

SALES AND CUSTOMER RELATIONSHIP MANAGEMENT SYSTEM

BY

WEE JENG KAI

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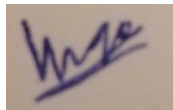
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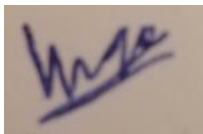
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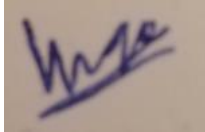


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ABSTRACT

This project is a mobile application project designed for sales and customer relationship management (CRM) to meet the critical challenges faced by businesses in today's competitive environment. There are 3 modules available in this project which is Geo-Based Customer Identification and Route Optimization Module, Customer Information Management and Analytics Module, Sales Activity Monitoring Dashboard. The first modules aim to increase field productivity by identifying nearby customers and creating routes effective sales process to better identify It is convenient. The second module enables personal engagement by centralizing customer data and unlocking sales opportunities through detailed analysis of past purchases. The third module streamlines the sales process by providing real-time tracking and activity reporting, improving sales visibility and performance. The ultimate goal is to create integrated mobile solutions that enable businesses to overcome critical business challenges, adapt to changing market dynamics, and excel in their core activities through a customer-centric approach. Prototyping will be used to test functionality and collect user feedback prior to implementation. Outcome expectations are a transformational tool that prepares organizations for success in today's highly competitive business environment. Since android studio is well suited for mobile application, it is therefore implemented in the project. The output material of the project would be Realme 10 pro + smartphone.

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Chapter 1 Introduction

In response to the evolving business landscape, we're undertaking a transformative project – developing a mobile application to revolutionize customer relationship management (CRM) and sales processes. Our aim is to create a versatile tool that enhances customer interactions, organizes sales processes, and ultimately boosts revenue and satisfaction. Faced with increasing market competition and evolving customer expectations, the integration of technology into CRM is no longer optional but a strategic necessity. This app draws inspiration from real-world business needs, recognizing technology's boundless potential to address these challenges. By centralizing customer data, automating tasks, and providing actionable insights, our application seeks to be a strategic asset for businesses, empowering them with knowledge and agility for smart, data-driven decisions. In a data-driven environment, our goal is to not only streamline current processes but also to adapt continuously, remaining at the forefront of technological advancements and ensuring long-term relevance for businesses pursuing growth.

1.1 Problem Statement and Motivation

The business cooperations now are facing few challenges that's actually affecting their business effectiveness and customer relationship. These challenges could be the pain point for their business to thrive or even maintain in this data-driven world. These challenges include getting the nearby customer location, optimizing a best route to meet up with customer, access to centralized and up-to-date customer information and sales activity. Business would be missing opportunities, losing customers, lesser sales if these few challenges is still occurs. Thus, hese few problems is critical for business to improve their efficiency, foster strong customer relationships and maximize revenue growth.

First of all, business found out that is hard for them to maximize their operational efficiency and customer engagement strategies. Optimizing scheduled routes presents a critical issue for the project. Physical meet up with customer is a very crucial and useful customer relationship bonding technic especially at a age that online meeting had becoming normal for all. By periodly visit customer physically prove that our sincerity to collaborate with them, and strengthen the bond and increase trust with customer. But, establish physical contacts without a reliable way of knowing where are

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all the clients nearby are is a difficult and time-consuming task. This not only hampers productivity but also prevents business synergies and may lead to missing opportunities to strengthen customer relationships and close deals in a timely manner. To tackle this issue, business should consider using route optimization software or tools that can calculate the most efficient routes based on certain condition like location data, traffic conditions, and resources other relevant controls will therefore enable sales team to locate exactly which customer is nearby at which place and optimize the route effectively to meet up with as more as possible customer in a period of time to increase the possibility to close deals timely and also increasing productivity efficiency and customer engagement.

Secondly, the business cooperation's struggle to access centralized and up-to-date customer information had become a pain point for business that lead to deficient customer information management. In this age of data-driven decisions, this shortfall places the business at a severe disadvantage, which in some situation it may bring unimaginable and critical harm to the business. They may end up making uninformed decisions, which can eventually lead to cash flow problems, revenue inefficiencies, and even bankruptcy. [3] The inability to analyse customers' past purchase behaviors denies them the insights needed to personalize interactions effectively. One of the key for maintain a good relationship is customer satisfaction, with personalize content or product for customer, they will be more likely to keep on spending on the business as they are more satisfy with the content.

Furthermore, this lack of insight leaves them oblivious to potential cross-selling and upselling opportunities, effectively affecting their revenue growth potential. It is a clear point that opportunities occur fastly and gone quickly especially at business world, without getting the first-hand up-to-date data, business might be slower than other competitors one step and this one step could bring be a gamechanger for the whole business. Without knowing the customer past purchase history, it is hard for business to forecast the possibility opportunity and grab that opportunity, leading to lose in sales. So its essential for business to manage customer information and understand customer behaviour to generate a sustainable revenue growth and maintain a good relationship with customer.

1.2 Objectives

The primary objective of developing the GEO-based Customer Identification and Customer Classification app is to empower business cooperation with a powerful tool that revolutionizes the way they engage with customers. By leveraging real-time location data, this module aims to tackle a crucial challenge faced by businesses – the efficient planning of routes and scheduling of appointments. With this feature, businesses can optimize their field operations by identifying nearby customers, enabling sales representatives to make timely and strategic visits. This not only increases productivity but also fosters stronger customer relationships, as personalized and punctual interactions enhance customer satisfaction. Furthermore, this app seeks to expedite the completion of deals by ensuring that businesses are in the right place at the right time, reducing the chances of missed opportunities.

The second key objective centers around the development of a Customer Information Management and Past Purchase Analysis feature within the CRM and sales mobile app. This feature addresses a fundamental need in modern business operations – the ability to access centralized and up-to-date customer data while delving into in-depth analyses of past purchase behaviors. By offering this capability, the app empowers businesses to tailor their interactions with customers based on historical data, ultimately resulting in more personalized and effective engagements. Furthermore, the feature aims to identify cross-selling and upselling opportunities, thereby driving revenue growth and enhancing overall customer experiences. It becomes a potent tool in the arsenal of businesses seeking to make data-driven decisions, leading to improved customer satisfaction and sustainable growth.

The third crucial objective revolves around the development of a Salesman Activity Tracking dashboard. Its purpose is to revolutionize the way sales representatives operate by providing a comprehensive platform to analyze sales activities. This dashboard aims to streamline the work of sales representatives by facilitating efficient tracking of sales activities, enabling them to manage follow-ups, and prioritize tasks effectively. By doing so, it mitigates the risk of missed opportunities and inefficiencies, ensuring that sales efforts are optimized to their fullest potential. Additionally, this feature provides real-time visibility into sales activities, which is instrumental for sales management in offering timely support and coaching to their teams. Ultimately, it

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aligns sales efforts with strategic objectives, allowing businesses to operate at their highest potential in a competitive market.

In conclusion, the overarching objective of the Sales and Customer Relationship Management System Mobile App, encompassing the three distinct modules, is to equip businesses with a comprehensive solution that tackles critical challenges in sales management and customer relationship enhancement. These objectives collectively aim to enhance productivity, customer relationships, and revenue growth. By developing a holistic app that encompasses GEO-based customer identification, customer data management, and sales activity tracking, the system endeavors to empower businesses to thrive in the dynamic and competitive business landscape. It promises to be a transformative tool in the hands of businesses seeking operational excellence and customer-centricity.

1.3 Project Scope and Direction

The scope of the project includes the development of a sales and customer relationship strategy and a mobile app with three main modules. First, the geo-based customer identification and customer classification module will enable businesses to be more efficient in the field by identifying nearby customers, increasing sales representative productivity and punctuality in customer interactions. This will strengthen customer relationships and reduce missed opportunities. Second, the Customer Information Processing and Previous Purchase Analysis feature will provide businesses with centralized and up-to-date customer information for their own communication and data-driven decision-making. It will also open up cross-selling and upselling opportunities, ultimately increasing revenue and improving customer satisfaction. Finally, a vendor activity tracking dashboard will streamline the work of sales representatives, ensuring that activities are properly tracked, tracked in a timely manner and work is prioritized. Real-time visibility into sales activities will help provide support for sales management and align efforts with strategic objectives. Overall, this comprehensive service aims to enhance business capabilities in a competitive market by increasing productivity, customer relationships and revenue growth, making it a transformative tool for business effort and customer focus.

1.4 Contributions

This project signifies a major leap in generating a budget friendly choice for Customer Relationship Management (CRM) via a mobile app. A major trend seen in the existing CRM app scenario is the dominance of subscription based structures, where customers pay a monthly charge for personal access. Although this structure is efficient for some, it places a heavy cost pressure, especially on businesses with many users. The current no cost alternatives of CRM mobile apps usually offer restricted features, making them inadequate for inclusive customer connection administration.

Our project aims to address these challenges by providing essential features required for robust CRM through our mobile app. Unlike existing applications that may require a subscription for access to crucial functionalities, our approach combines the most vital features from various existing applications, offering users a comprehensive CRM experience without imposing a financial strain. We understand the significance of providing a dedicated user experience without compromising on features necessary for effective customer relationship management.

By amalgamating the key attributes that users value the most, our mobile app seeks to be a game-changer in the CRM domain. This includes features that are traditionally available only through subscription-based services, ensuring that businesses, regardless of size, can leverage a powerful CRM tool without worrying about exorbitant costs. Our commitment is not only to deliver a functional and efficient solution but also to create a paradigm shift in the accessibility of premium CRM features, making them available to a broader user base.

1.5 Report Organization

This report is structured in seven chapters. Chapter 1 delves into the current business situation, highlighting challenges within the existing CRM system. It then outlines the project's objectives, scope, and potential contributions to improving the system.

Chapter 2 explores similar CRM mobile applications, analyzing their features and identifying potential weaknesses. It also reviews relevant technologies like Google Maps and Firebase.

Chapter 1

Chapter 3 presents the proposed system's methodology, outlining the development approach and including system design diagrams (architecture & use cases) alongside project timelines for both FYP1 and FYP2.

Chapter 4 dives into the system design, presenting a block diagram with detailed component and module specifications. It further details the operational flows within each component and their interactions.

Chapter 5 focuses on system implementation, listing hardware and software requirements, explaining the coding environment setup, and showcasing the overall system operation with screenshots of key modules. This chapter also discusses development challenges and limitations (unimplemented features).

Chapter 6 tackles system testing and evaluation by providing detailed test cases with names, precautions, execution steps, expected outcomes, and screenshots demonstrating performance. It records test results and observations, highlights project development challenges, and evaluates how the system achieves project objectives by comparing functionalities against defined goals, and assesses problem-solving effectiveness.

Finally, Chapter 7 concludes the report with a brief summary and key achievements. It then provides recommendations for future work and potential system improvements, followed by references, weekly reports, and a plagiarism check report included as an appendix.

Chapter 2 Literature Review

2.1 Previous Works on Sales and Customer Relationship Management System

2.1.1 Agile CRM Mobile

Agile CRM Mobile emerges as a robust and comprehensive Customer Relationship Management (CRM) solution, particularly well-suited for small to medium-sized companies. Agile CRM is another total software solution package with modules for marketing, sales, support, and other extra features. [5] Its feature-rich offering includes touch management, task automation, email tracking, and straightforward marketing automation. This mobile CRM also boasts a user-friendly interface and customization options that significantly enhance the overall user experience. However, it's worth noting that certain advanced features, such as lead scoring and in-depth reporting, are reserved for the paid plans. Additionally, the quality of customer support can vary, which may be a consideration for businesses seeking prompt assistance.

One of Agile CRM Mobile's strengths lies in its accessibility to smaller enterprises. It empowers them to efficiently manage customer relationships and streamline sales processes through its intuitive features. The inclusion of marketing automation is a valuable asset, allowing businesses to automate their marketing efforts. Nevertheless, the limitations become apparent when it comes to advanced functionalities, which are only available in the premium plans. This aspect might prompt growing companies to evaluate their CRM needs carefully.

In conclusion, Agile CRM Mobile offers a robust CRM solution with a focus on small to medium-sized businesses. Its ease of use and marketing automation capabilities make it an attractive option, but businesses requiring advanced features may need to consider higher-tier plans.

