بسم الله الرحمن الرحيم

The islamic University of Gaza

Faculty of IT

الجامعة الإسلامية بغزة

كلية تكنولوجيا المعلومات

Title of your Project
تطبيق متجر إلكتروني متعدد الخيارات للتسوق والدفع والتوصيل

عنوان المشروع باللغة العربية

E-Commerce Multi-Option Shopping, Payment, and Delivery Application

By

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A graduation project report submitted in partial fulfillment of the requirements for the degree of Bachelor of Information Technology

Bachelor of Information Technology

10/02/2025

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Abstract

With the rapid technological advancement and increased reliance on smart devices, e-commerce has become essential. This project aims to develop a multi-feature e-commerce application that provides seamless shopping, flexible payment options (electronic/cash on delivery), and adaptive delivery services (home delivery/store pickup). The application targets both consumers and small businesses, offering an intuitive user interface, real-time order tracking, and vendor management dashboards. Using Flutter for cross-platform compatibility and integrating APIs like Google Maps and Stripe, the project follows Agile methodology to ensure adaptability. The outcome is a scalable solution addressing modern market needs while overcoming challenges like payment gateway integration and performance optimization.

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ملخص الدراسة

مع التطور السريع للتكنولوجيا، يهدف هذا المشروع إلى تصميم تطبيق متجر إلكتروني متكامل يدعم خيارات دفع متعددة (إلكتروني/نقدي عند الاستلام) وخدمات توصيل مرنة (توصيل للمنزل/استلام من المتجر). يستهدف التطبيق المستهلكين وأصحاب الأعمال الصغيرة عبر واجهة مستخدم بسيطة، مع تكامل خرائط جوجل لضمان المرونة، وتم Agile لتحديد المواقع وبوابات دفع آمنة. تم اتباع منهجية التحديات .iOSو Android لدعم منصتي Flutter تطوير التطبيق باستخدام شملت تكامل أنظمة الدفع وتحسين الأداء، بينما تشمل الخطوات المستقبلية دعم المزيد من اللغات وتحسين تجربة المستخدم.

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Dedication

This project is dedicated to our families, friends, and mentors who have supported us throughout this journey. Their encouragement, patience, and belief in our abilities have been invaluable in helping us reach this milestone.

We would also like to express our deepest gratitude to our supervisor, **Eng. Omar Mohammed diab**, for his guidance and continuous support throughout this project.

Finally, we dedicate this work to all aspiring developers and entrepreneurs who seek to innovate and make a difference in the world of technology.

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الإهداء

نُهدي هذا المشروع إلى عائلاتنا وأصدقائنا وأساتذتنا الذين قدموا لنا الدعم والتشجيع طوال رحلتنا الأكاديمية. لقد كان لدعمهم المستمر وثقتهم بنا الدور الأكبر في تحقيق هذا الإنجاز.

كما نعبر عن خالص امتناننا لمشرفنا **المهندس/ عمر محمد دياب** على توجيهاته القيمة ودعمه المتواصل خلال تنفيذ هذا المشروع.

وأخيرًا، نُهدي هذا العمل إلى جميع المطورين ورواد الأعمال الطموحين الذين يسعون للابتكار وصنع فارق في عالم التكنولوجيا.

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Acknowledgment

I would like to extend my sincere thanks to / Omar Mohamed Diab, our project supervisor, for his valuable guidance, support to the engineer, and constructive comments that played a role in the success of this work. We express our great gratitude for the great effort that he has made throughout the project, as he spared no effort in guiding us and emphasized the importance of helping us overcome the required challenges.

We thank Eng. Omar for his valuable time that he devoted to holding meetings, discussing the fine details, and working on effective solutions to all the problems we face. His presence was the greatest support for us, whether through technical preparation or guidance that contributed to the development of the project in an integrated manner.

We are fully aware of the size of the responsibilities and fatigue that he bore for the success of this work, and we confirm that what reaches the result is the fruit of his efforts and continuous support. We hope to celebrate success and success in the professional career, and we hope to always be up to expectations.

Thank you, Eng. / Omar, you have been a guide and encourager to us, and we will carry this valuable experience with us in our future career.

We extend our appreciation to the **Faculty of Information Technology at the Islamic University of Gaza** for providing us with the knowledge and resources necessary to complete this project.

A special thanks to our families and friends for their unwavering support, patience, and encouragement during this journey. Their belief in us has been a source of motivation throughout the project.

Lastly, we acknowledge the contributions of the open-source community and online platforms that provided us with essential tools, documentation, and frameworks that aided in our development process.

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الشكر والتقدير

تقدم بجزيل الشكر والتقدير إلى **المهندس/ عمر محمد دياب**، مشرف مشروعنا، على توجيهاته القيمة، دعمه المستمر، وملاحظاته البنّاءة التي كان لها دور كبير في نجاح هذا العمل. نعبر عن امتناننا العميق للجهد الكبير الذي بذله طوال فترة المشروع، حيث لم يدخر وقتًا أو جهدًا في توجيهنا وتقديم النصائح القيمة التي ساعدتنا على تجاوز التحديات وتحقيق الأهداف المرجوة.

نشكر **المهندس/ عمر** على وقته الثمين الذي خصصه لعقد الاجتماعات المنتظمة، ومناقشة التفاصيل الدقيقة، وتقديم الحلول الفعّالة لكل المشكلات التي واجهتنا. لقد كان تواجده الدعم الأكبر لنا، سواء من خلال النصائح التقنية أو الإرشادات العملية التي ساهمت في تطوير المشروع بشكل متكامل.

نحن ندرك تمامًا حجم المسؤولية والتعب الذي تحمله من أجل إنجاح هذا العمل، ونؤكد أن ما وصلنا إليه من نتائج هو ثمرة جهوده ودعمه المستمر. نتمنى له دوام التوفيق والنجاح في مسيرته المهنية، ونأمل أن نكون عند حسن ظنه دائمًا.

شكرًا لك يا **مهندس/ عمر**، لقد كنت مرشدًا ومشجعًا لنا، وسنحمل معنا هذه التجربة القيمة في مسيرتنا المستقبلية.

كما نعبر عن امتناننا **لكلية تكنولوجيا المعلومات في الجامعة الإسلامية بغزة** لما وفرته لنا من معرفة وموارد ساعدتنا في إنجاز المشروع.

نتوجه بشكر خاص إلى عائلاتنا وأصدقائنا الذين قدموا لنا الدعم والصبر والتشجيع طوال هذه الرحلة. لقد كانت ثقتهم بنا دافعًا رئيسيًا لنا في كل خطوة.

وأخيرًا، نقدر جهود مجتمع المصادر المفتوحة والمنصات التقنية التي وفرت لنا الأدوات والمعلومات التي ساعدتنا في تطوير هذا المشروع.

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List of Abbreviations

Adobe XD: Adobe Experience Design

API: Application Programming Interface

BPMN: Business Process Model and Notation

CSS: Cascading Style Sheets

DB: database management system

ERD: Entity Relational Diagram

HTML: Hyper Text Markup Language

IDE: Integrated Development Environment

JS: JavaScript

MSP: Microsoft Project

MVC: Model-View-Controller

PERT: Program Evaluation Review Technique

PHP: Hypertext Preprocessor

RDBMS: Relational DB Management System

UI: User Interface

UML: Unified Modeling Language

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Chapter 1

Introduction

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Chapter 1

Introduction

As the technologies advance over time, the way of using technologies changes over time. Web technologies have progressed giving web developers the ability to create useful and impressive web experiences. Web applications are always up to date, and anyone can access web applications from anywhere. Many people, with the advancement of technology and the large number of jobs they have, everyone is looking for comfort and saving time and effort in the matter of shopping and searching for goods .

An eCommerce application, Gaza Online Store, that contains many characteristics and features is developed such that anyone can enter the online store and see a lot of goods, search, buy and see new goods and see discount coupons for some of the offered goods, and the idea of payment was also provided E-mail that supports many countries .

Merchants have been developed and integrated into this site so that any merchant can agree with the management of the online store, and then the site management provides him with some powers within the online store so that he can display his own merchandise and become available for purchase by customers, and he can obtain statistics on this with ease .

Also, electronic bills were provided to the customer directly via e-mail upon completion of the purchase process, and it was also made available to him to provide the site administration with his comments and opinion about the purchased product .

In the development of the application, we have used a methodology of waterfall, which consists of stages of Requirement gathering and analysis, System design, Implementation, and Testing. This methodology is widely used in web application development because it's understandable and easy to follow. Waterfall methodology suits our project because the requirements are clear.

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1.1 Problem Statement

The demand for flexible e-commerce solutions that support multiple payment and delivery options is growing rapidly. However, the absence of integrated platforms that cater to both electronic and cash-on-delivery payments, along with efficient order management, poses a significant challenge for users and vendors in Gaza.

1.2 Objectives

1.2.1 Main Objective

The primary objective of this project is to develop a comprehensive e-commerce platform that supports multiple shopping, payment, and delivery options, ensuring a seamless and user-friendly experience for both consumers and vendors.

1.2.2 Sub Objectives

- **Support Secure Electronic Payment Systems:** Integrate reliable and secure payment gateways to facilitate online transactions.
- **Provide Flexible Delivery Options:** Offer both home delivery and store pickup options to cater to diverse user preferences.
- **Design Intuitive User Interfaces:** Create user-friendly interfaces for consumers and vendors to enhance usability and accessibility.
- **Enable Real-Time Order Tracking:** Implement features that allow users to track their orders in real-time.
- **Develop Vendor Management Dashboards:** Provide vendors with tools to manage inventory, track sales, and update product information efficiently.

1.3 Scope and Limitations

The project targets users in the Gaza Strip, with a focus on local market needs. The application will integrate with Google Maps for location-based services and Stripe for secure electronic payments.

- **النطاق :**يستهدف المستخدمين في قطاع غزة.
- **القيود :**محدودية التكامل مع أنظمة الدفع الدولية بسبب القيود الجغرافية.

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1.3.2 Limitations

- **Geographical Restrictions:** Limited integration with international payment gateways due to geographical constraints.
- **Resource Constraints:** Limited access to advanced development tools and resources in the region.
- **Market Competition:** Competing with established e-commerce platforms like Souq and Noon.

1.4 Importance of the project

This project is of significant importance as it aims to enhance the local digital economy by empowering small businesses to reach a broader audience. It also improves the shopping experience for consumers by offering flexible payment and delivery options, ultimately contributing to the growth of e-commerce in Gaza.

1.5 Methodology

The project follows the **Agile methodology**, which emphasizes iterative development, continuous collaboration, and adaptability to changing requirements. The methodology is divided into four main phases:

1. **Planning:** Defining project requirements and objectives.
2. **Design:** Creating wireframes, prototypes, and database schemas.
3. **Development:** Implementing the application using Flutter for cross-platform compatibility.
4. **Testing and Deployment:** Conducting rigorous testing to ensure functionality and deploying the application for public use.

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1.7 Tools and Technologies

The following tools and technologies will be used in the development of the project:

1.8 Tables

Tool/Technology	Description	Usage
Flutter	A cross-platform UI framework for building native applications.	Front-end development for Android/iOS.
Stripe API	A payment processing platform for secure online transactions.	Payment gateway integration.
Google Maps API	A mapping platform for location-based services.	Delivery location tracking.
Git	A version control system for code management.	Code versioning and collaboration.

1.8.1 Tables

The following table provides an overview of the tools and technologies used in the project:

Table (1.1): Tools and Technologies

Tool/Technology	Description	Usage
Flutter	A cross-platform UI framework for building native applications.	Front-end development for Android/iOS.
Stripe API	A payment processing platform for secure online transactions.	Payment gateway integration.
Google Maps API	A mapping platform for location-based services.	Delivery location tracking.
Git	A version control system for code management.	Code versioning and collaboration.

