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03-134201-037 Muhammad Awais

Agri-Tech Store

In partial fulfilment of the requirements for the degree of

Bachelor of Science in Computer Science

Supervisor: Abdullah

Department of Computer Sciences

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C e r t i f i c a t e

We accept the work contained in the report titled

"Agri-Tech Store" written

by

Muhammad Awais

as a confirmation to the required standard for the partial fulfilment of the degree of Bachelor of Science in Computer Science.

Approved by:

Supervisor: Abdullah

_____ (Signature)

January 10, 2024

DECLARATION

I hereby declare that this project report is based on my original work except for citations and quotations which have been duly acknowledged. I also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

Enrolment	Name	Signature
03-134201-037	Muhammad Awais	

Date : January 10, 2024

Specially dedicated to my beloved
grandmother, mother and father
(Muhammad Awais)

ACKNOWLEDGEMENTS

I would like to thank everyone who had contributed to the successful completion of this project. I would like to express my gratitude to my research supervisor, Mr Abdullah for his invaluable advice, guidance and his enormous patience throughout the development of the research.

In addition, I would also like to express my gratitude to my loving parent and friends who had helped and given me encouragement.

Muhammad Awais

Agri-Tech Store ABSTRACT

The agricultural industry plays a role, in the economies and food security of nations. However farmers often face difficulties in accessing the products at the time which directly affects their productivity and profitability. Similarly companies that sell products also encounter challenges in reaching out to farmers and efficiently managing their inventory. With the help of user experience and mobile app creation tools, this project aims to make it easier for farmers to get the things they need. It also wants to help companies make more money and get more users. There will be helpful search filters for goods, ways to pay, and customer service built right into the app. The site will be mostly about farming, and companies will be able to buy it as a cheap way

to connect with buyers. This could be good for the farming business because it would make it easy for farmers to get in touch with more suppliers who have more goods.

Contents

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

1.1 Background

Traditional ways of selling agricultural goods involve farmers going to stores or depending on middlemen, which can take a lot of time and work less efficiently.

A lot of farmers also can't get information about the newest tools and goods, which makes it hard for them to buy the right things. Because they don't know enough, companies also have trouble seeing what farms need and making good marketing plans. Businesses don't have an easy-to-use tool to sell their goods to farms. This project aims to fix that problem. The way things are done now isn't clear, effective, or simple to use, which can cause prices to rise for farmers and sales to drop for companies.

1.2 Problem Statements

This method of doing business is not very effective because farmers had to go to shops or rely on middlemen to sell their crops. Secondly, most farmers haven't kept up with the newest goods and technologies, which would have helped a lot of them make better purchases. As a result, it's tough for companies to figure out what farms need and create effective advertising plans. Fixing a broken system that makes it hard to sell things to farmers is the point of this project. The farms have to pay a lot for this method, and businesses don't like it because it's not clear, efficient, or easy to use.

1.3 Aims and Objectives

- To make an app for phones that helps businesses that sell farm goods get in touch with farmers who need those goods..
- We want to make it easy for farmers to find and buy many things they need for farming, such as tools, seeds, and manure.
- To make it easy for businesses to keep track of their stock and sales and talk to their customers directly.

1.4 Scope of Project

The project would be to develop an android application for farmers. The android application should provide a user-friendly platform that allows companies to showcase their products, manage their inventory, and process transactions easily. The store

should also provide features that enable companies to communicate with, receive feedback, and build a loyal customer base.[1]

User friendly: It will be a user-friendly mobile application for farmers which will be in Urdu language. In this way farmers can easily use that application without any language barrier and place their order.

Company Authentication: Scams are a disgraceful element of the world. Companies will be verified through his official email. If anyone who wants to register his company on my platform, he should have to give credentials like company register number which will be given by the government, Official company's email. Through this the admin will send the confirmation email. After their confirmation the company will able to register on this platform.

User Authentication: The most common method is user authentication, where users are required to create an account and login with a username and password. This can be enhanced with additional security measures like two-factor authentication (2FA), which requires users to provide a second form of identification like a code sent to their mobile phone.[2]

Delivery: This platform will also provide delivery services to customer by tracking through there tracking ID.

Payment withholding: The buyer would have 7 days to review the product and if for any legitimate reason the buyers is not satisfied with the product. They will have the right to claim the refund and the seller is bound to proceed it within 48-72 hours.

Rating: The customer will rate the products to categorize the top reviewed product.

CHAPTER 2

Software Requirements Specifications

2.1 Overall Description

Agri-Tech store is a new and unique mobile app that will change the way people buy agricultural products. It makes it easy for people to look through a lot of different farming products, like seeds, tools, and fertilizers, pick out the ones they need, and then order them right from their phones. This method gets rid of the hassle of standard supply procurement, making things easier and saving time. The app also keeps track of the order in real time and the time of delivery thus the user knows what is going on. It also enhances the ease of handling the inventory by the suppliers and, hence,

operations become efficient. In order to enhance the customer experience, Agri-Tech Store is designed for the agricultural sector. Orders can be tracked, alerts can be set up automatically, and a full buy history is available.[3]

2.2 Product Perspective

The Agri-Tech Store app is a cutting-edge mobile platform that will change the way the agricultural business works. Because it was made with the flexible Flutter framework, it works perfectly on both Android and iOS devices, giving users a consistent experience. It's like a digital market where farmers, agricultural companies, and customers can all buy and sell things. A big hole in the agricultural supply chain will be filled by it. It will make direct transactions easy, promote eco-friendly practices, and give farmers access to a lot of resources and goods.

2.3 Product Function of Agri-tech Store

Based on Flutter, the Agri-Tech Store app has many features made to meet the wants of people who work in farming. All of its users, from farmers and agricultural companies to regular people, will have a better time with these benefits. These are all the important things about the product.

2.4 Marketplace for Agricultural Products and Services

- **Product Management:** Good management of agricultural goods, such as keeping track of stock amounts and updates.
- **User Management:** Handling user profiles and permissions.
- **Category Management:** Organization of products by categories for easy searchability.[4]
- **Order Management** Keeping an eye on order processing, progress updates, and history.
- **Search and Filter:** Users can search for products and services and apply filters based on categories, price, location, and ratings.