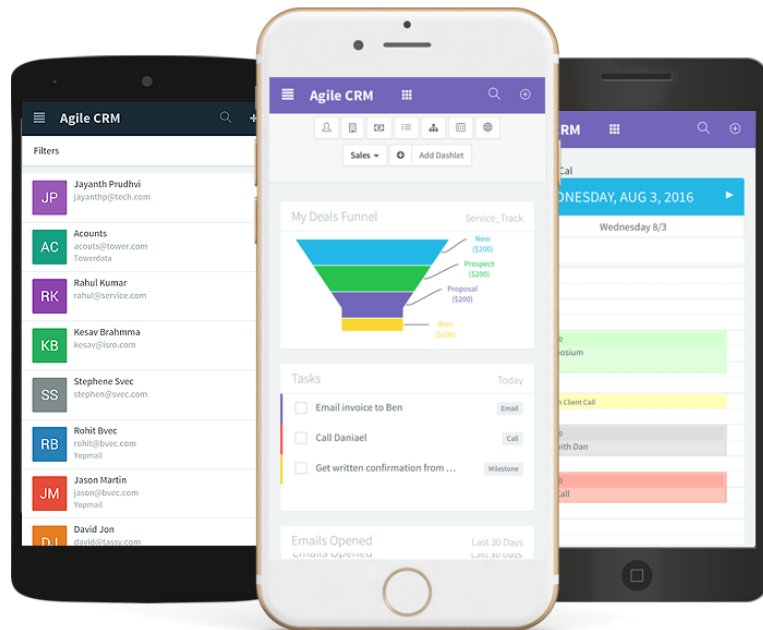


Figure 2.1 Agile Mobile Application

2.1.2 Capsule CRM Mobile

Capsule CRM Mobile, in contrast, positions itself as a straightforward and convenient choice tailored for small businesses. Its primary emphasis revolves around core contact and sales management features, all wrapped in an intuitive interface. While it may lack the complexity of functionalities found in larger CRM systems, it excels in its seamless integration with email and calendar applications. This integration enhances efficiency, enabling businesses to maintain essential communication and scheduling tasks with ease. However, for businesses with intricate needs or larger teams, Capsule CRM Mobile's simplicity might prove limiting.

The core strength of Capsule CRM Mobile lies in its user-friendly approach and ease of integration with everyday productivity tools. For small enterprises seeking a streamlined solution for contact and sales management, it ticks the right boxes. Nonetheless, its simplicity may not cater to the demands of businesses requiring more advanced CRM capabilities.

In summary, Capsule CRM Mobile serves as a dependable choice for small businesses looking for a no-frills CRM solution. Its focus on core functionalities and seamless integration with email and calendars can streamline daily operations. However, it may not meet the requirements of businesses with intricate CRM needs or larger teams.

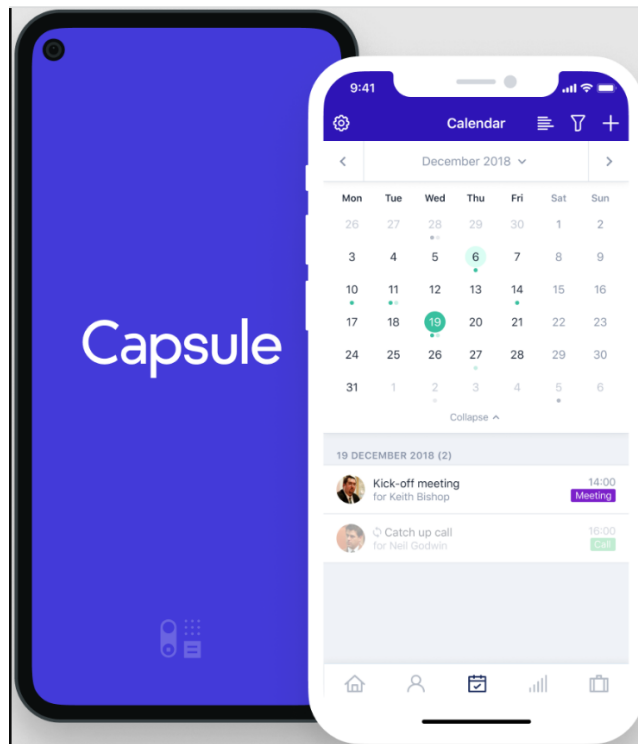


Figure 2.2 Capsule CRM Application

2.1.3 Freshsales CRM Mobile App

The Freshsales CRM mobile app is a powerful tool designed to streamline and enhance customer relationship management on the go. With its user-friendly interface and robust features, this app empowers sales teams to manage leads, contacts, and deals efficiently, ensuring that no opportunity is missed.

One of the app's standout features is its real-time access to vital customer information, allowing users to view and update details, track interactions, and stay informed while on the move. The platform comes with a super-clean interface and a dedicated module in the mobile app specifically for monitoring a schedule. [8] This capability ensures that sales professionals are well-prepared for meetings and can provide personalized experiences to clients, ultimately strengthening customer relationships.

In addition to contact management, the app offers comprehensive analytics and reporting tools, helping sales teams gain insights into their performance, track sales progress, and identify areas for improvement. With the Freshsales CRM mobile app, businesses can stay agile, responsive, and competitive in today's fast-paced business world, making it an indispensable tool for sales professionals seeking to excel in customer relationship management.

Chapter 2

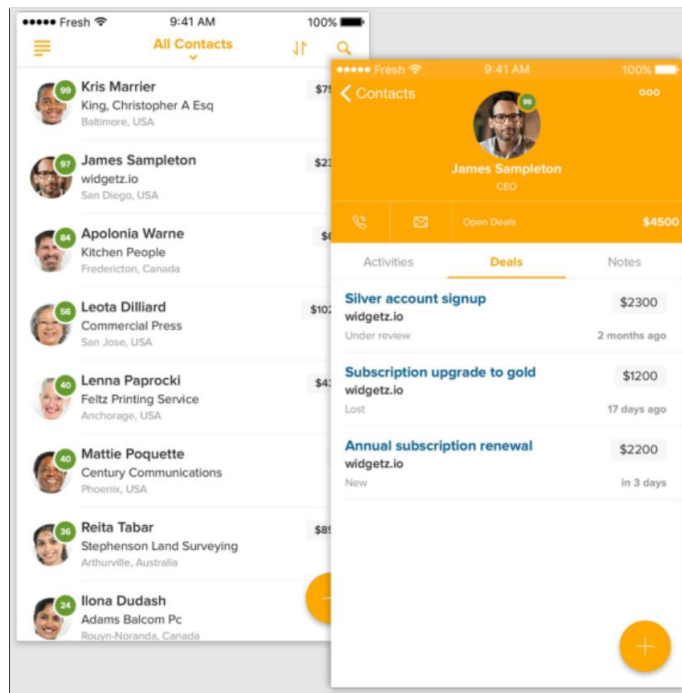


Figure 2.3 Freshsales CRM Application

2.2 Comparison of the CRM Mobile App

	Capsule CRM	Agile CRM	Freshsales CRM
Schedule Meetings and Appointments	/		/
Customization of pipeline	/		
Multiple Sales Pipeline			
Email Tracking		/	
2-way Email Sync			/
Email Scheduling			/
Call Logging	/		
SMS integration		/	/
Sales reporting	/	/	/
Sales analysis	/	/	
Intuitive dashboard			

Geolocation feature		/	
Offline Access			
Notification Feature	/	/	/
Social media integration			/

Table 2.1 Comparison of CRM Mobile Application

2.3 Customer Relationship Management

Customer Relationship Management (CRM) is a holistic approach to managing an organization's interactions with its current and potential customers. It involves utilizing technology to organize, automate, and synchronize sales, marketing, customer service, and technical support processes. At its essence, CRM is about cultivating and maintaining strong relationships with customers by gaining a deep understanding of their preferences, behaviors, and needs. It integrates various aspects of business to create a comprehensive strategy that focuses on enhancing customer satisfaction and loyalty. CRM systems typically encompass software and applications that aid in the collection, organization, and analysis of customer data, contributing to more effective decision-making and personalized customer interactions.

CRM encompasses various types, each tailored to specific aspects of maintaining healthy relationships with customers. Operational CRM prioritizes streamlining and enhancing business procedures, often utilizing automation for tasks like marketing, sales, and service. Analytical CRM involves analysing and interpreting data to gain valuable insights on customer behaviours and trends, supporting strategic decision-making. Collaborative CRM puts focus on fostering interaction and communication with customers, facilitating smooth coordination and collaboration between departments for a seamless customer experience.

Key components of CRM systems include contact management, sales automation, marketing automation, and customer support. Contact management allows businesses to organize and maintain customer information, while sales automation streamlines the sales process by automating repetitive tasks. Marketing automation facilitates

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targeted marketing campaigns, and customer support tools enable efficient issue resolution and enhanced customer service.

In practice, numerous organizations have successfully implemented CRM to enhance their customer relationships. For instance, Salesforce is a prominent CRM platform used by businesses worldwide for managing sales, customer service, and marketing. Zoho CRM is another example that offers a suite of tools for managing customer relationships, including lead management, pipeline analysis, and automation features. These examples illustrate how CRM systems play a pivotal role in shaping customer-centric strategies and fostering long-lasting relationships, demonstrating the practical applications and impact of CRM in the business world.

2.4 Review Technology

2.4.1 Maps

The Google Maps API is widely regarded as an essential tool for developers around the world in the geolocation services sector. It offers accurate location information, versatile mapping capabilities, and extensive features for integrating maps and location-based information across a variety of applications and its reliability and comprehensive documentation make it a choice high for developers looking for reliable geolocation solutions.

Mapbox is a strong competitor in geolocation services, known for its flexibility and design capabilities. Developers appreciate its customizable mapping and location-based functionality, enabling them to create rich, customized mapping solutions that meet specific application needs

Mapsly specializes in mapping and CRM (Customer Relationship Management) software, catering to the needs of businesses looking to streamline field operations. It integrates mapping, channel planning, and CRM features, providing value for sales and service teams. Mapsly stands out by tailoring its solutions to specific business needs, ensuring that location awareness is seamlessly integrated into daily operations.

2.4.2 Database

Renowned as a popular open-source relational database management system, MySQL is celebrated for its speed, reliability, and user-friendly nature. It's a preferred

Chapter 2

choice for small to medium-sized businesses and web applications seeking efficient data management.

PostgreSQL, another open-source relational database system, stands out with its extensibility and advanced features, including support for complex data types and JSON. It's the go-to option for applications requiring scalability and robustness.

Firebase, developed by Google, offers a comprehensive mobile and web application development platform. It encompasses a wide range of services and tools, from real-time database hosting to authentication and cloud functions. Firebase is hailed for its ease of use and scalability, making it a favored choice for startups and developers aiming to rapidly develop and deploy applications. However, as applications scale, it's vital to consider the long-term budget, as Firebase costs may increase.

An open-source alternative to Firebase, Supabase provides a suite of tools and services for web and mobile application development. It's built on top of PostgreSQL, a powerful relational database, and offers features such as authentication, real-time database capabilities, and serverless functions. Supabase appeals to those who seek the benefits of Firebase while preferring open-source solutions and greater control over their tech stack. However, it may require more technical expertise to set up and maintain compared to Firebase.

2.4.3 Emails

Gmail is an email service that is easy to use and has many features that Google offers. Its intuitive interface, effective spam filtering, and easy integration with other Google apps make it a popular choice for personal and business use. Gmail's generous storage capacity and smart categorization of emails help users organize, and its mobile app ensures access on the go. This is a great option for those who appreciate the simplicity and convenience of managing their email.

Outlook Mail, part of Microsoft's Office suite, is a powerful email platform suitable for offices. Outlook's robust organizational features, including folders, filters, and focused inbox, help users manage their emails more effectively. Its seamless integration with the Outlook calendar simplifies scheduling and managing appointments, while advanced security features protect sensitive information Outlook for businesses and professionals looking for a complete, business-friendly email solution strong features and high security There is one way to go.

2.4.4 Calendars

Google Calendar is an easy to use and versatile tool that makes scheduling and scheduling easy. Its easy integration with other Google services, easy sharing options, and cross-device access make it the go-to choice for effective time management. Whether it's for personal use or team collaboration, Google Calendar day note that high-level system solutions.

2.5 Summary

In a comprehensive evaluation of existing applications, I gain valuable insights into the current market landscape, identifying both the strengths and weaknesses of various CRM applications. This thorough examination allows me to conduct a detailed comparison, offering a nuanced understanding of the competitive landscape. By scrutinizing the pros and cons of each existing application, I not only identify potential areas for improvement but also discern the challenges faced by these applications. This, in turn, serves as a foundation for my project, guiding me in crafting a solution that not only addresses the existing gaps but also leverages the strengths of successful applications.

The review of the project's title serves as a crucial driving force, providing me with a strategic focus. It acts as a guiding light, ensuring that I stay on course with the project's core objectives and goals. This clarity is essential in preventing any detours from the project's primary aim, paving the way for a more efficient and targeted development process. In addition, assessing potential technologies brings a sense of readiness for the upcoming development phase. Familiarizing myself with the capabilities and features of various software and hardware options lays a solid foundation for seamless development. With this knowledge, I am able to make informed decisions and select the most appropriate technologies that align with the project's requirements, ultimately contributing to an improved development process.