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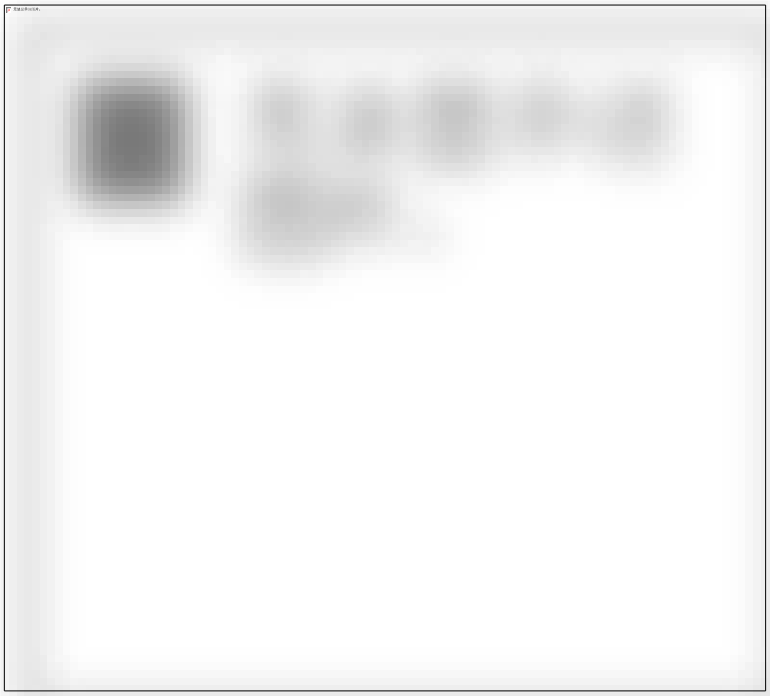
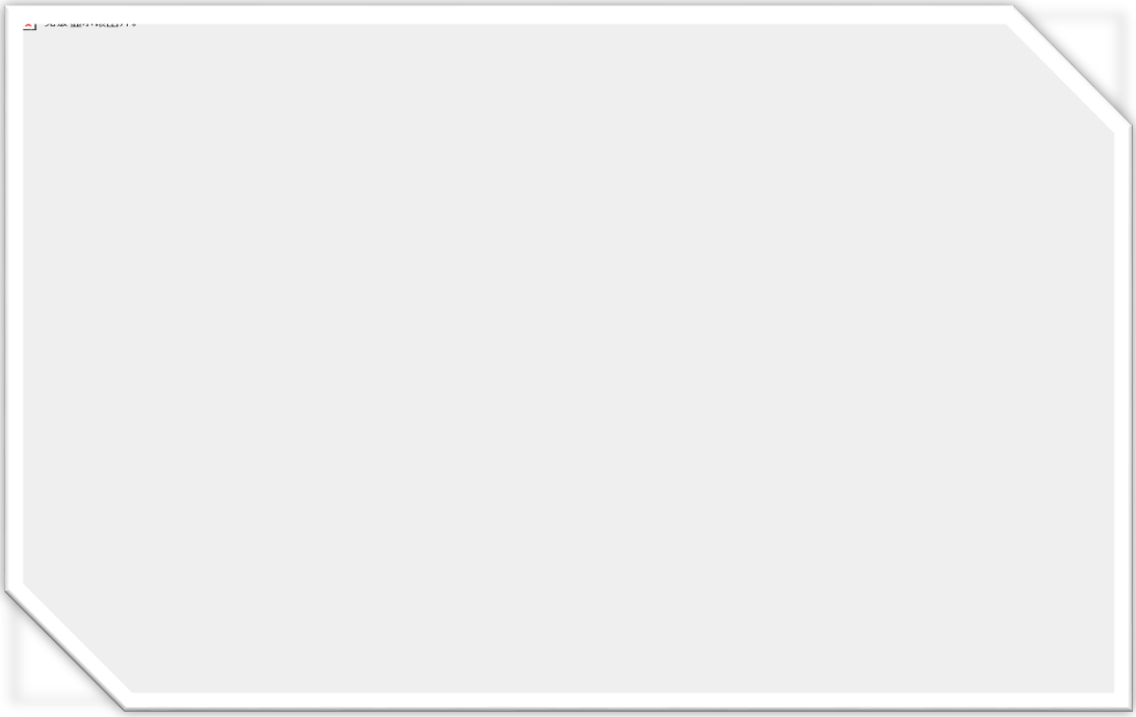
1.9 Figer1: Scope and Limitations of the Project.



1.9.1 Figer2: Tools and Technologies Used in the Project



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Chapter 2

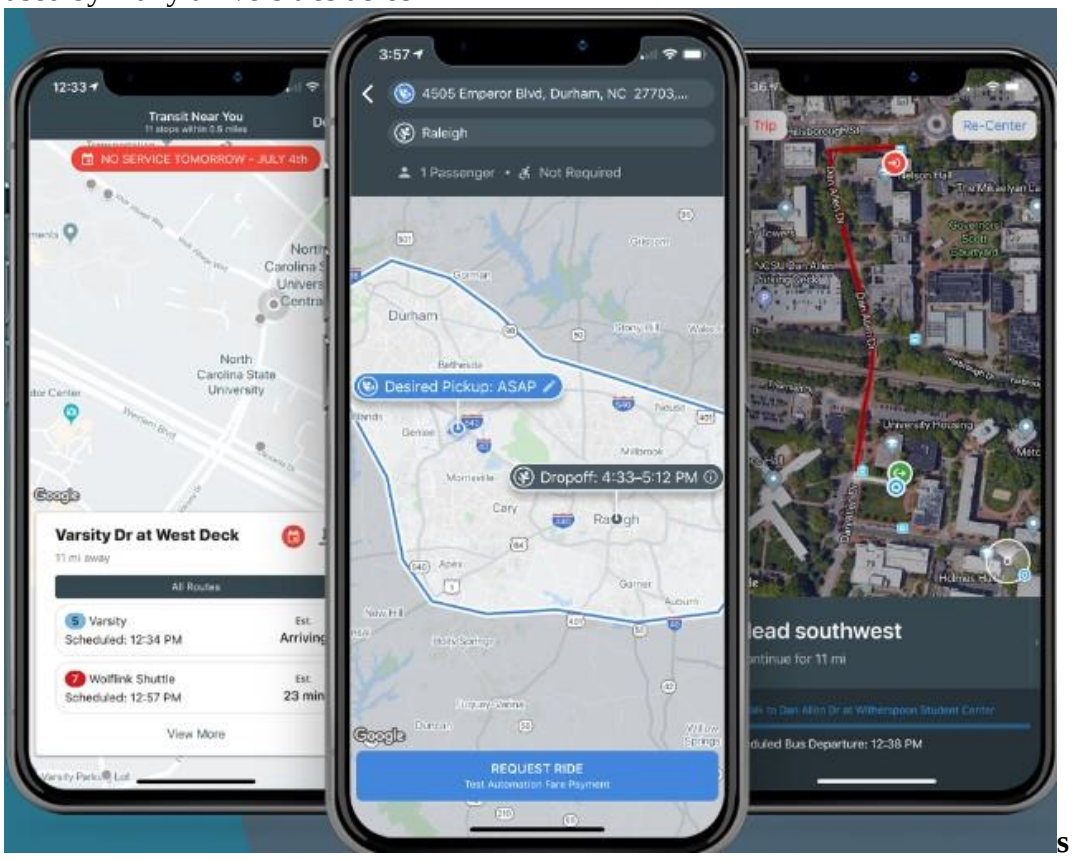
Related Works

تمت مقارنة التطبيق مع منصات مثل (Souq, Noon) مع إبراز الاختلافات:

- دعم خيارات توصيل مزدوجة (منزل/متجر).
- تكامل لوحة تحكم متقدمة لإدارة المخزون للبائعين.
- دعم اللغة العربية بشكل كامل.

In this chapter, we review works similar to our bus tracking application for university students. These works provide real-time tracking information for bus or transit services. However, they differ in their specific features and target audience.

2.1 Transloc Application: Transloc is a mobile application that provides real-time tracking information for university shuttle buses. It allows users to view the location of the shuttle bus on a map, as well as receive alerts and notifications for delays or route changes. Transloc is used by many universities acros



s the United States and is available for free on iOS and android.

Figure 2.1: Transloc Application

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- **2.5 Synthesis Matrix**
- The synthesis matrix is a chart that allows a researcher to sort and categorize the different arguments presented on an issue. Across the top of the matrix the related works, and along the side of the matrix are the main points of argument on the related works. A "√" in a cell present discussing this point of argument for that related work.
- Table 2.1 shows a comparison between our bus tracking application and the other application we reviewed above. Our application

- **Table 2.1: A Synthesis Matrix**

	Our Application	Taxicaller Application	LiveSchool Bus Tracker	DoubleMap	Transloc Application
Idea	✓	✓	✓	✓	✓
Payment					✓

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Product Type	✓	✓		✓	
Usability	✓	✓	✓	✓	✓

All previous applications have the advantage of tracking vehicles of all kinds, but each application differs in the target audience behind the application. Our app tracks university buses, provides information about breakdowns and deviations, and offers additional location-based services. Others cater to taxis, school buses, or university shuttles. In terms of payment method, Taxicaller app supports payment method for taxi bookings. As for the rest of the applications, they are usually free, and in terms of ease of use, most applications are easy to use.

In short, the distinguishing features of our app compared to the other four are its special focus on tracking university buses, providing information about breakdowns and deviations, and providing additional location-based services. While other apps cater to taxis, school buses, or university shuttle buses, your app aims to meet the specific needs of college students and bus companies in efficiently managing campus transportation.

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Chapter 3

Methodology

- The Agile methodology is a way to manage a project by breaking it up into several phases. It involves constant collaboration with stakeholders and continuous improvement at every stage. Once the work begins, teams cycle through a process of planning, executing, and evaluating. Continuous collaboration is vital, both with team members and project stakeholders.

3.1 Agile Methodology

السبب :مرونة في مواجهة متطلبات متغيرة.

المراحل:

- **Sprints:** تقسيم المشروع إلى 4 مراحل (تخطيط، تصميم، تطوير، اختبار).
- **Tools:** استخدام Jira لإدارة المهام، و Gitللتحكم بالإصدارات.

3.2 Tools and Technologies:

الأداة	الاستخدام
Flutter	تطوير واجهات متعددة المنصات
Firebase	تخزين البيانات والمصادقة
Stripe API	معالجة الدفع الإلكتروني

Table 2: Tools

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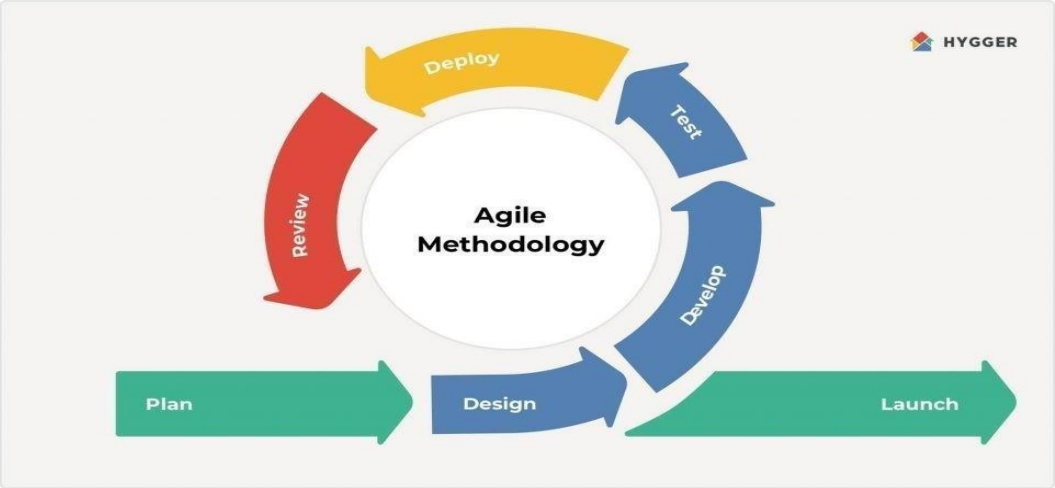

Figure 3 - Agile Methodology[7]

Phase 1:

At this stage, the project will be analyzed and all points that will be followed in the design will be clarified and the Android application screens will be designed .