2.5 E-Commerce Capabilities

- **Shopping Cart**: Enables users to add multiple items to a cart for purchase.
- **Secure Checkout Process**: Incorporates a secure and efficient checkout process with multiple payment options, including credit/debit cards, mobile payments, and possibly cryptocurrency.
- **Order Tracking:** Provides real-time updates on the status of orders, from processing to delivery.

2.6 User Profiles and Account Management

- **Farmer/Vendor Profiles:** Customizable profiles for sellers to showcase their business, products, and services**.**
- **Buyer Profiles**: Profiles for buyers to manage their purchases, view history, and set preferences.
- **Ratings and Reviews:** Allows users to rate and review products and services, fostering trust and quality assurance.

2.4 User Classes and Characteristics

Users of the Agri-Tech Store are expected to have a basic understanding of mobile app navigation, account creation, and executing transactions such as placing orders for agricultural products. The app is intuitively designed to accommodate both the technologically adept and those with fundamental digital skills.[5]

2.5 Customer

Customers can sign in with existing credentials or create a new account. The app, downloadable from app stores, allows users to explore, select, and purchase agricultural products with ease.

2.6 Administrator

The administrator oversees the product listings, with the ability to add, edit, or delete items. They ensure timely delivery of products and manage database operations, maintaining records of customers and inventory.

2.7 **Operating Environment**

Users will require a stable internet connection and a compatible mobile device to use the Agri-Tech store app effectively.

2.8 **Design and Implementation Constraints**

Internet: Constant internet access is necessary for app functionality.

Memory: A mobile device with at least 4GB of RAM is recommended for a smooth user experience.

CHAPTER 3
DESIGN AND METHODOLOGY

3.1 Project Methodology

Here, the following diagrams will describe the High-level functions of our system

3.1.1 User

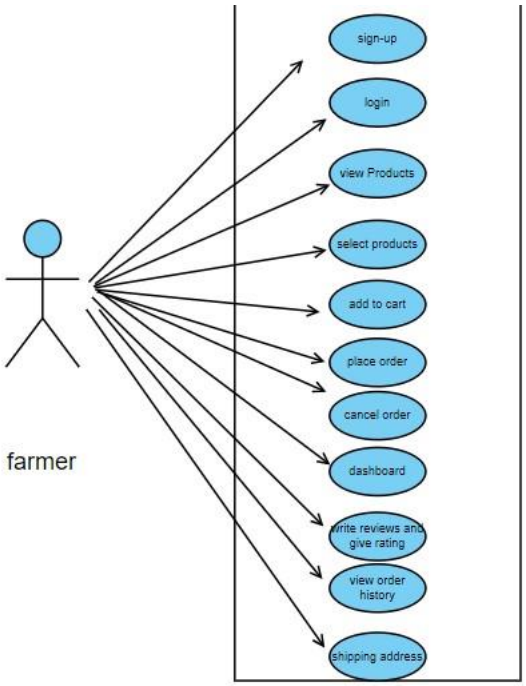

Figure 3-1: User Use-case Description:

This use case diagram, which is a visual representation of a user's possible interactions with a system. At the left of the diagram, there's a stick figure labelled "User," which symbolizes the end-user or actor in the system. To the right, there is a column with ovals connected to the user by multiple lines. These ovals represent different use cases or actions that the user can perform within the system. The use cases shown are:

3.1.2 Admin

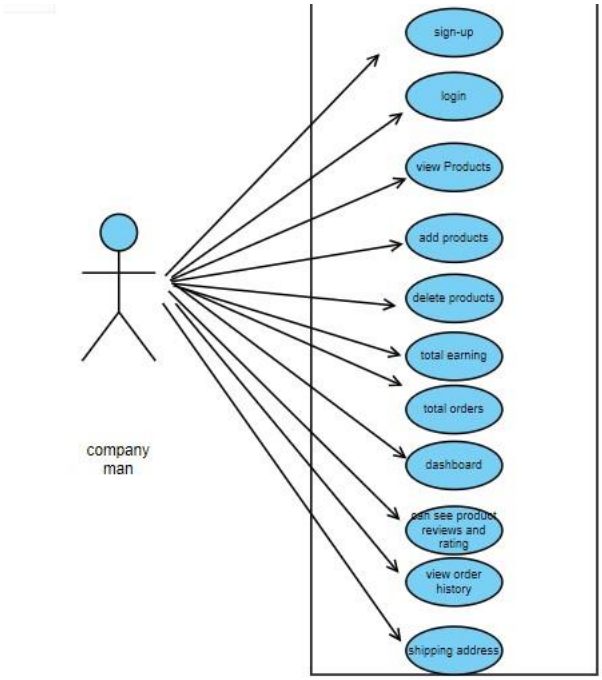

Figure 3-2: Company Use-case

Description:

This use case diagram, which is a visual representation of a user's possible interactions with a system. At the left of the diagram, there's a stick figure labelled "User," which symbolizes the end-user or actor in the system. To the right, there is a column with ovals connected to the user by multiple lines. These ovals represent different use cases or actions that the user can perform within the system. The use cases shown are in the diagram as well.