Chapter 3 System Methodology/Approach

3.1 Methodology

Prototype development is employed in the system's development as a response to the requirement for precise specification definition. Prototyping is an essential step in the product development process because it lets designers create a working model, or prototype, to estimate its feasibility and value. [9] It involves creating a demonstrative iteration of the software product with essential functionalities. Initially, a prototype's first version is built according to the initial specifications provided. This initial version serves as the groundwork for further enhancements, offering a foundational representation of the system's appearance and functionality.

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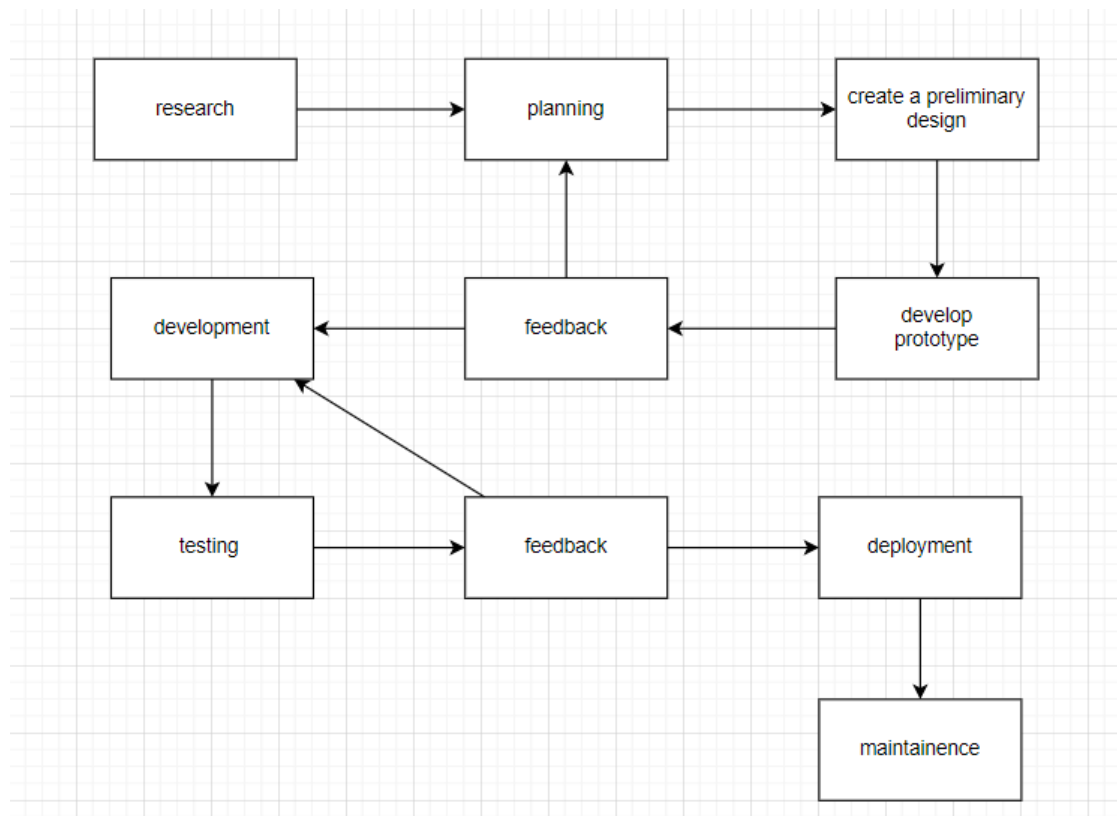


Figure 3.1 Prototyping Development Process

The first phase is the research phase. During this phase, I had reviewed few mobile App that match my title, which is Capsule CRM, Agile CRM, Freshsales CRM. Based on their features, I had make a comparison to outline all the pros and cons, with all the info, I had determine the improvement that can made to those system that I wish to implement in my system.

After the research part, we move on to planning. Here, I'll make a list of system needs based on the issues we found in the sales and customer relationship management system. We'll organize these needs by importance and practicality to make sure we fix the most crucial problems first. Then, we'll create a schedule to keep track of our project's major steps.

In the preliminary design phase, we'll use these requirements to sketch out the whole system. This includes how it looks and how it works, like the user interface and the logic behind it so it will be easy for the future development works.

In the prototyping stage, I'll utilize Figma to craft a high-fidelity prototype. Throughout the development and implementation phases, this advanced prototype will

offer a comprehensive preview of the system's functionality and behavior. Beyond merely illustrating system navigation and event handling, it will also simulate user interactions and workflow processes. Then, I will iterate on refining the prototype multiple times to effectively address the existing system issues and align with the system requirements before moving into the development phase. The prototype proves to be a valuable asset for conducting usability testing.

In the development stage, having an advanced prototype as a guide makes things much easier. After all the preliminary works had been done, I will start to develop code for the actual application module by module. Once a module is done, testing will be done to make sure it is working and feedback will be gathered from other users to find out all the bug effectively or anywhere to enhance the module. If there is any, it will return to the development phase.

After all the module development is done, all the module will be integrated together to make an actual complete app. Once the application is ready, I planned to deploy it to some Huawei App Gallery platform for actual user to use it to improve their business efficiency. From time to time, based on the user feedback, I will do improvement and maintenance to ensure that user get the most satisfied experience using this mobile application.

3.2 System Design Diagram/ Equation

3.2.1 System Architecture Diagram

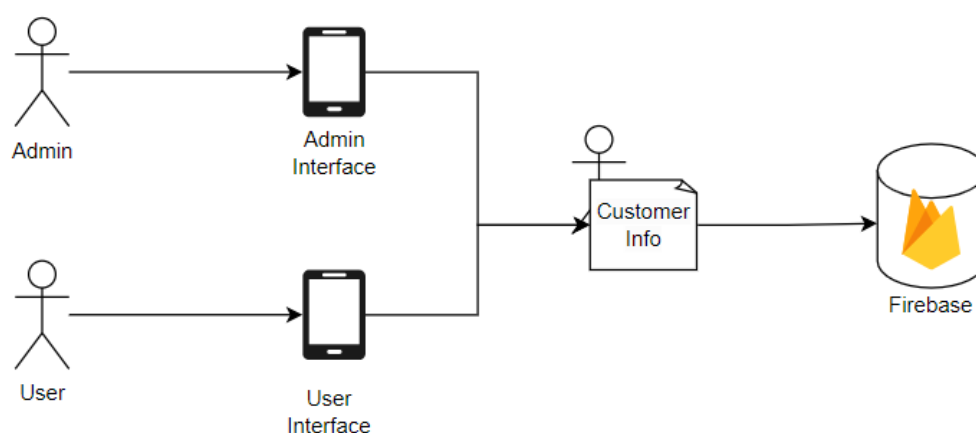


Figure 3.2 System Architecture Diagram

The system architecture for this mobile app is like a blueprint showing how everything works. It's designed for two types of users: admins and regular users.

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Admins have special powers—they can see and change anything in the app to keep it safe and running smoothly. But regular users have limited access; they can only see their own stuff to protect their privacy. Both admins and regular users can check out info about customers stored in Firebase, which helps everyone stay informed. This setup makes sure everything runs smoothly and keeps everyone's data safe.

3.2.2 Use Case Diagram

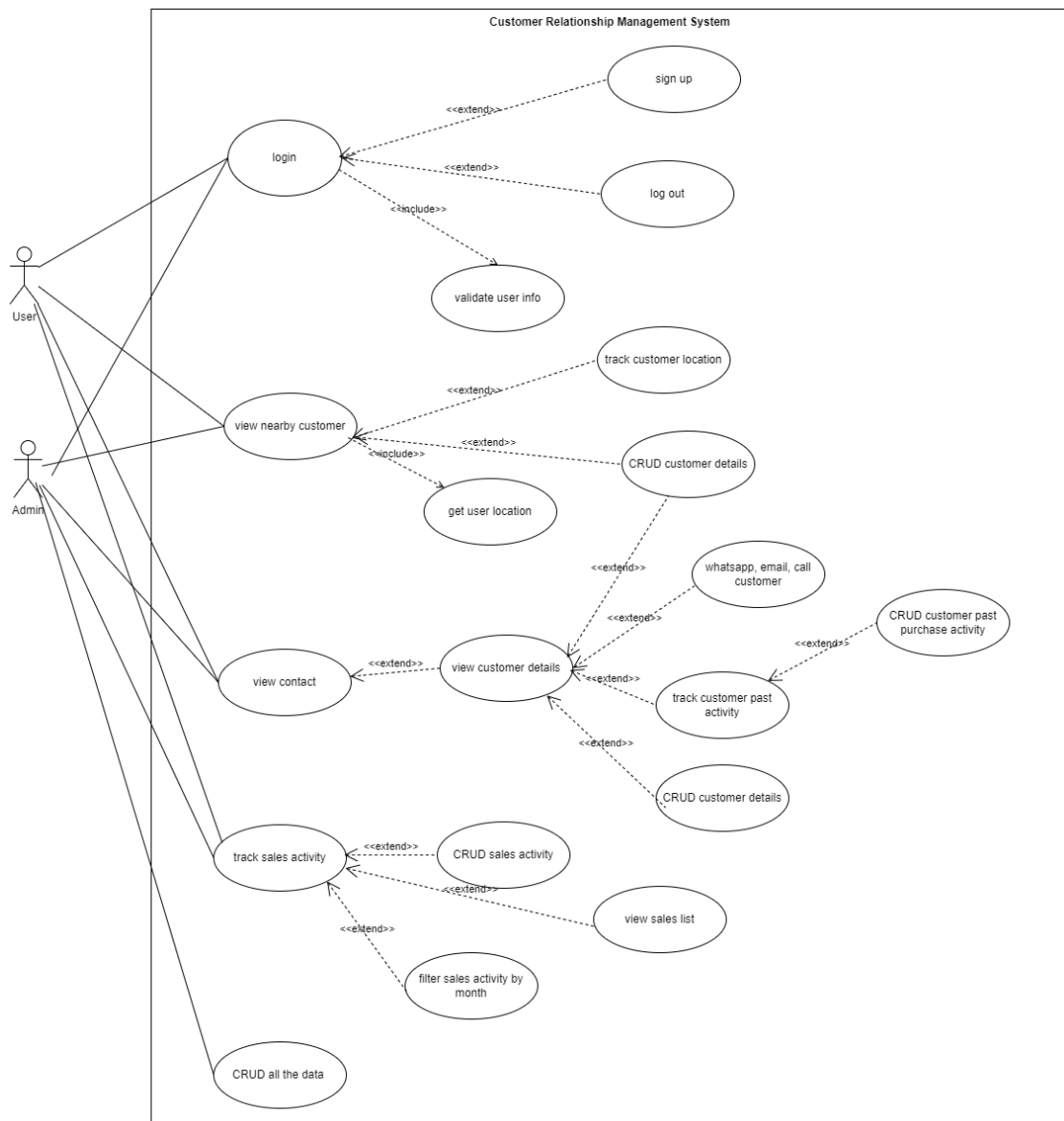


Figure 3.3 Use Case Diagram

In this application, there is an user authentication system which allow many different user to use it. Upon logging in, the system will validate the user info and user get to choose to perform operation like log out or sign up.

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Other than that, user get to view nearby customer on google maps which include different color for different priority of the customer nearby. User can straight navigate to their place using googles maps through the application. User can also view the nearby customer details in the google maps.

Other than that, user get to see all the available contact that is saved inside the application in a list. User able to view their contact details like mobile phone number, company working at, the position of them inside the company. User can straight call or whatsapp or email the customer within our application.

Next, user can also view the past purchase history of the customer in graphical form with a month filter. All the purchase history, total purchase amount of the customer can be seen at the page.

Then, User is able to track the sales activity also. They are able to visualize all their sales activity month by month and also view the sales list for the whole sales of them. They also able to CRUD the sales activity.

While for admin part, they can do all what the user can do but just an extra advantage which is they are able to view all the current data no matters who is the user, so they can modify, view all the data in the system for maintenance purpose.

3.3 Timeline

Below are the timeline for my planning to develop the whole application in fyp1 and also fyp2 duration.