It is include :

1. Explain all project phases from start to finish .
2. Split tasks for each person
3. Sketches drawing app
4. Design the application as it is in the sketch

Phase 2 :

At this stage, the application will also be analyzed in order to carry out the required operations in the app, after which the app will be developed and all the required data will be stored .

It is include :

1. The app will be designed
2. A app will be developed
3. The data to be added will be added

Phase 3 :

At this stage, the Android application will be developed in Kotlin, after which the code will be tested for both the Android application.

It is include :

1. Design of Android application screens
2. Android application development
3. Android application test

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Table 1.1: Development Process

Phase Name	Task Name	Details
Phase 1	**Database**	- Define and analyze the database-related functional and non-functional requirements by configuring MS SQL and specifying database entities and relations between them. - Build the database using MS SQL and insert the prepared questions that will be used within the application. - Test the database by fetching and inserting fake data that will make sure all the database requirements are met.
Phase 2	**Mobile Side of the Application**	- Design the UX/UI of the Android application using Adobe XD. - Build the Android application by starting with the pre-designed screens. Then, we connect the app to the required backend services. - Test the Android application-related features.
Phase 3	**Web Side of the Application**	- Create a design for web pages. - Start writing the front-end code. - Start the connection process with the backend. - Linking with the data base side. - Test all processes. and ensure the integrity of the connection

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1.6 Tools, Methods, and Technologies

Flutter:

Flutter is a free and open-source UI framework for creating native mobile applications from Google. Released in 2017, Flutter allows developers to build mobile applications with a single codebase and programming language. This capability makes building both iOS and Android apps simpler and faster.

Dart:

Dart is an object-oriented, open-source, client-optimized development programming language. It has C-styled syntax. It is used to create a good-looking front-end User Interface for mobiles and the web. It is the foundation of Flutter.

Figma:

Is a leading cloud-based design and prototyping tool known for its real-time collaboration, cross-platform, design systems, and user-friendly interface.

Adobe Photoshop CC 2020:

Adobe Photoshop [10] is software that is extensively used for raster image editing, graphic design and digital art. It makes use of layering to allow for depth and flexibility in the design and editing process, as well as provide powerful editing tools that when combined, are capable of just about anything.

1.7 Time Table

Based on the development phases of the waterfall methodology, Table 1.2 shows the time table of the whole project.

Table 1.2: Time Table of the Project Phases

ID	Task Name	Details	Duration
1	Requirement Gathering and analysis	Collecting data	5 days
		Interviewing Customers	10 days
2	System Design	Prototyping	5 days
		Database design	7 days
		System user interfaces and er diagram and use cases	10 days
		Design web pages	10 days
3	Implementation	Database creation	15 days

		Front-end development	15 days
		Back-end development	30 days
4	Testing	Test login/register unit	2 days
		Test Admin features	5 days
		Test Customer features	5 days
		Integrate units, final test,	5 days
5	Documentation	Finalizing the documentation	10 days
Total			134 days

1.7 Tools and equipment:

A good app is the result of using excellent development tools to build this app, we used a number of tools needed in the process of Application build

1.7.1 Hardware tools

Device	Number	Specifications	Used
Laptop	5	HP Core i7 Acer Core i7 HP Core i7 MSI	For programming & montage videos
Mobile	2	xiaomi Samsung	For test the app on mobile

Table 3: Hardware

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1.7.2 Software tools

Number	Software	Description	Used
1	Android Studio 4.1.2	Android Studio is the integrated development environment for Google's Android platform. Versions of Android Studio are compatible with some Apple, Windows and Linux operating systems. With support for Google Cloud Platform and Google app integration. Android Studio offers developers a well-stocked toolkit for creating Android apps or other projects.	It is used for application programming
2	Microsoft Word 2019	It is a program produced by Microsoft that allows the user to enter texts and then it is processed to appear to the user as he wants.	It was used to do the research
3	Adobe Illustrator 2021	It is a program that designers use to create graphics, icons, emojis and trademarks for companies, organizations and people to be distinctive and show them, and it is one of the Adobe Creative Cloud programs.	It was used to make the logo

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4	Adobe Premiere Pro 2021	It is a program used to edit video clips and movies and allows you to set effects on video and sound , and combine them and export them as one video.	Used for video montage
5	Microsoft Project	Is a project management software product, developed and sold by Microsoft. It is designed to assist a project manager in developing a schedule, assigning resources to tasks, tracking progress, managing the budget, and analyzing workloads. [6]	We use it for project step analysis
6	Microsoft PowerPoint	It is a program used to make presentations and presentations to clarify the image and communicate information better, and it is one of the Microsoft Office programs.	It was used to make the presentation
7	Adobe XD 2021	Adobe XD is a powerful and easy-to-use vector-based experience design platform that gives teams the tools they need to craft the world's best experiences collaboratively. Available on Mac and Windows systems, XD meets teams where they're working with crossplatform compatibility. [7].	creating wireframes, prototypes, and screen designs

4: Software Table

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Chapter 4

System Design

4.1 Architecture

- **Frontend:** UI.
- **Backend:** Flutter (Dart) مع قواعد بيانات Firebase.
- **التكامل:** Google Maps API لتحديد المواقع، و Webhook لإشعارات الحالة.

4.2 Database Design

- رسم تخطيطي يوضح علاقات الجداول بين المستخدمين، المنتجات، والطلبات.

4.3 Use Cases

4.3.1 Use Case Diagram

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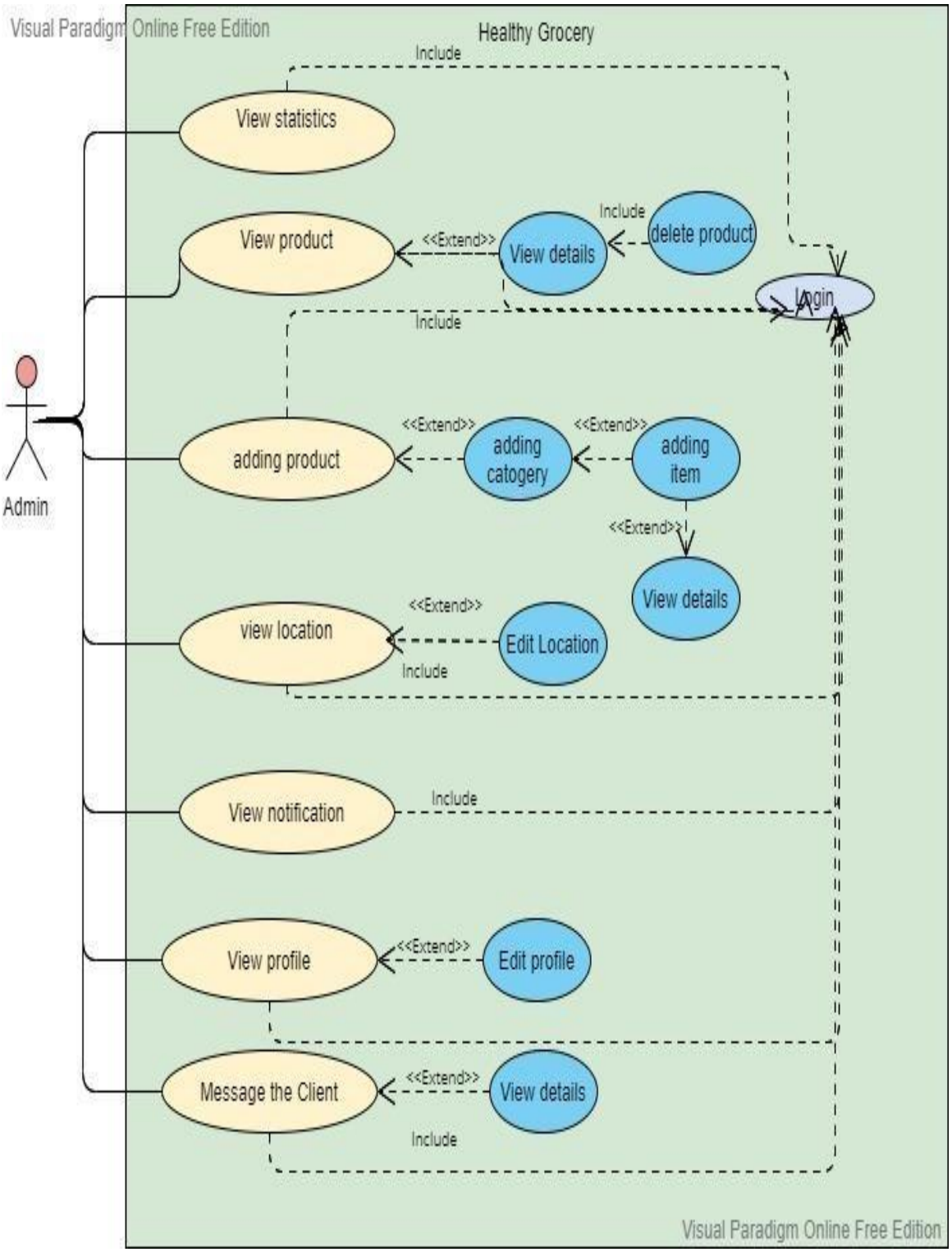

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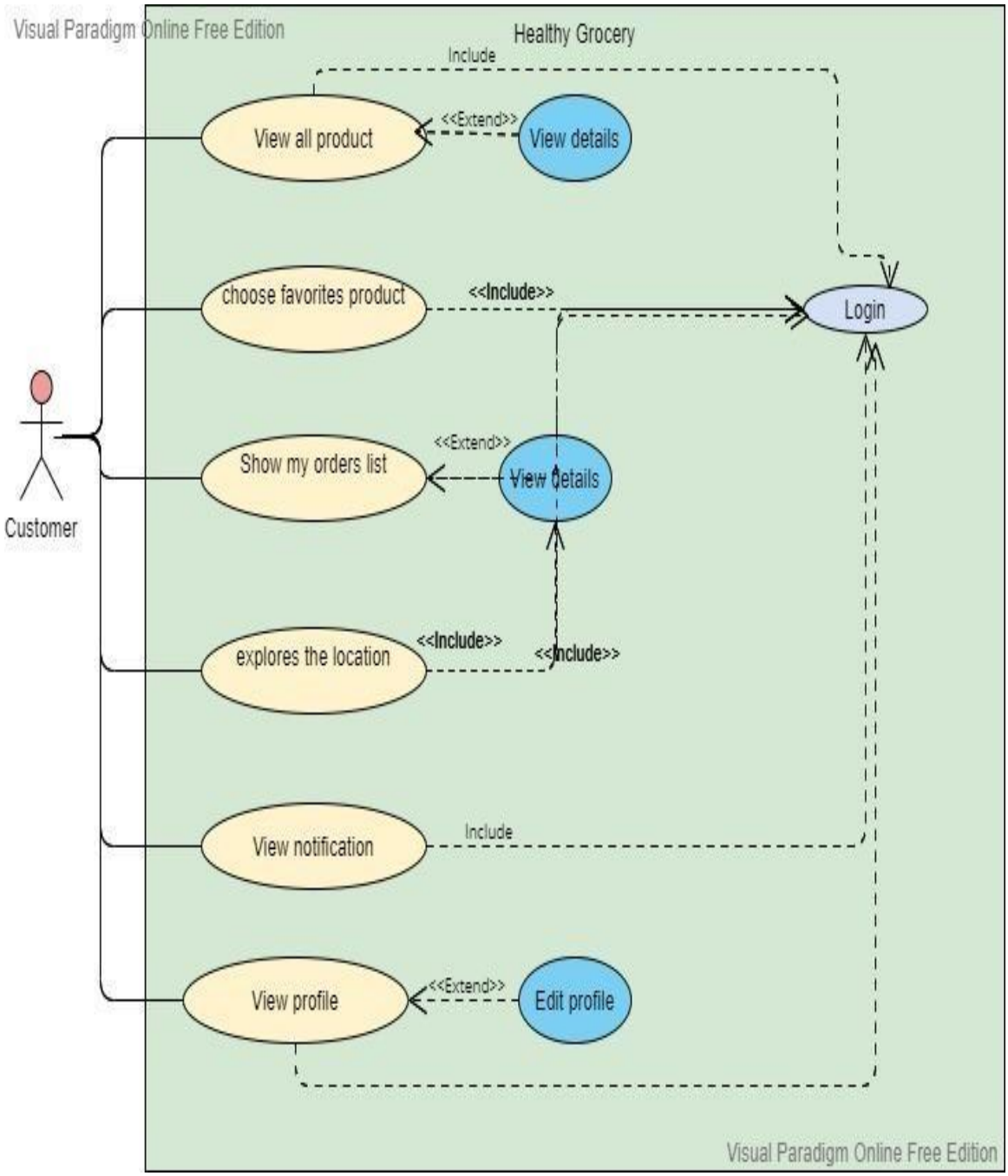