3.1 Class Diagram

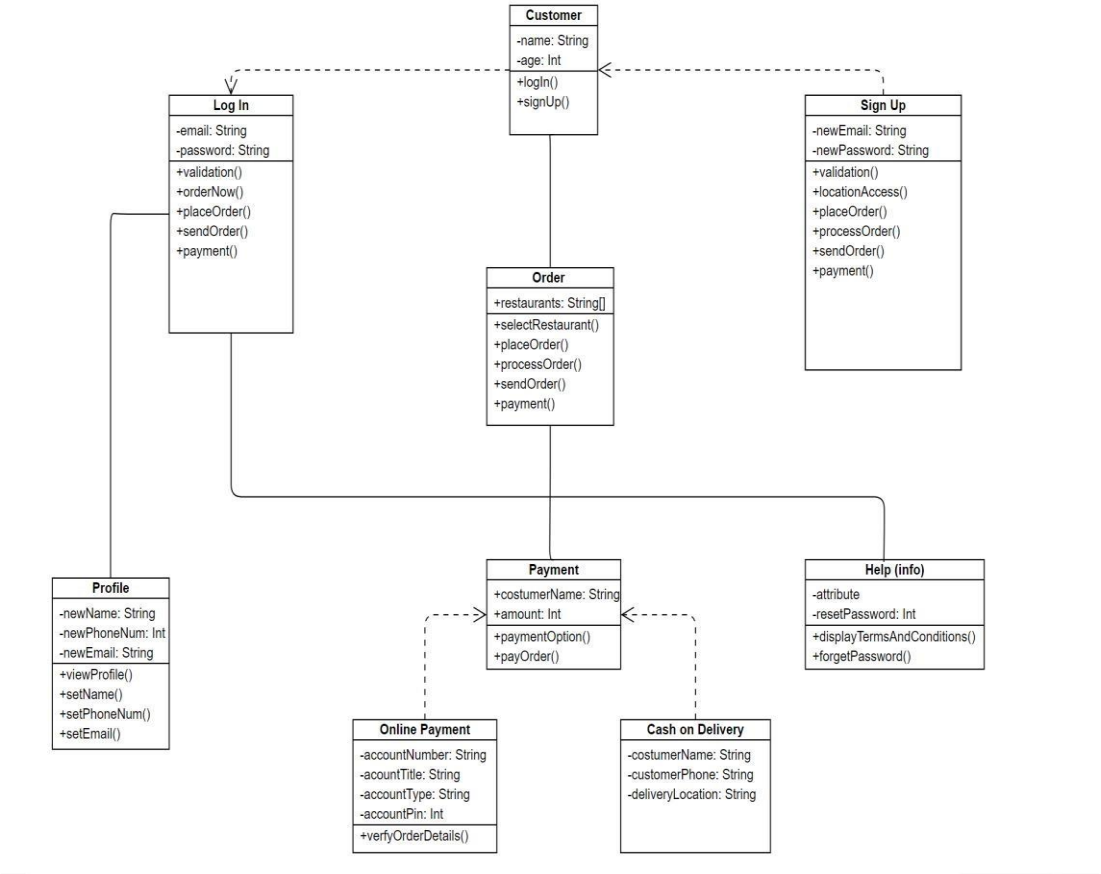

Figure 3-3:class diagram Description

This structured diagram of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes.

The classes are connected by lines, indicating relationships such as associations, which are typically represented by solid lines. Dotted lines represent dependencies or other relationships like inheritance or interface implementation.

3.2 Sequence Diagrams

Following are Sequence diagrams:

3.2.1 Login

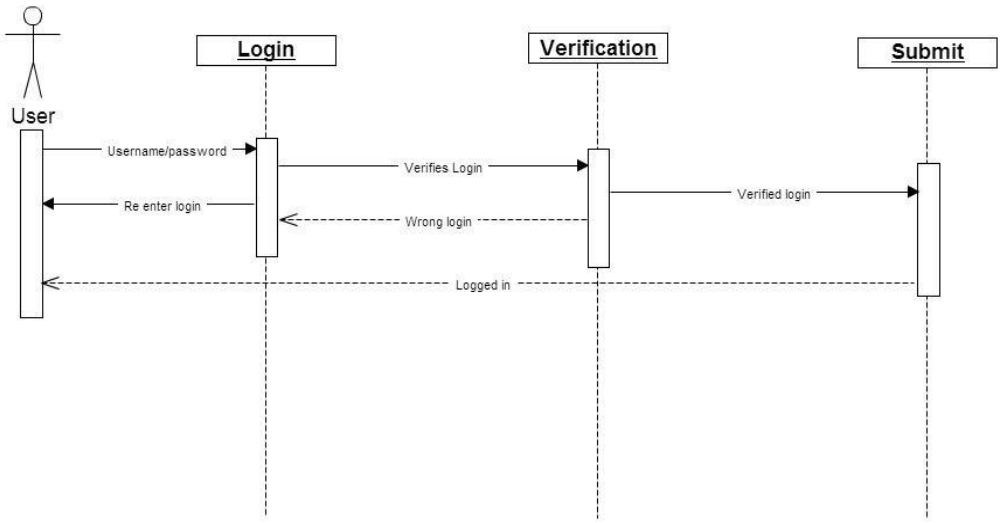

Figure 3-4: Login Sequence Diagram

This diagram shows there a is a stick figure labelled "User." The flowchart begins with a "Login" step, where the user provides a username and password. This step leads to a "Verification" step, which checks if the login is correct. If the login is incorrect, the process loops back to the "Login" step with a dashed line, indicating that the user should re-enter the login information. This return path is labelled "Wrong login." If the login is correct, the flow proceeds with a solid line to the "Verification" step, indicated by "Verifies Login," and then to a "Submit" step with a solid line labelled "Verified login." The process ends after the "Submit" step.

There are two additional lines: one solid and one dashed, both connecting the "Login" and "Verification" steps to a point below the "Submit" step. The solid line is labelled "Logged in," while the dashed line doesn't have any label.

The flowchart uses standard symbols: rectangles for process steps, arrows for the flow direction, and dashed lines for alternate flows. The layout is horizontal, stretching from left to right.