						2023												
Project Start Date:		30-Oct-23				Week Starting	November					December						
Project Title:		Customer Relationship Management System (FYP1)				Day	30-Oct	9-Nov	11-Nov	14-Nov	19-Nov	21-Nov	26-Nov	1-Dec	3-Dec	5-Dec	9-Dec	14-Dec
#	Activity	Start	End	Days	Status													
1	<i>FYP1</i>	30-Oct-23	14-Dec-23	45	Completed	■	■	■	■	■	■	■	■	■	■	■	■	
2	Design prototype using figma	30-Oct-23	09-Nov-23	10	Completed	■	■											
3	Setting up the hardware and software	09-Nov-23	11-Nov-23	2	Completed		■	■										
4	Research on CRM related mobile application	11-Nov-23	14-Nov-23	3	Completed			■	■									
5	Develop login page	11-Nov-23	19-Nov-23	8	Completed				■	■	■							
6	Setting up firebase	19-Nov-23	21-Nov-23	2	Completed					■	■							
7	Develop Geo based customer tracking module	21-Nov-23	26-Nov-23	5	Completed					■	■	■						
8	Develop Contact page	26-Nov-23	01-Dec-23	5	Completed						■	■	■					
9	Testing on first version application	21-Nov-23	03-Dec-23	12	Completed					■	■	■	■	■				
10	Refining and finalizing the application	03-Dec-23	05-Dec-23	2	Completed								■	■				
11	Finalize FYP1 Report	05-Dec-23	14-Dec-23	9	Completed										■	■	■	
12	Presentation	14-Dec-23	14-Dec-23	0	In progress											■	■	

Figure 3.4 Fyp1 timeline

CHAPTER 4 System Design

4.1 System Diagram

4.1.1 Flowchart Diagram

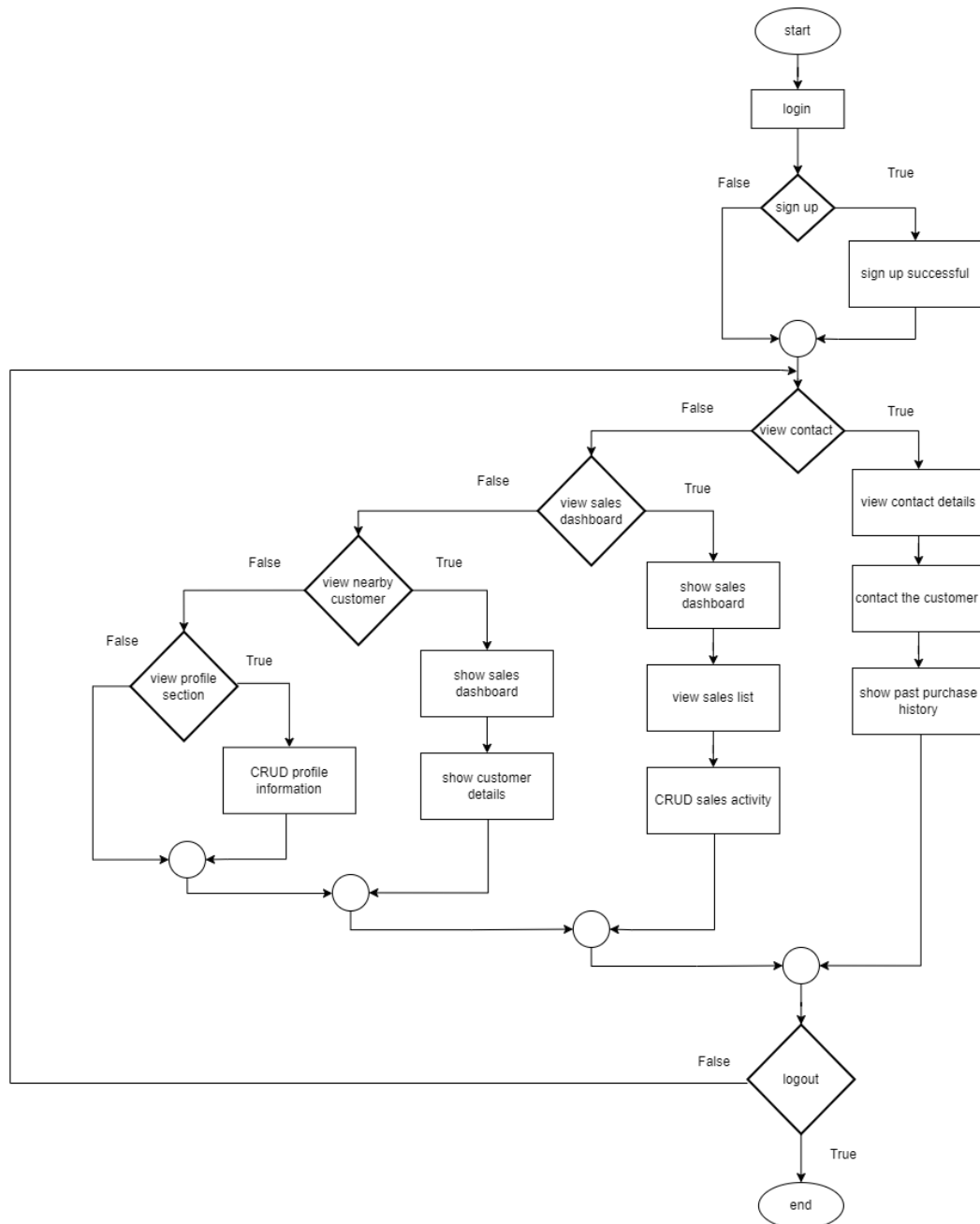


Figure 4.1 Flowchart Diagram

This is the flowchart diagram of the system. Upon login, user get to choose to sign up if they are new user. After that they are able to view all the contact list for their

customer and view all the details of their customer and contact the customer through WhatsApp, email etc. Then they can also view the customer past purchase history in graphical form.

Next, they can view the sales dashboard for real time sales activity, it will show sales dashboard and user can view all sales list and CRUD for all the sales activity.

Then, they can view nearby customer to their location, in the google maps they can straight navigate to the customer location or view the detail of the customer to get further information.

Last, user get to view their profile section and edit their profile, after that if user choose to logout then the application will end. If user didn't logout, then user get to choose what they want to perform inside the application.

4.1.2 Entity Relationship Diagram

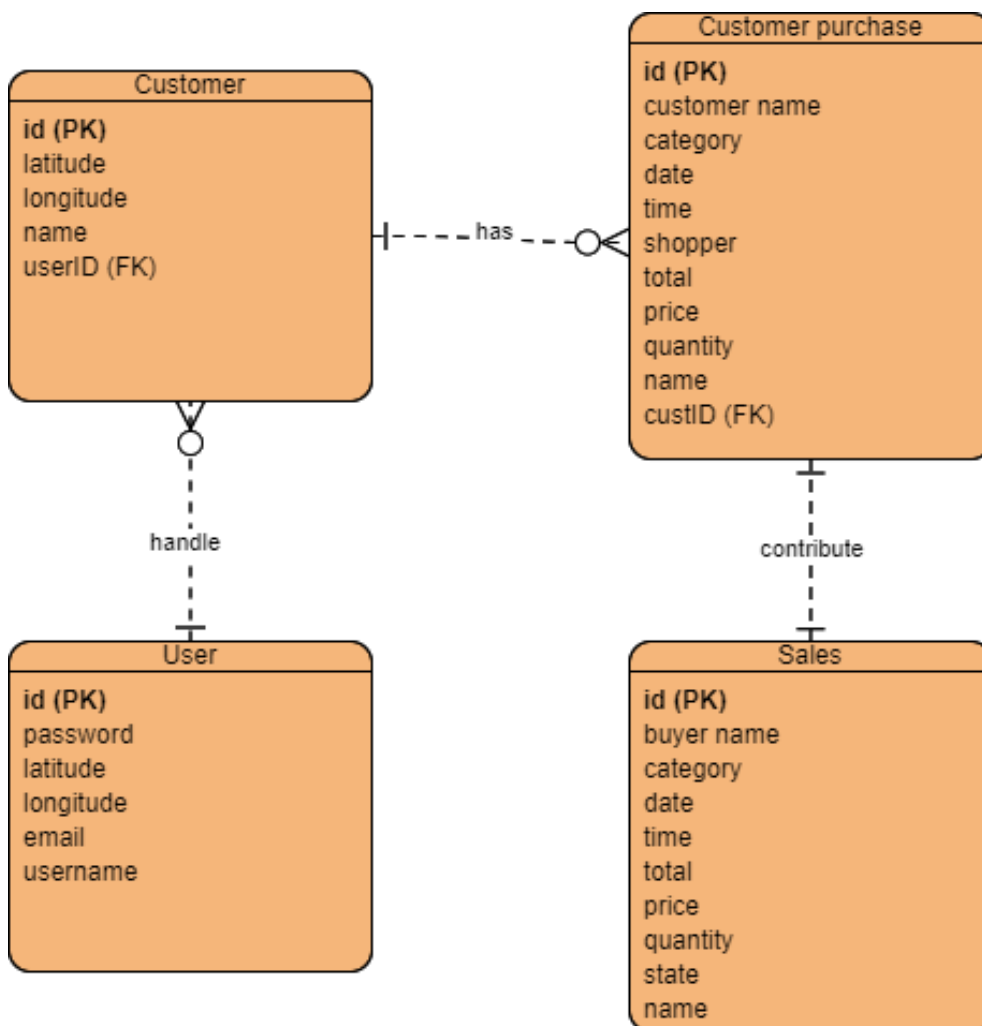


Figure 4.2 Entity Relationship Diagram

The Entity Relationship Diagram (ERD) acts as a comprehensive visual representation, elucidating the system's constituent elements. User is the user who are using the application, here store all their details information for login validation, nearby customer module purpose.

Then is the Customer entity which one User can handle zero or more customer. Then one customer can have zero or more purchase history, and one sales entity is equivalent to one past purchase history.

4.2 System Components Interaction Operations

4.2.1 Block Diagram

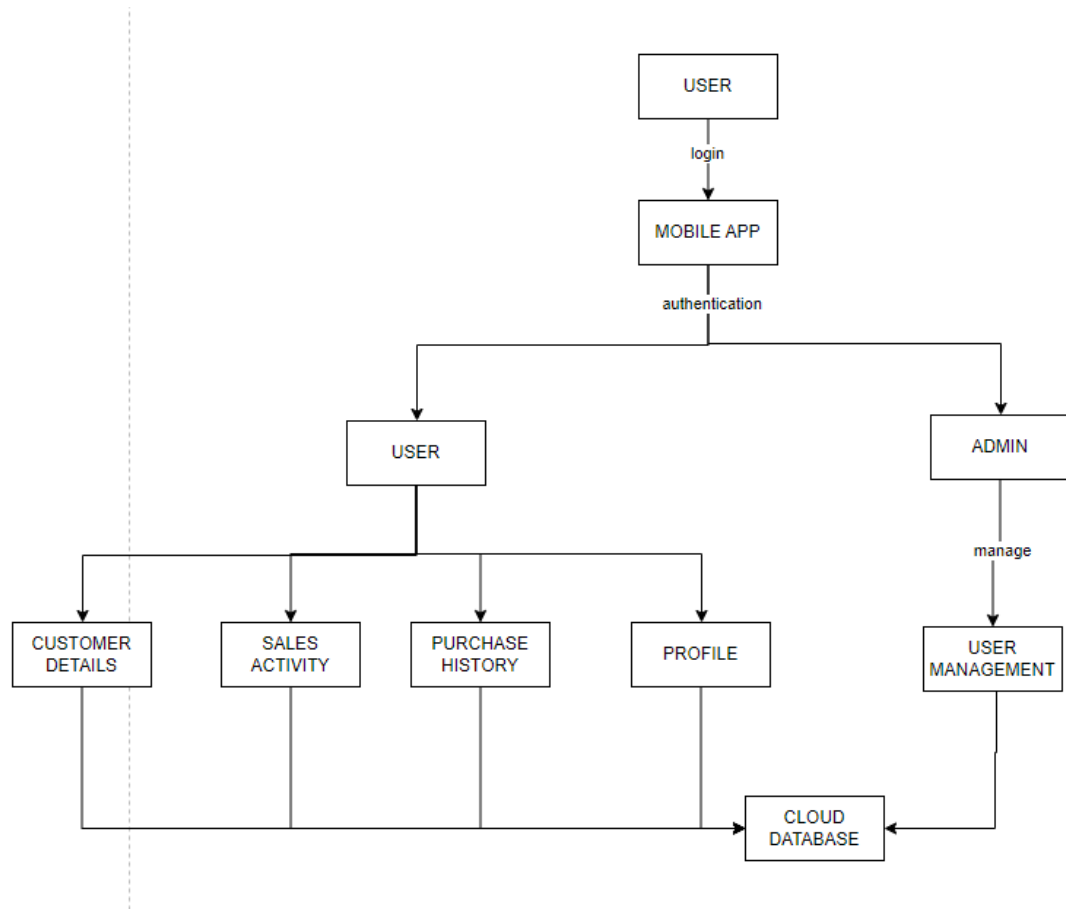


Figure 4.3 Block Diagram

In the system, there is two user which is normal user and admin. The user will responsible for all the customer details like CRUD for all their customer, CRUD for all their sales activity, managing the purchase history, profile management.

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Whereas for the admin, they are responsible for user management, like the security rules of the database, who able to access to what data. Monitoring the activity of the user.

CHAPTER 5 System Implementation

5.1 Hardware Setup

The hardware used in this project is a Lenovo computer and Android mobile device. The computer is used to develop the application using Android Studio with Java. The mobile device is used to test the Application developed since certain functions is better to use a physical device rather than an emulator.

