementation of the application, and the user's behavior. The development team would have to consider all relevant requirements and constraints during the development process to ensure that the application meets the needs of the target audience and the overall goals of the project.

6.3 Suggestions for Future Improvement

Here are a few suggestions for future improvements for the Baxshin application:

1. Integration with other platforms: The application could include a feature that allows users to share their donations on other social media platforms like Facebook, Twitter, Instagram, etc.

2. Analytics: The application could include a feature that allows the development team to track the user's behavior and improve the application accordingly.

3. Artificial Intelligence: The application could include a feature that allows the development team to use AI algorithms to recommend items to the users based on their behavior.

It's important to note that these are examples of suggestions for future improvements for the

Baxshin application, but the actual improvements may vary depending on the specific

implementation of the application, and the user's behavior. The development team would have to

consider all relevant requirements and constraints during the development process to ensure that

the application meets the needs of the target audience and the overall goals of the project.

And next plan is for sure to work more on improving the performance of the app and its usability.

REFERENCES

PETA UK. (2022) ‘Animal homelessness: Animals are not ours to abuse’, Retrieved "IEEE Standards for Software Requirements Specification" by IEEE (Institute of Electrical and Electronics Engineers) - provides a standard format for documenting software requirements.

"Writing Effective Use Cases" by Alistair Cockburn - provides a comprehensive guide to writing use cases, which are a key part of the SRS process.

"User Stories Applied: For Agile Software Development" by Mike Cohn - provides an in-depth look at the user story approach to requirements gathering, which is commonly used in agile development methodologies.

"The Art of Agile Development" by James Shore - provides a practical guide to agile development methodologies and how they can be applied to software development projects.

"Scrum: The Art of Doing Twice the Work in Half the Time" by Jeff Sutherland - provides an overview of the Scrum framework, which is a popular agile development methodology.

"The Lean Start-up: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses" by Eric Ries - provides an overview of the Lean Start-up methodology, which is a popular approach for developing software products.

"Agile Estimating and Planning" by Mike Cohn - provides an in-depth look at how to estimate and plan for software

Appendix A Software Requirement Specification

1. INTRODUCTION

1.1 Purpose

Baxshin app details the functions and development procedures necessary for the app's creation. This document focuses on defining how the app will operate and the requirements needed to meet stakeholders' needs. By providing a comprehensive understanding of the app's objectives and functionality, the SRS ensures that all relevant data about the Baxshin app is clearly outlined.

1.2 Scope

Item Listing: Users can create listings for items they wish to donate, including detailed descriptions, images, and categories.

- **Item Request:** Users can search for items they need and request them from the listed donors.
- **Donor-Recipient Communication:** A secure messaging system allows donors and recipients to communicate directly to coordinate pickup or delivery.
- **Location Mapping:** The app integrates a mapping feature to display the locations of both donors and recipients.
- **Donation Confirmation:** A system to confirm the successful donation and provide feedback to both parties.

Additional Features (Optional):

- **Charity Partnerships:** Collaborations with local charities to promote the app and facilitate donations.
- **Donation Tracking:** A feature to track the progress of donations and provide transparency.
- **User Reviews:** A system for users to rate and review their experiences with the app and other users.
- **Community Forum:** A discussion board for users to connect, share tips, and discuss donation-related topics.

Technical Scope:

- **Platform Compatibility:** Development for both Android and iOS platforms.
- **Database Management:** A robust database to store item listings, user profiles, and other relevant data.

- **Security:** Implementation of strong security measures to protect user data and prevent fraudulent activities.
- **Scalability:** The app should be designed to handle a growing user base and increasing data volume.
- **User Interface:** A user-friendly and intuitive interface that is easy to navigate.

Geographic Scope:

- **Initial Focus:** The app could initially focus on a specific region or city to establish a strong user base.
- **Expansion:** Depending on success, the app can be expanded to cover a wider geographic area.

Limitations:

- **Physical Item Exchange:** The app facilitates the connection between donors and recipients, but it does not handle the actual exchange of items.
- **Quality Control:** The app cannot guarantee the quality or condition of donated items.
- **Dependency on User Participation:** The app's success relies on active participation from both donors and recipients.

1.3 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.
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1.4 Overview

The Donation Mobile Application aims to facilitate the exchange of unwanted items between individuals within a community, promoting a circular economy and reducing waste. The app serves as a platform for users to donate items they no longer need to those in need, fostering a sense of community and generosity.

1.5 Product Perspective

The Donation App aims to make it easier for donors and charitable organizations to connect by providing essential functionalities, as illustrated in the accompanying use case diagram. A use case diagram's primary advantage is its ability to clearly communicate how the system operates to various stakeholders, including donors, nonprofit organizations, project managers, and developers. Below is a use case diagram of the system.

1.5.1 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.

1.5.2 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.

1.5.3 Software Interfaces

i are using NoSQL database firebase for the software interface

1.5.4 Communication Interfaces

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

1.5.5 Memory

Maximin 100MB

1.5.6 Operations

The platform offers a variety of user-initiated features, such as making donations, viewing donation history, managing profiles, and sending messages directly to nonprofit organizations. Most interactive operations occur during weekends and evenings, which are also peak times for special events like fundraising campaigns. To minimize disruption, unattended operations such as scheduled updates and data processing are carried out during off-peak hours. The platform also provides automatic notifications for new donation opportunities and confirmations, along with tools for generating reports on user engagement and platform performance. Regular data backups, contingency plans for system failures, and redundant servers ensure continuous availability and data integrity. For example, a user can make a donation, receive an immediate confirmation, and trust in the platform's reliability due to its robust backup and security measures.