بسم الله الرحمن الرحيم

4.3.2 Use Case

4.4.2.1Client Use Cases

Table6: Client Use Case

ID	Name
U01	Registration
U02	Login
U03	Show all product
U04	Explore product
U05	explores the price of each product
U06	explores the total order price
U07	explores delivery times
U08	explores the location
U09	Show my orders list
U10	choose favorites product
U11	View profile
U12	Update profile
U13	View notification
U14	Enable & Disabled notification

Table 7 – Create account Table

ID	**U01**
Name	Registration
Description	In order for the user to access the application
Pre-Condition	Fill in all fields must be valid
Action	• Download app • Show onboarding steps • Choose Client option • Complete registration requirement • Input all field • Click to registration button
Post-conditions	• Client added to database
Exceptions	Validation error message

بسم الله الرحمن الرحيم

Table 8 – Login Table

ID	**U02**
Name	Login
Description	In order for the user to access the application in his account
Pre-Condition	Fill in all fields must be valid
Action	• Download app • Choose the Client option • Click login • Input all field • Click to sign in button
Post-conditions	• Verify user data that saved in the database
Exceptions	Validation error message

Table 13 – Show all product Table

ID	**U03**
Name	Show all product
Description	seen all product in application
Pre-Condition	-
Action	• Go to Home screen • Click view all button
Post-conditions	-
Exceptions	-

Table 10 – Explores the price of each meal Table

ID	**U05**
Name	**Explores the price of each product**
Description	the price of each product
Pre-Condition	-
Action	• User will be directed to the all product screen • Choose the view more • Choose a product section

	• Explore all product type in that section

	• User exploration of all product prices found
Post-conditions	-
Exceptions	-

Table 11 – Explores the total order price Table

ID	**U06**
Name	explores the total order price
Description	total order price
Pre-Condition	-
Action	• Choose the product and explore the price and add it to the cart • User will be directed to the cart screen • User ability to increase or decrease the number of meals required • Explore user delivery price • Explore user total order price
Post-conditions	-
Exceptions	-

Table 12 – Choose favourites product Table

ID	**U10**
Name	**Choose favourites product**
Description	able to choose favorite product from any category
Pre-Condition	-
Action	• Go to category product • Go to product • Click on favourite icon • The product save in database in favourite table in customer account • Show product in favourite screen

Post-conditions	-
Exceptions	-

22

Table 14 – Show my orders list Table

ID	**U09**
Name	**Show my orders list**
Description	able to seen own all orders in application
Pre-Condition	-
Action	• Go to Home screen • Click on shopping cart icon • Customer seen orders list
Post-conditions	-
Exceptions	-

4.4.2.2. Admin Use Cases

Table 3.1 Admin Use Cases

ID	Name
U01	Login
U02	View statistics
U03	View product
U04	View Notification
U05	adding product
U06	delete any product
U07	addingcatogery
U08	Delete any catogery
U09	Message the Client
U10	Edit Location
U11	Product tracking

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Table 3.2 Admin Login Use Case

ID	**U14**
Name	Login
Description	In order for the user to access the application in your account
Pre-Condition	Fill in all fields must be valid
Action	• Download app • Choose the right option for you by sign in • Input all field • Click to sign in button
Post-conditions	• Verify user data saved in the database
Exceptions	Validation error message

Table 3.3 Admin Active/Deactive Charity Use Case

ID	**U12**
Name	View statistics
Description	View some statistics about the application (number of buyers - reviews orders - shipments)
Pre-Condition	-
Action	• Click on the home page • Statistics for the application appear in the Dashboard
Post-conditions	-
Exceptions	-

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Table 3.4 Admin Active/Deactive Donor Use Case

ID	**U10**
Name	**adding product**
Description	**allow to add a product**
Pre-Condition	**-**

Action	• Click on the add icon • Choose a category type • Go to the add product screen
Post-conditions	• New product type will add to database Move to donors page
Exceptions	-

Table 3.5 Admin Add Donation Type Use Case

ID	**U09**
Name	Message the Client
Description	The process of messaging the customer and answering your inquiries
Pre-Condition	-
Action	• Click on the chat icon • View incoming messages • Open and reply to conversations
Post-conditions	-
Exceptions	-

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4.4 Sequence Diagram

4.4.1 Client

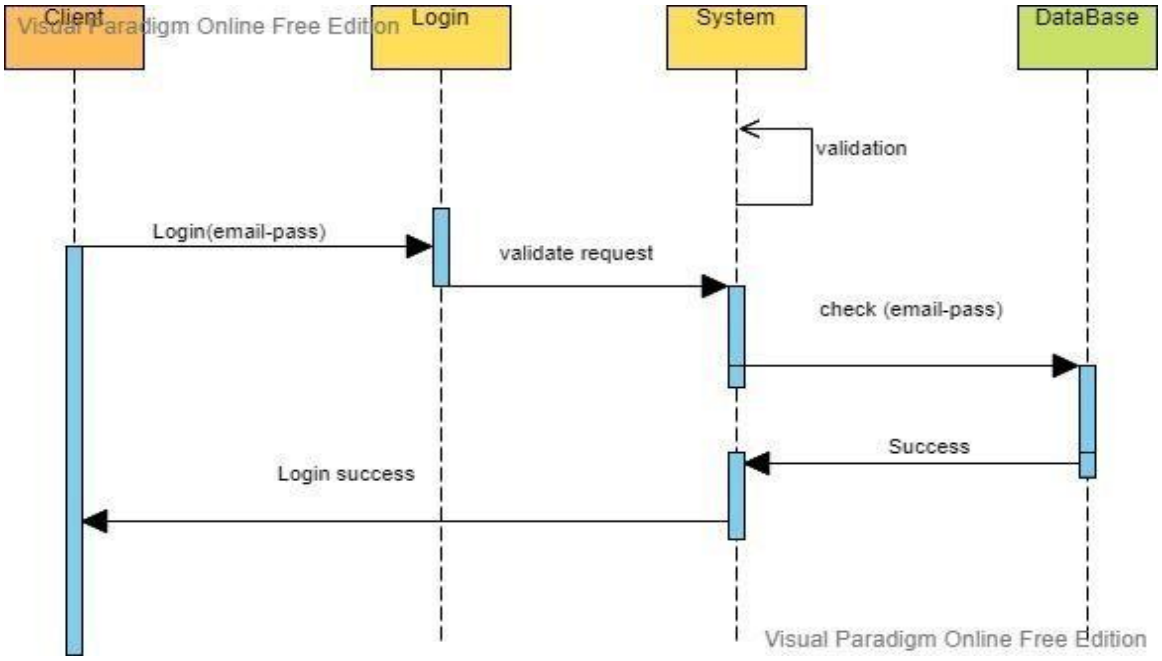


Figure 3.1 Register Sequence Diagram

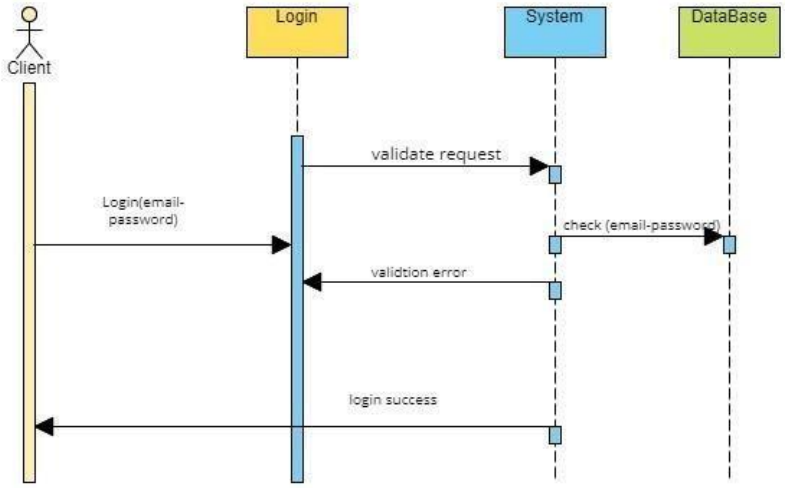


Figure 3.2 Login Sequence Diagram

بسم الله الرحمن الرحيم

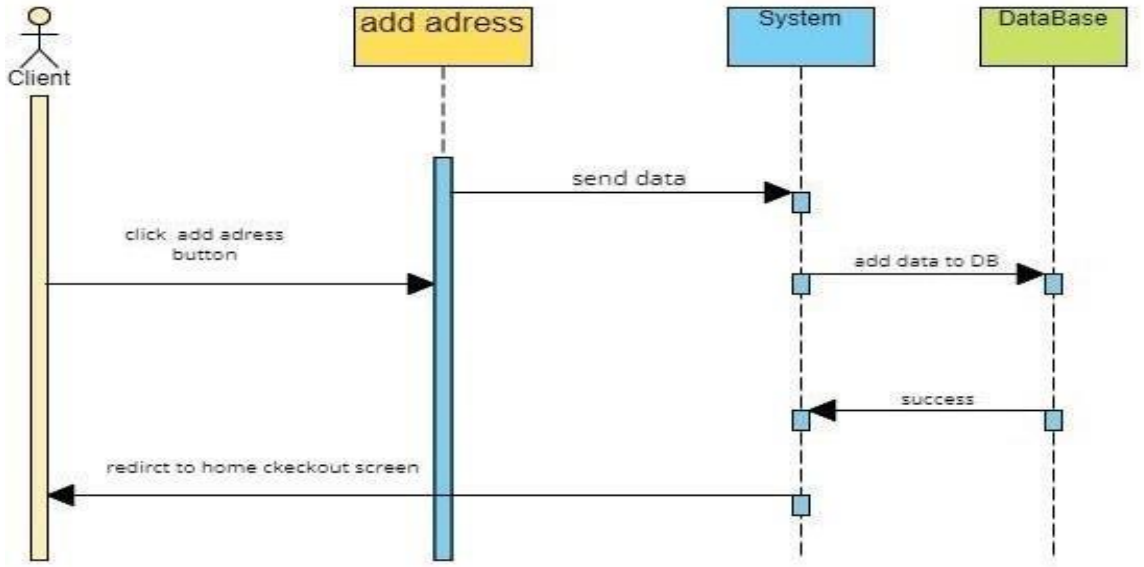


Figure 3.3 add address Sequence Diagram

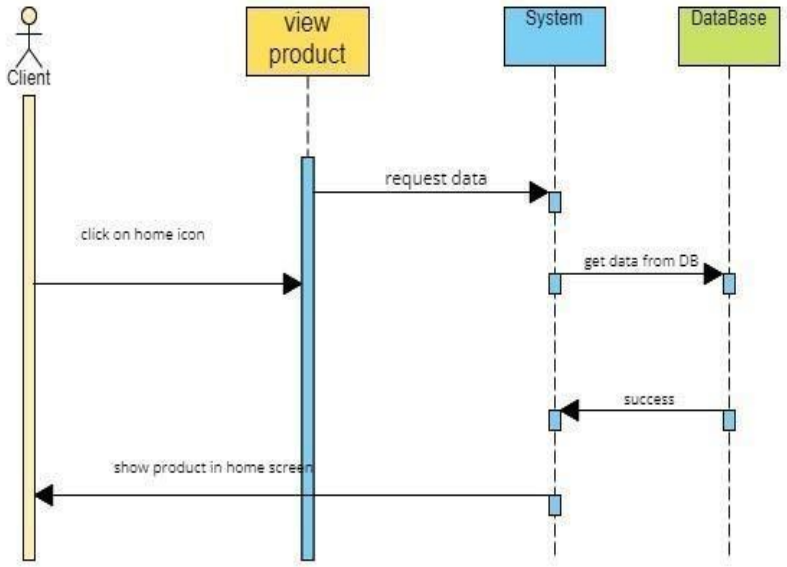
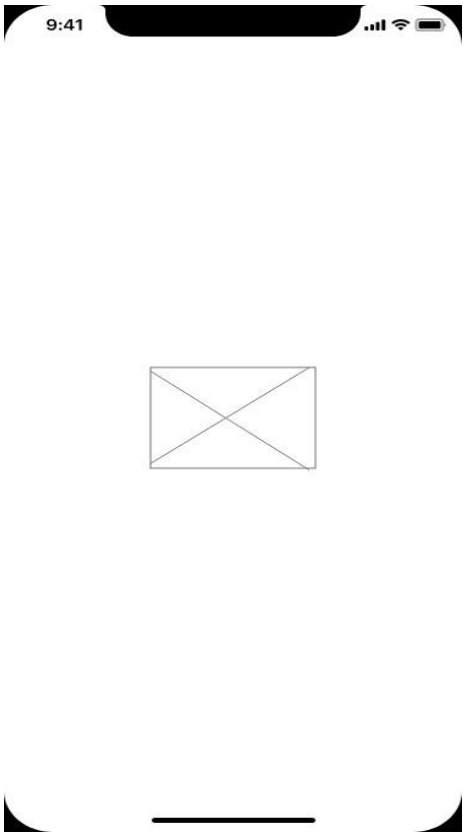