3.2.2 App sequence diagram

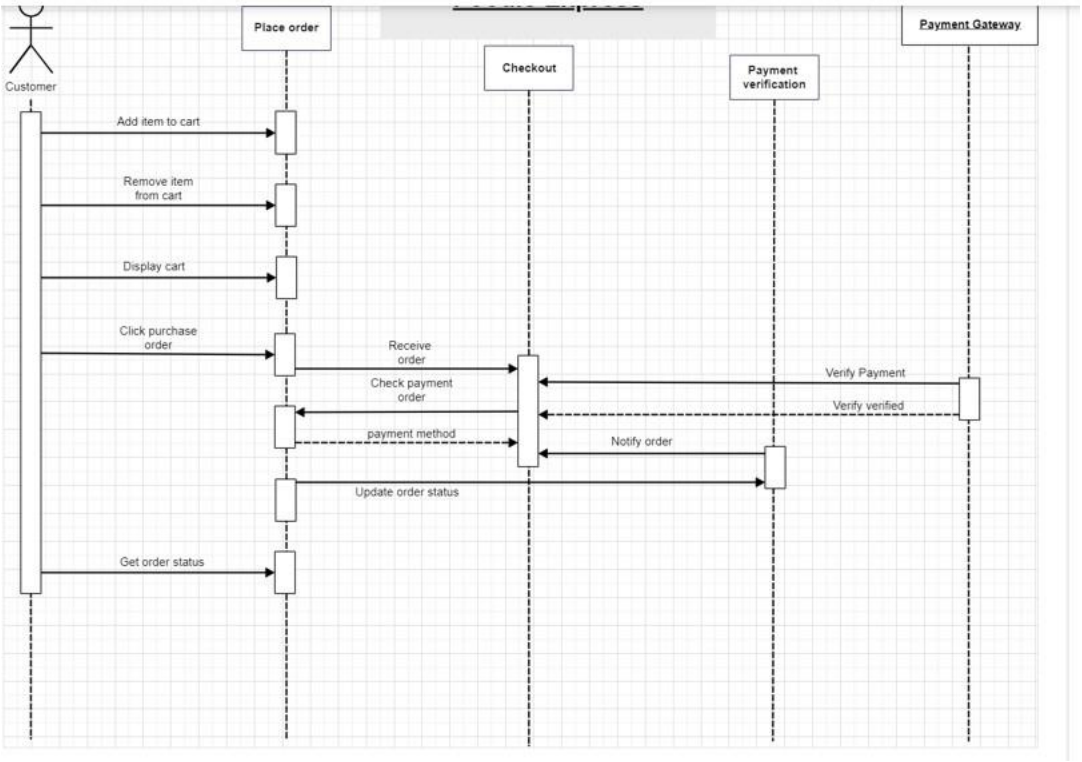

Figure 3-5:App sequence diagram

This diagram shows the interactions between a customer and an e-commerce system during the order placement and payment verification process. The diagram is divided into three vertical sections, representing different entities: "Customer," "Checkout," and "Payment Gateway."

The sequence of actions begins with the "Customer" section, where the customer performs the following steps in order:

1. "Add item to cart"
2. "Remove item from cart"
3. "Display cart"
4. "Click purchase order"
5. "Receive order"
6. "Check payment order" – which is connected back to the "Customer" section for the customer to choose a "payment method."
7. "Update order status"
8. "Notify order" – which sends a notification back to the customer, presumably about the status of the order.

In parallel to the "Notify order" step, the sequence moves to the "Payment Gateway" section where the payment is "Verify Payment" and then "Verify verified," indicating a two-step verification process for the payment.

Throughout the diagram, solid lines with arrows indicate the flow of the process and the direction of the sequence. Dotted lines with arrows point from one action to another where a response or a status update is expected. Each action is represented by a rectangle with a label describing the action.

The diagram is detailed and structured, typical of sequence diagrams used in software engineering to illustrate interactions between systems and users. The grid background suggests it may have been designed using a specialized diagramming tool.

CHAPTER 4
IMPLMENTATION

4.1 Tools and Technologies

Following are the tools and technologies used in this project.

4.1.1 Figma

“You can build interactive flows in Figma prototype to test out different user interactions with your designs. To communicate and iterate on ideas, prototypes are a great way to sample user flows and interaction.[6]

You can create anything with the help of the robust web-based design tool Figma, including websites, applications, logos, and much more. By learning how to utilize Figma, you may begin your journey into user interface and user experience design. It may be used for a variety of graphic design tasks, including wireframing websites, creating user interfaces for mobile apps, creating design prototypes, creating social media posts, and everything in between.

You'll save time and stress by learning graphic design with Figma. Working with this software makes the design process simple, enjoyable, and very effective. Online collaboration allows you to work with others extremely rapidly.”

4.1.2 Flutter

“Google's portable UI toolkit, Flutter, allows developers to create stunning, natively built applications from a single codebase for desktop, mobile, and the web. Flutter is free and open source, integrates with existing code, and is utilized by developers and businesses all over the world.

Flutter is made to handle both interactive apps that you wish to run on your web pages or on the desktop and mobile apps that run on both Android and iOS.[7]

Flutter is especially well suited for apps that must give highly branded designs. Flutter, on the other hand, allows you to produce pixel-perfect experiences that adhere to the iOS and Android design languages.

A wide range of devices (including camera, GPS, network, and storage) and services (including payments, cloud storage, authentication, and advertisements) are supported by the package ecosystem of Flutter."

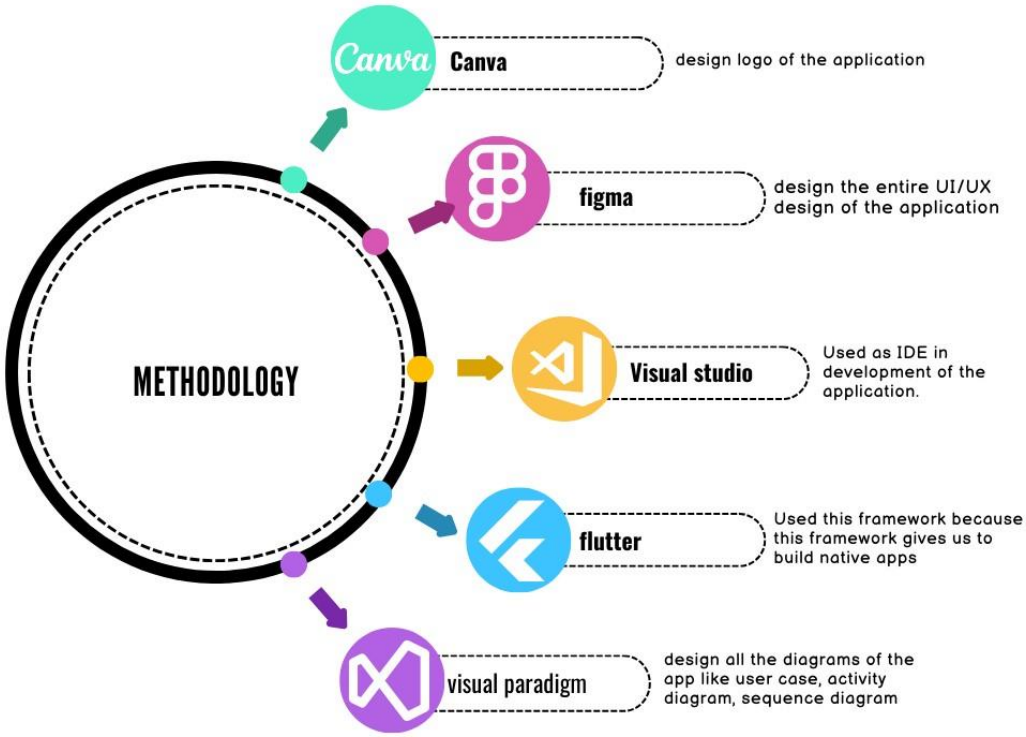

Figure 4-1:Methodology diagram

4.1.3 Firebase

"A suite of cloud-based development tools called Google Firebase aids in the development, deployment, and scaling of mobile app. Among the many features offered by Firebase are the following:

Authentication. Users may sign into their apps securely and conveniently with the help of Firebase. Developers may utilize Firebase Authentication to support a variety of login methods, including Facebook Login, Google Sign-In, and email and password. Current Database[8]. A cloud-hosted NoSQL database called the Firebase Realtime Database enables businesses to store and sync data in real time across all their consumers' devices. This makes it simple to create apps that are constantly updated, even when users are not connected. Messaging over the cloud. Businesses can send messages to their users' devices using the Firebase Cloud Messaging (FCM) service,

even if they aren't actively using the app. FCM is a tool that developers may utilize to update app content, deliver push alerts, and more.”