1.5.7 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

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.

2. SPECIFIC REQUIREMENTS

Performance Requirements

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

2.1 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.

2.2 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.

2.3 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 Donation Mobile Application aims to facilitate the exchange of unwanted items between individuals within a community, promoting a circular economy and reducing waste. The app serves as a platform for users to donate items they no longer need to those in need, fostering a sense of community and generosity

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

1.1 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

1.2 Test TC003 for Module1: <Name of Use Case (Add item for donate)>

Test Case ID	Input Data	Expected Result	Actual Result	Pass/Fail

TC003_01	{image, name, title, description, category, quantity}	Product details successfully added to the donation list.	Successful addition	Pass
TC003_02	{ }	Error message indicating missing required fields.	Error message displayed	Pass
TC003_03	{image (unsupported format), name, title, description, category, quantity}	Error message indicating unsupported image format.	Error message displayed	Pass
TC003_04	{image, name, title, description, category, negative quantity}	Error message indicating invalid quantity.	Error message displayed	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

This Software Requirements Specification, document details the functions and development processes for the software. It focuses on the product’s functionality and the requirements necessary to meet stakeholders' needs. This document helps in understanding the software by outlining the data that needs to be gathered about the product. The main goal is to provide essential product information before the design phase, such as the product's objectives, target audience, hardware and software requirements, and functionality.

1.2 Scope

Market Analysis: Perform a detailed market analysis to identify potential competitors, target customers, and trends in the art industry.

User Research: Conduct research to understand the needs and preferences of artists and art enthusiasts regarding online art sales and purchases.

Design and Usability: Develop a user-friendly and visually appealing website that encourages user engagement and easy navigation.

Security and Privacy: Implement strong security and privacy measures to protect users' personal and financial data.

Payment Integration: Integrate payment gateways to facilitate easy transactions for buyers and smooth payment processes for sellers.

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

Marketing and Promotion: Develop a marketing plan to reach potential customers and increase brand awareness.

Data Analytics: Use data analytics to monitor user behavior and preferences, enhance user experience, and optimize the marketplace for better performance.

Legal Compliance: Ensure the platform adheres to all relevant laws and regulations, including copyright and tax laws.

1.3 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.

1.4 Overview

The project aims to develop a mobile application that serves as an online marketplace, connecting to help poor people for donation.

2. SYSTEM ARCHITECTURAL DESIGN

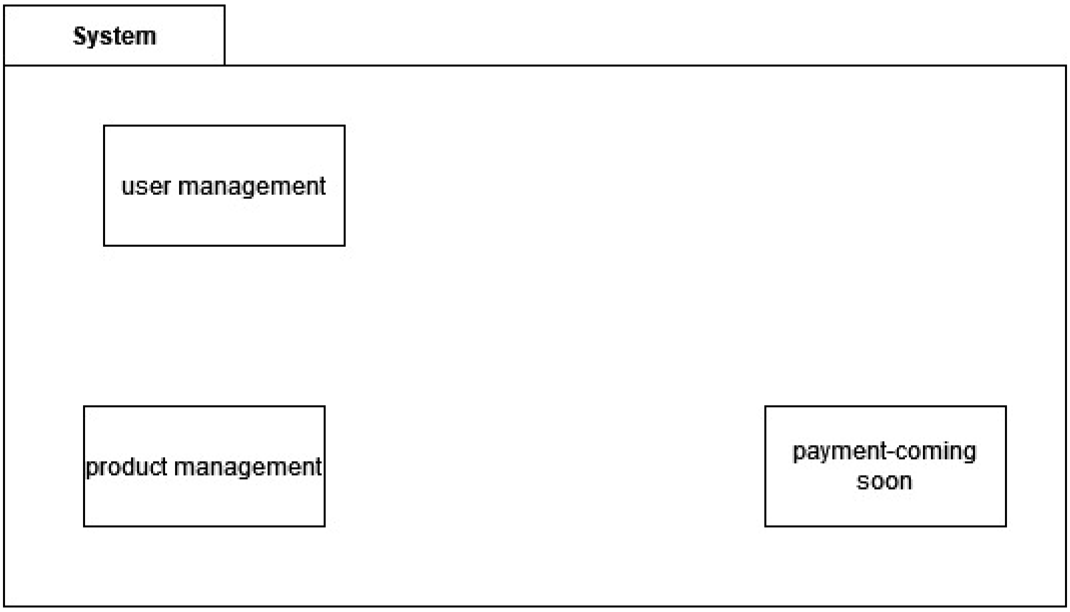
2.1 Architecture Style and Rationale

The chosen architecture for this project is the Model-View-Controller (MVC) design pattern, which is well-suited for software that heavily interacts with the system. This pattern is selected to enhance user comfort by focusing on a usable interface. The MVC pattern divides the application into three distinct components, making it easier to organize and manage large-scale web applications. Its primary advantage is that it simplifies locating specific code sections and adding new features quickly. The MVC pattern is particularly beneficial in the early stages of development, providing developers with a structured approach to translating their ideas into code. Additionally, it minimizes code duplication and simplifies maintenance. MVC also allows for the addition and updating of new views without impacting the core design, making the application more flexible and scalable.

2.2 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.

2.2.1 Subsystem <Name of Subsystem1>



2.2.1.1 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

2.2.1.2 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.

2.2.1.3 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.

2.2.1.4 Class Diagram

Figure 3.2: Class diagram for <sale app>

2.2.1.5 Sequence Diagrams

a) SD001: Sequence diagram for upload product

3. USER INTERFACE DESIGN

3.1 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

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