Figure 3.4 view product Sequence Dia

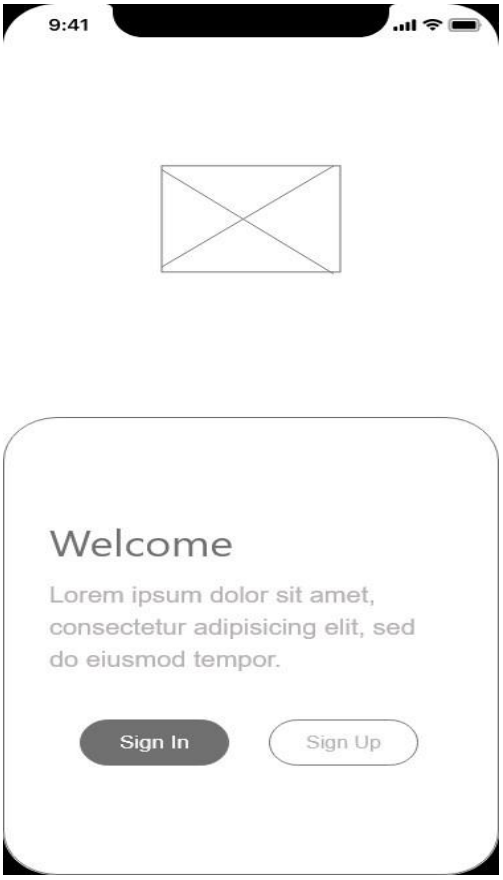
بسم الله الرحمن الرحيم

3.6 Wireframe

The following shows the wireframe, which is the initial design that precedes the graphic design, which helps in creating a clear picture of the shape of the interfaces in the application.

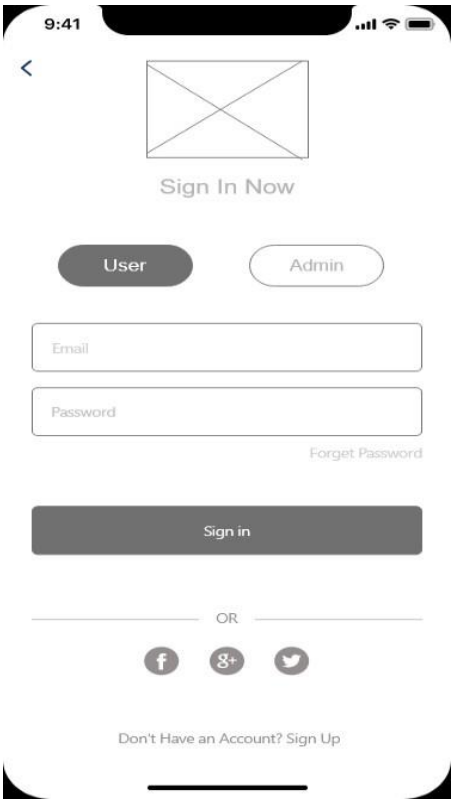


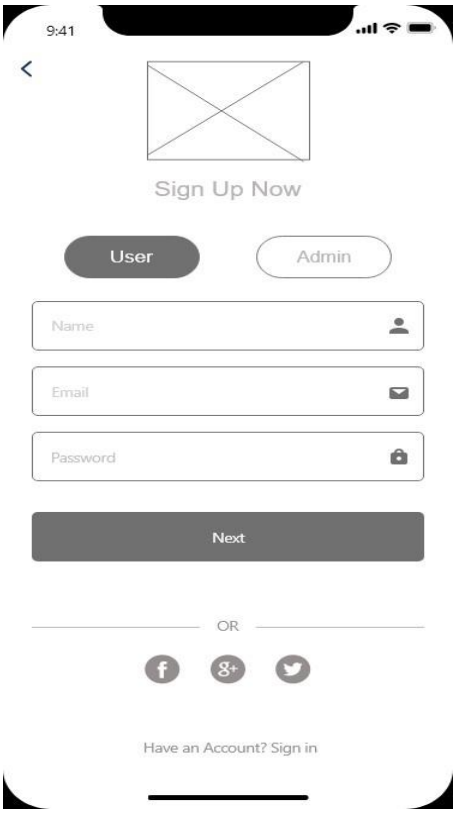
The splash screen, in which



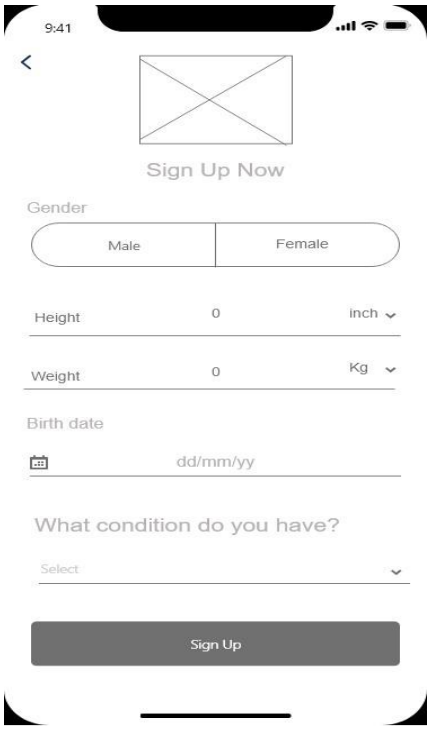
Welcome Screen

بسم الله الرحمن الرحيم



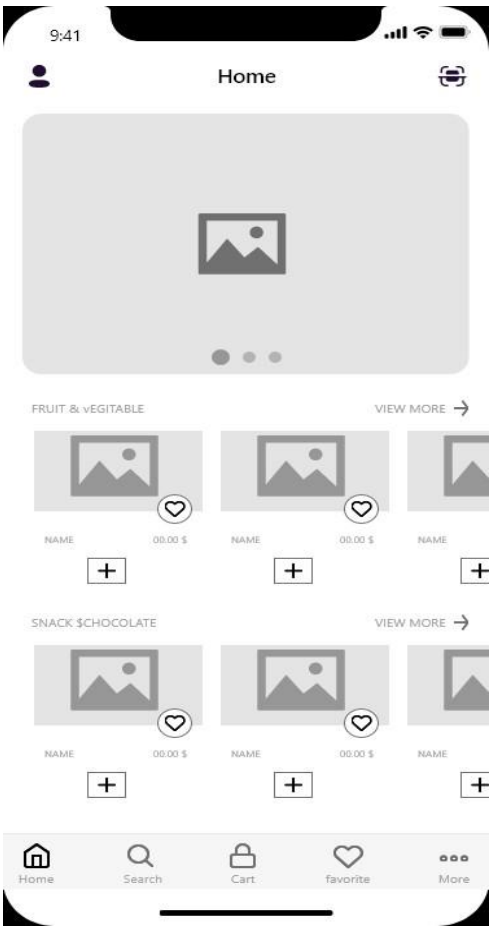


The login screen and registration in the application, The user fills in the required data.



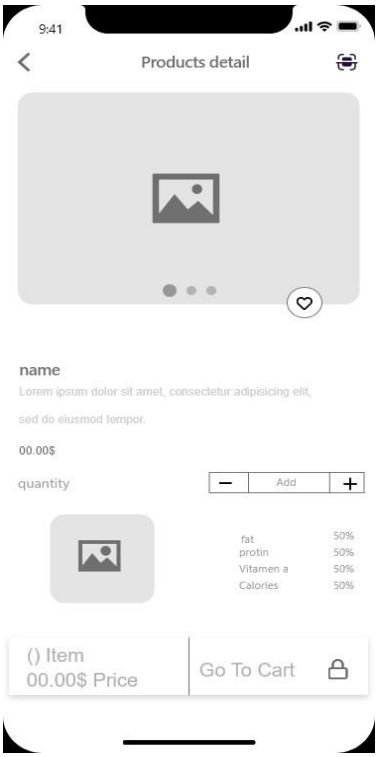
The registration screen for the application, first specifying the gender, specifying the height, weight and age, and choosing from the list to answer the question of what Condition do you have?

بسم الله الرحمن الرحيم



Home Page: Here are displayed products that are categorized and appropriate according to their satisfactory condition, advertisements will appear on this screen, products that are classified into different categories that can be put in favorites and added to the shopping cart	**The category page is one of the product categories, when he clicks on the category, special products will appear for him in this category, for example, click on the category of fruits and vegetables.**

بسم الله الرحمن الرحيم



Product details: a picture of the product, its price, the percentages of calories, fats and calories, and its price

Search screen A product can be searched by barcode.

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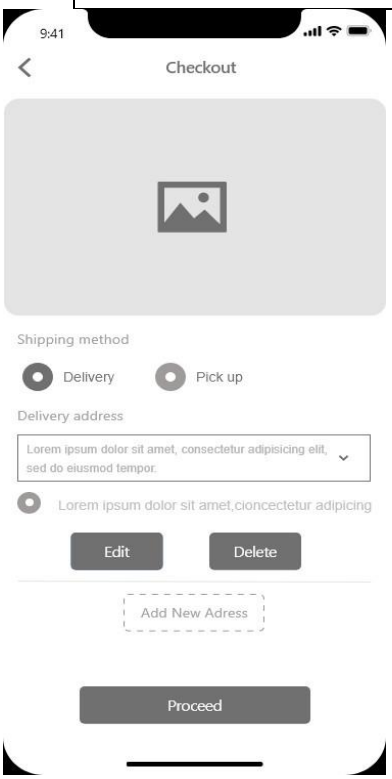
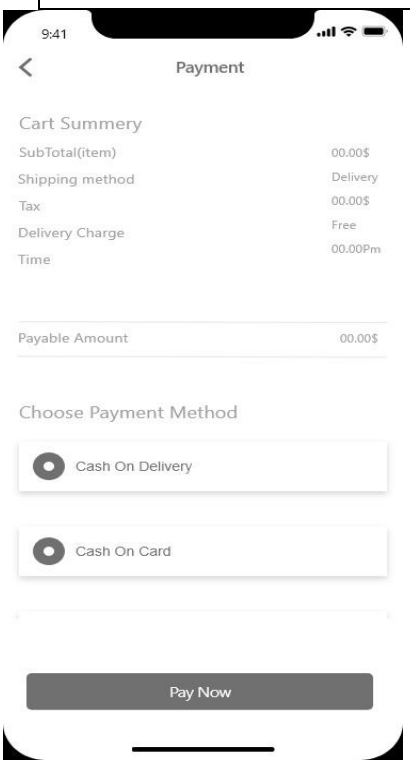
Cart: puts the product he wants to buy in the cart