4.1.4 Visual Paradigm

We used visual paradigm to make the different diagrams you see above for this paper. As a modelling and design tool, Visual Paradigm is used by software development teams to make pictures of the layout and design of software. It's a complete tool that works with many modelling languages, like UML, BPMN, ERD, DFD, and more. You can use Visual Paradigm to model and create software. It has tools for real-time teamwork, code engineering, database design, and drag-and-drop diagram design. It also works with Agile and Scrum, giving teams tools to keep track of their backlogs, manage projects, and plan sprints.

4.1.5 Canva

The logo and menu sketches were made with Canva. Canva is a graphic design tool where people can make flyers, posters, graphics for social media, presentations, and quite a bit more. Canva wants to make professional-looking pictures easy for everyone, even people who aren't good at design.

A lot of the templates, design elements, and stock pictures that Canva has to offer can have users' own text, images, and logos added to them. You can send and receive comments on designs and work together with other people on the platform. Canva's main goal is to make design accessible to everyone, no matter how much money they have or how good they are at designing.”

4.1.6 Visual Studio

“Visual studio was used as our IDE in development of the application. Visual Studio is a popular integrated development environment (IDE) created by Microsoft for developing various types of software applications. It is a comprehensive toolset that provides developers with a wide range of features and tools to create high-quality software efficient Visual Studio comes with a wide range of built-in project templates for different types of applications, including desktop, web, mobile, and cloud-based applications. It also supports integration with various third-party tools, frameworks, and libraries, making it a flexible and powerful tool for developers.” [9]

4.2 Testing

We tested the app as we developed it. Whenever a feature or functionality was developed, it was tested using the phone connected directly to laptop. This helped me find errors right away and have each functionality of the mobile application.

CHAPTER 5
USER MANUAL)