Description	Specifications
Model	LENOVO IdeaPad 330s-14IKB
Processor	Intel Core i5-8250U (8th Gen) 1.6 GHz Quad-core
Operating System	Windows 10
Graphics	Intel UHD Graphics 620
Memory	8GB DDR4 RAM 2400MHz
Storage	256GB SSD

Table 5.1 Specification of Laptop

Description	Specifications
Model	Realme 10 Pro+
Android Version	Android 11 with Realme UI 2.0
Memory	12GB RAM
Storage	256GB internal storage

Table 5.2 Specification of Phone

5.2 Software Setup

Visual Paradigm

Visual Paradigm is a robust software design and modeling tool that supports various modeling languages and methodologies. It's designed for system and software design, offering features such as UML diagram creation, requirement analysis, and database modeling. The software promotes collaborative development through its team collaboration capabilities, facilitating efficient communication among project stakeholders.

Android Studio

Android Studio is the official integrated development environment (IDE) for Android app development, developed by Google. This comprehensive tool provides a user-friendly environment for coding, debugging, and testing Android applications. It comes equipped with a suite of tools and emulators to streamline the entire app development process, making it a vital resource for Android developers.

Figma

Figma is a cloud-based design and prototyping tool that enables collaborative interface design. It allows multiple users to work on the same design project simultaneously, fostering real-time collaboration. Figma is known for its user-friendly interface, intuitive design features, and the ability to create interactive prototypes. It's a valuable tool for designers and teams working on user experience (UX) and user interface (UI) design, providing a seamless platform for creating, sharing, and iterating on designs.

5.3 Setting and Configuration

5.3.1 Software

This project is using Android Studio as the integrated development environment (IDE) for development. Below are the necessary setup steps for the software.

1. Check hardware specification

Setting up Android Studio is a crucial initial step in the development journey for Android applications. The process involves several key components, ensuring a well-equipped environment for efficient coding and testing. Firstly, before delving into the installation, it's imperative to ensure that the hardware meets the system requirements. Android Studio is compatible with various operating systems, including Windows, macOS, and Linux. The hardware specifications typically include a minimum of 4 GB RAM, 2 GB of available disk space, and a monitor with a minimum resolution of 1280 x 800. This ensures the smooth functioning of the IDE and optimal performance during app development.

2. Download and installation

Next, the installation process itself involves downloading the Android Studio installer from the official website. Once the installer is obtained, running the installation wizard is the next step. The wizard guides users through the setup, making the process

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user-friendly and accessible. During installation, users can choose specific components to install, including the Android Studio IDE, Android SDK (Software Development Kit), and the virtual device emulator. It is advisable to include the Android Virtual Device (AVD) Manager, a crucial tool for managing virtual devices used in testing applications. This step ensures that developers have a comprehensive development environment, encompassing the necessary tools and features for Android app creation.

3. SDK setup

After the installation, launching Android Studio initiates the setup of the Android SDK, a fundamental component for Android app development. The SDK Manager, accessible within Android Studio, allows developers to download different versions of the Android API and necessary tools for app development. It's crucial to select and download the API levels relevant to the project requirements, ensuring compatibility with the targeted Android versions. This step ensures that the development environment is up-to-date and equipped with the necessary resources to create versatile Android applications. In summary, the setup of Android Studio involves hardware verification, the installation process through the wizard, and the subsequent configuration of the Android SDK using the SDK Manager, collectively providing developers with a robust platform for Android app development. Now, Android Studio is ready to use.

5.3.2 Hardware

This project is using Realme 10 pro + as the emulator to run the application. In order to let it connect to Android Studio. Below are the necessary setup steps for the hardware.

1. Enable Developer Options

On your Android mobile device, enable Developer Options. To do this, go to the device's settings, navigate to "About phone," and tap on the "Build number" multiple times until Developer Options are unlocked.

2. USB Debugging

Enable USB debugging in the Developer Options on your Android device. This allows Android Studio to communicate with the device for debugging and testing purposes.

5.4 System Operation (with Screenshot)

5.4.1 Login Page

So for the login page, user can choose whether to use google sign in or manually key in username and password to login into the application.

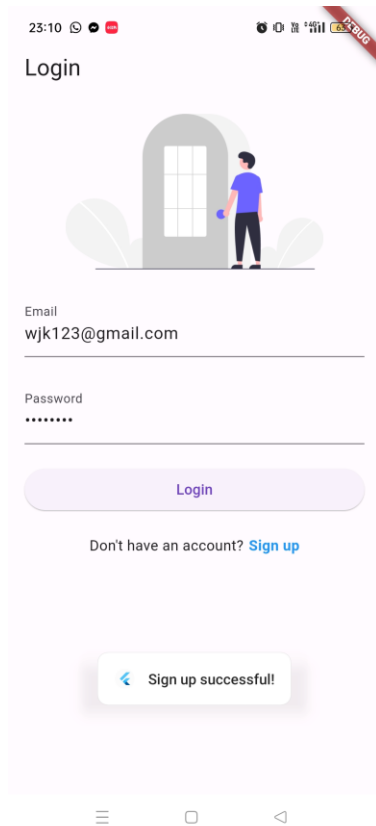


Figure 5.1 Login Page

5.4.2 Sign Up Page

For new user, they able to sign up to create new account to the application. System will validate the validity one user login, if invalid then it will prompt error message.

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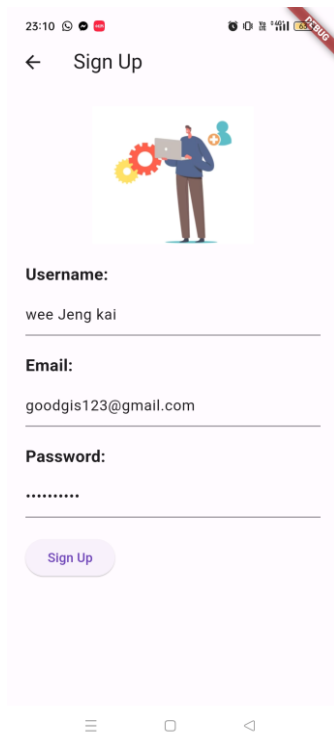


Figure 5.2 Sign In Page

5.4.3 Home Page

In the home page, user get to see four icon which related to four page which user can operate in which is the contact list, nearby customer, sales dashboard and profile page.

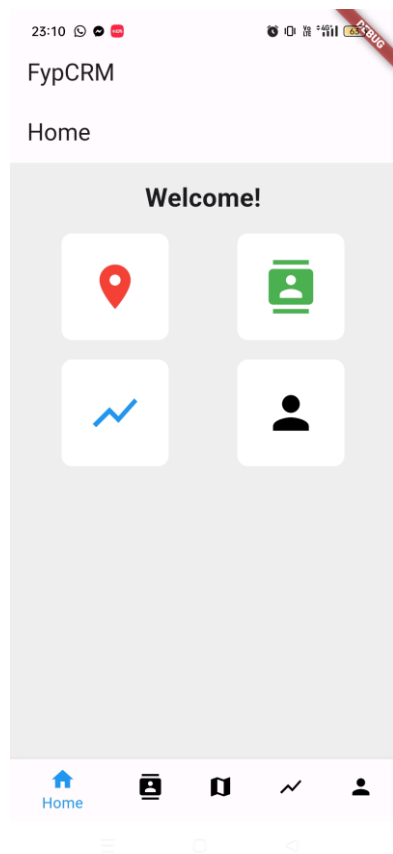


Figure 5.3 Home Page

5.4.4 Contact Page

In the contact page, user get to see all the available customer contact which is saved in the database and user get to know the details of each customer by clicking on each customer. User also get to contact the customer through various platform like telegram, whatsapp, phone, message or track the customer location.

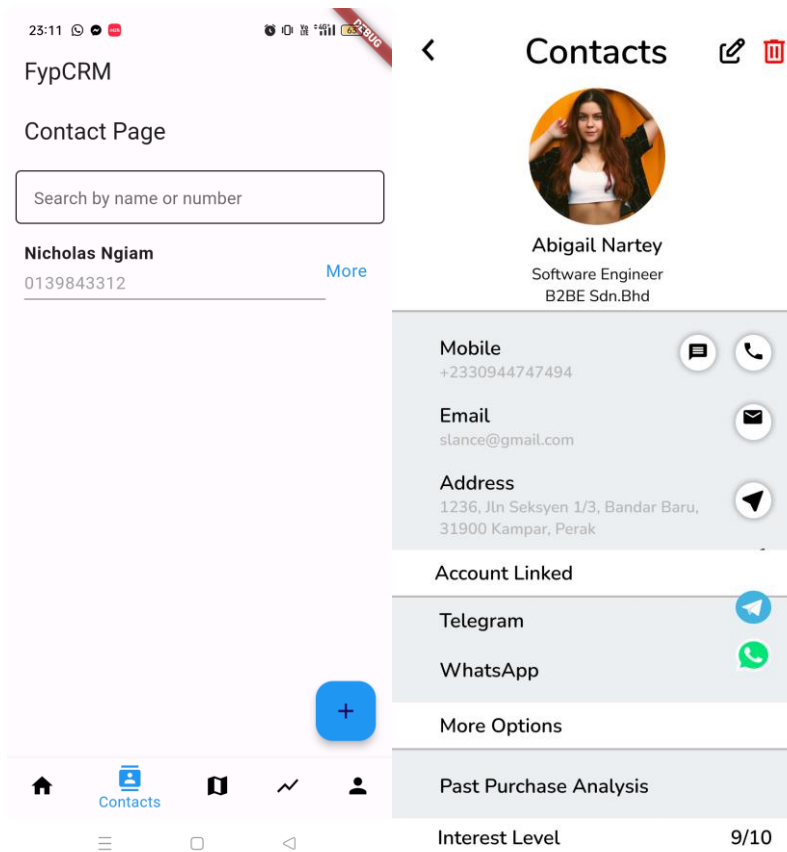


Figure 5.4 Contact Page

5.4.5 Nearby Customer Page

In this module, user get to view the number of customer around few kilometres from the user location in the home page. After that user can click into it and it will navigate user to nearby fragment which consist of a map, user itself and nearby customer pin in its location in the map. Upon clicking on the customer icon, user can choose to navigate to the customer location by using google map. Other than that, user also get to choose to view the customer details in the contact.

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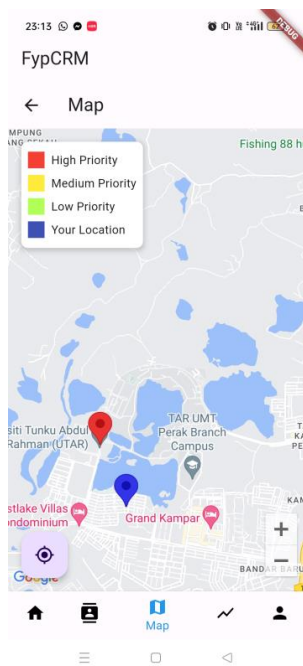


Figure 5.5 Nearby Customer Page

5.4.6 Sales Dashboard Page

In this page, user get to view the sales month by month with an interactive way which is visualize it through the graph. There are several graph like sales categories, overall sales, etc. User can also see the sales list inside here or CRUD the sales activity.