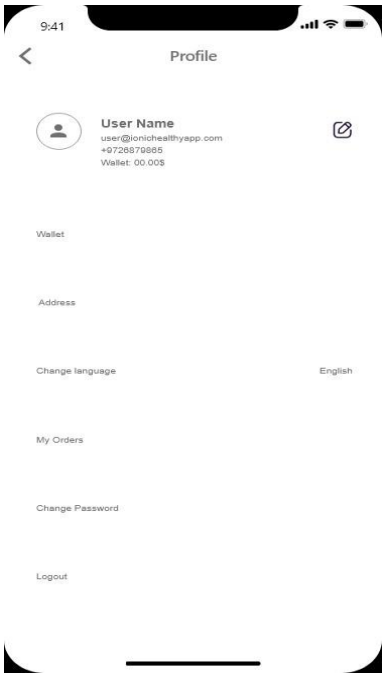
Favourites: The user can keep the product in the favourites list

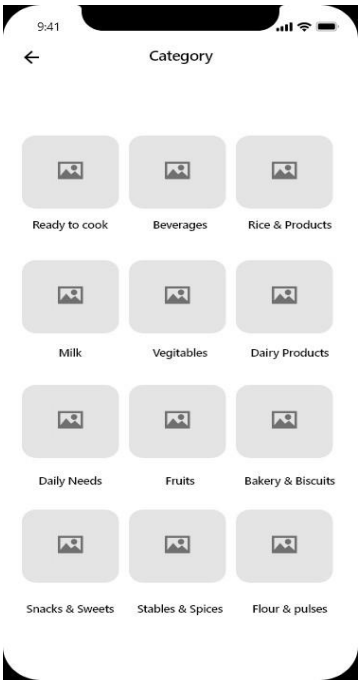


Checkout: The user will specify his address on the map, and he can modify the address or add a new address

Piment: order invoice, the full price of the order, the user will choose the method of payment

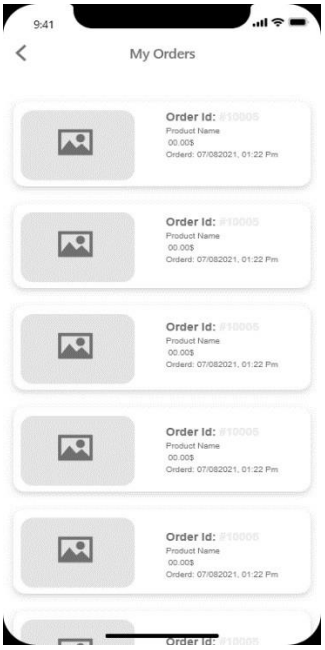
بسم الله الرحمن الرحيم

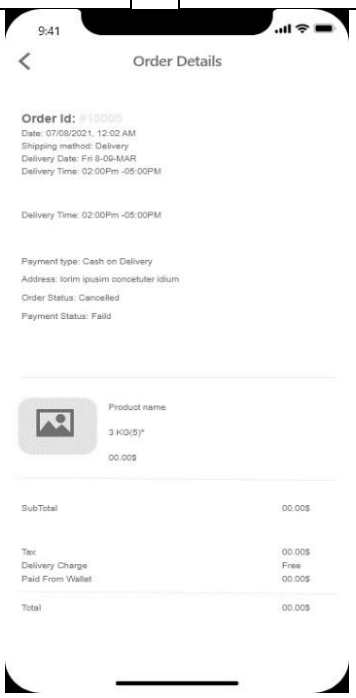




Profile: the user's personal information, wallet, name, orders, and he can modify his information

Categories: Products are categorized into different and varied categories

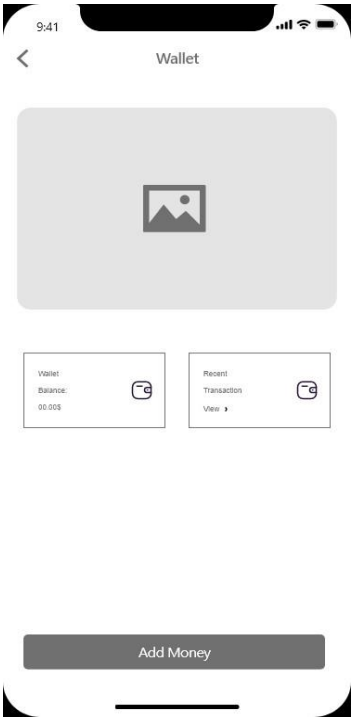


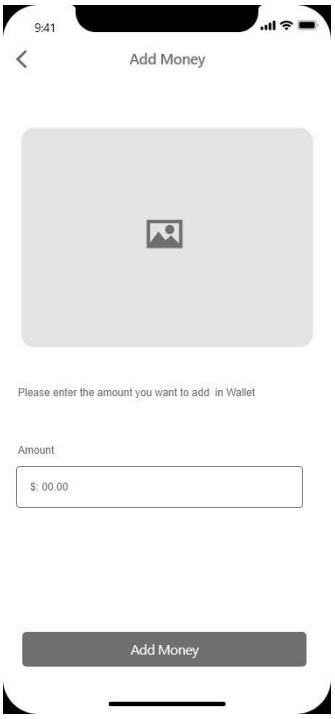


بسم الله الرحمن الرحيم

Orders: On this screen will appear all the orders that the user has ordered will appear

Order details: On this screen, all the orders that the user has ordered will appear, detailed information about the order will appear, from the date of the order, the products he ordered, the price, etc.





Wallets The wallet securely stores virtual versions of debit and credit cards, so you don't need to enter your card details or carry a physical card at all to make payments.

Once you set up your wallet, you can use it to make payments

Chapter 5

Implementation

5.1 Implementation Specifications

5.1.1 Android:

Android is an operating system developed by Google, " Healthy Grocery" is developed as Android mobile application run on Android API 21, that called Lollipop, and above, so the app run approximately 98% of android devices [9], The minimum SDK is 21 and the essential compilation version of SDK is 31.

5.1.2 Android Libraries used:

- Firebase Messaging: is a cross-platform messaging solution that lets you reliably send messages at no cost. [10]
- Chip navigation Bar: A navigation bar widget inspired on Google Bottom Navigation mixed with Chips component. [11]
- Circle image view: A fast circular Image View perfect for profile images. This is based on Rounded Image View from Vince Mi which itself is based on techniques recommended by Romain Guy. [12]
- Picasso: A powerful image downloading and caching library for Android. [13]
- Expandable Layout: An Android layout class that supports animating the expansion and collapse of its child views. [14]
- Expandable Fab: highly customizable Android widget that displays the available actions of a UI via an expandable set of floating action buttons - with optional labels and fluid animations. [15]
- Pick Image: This is an Android project. It shows a Dialog Fragment with Camera or Gallery options. The user can choose from which provider wants to pick an image. [16]
- Count Down View: Android countdown view, use canvas draw, supports multiple styles. [17]
- Retrofit: A type-safe HTTP client for Android and Java. [18]
- View Pager2: is an improved version of the View Pager library that offers enhanced functionality and addresses common difficulties with using View Pager. [19]
- Material Dialog: A beautiful, fluid, and extensible dialogs API for Kotlin & Android. [20]

5.2 Key Features

- **دفع نقدي عند الاستلام:** تكامل مع نظام تتبع الطلبات.
- **تحديد الموقع:** دقة تصل إلى 50 مترًا باستخدام خرائط جوجل.
- **لوحة البائعين:** مراقبة المبيعات وتحديث المخزون فورًا.

بسم الله الرحمن الرحيم

5.3 Code Snippet (Flutter)

```
class PaymentGateway {
      void processPayment(String method) {
            if (method == 'card') Stripe.process();
            else CashOnDelivery.execute();
}
}
```

بسم الله الرحمن الرحيم

Chapter 6

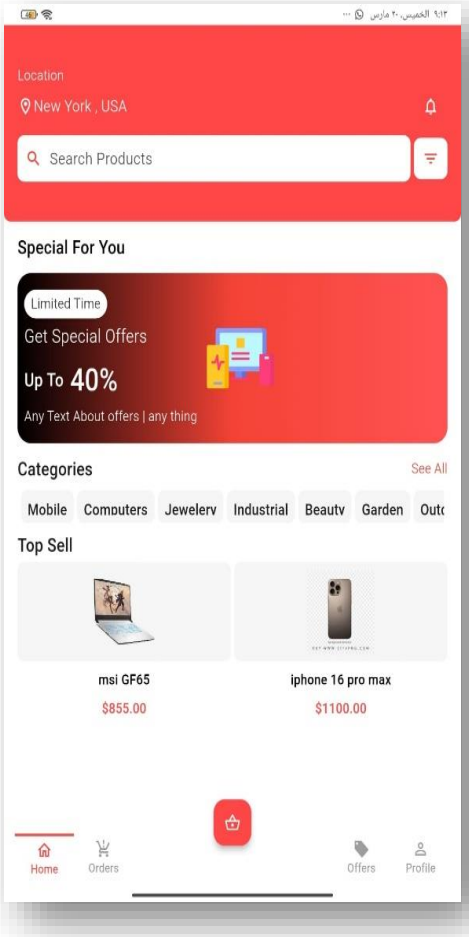
Testing

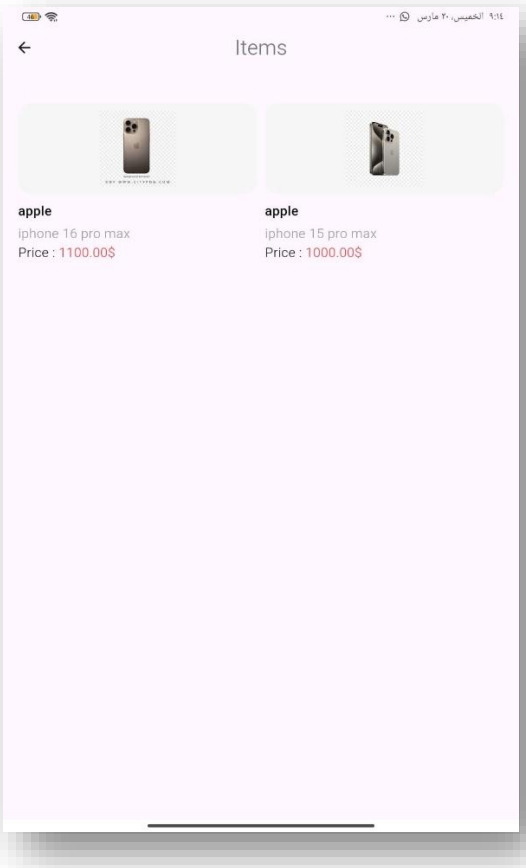
6.1 Results

النسبة	نوع الاختبار
%98	أداء التطبيق
%100	أمان الدفع

6.2 Unit Testing

Unit testing is a software development process in which the smallest testable parts of an application, called units, are individually and independently scrutinized for proper





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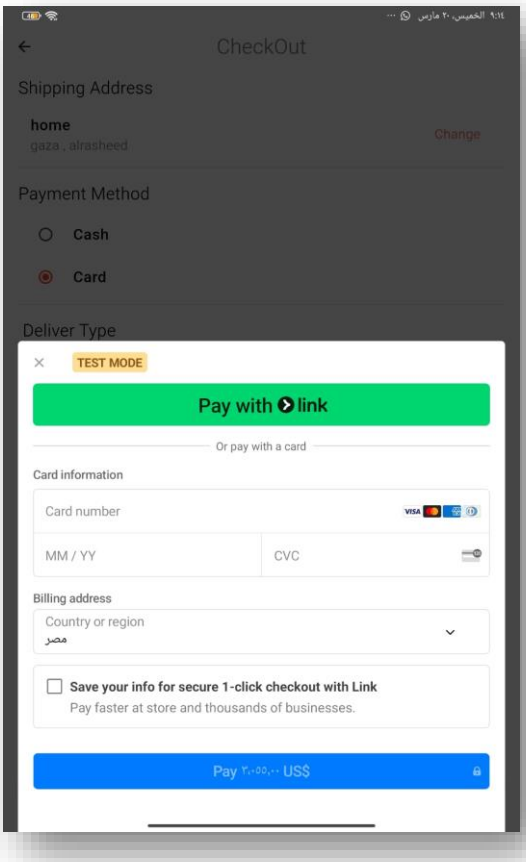