Figure 5-1:Splash Screen

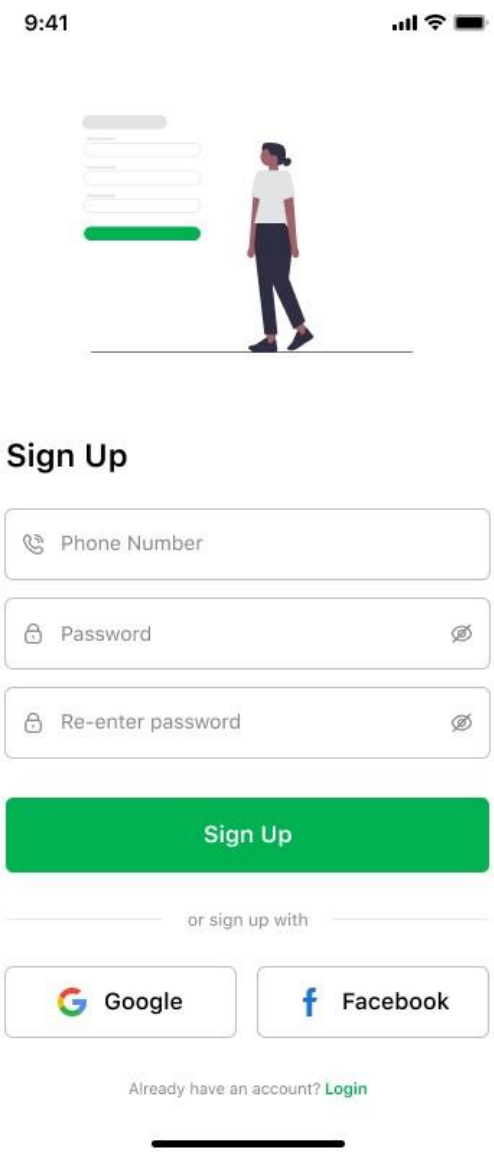

Figure 5-2: Sign-up screen

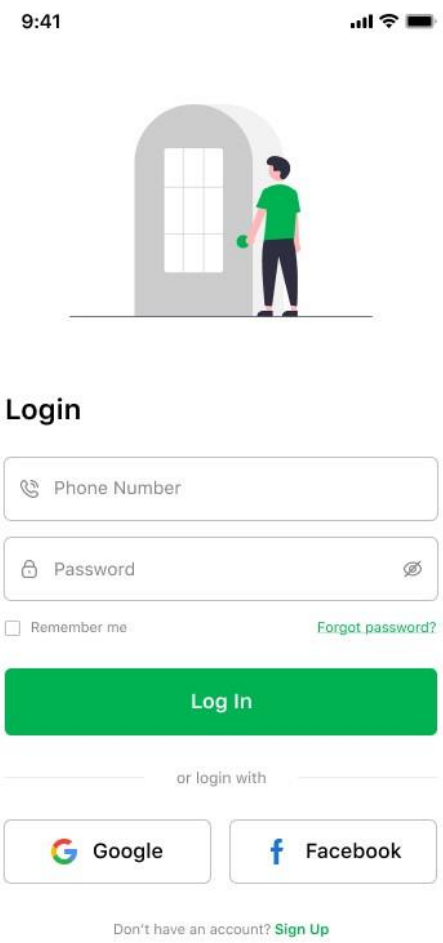

Figure 5-3:login screen

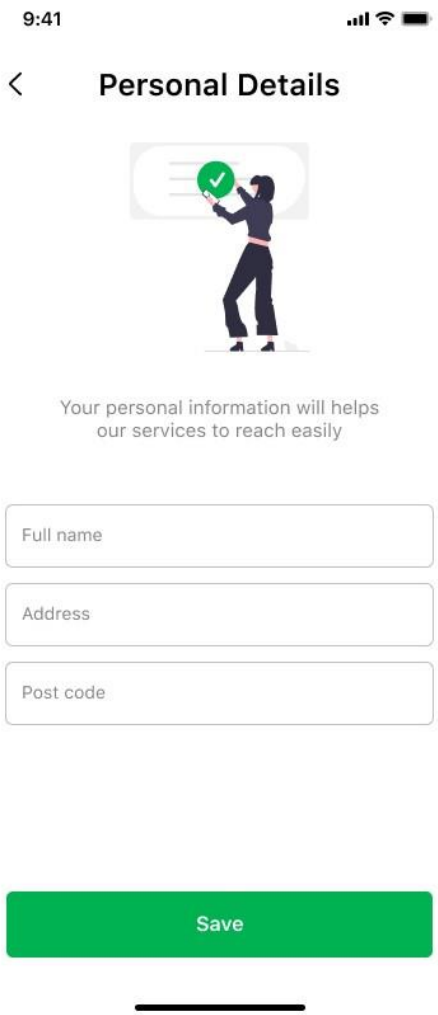

Figure 5-4:Personal detail screen

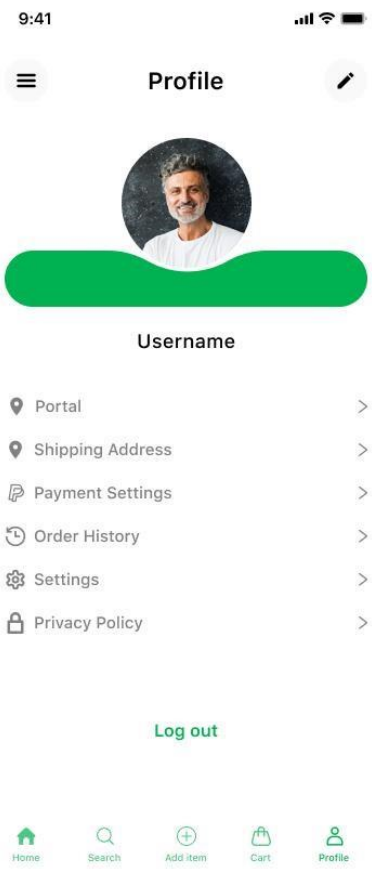

Figure 5-5:Profile screen

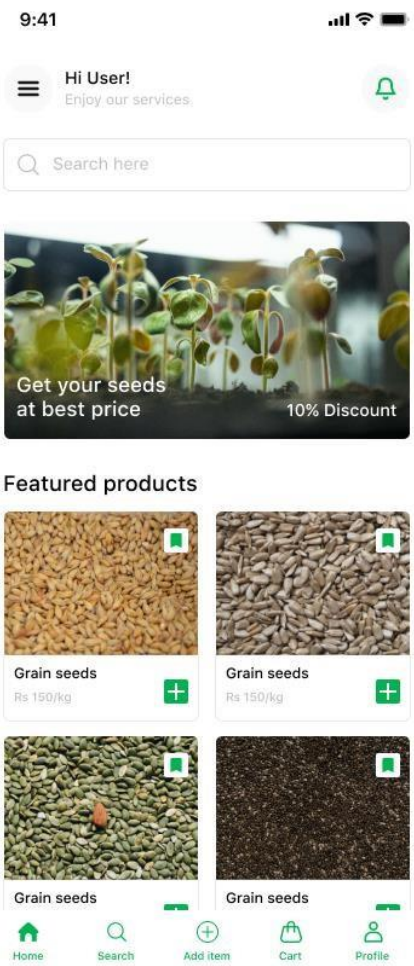

Figure 5-6:home screen


9:41
Details
Grain seeds
Available in stock
Rs 150/kg
4.9 (234)
Description
Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut al Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut al Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut al Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut al
Other Products
Add to cart