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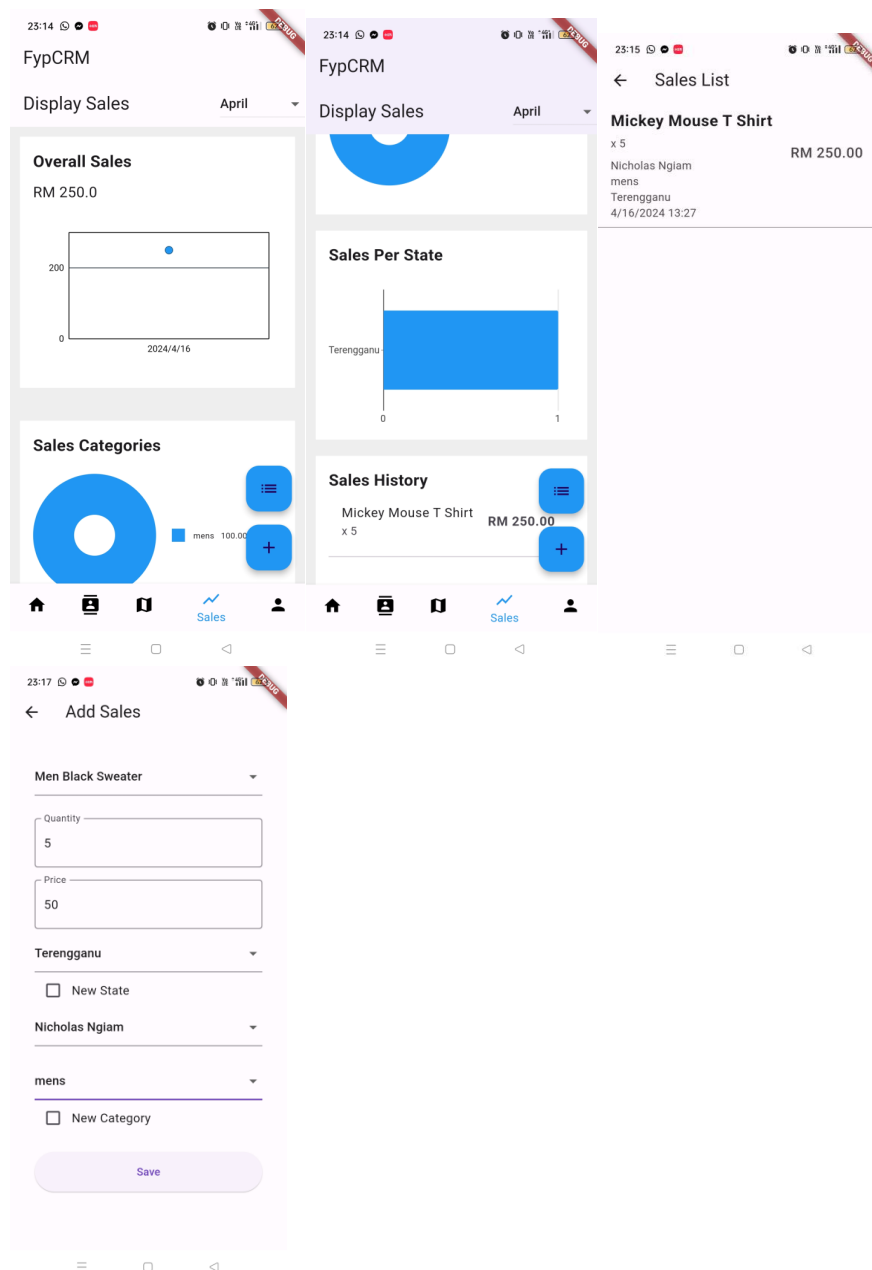


Figure 5.6 Sales Dashboard Page

5..4.7 Profile Page

In this page, user get to view their own profile which include the details of them and also they are able to edit their profile or log out from the account.

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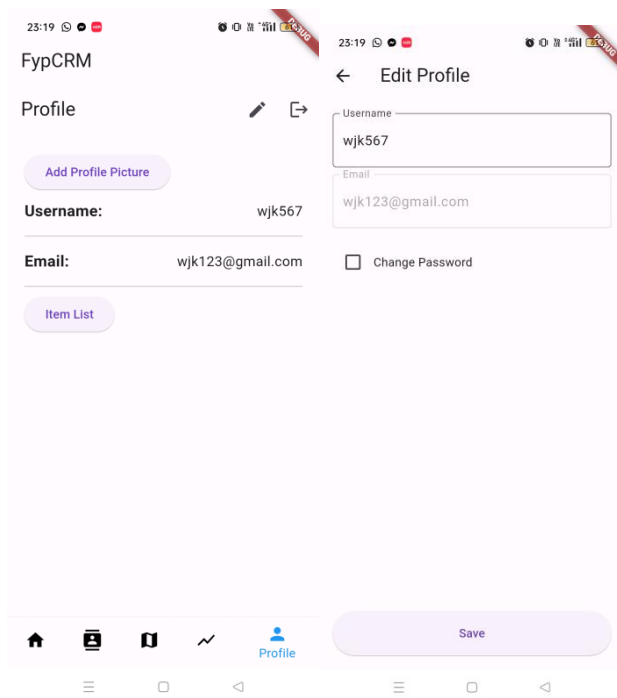
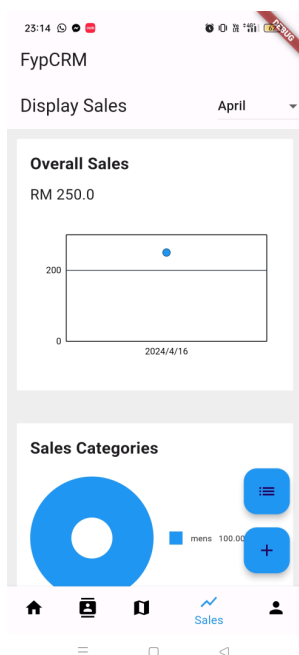


Figure 5.7 Profile Page

5.4.8 Past Purchase Page

In this page, user get to view their customer past purchase history in a graphical method or list method. All the past purchase history is added when a sales is made, so no change is applied is needed.



5.5 Implementation Issues and Challenges

One of the hurdles I encountered during application development involved integrating Firebase storage for image management. Initially, I implemented the algorithm as planned, but the application wasn't behaving as expected. Images weren't being retrieved or uploaded to Firebase storage, hindering my ability to add image functionality. To overcome this obstacle, I delved into online resources and support communities, meticulously combing through documentation and troubleshooting steps. The process was time-consuming, but eventually, I identified the root cause and successfully implemented the image storage solution.

Another challenge I faced stemmed from using Firebase's NoSQL database. Unlike traditional relational databases with a structured schema, NoSQL databases offer more flexibility but require careful backend design. A single misstep in the data structure could lead to the entire backend crashing, rendering the application inoperable. This necessitated a significant investment of time into meticulously crafting the backend architecture. The meticulous design effort paid off in the end, as the application functioned smoothly upon completion.

Finally, during development, I encountered a space constraint on my PC's hard drive. As the project progressed, the accumulated files and development tools began to fill up my storage capacity. With limited options, I resorted to deleting the Android emulator from my machine. This meant relying solely on my physical phone for testing and development, which added an extra layer of complexity to the workflow. However, this workaround proved effective, allowing me to continue development despite the storage limitations.

5.6 Concluding Remark

In conclusion, the hardware and software choices I made for this application reflect a practical approach that aligns with common user preferences. Throughout my university studies, I've consistently utilized this combination, ensuring a smooth development experience. The only significant hurdle I encountered was limited disk space on my PC. As the project progressed, the accumulation of files and development tools began to strain storage capacity. To circumvent this limitation, I

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was forced to delete the Android emulator, essentially swapping it out for my own phone for testing and development purposes. While this introduced an additional layer of complexity to the workflow, it ultimately proved to be an effective workaround, allowing me to overcome the storage constraints and continue development without interruption.

Furthermore, this chapter meticulously presents the application's seamless operation. It goes beyond a simple overview, instead offering a comprehensive guided tour of the entire system. This walkthrough delves into the functionalities available on each screen, providing granular detail about the available actions and interactions. This in-depth exploration equips readers with a holistic understanding of the system's capabilities before they delve into the subsequent chapter, which focuses on the intricate details of the test cases designed to evaluate the application's performance.

Finally, it's important to acknowledge the challenges and issues I encountered during the implementation phase. While these obstacles undoubtedly slowed down the development process at times, they also proved to be valuable learning experiences. Each hurdle presented an opportunity to refine my problem-solving skills, delve deeper into technical concepts, and ultimately emerge with a more robust and well-rounded understanding of the development process. The lessons learned from these challenges will undoubtedly contribute to my future endeavors as a developer.

CHAPTER 6 System Evaluation and Discussion

6.1 System Testing and Performance Metrics

Test Case 1: To test whether user can sign up successfully.

Steps:

1. Enter valid registration details (name, email, password).
2. Click the "Register" button.
3. Navigate to Login page
4. Enter the email address and password used in Step 1
5. Click "Login" button.

Expected outcomes: User create an account and the system navigate to home page when login.

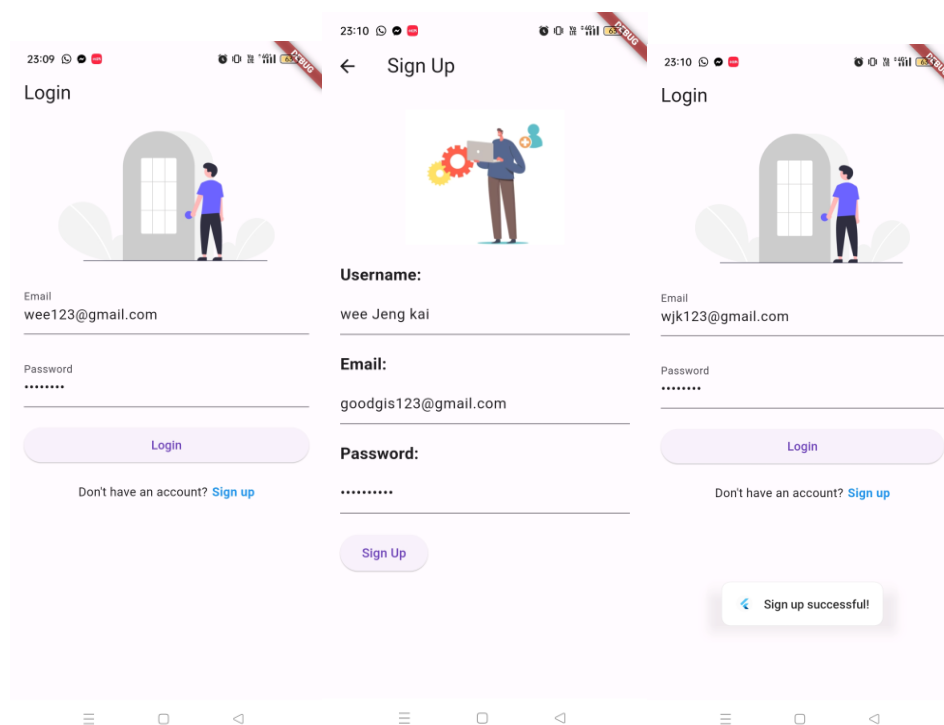


Figure 6.1 Test Case 1

Test Case 2: To test whether admin can sign in successfully to Admin page.

Preconditions: There is an existing "admin" role user in the system with email "admin123@gmail.com"

Steps:

1. Enter the email address and password of existing "admin" role user
2. Click "Login" button.

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Expected outcomes: Navigate to Admin home page which can view all the data inside the system.

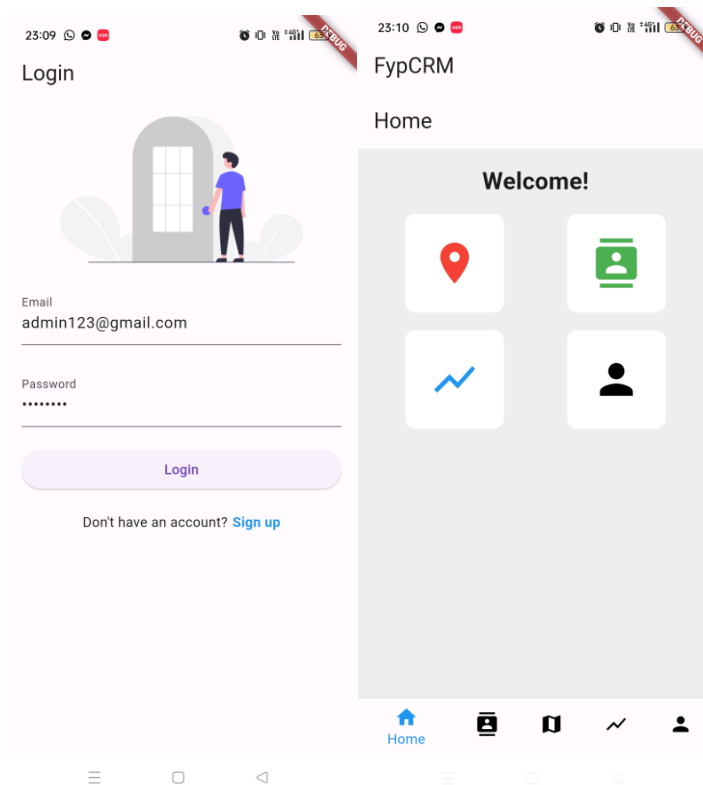


Figure 6.2 Test Case 2

Test Case 3: To test whether user can login successfully to User page.

Steps:

1. Enter the email address and password of test case 1 account.
2. Click “Login” button. Expected outcomes: Navigate to home page.

Expected outcomes: User success login with correct info and navigate to home page.

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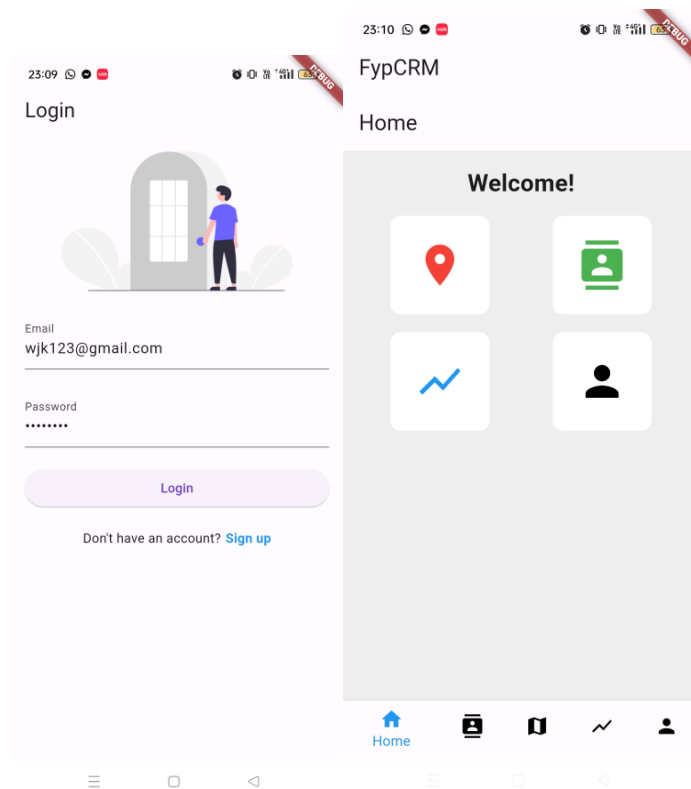


Figure 6.3 Test Case 3

Test Case 4: To test whether user can view all their contact

1. User navigate to Contact List Page

Expected outcomes: User able to view all their contacts.