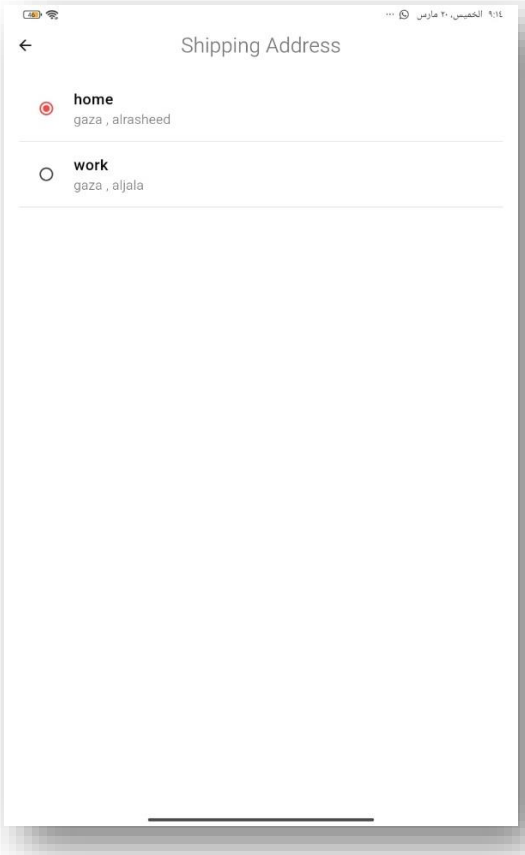

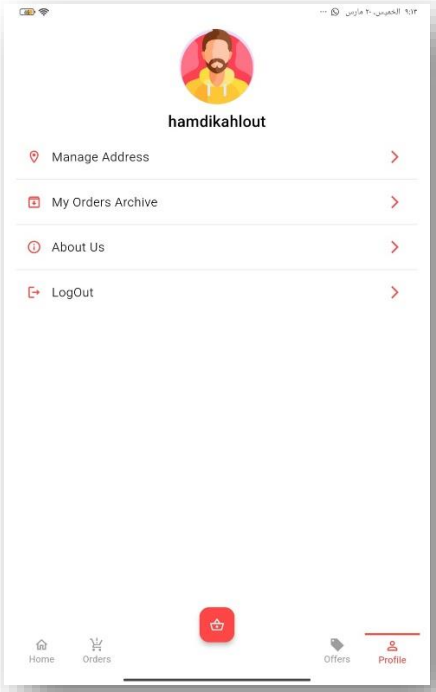

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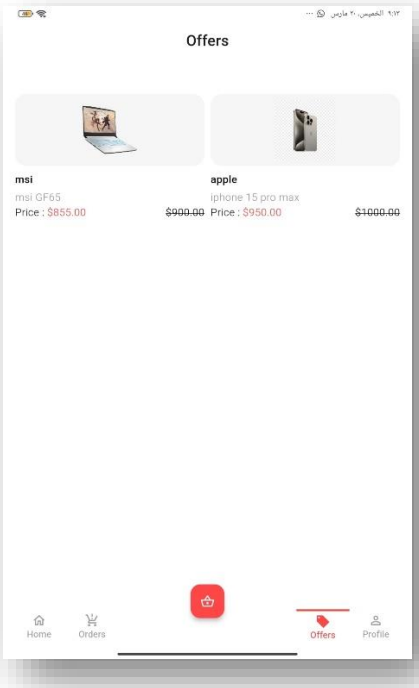

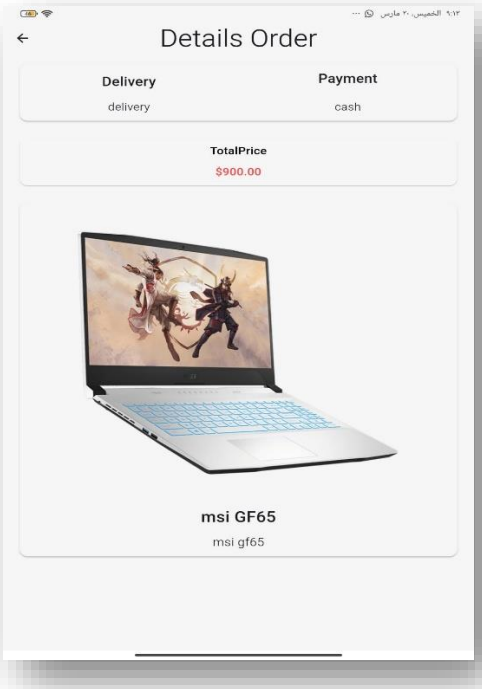

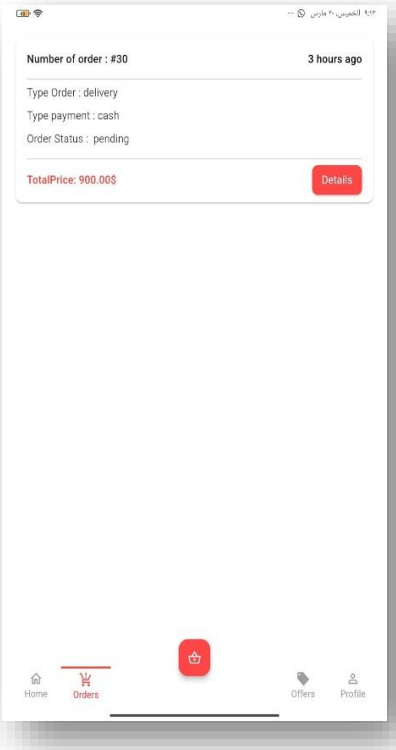

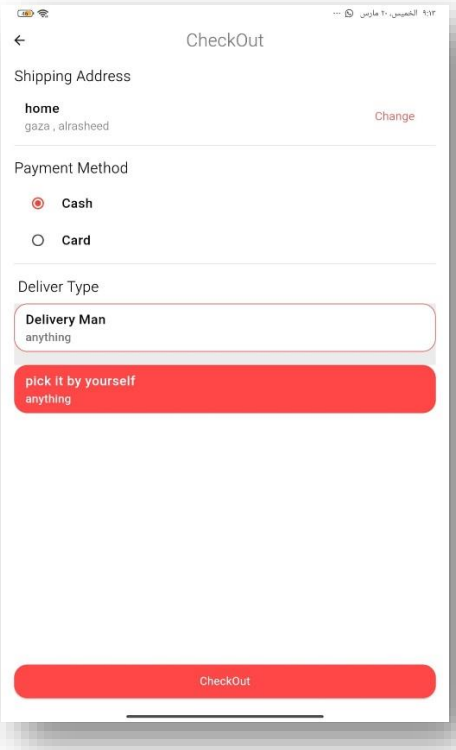

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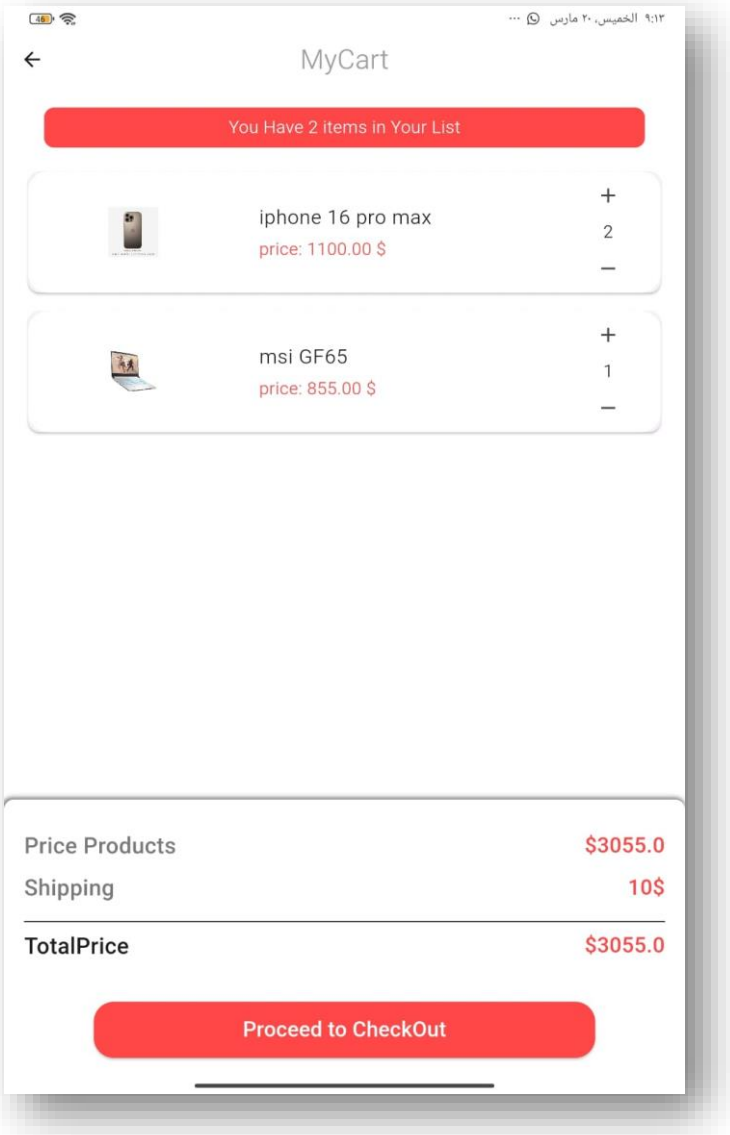


Figure 5.2, Show unit test for add category

بسم الله الرحمن الرحيم

6.3 Compatibility Testing:

Compatibility Testing is a type of Software testing to check whether your software is capable of running on different hardware. And our application run on android version " 5.0 " (Lollipop) and more, the application was chosen on phones with Android versions from 5.0 to 11.

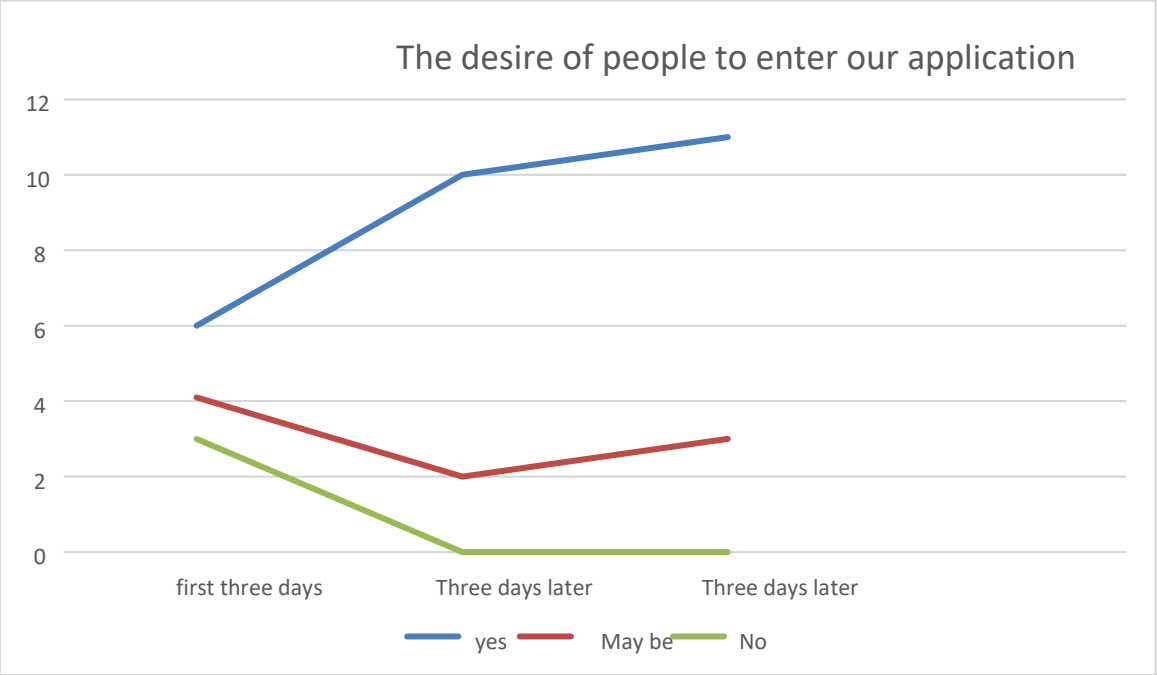
6.4 Screen Testing

This phase of the test include test all screen in application, each screen tested on multi mobile device. This phase of the test include test all screen in the application, each screen tested on multiple mobile devices.
The mobiles that the app has been tested on:

- Pixel 3a XL API 27
- Galaxy J7 Core
- Redmi note 10
- Galaxy A51

6.5 Acceptance Testing

At this stage of testing we collected data by creating a google survey and it was published for people with chronic diseases, people who sell health products and adults and the results have been taken into account and it is planned to provide the new features in a future version of the app.