Figure 5-7:Product detail screen

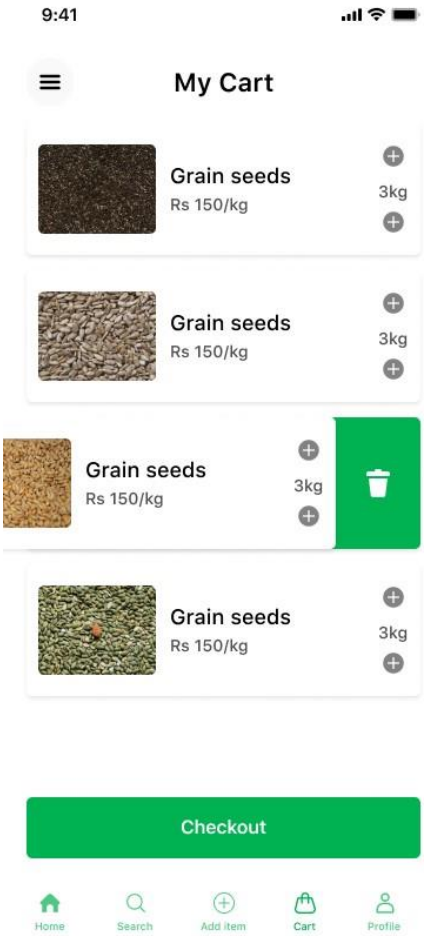

Figure 5-8:cart screen

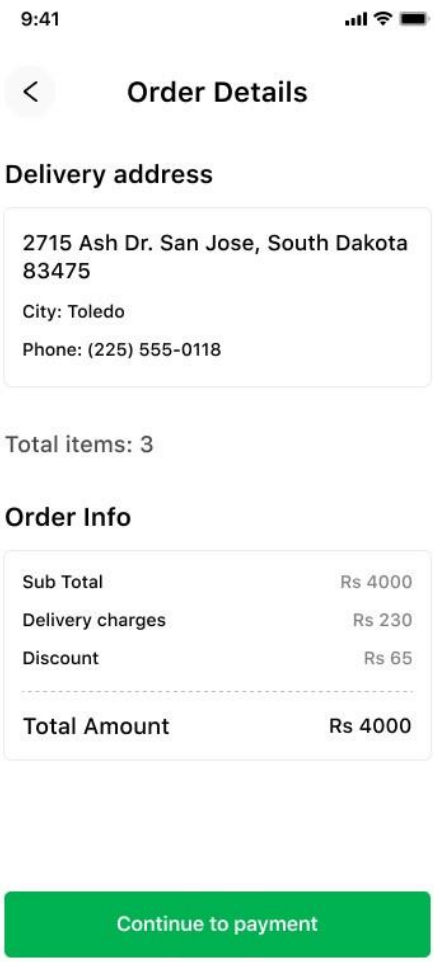

Figure 5-9:order detail screen

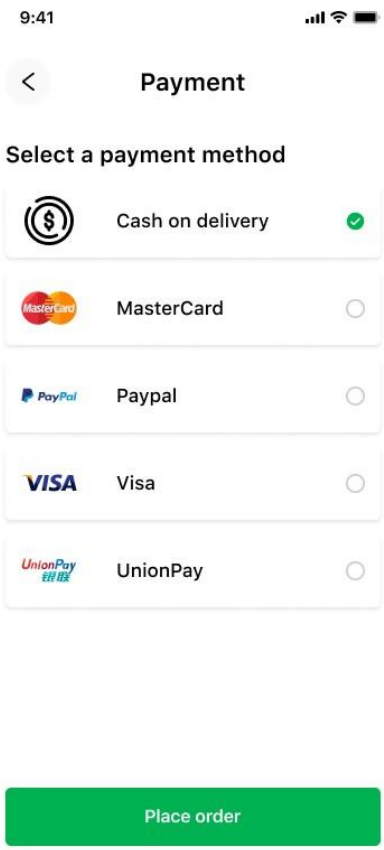

Figure 5-10:Payment detail screen

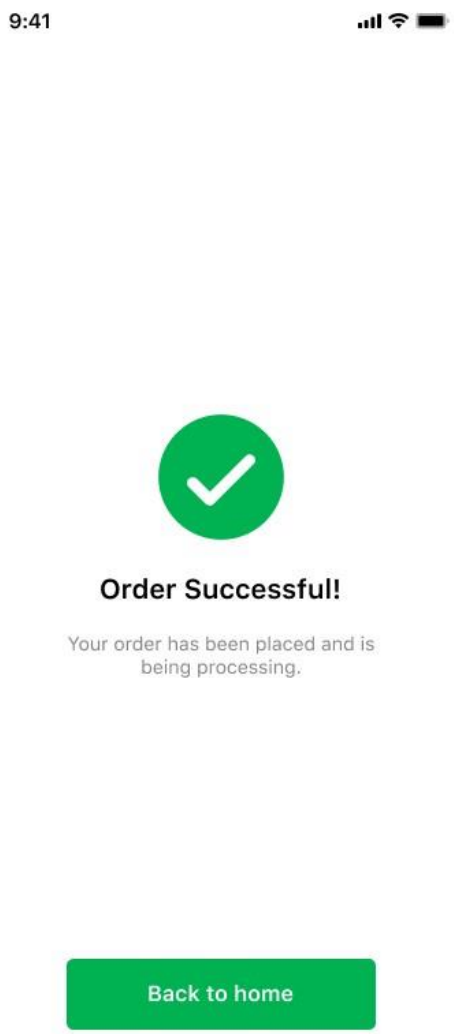

Figure 5-11:Order screen

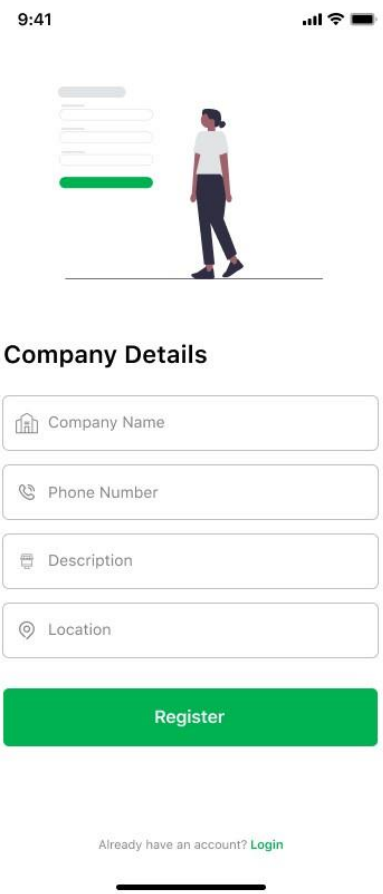

Figure 5-12:Company detail screen

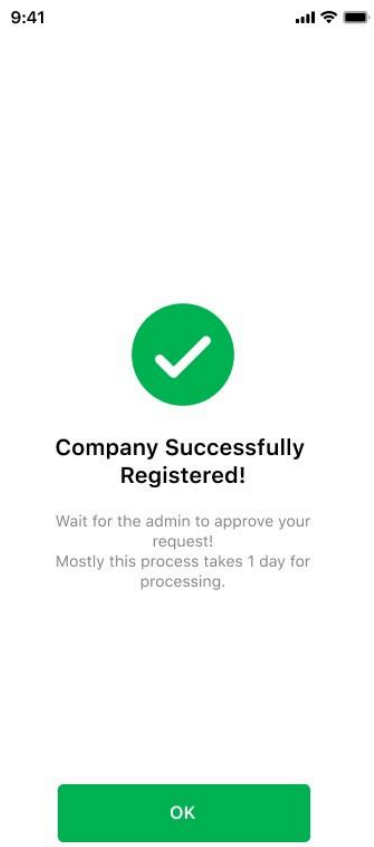

Figure 5-13:company registration screen

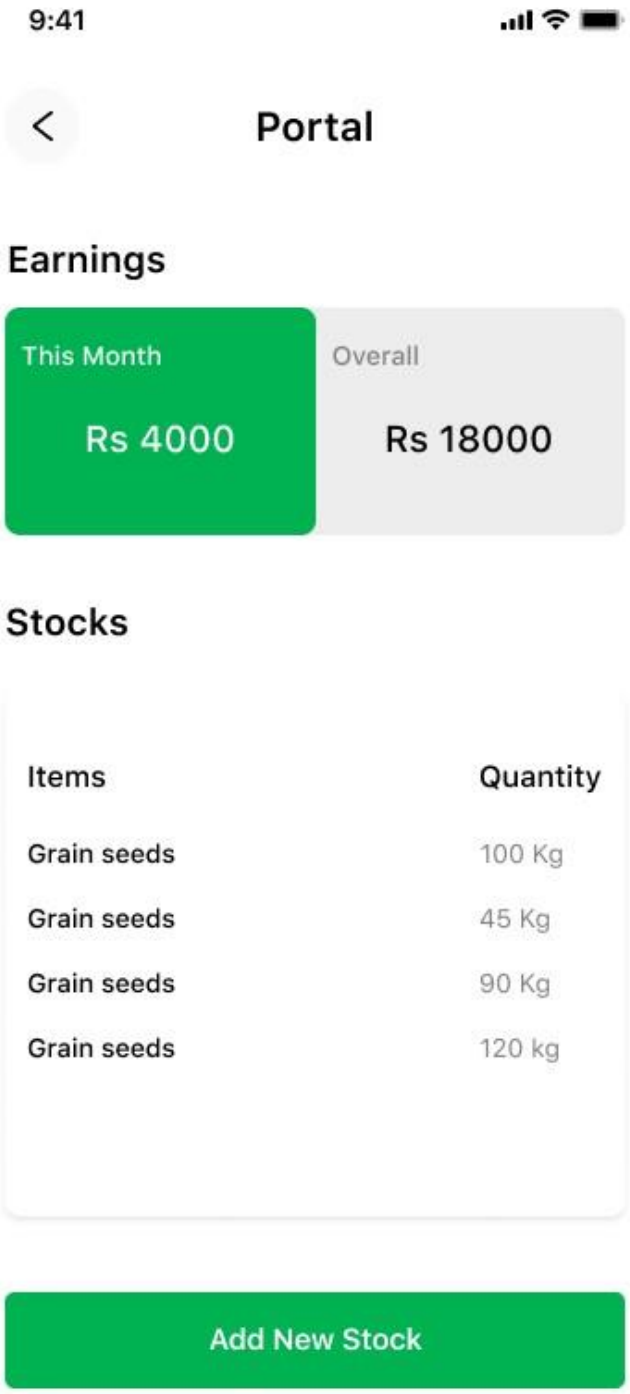

Figure 5-14:Dashboard screen

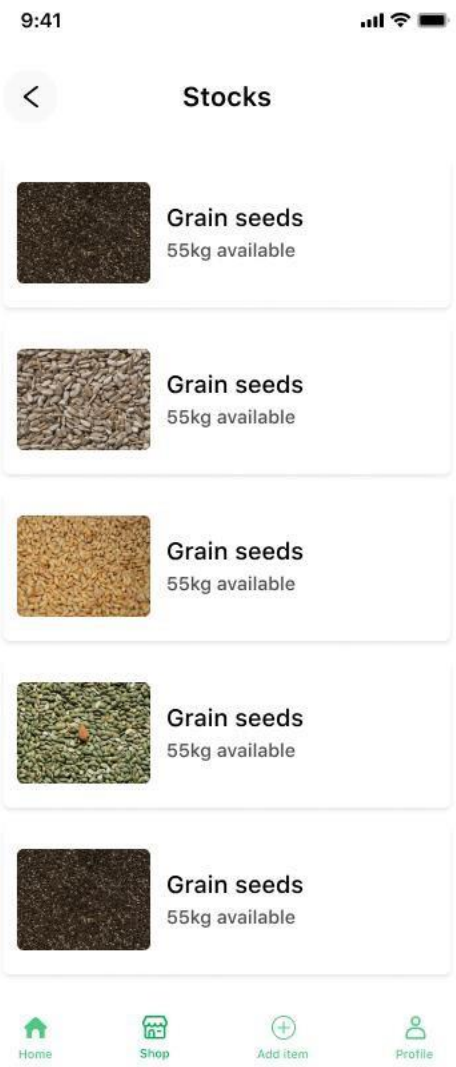

Figure 5-15:Available stock screen

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

As we come to the end of our exploration of our planned Flutter-based Agri Tech Store, using technology in agriculture is not just a convenience, but a big step toward modernization and efficiency. The goal of this project was to make an ecosystem where technology is at the centre of agricultural trade by giving farmers and agricultural businesses a full answer that works for both of them.

Strong cross-platform features in Flutter and scalable backend services in Firebase are used in the recommended system to make sure users have a smooth experience on all platforms. Our app is fast and easy to use, and this mix of technologies makes it available to a lot of people, no matter what gadget they use.

We used agile methods to make sure that our approach was adaptable and could change while the project was being built. By getting comments from users at different stages, we were able to make an app that more than meets their needs. Because it has safe payment methods, real-time data synchronisation, and an easy-to-use interface, our platform stands out as a great example of new ideas in Agri-tech.

Our Agri Tech Store is ready to bring together farmers who want to sell and farmers who want to buy by making a market that makes deals easier and opens up new growth possibilities. When suppliers add analytical tools, they learn useful things about market trends. This helps them make decisions based on data that make their goods better.