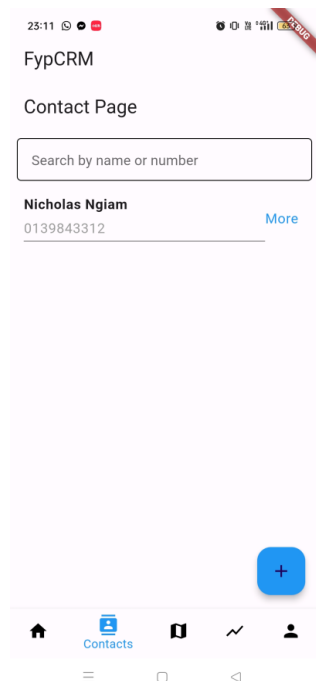


Figure 6.4 Test Case 4

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Test Case 5: To test whether user can view customer contact details

1. User navigate to Contact List Page
2. User press and view the customer contact details page

Expected outcomes: User able to view all their contacts detail.

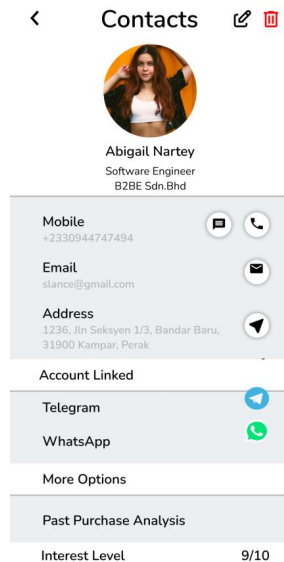


Figure 6.5 Test Case 5

Test Case 6: To test whether user can view nearby customer on google maps

1. User navigate to Map Screen Page
2. Nearby Customer marker is shown on the Map.

Expected outcomes: User able to view all the nearby customer with their marker in google maps.

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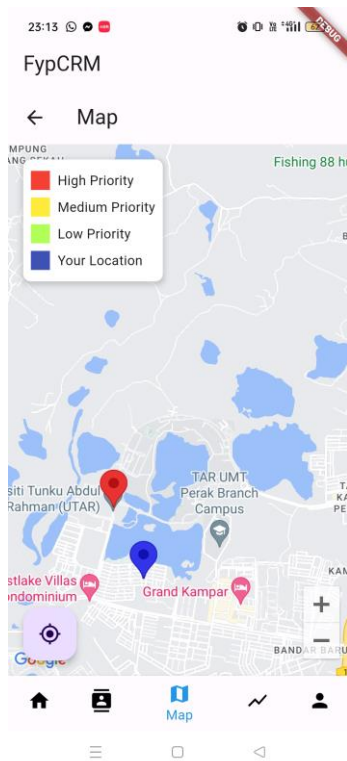


Figure 6.6 Test Case 6

Test Case 7: To test whether user can see the sales dashboard

1. User navigate to Sales Dashboard Page
2. All the graph of sales is display out

Expected outcomes: User able to see all the graph of sales activity.

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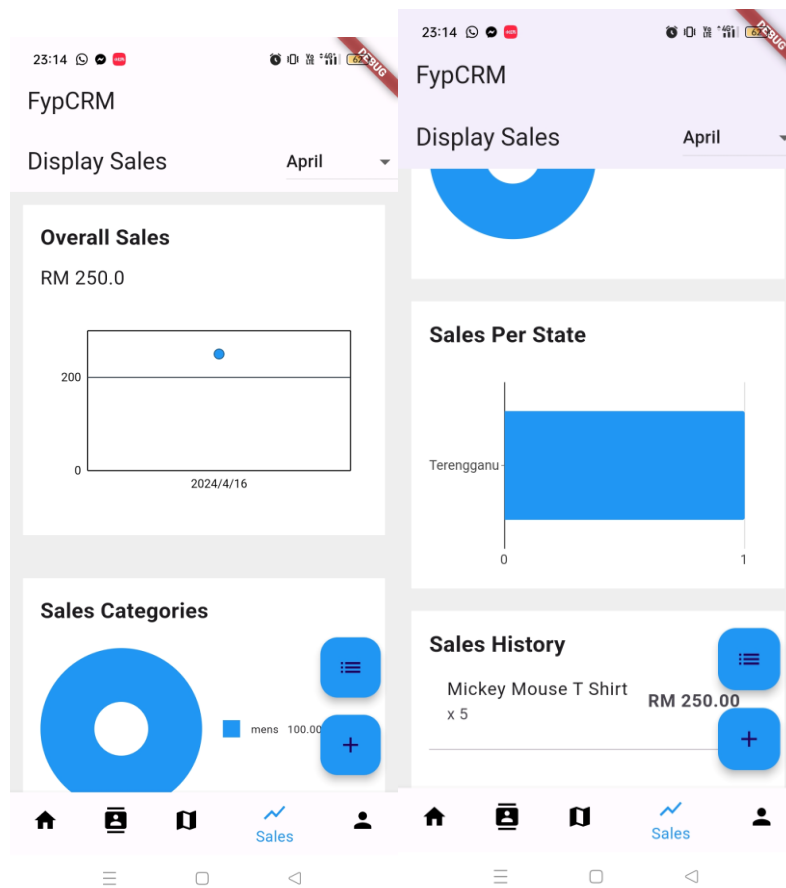


Figure 6.7 Test Case 7

Test Case 8: To test whether user can view the sales based on month

1. User navigate to Sales Dashboard Page
2. User apply the month filter and see sales graph for each month

Expected outcomes: User able to see all the graph of sales activity filtered by month.

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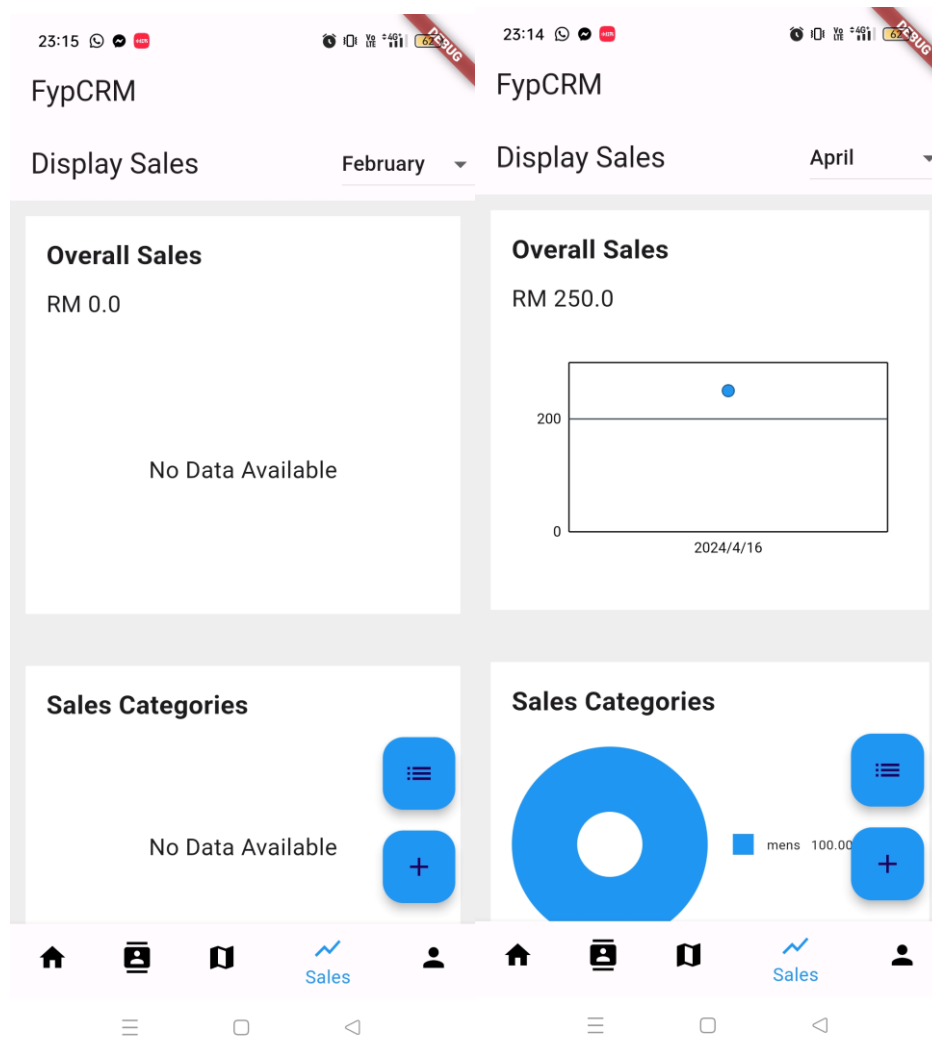


Figure 6.8 Test Case 8

Test Case 9: To test whether user can view the view their sales list

1. User navigate to Sales Dashboard Page
2. User press on sales list, all the sales is display out

Expected outcomes: User able to see all sales list.

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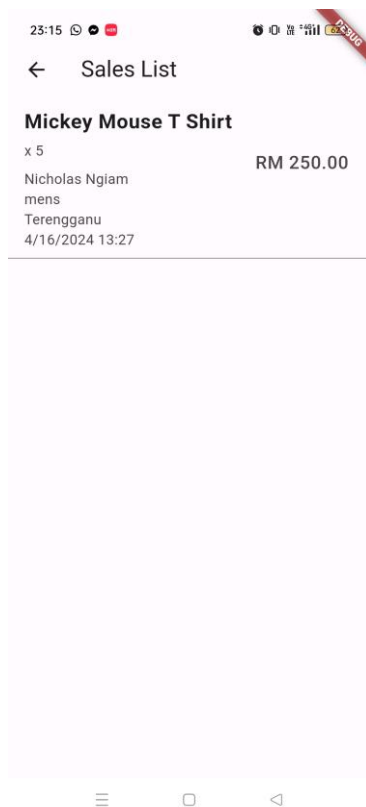


Figure 6.9 Test Case 9

Test Case 10: To test whether user can add new sales

1. User navigate to Sales Dashboard Page
2. User add a new sales
3. User view the new graph in sales dashboard

Expected outcomes: User able to add the new sales activity and the sales graph change immediately.

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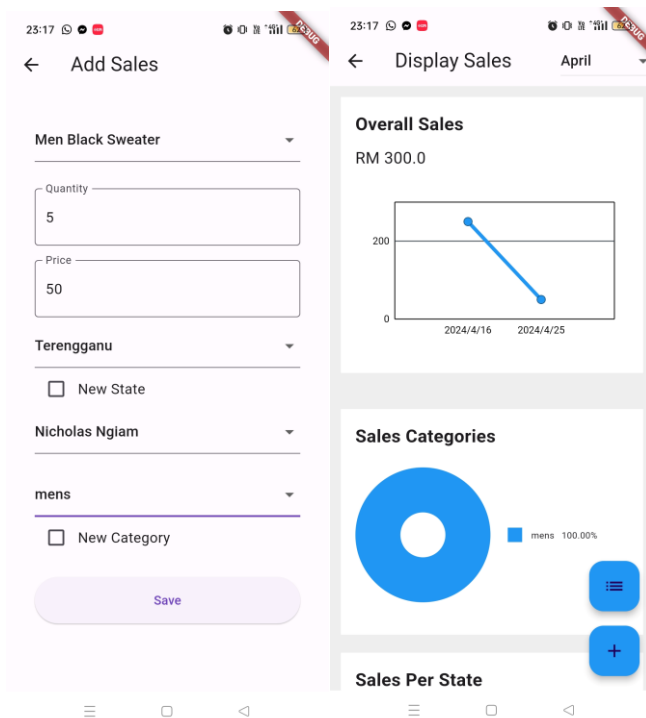


Figure 6.10 Test Case 10

Test Case 11: To test whether user can view their profile

1. User navigate to profile page
2. All the information is shown ou

Expected outcomes: User able to see all information about their profile.