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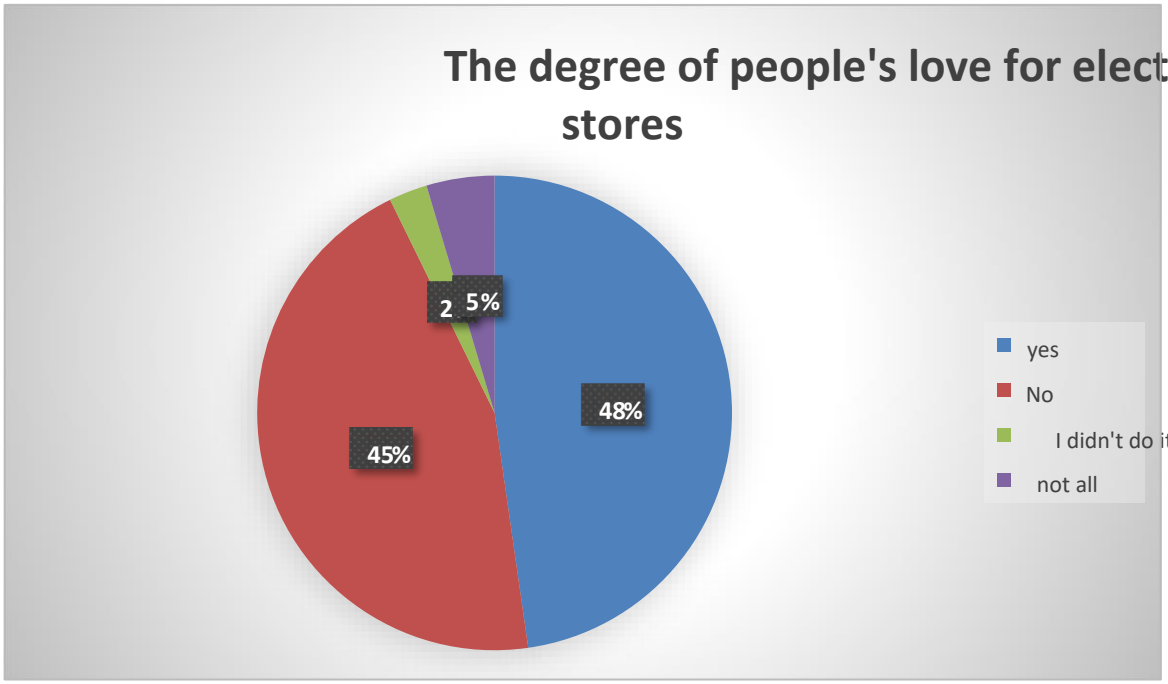

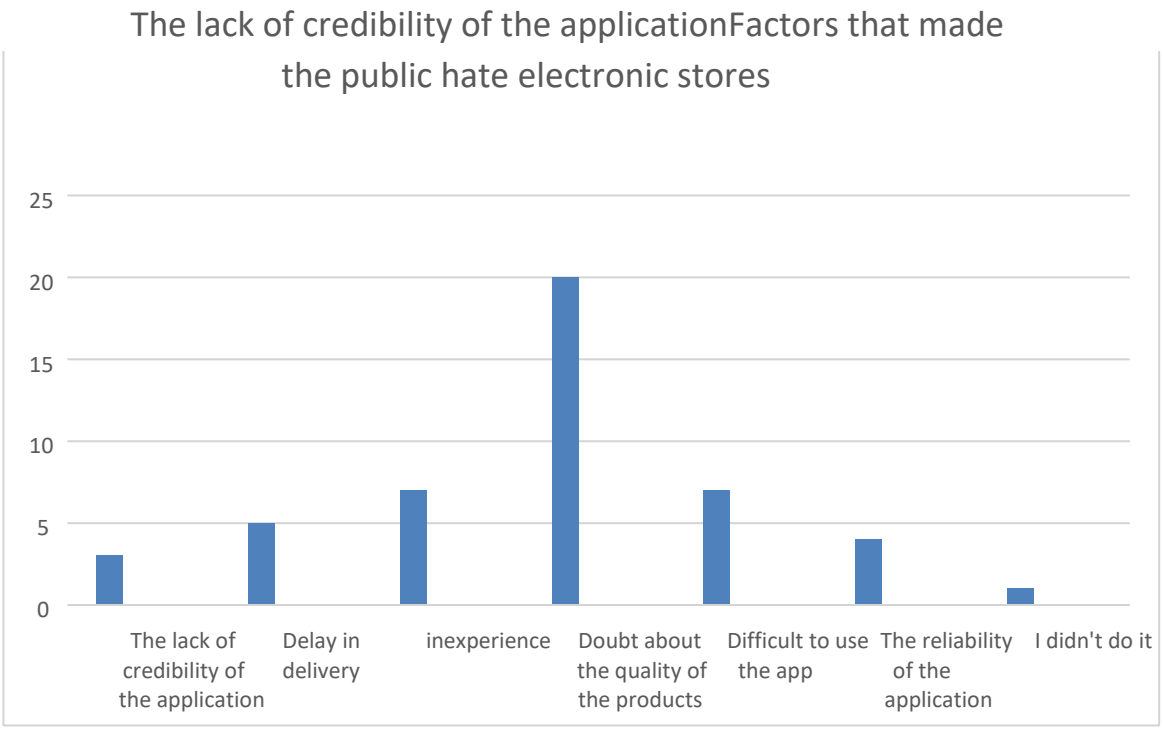

Chapter 7

Conclusion and Future Work

7.1 Conclusion

نجح المشروع في تقديم حل متكامل مع تحديات تقنية معقدة، مما يجعله مناسبًا للبيئة المحلية بخصائص فريدة.

7.2 Future Work

- دعم العملات الرقمية.
- إضافة نظام توصيل ذكي باستخدام الذكاء الاصطناعي.

بسم الله الرحمن الرحيم

References

[1] "Technology," 18 July 2019. [Online]. Available: https://www.aginginplace.org/technology-in-our-life-today-and-how-it-has-changed/.

[2] A. Holst, "Statista," September 2019. [Online]. Available: https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/.

[3] jkielty, "DeviceAtlas," 9 September 2019. [Online]. Available: https://deviceatlas.com/blog/android-v-ios-market-share.

[4] R. F. AI, "readyforai," 21 July 2018. [Online]. Available: https://readyforai.com/article/best-books-on-artificial-intelligence-for-beginner-withpdfdownload/. [Accessed 2019]

[5] Atlassian website,)3 December, 2021(https://www.atlassian.com/agile

[6] Microsoft Project ,)17 January, 2022) https://en.wikipedia.org/wiki/Microsoft_Project

[7] Matt Rae, "What is Adobe XD and what is it used for?" https://www.adobe.com/products/xd/learn/get-started/what-is-adobe-xd-usedfor.html.

[7] "Introduction" GitHub Docs. (2021, Sep 10). https://docs.github.com/en/getstarted/quickstart/hello-world

[8] https://play.google.com/store/apps/details?id=com.fraazo.app

[9] https://play.google.com/store/apps/details?id=com.dnc.waitrose&hl=ar&gl=US

[10] Neagu, C. "What is Microsoft's OneDrive? How is it used? | Digital Citizen" Digital Citizen. (2021, Sep 10). https://www.digitalcitizen.life/what-is-onedrive/

[11] Androidcoder. "What percentage of devices have each of the Android versions?" Stack Exchange. (2022,Jan 3).

https://android.stackexchange.com/questions/4447/whatpercentage-of-devices-have-each-of-the-android-versions

[12] "Firebase cloud messaging" Firebase. (2022,Jan 10). https://firebase.google.com/docs/cloud-messaging

[13] Ismaeldivita. "An android navigation bar widget" Github. (2022,Jan 10). https://github.com/ismaeldivita/chip-navigation-bar

[14] hdodenhof. "Circle Image View" Github. (2022,Jan 11). https://github.com/hdodenhof/CircleImageView

[15] Square. "Picasso" Github. (2022,Jan 13). https://github.com/square/picasso

[16] cachapa. "Expandable Layout "Github. (2022,Jan 15). https://github.com/cachapa/ExpandableLayout

[17] kabumere. "Expandable fab" Github. (2022,Jan 15). https://github.com/nambicompany/expandable-fab

[18] yogeshpaliyal. "Pick Image" Github. (2022,Jan 15). https://github.com/jrvansuita/PickImage

[19] iwgang. "Countdown View Github. (2022,Jan 16). https://github.com/iwgang/CountdownView

[20] Retrofit. (2022,Jan 16). https://square.github.io/retrofit/

[21] "Migrate from viewpager to viewpager2"Developers. (2022,Jan 17). https://developer.android.com/training/animation/vp2-migration

[22] afollestad. "Material dialogs" Github. (2022,Jan 18). https://github.com/afollestad/material-dialogs

[23] "Kotlin" developers. (2022,Feb 1). https://developer.android.com/kotlin

بسم الله الرحمن الرحيم

[24] Sagara Technology Idea Lab. “Kotlin” Sagara Technology. (2022,Feb 1). https://sagaratechnology.medium.com/what-are-the-benefits-of-kotlin-d7fdcd1cfc0

[25] “Advantages and disadvantages of Laravel Framework for web Development” DDI Development. (2022,Feb 2). https://ddi-dev.com/blog/programming/pros-and-cons-oflaravel-framework-for-web-app-development/

[26] , [25] RISHU_MISHRA“MVC (Model View Contriller)Architecture Pattern in Android” GeeksforGeeks. (2022,Feb 4). https://www.geeksforgeeks.org/mvc-modelview-controller-architecture-pattern-in-android-with-example/

[27] TechTarget Contributor (2019, Aug) “Unit testing” TechTarget Network. (2022,April1

[28] Stripe API Documentation, 2023.

[29] Google Maps Platform, 2024.

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Appendix 1: Information on Appendices

Appendices provide supplementary material that supports the main content of the project report. These sections are used to include detailed or extended information that is too extensive to be included in the main body of the document.

Purpose of Appendices

Appendices serve multiple purposes, such as:

1. **Providing Additional Data** – Raw data, tables, and calculations that support the findings of the research.
2. **Extending Diagrams and Illustrations** – Large or detailed diagrams that would be impractical to include within the main sections.
3. **Including Source Code or Algorithms** – Relevant programming code or pseudocode necessary for understanding the system.
4. **User Manuals or System Documentation** – Guides that explain how to use the developed application.
5. **Surveys, Questionnaires, and Interview Transcripts** – Any data collection tools used in the research.

Formatting Guidelines

- Appendices should be labeled as **Appendix A, Appendix B, Appendix C, etc.**
- Each appendix should have a **title** that describes its content (e.g., *Appendix A: System Architecture*).
- The **content** of each appendix should be referenced in the main document.
- Appendices should be **placed at the end of the report** after the references.

Example of Appendices in this Project

Appendix A: Database Schema and Relationships
Appendix B: Source Code Snippets
Appendix C: Test Cases and Evaluation Reports
Appendix D: User Manual