We learned a lot of different kinds of things along the way with this project. People are stronger and better at dealing with problems because of the problems they've had. These are both very useful skills in the world of technology creation, which is always changing. To sum up, the Agri Tech Store's successful start shows how combining farming and technology can make things different. This example shows how new platforms can help farmers get more power, make agricultural supply lines work better, and move the agricultural sector forward as a whole. As we look to the future, this project builds a strong base on which more ideas can be added, which could completely change how people around the world farm.

This conclusion gives an overview of the project's goals, the technologies chosen, the development method, and the effects that are expected. It also thinks about the project's bigger effects and lessons learned, setting a tone for what will happen in the future.

6.2 **future work:**

Here are some suggestions that might work with your Flutter-based Agri Tech Store.

- **Add more products to your line:** For the platform to fully serve the farming sector, it should always be looking for ways to work with different suppliers and vendors. This will make a bigger range of products available to meet the needs of farmers.
- **Use cutting-edge technologies:** New technologies like AI and machine learning should be used to make personalized product suggestions, predictive analytics should be used for supply chain management, and IoT should be used to track agricultural goods in real time.
- **Improve the user experience:** What do people think about the app? Make changes based on what they say to make it work better and look better. Think about how AR could be used to give people a virtual look at real-world goods.
- **Scale the backend infrastructure**: As the number of people grows, the backend should be able to handle more data and traffic. To make sure service doesn't stop, use cloud services that are open and highly available**.**

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