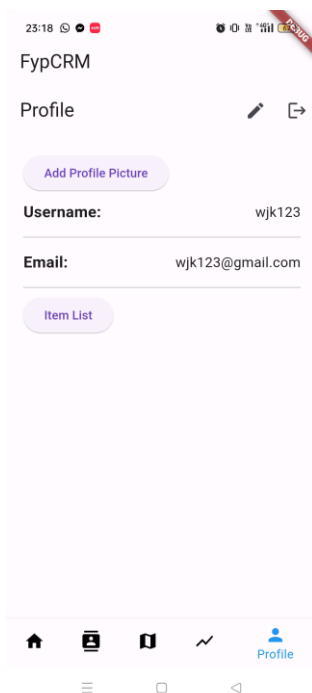


Figure 6.11 Test Case 11

Test Case 12: To test whether user to edit their profile

1. User navigate to profile page
2. user press on edit icon
3. user edit the data
4. the user data had change

Expected outcomes: User able to edit their profile and see the result immediately.

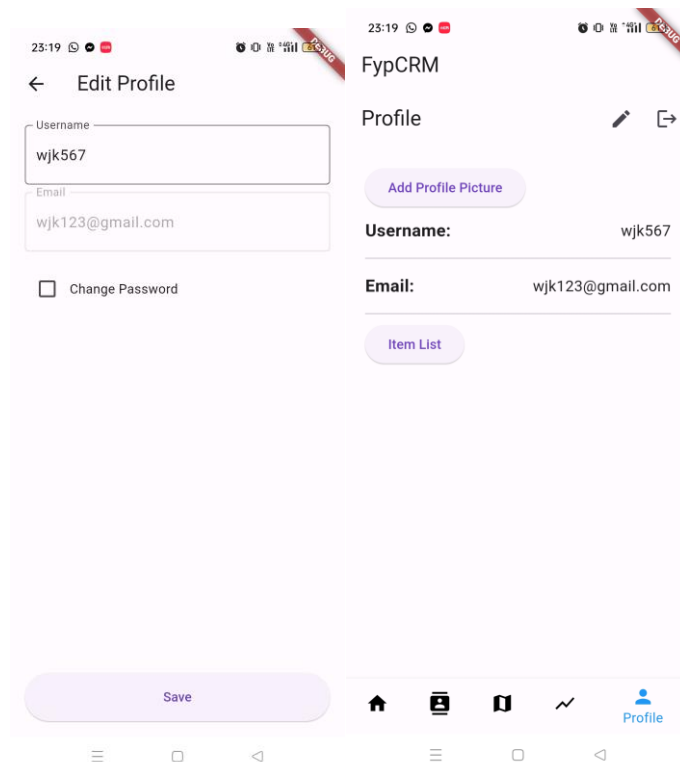


Figure 6.12 Test Case 12

Test Case 13: To test whether user can logout

1. User navigate to profile page
2. user click on logout button
3. user navigate to login page

Expected outcomes: User able to logout from profile page and navigate to login page.

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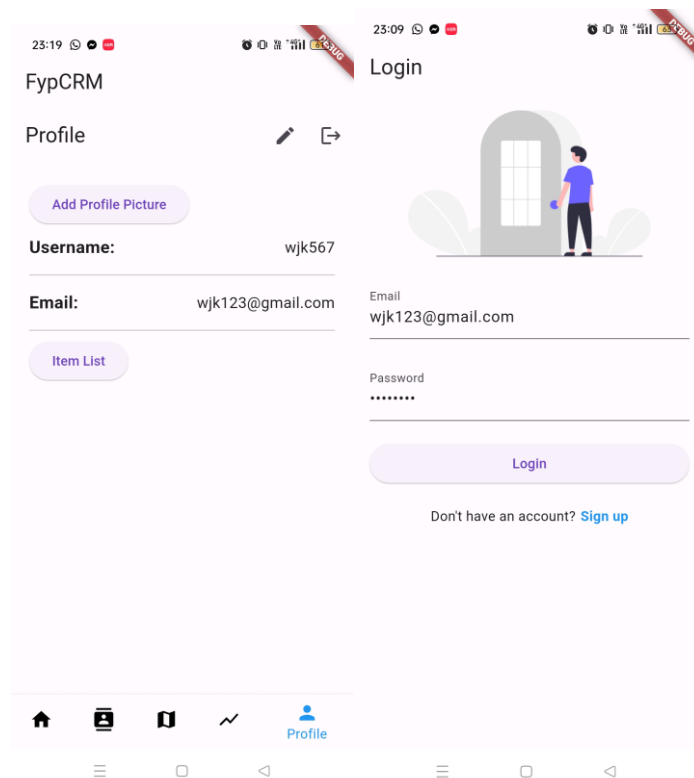


Figure 6.13 Test Case 13

Test Case 14: To test whether user can view their item list

1. User navigate to profile page
2. user click on item list button
3. All the item information is shown out

Expected outcomes: User able to see all the item list.

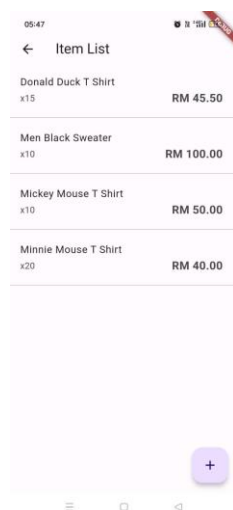


Figure 6.14 Test Case 14

6.2 Testing Setup and Result

6.2.1 Testing Environment

Operating System: Android (Xiaomi Mi 9T as specified in 5.1)

IDE: Visual Studio Code

Device: Xiaomi Mi 9T as specified in 5.1 (Android)

6.2.2 Testing Data:

Predefined User:

Email: wjk123@gmail.com

Username: wjk123

Password: wjk123

Admin:

Email: admin123@gmail.com

Username: admin Wee

Password: admin123

Tools and Libraries

Framework: Flutter Dart

Database: Firebase Database

6.2.3 Testing Result:

Test Case 1: Success.

Observation: user sign up successfully and navigate back to login page.

Test Case 2: Success.

Observation: admin sign in successfully and navigate to home page.

Test Case 3: Success.

Observation: user login successfully and navigate to home page.

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Test Case 4: Success.

Observation: user get to view all contact in the contact list page.

Test Case 5: Success.

Observation: user get to view all customer details.

Test Case 6: Success.

Observation: user get to view all nearby customer on the google maps.

Test Case 7: Success.

Observation: user get to view the sales dashboard with correct data.

Test Case 8: Success.

Observation: user get to view the sales dashboard in different month with correct data.

Test Case 9: Success.

Observation: user get to view all their sales list.

Test Case 10: Success.

Observation: user get to add a new sales and view it in the sales dashboard.

Test Case 11: Success.

Observation: user get to view their profile and information.

Test Case 12: Success.

Observation: user get to edit their information in profile page.

Test Case 13: Success.

Observation: user get to logout and navigate to login page after logout.

Test Case 12: Success.

Observation: user get view their item list.

6.3 Project Challenges

During testing, one of the significant challenges I encountered was integrating Google Maps into the application. This task proved to be particularly difficult as it required obtaining an API key from Google and integrating the SDK into our application. Furthermore, configuring the integration correctly to ensure seamless communication between the application and Google Maps posed additional hurdles, and I faced considerable difficulty during this process.

Additionally, I encountered challenges while running the application on an emulator due to the full disk space on my PC. This limitation forced me to resort to using my own phone for testing and running the application. The lack of available disk space hindered the continuous operation of the application on the emulator, prompting me to delete unnecessary files to free up space and enable smoother testing.

Furthermore, managing dependencies on external services like Firebase Storage and Firebase Authentication presented another set of challenges. Configuring Firebase Storage and Firebase Authentication proved to be particularly daunting due to compatibility issues with my application's IDE setup. Consequently, I had to invest significant effort into configuring these services correctly and implementing the necessary logic to effectively utilize them within the application.

6.4 Objectives Evaluation

For the first objective which is developing the GEO-based Customer Identification and Customer Classification app, I had achieved it by providing user the google maps which will output all the customer location in the maps which allow the user to find all their customer nearby, and also integrate google maps navigation so easy for user to go to the place and also the user able to view the details of the customer throughout on the maps. With this , we could empower business cooperation with a powerful tool that revolutionizes the way they engage with customers.

Second, the objective is development of a Customer Information Management and Past Purchase Analysis feature within the CRM and sales mobile app. We could see

that by confirming that past purchases of customer is shown within the app in the graph sign.

6.5 Concluding Remark

In conclusion, Chapter 6 marks the culmination of the system testing phase, employing use case testing to meticulously evaluate the application's functionality. Through rigorous testing procedures, valuable insights into the application's performance were gleaned, affirming its smooth operation and functionality. The thorough execution of test cases revealed that the application operates seamlessly and accurately, devoid of any discernible flaws. Each test case yielded results that aligned with expectations, underscoring the robustness and reliability of the application's functionality.

Moving forward, the evaluation of key objectives underscores the project's achievements and its alignment with the stipulated objectives. Throughout the duration of this FYP2 endeavor, each objective was systematically addressed and successfully fulfilled, indicative of the project's efficacy in meeting its intended goals. This comprehensive achievement signifies the project's success in fulfilling its intended objectives, thereby validating its relevance and significance within the realm of Sales and Customer Relationship Management.

In summary, the evaluation and testing phase not only validated the application's current functionality but also provided valuable insights for future iterations and enhancements of the Sales and Customer Relationship Management system. By leveraging the findings from this phase, subsequent iterations can capitalize on identified strengths while addressing any potential areas for improvement, thereby ensuring the continued evolution and optimization of the application's capabilities.

CHAPTER 7 Conclusion and Recommendation

7.1 Conclusion

In the development of the Sales and Customer Relationship Management (CRM) system, the primary focus was on addressing the challenges commonly associated with traditional sales management methods and existing CRM systems. These challenges often include disjointed sales processes, limited customer insights, and inefficient communication channels. Recognizing the need for an effective CRM solution, the project aimed to streamline sales operations, enhance customer engagement, and improve overall business performance.

Efficiency in sales and CRM systems emerged as a pivotal motivation behind the project. Existing challenges underscored the importance of real-time tracking of sales activities, personalized customer interactions, and seamless communication among team members. The demand for a system capable of delivering timely and accurate information became paramount to optimize sales processes and foster stronger customer relationships.

The proposed solutions centered around addressing these challenges by leveraging advanced technology and innovative features. Integration of customer relationship management tools, such as customer databases and communication platforms, aimed to enhance customer insights and facilitate targeted marketing efforts. Additionally, the implementation of real-time reporting functionalities and notification systems ensured prompt follow-up on leads and timely responses to customer inquiries. Novel ideas introduced in the project included the graphical real time display of sales activity and past purchase history. These innovations aimed to elevate the accuracy, efficiency, and responsiveness of the sales and CRM system, ultimately driving business growth and profitability.

The project's report showcased the comprehensive system design, including entity relationship diagrams, timelines, and use case diagrams, laying a solid foundation for the development of an effective sales and CRM system. The ERD depicted the relationships between system entities, while the use case diagram and timeline provided a clear roadmap of functionality and project progression, respectively. These design elements contributed to the successful implementation of the project by ensuring clarity and alignment with business objectives.

Chapter 7

An effective system design played a crucial role in facilitating the smooth and efficient development phase of the sales and CRM system. A comprehensive block diagram, accompanied by detailed specifications for each component, ensured that no critical features were overlooked. Furthermore, individual flowcharts were developed to illustrate the operation of every element, enhancing clarity and comprehension of the system's flow and design.

The environment setup, featuring essential tools such as Android Studio and relevant extensions, streamlined the coding process and facilitated efficient development. Incorporation of technologies like Flutter Dart Framework enabled cross-platform mobile application development, enhancing the system's accessibility and usability. The delineation of system users into distinct roles, such as "sales representatives" and "sales managers," provided tailored functionalities to meet their specific needs, promoting effective collaboration and productivity.

Throughout the project's development, valuable insights and lessons were gained, including research findings, challenges encountered during system development, and techniques employed to overcome difficulties. These experiences contributed to the developer's overall growth and proficiency in system design and implementation, offering practical knowledge and skills for future projects in sales and CRM management.

7.2 Recommendation

Following the comprehensive testing conducted, several recommendations emerge to enhance the system's functionality and user experience. Primarily, integrating a calendar appointment system stands out as a pivotal enhancement, enabling the recording and management of upcoming appointments with customers. This addition not only streamlines scheduling processes but also fosters stronger relationships between customers and users by ensuring timely interactions and engagements.

Moreover, incorporating more detailed graphs for past purchase analysis and sales dashboard can significantly augment the system's analytical capabilities. By providing users with visually appealing and informative graphs, they gain deeper insights into their company's performance, enabling informed decision-making and strategic planning. These enhanced visualization tools empower users to identify trends, opportunities, and areas for improvement more effectively, thereby facilitating better business outcomes.

Chapter 7

Furthermore, the integration of a company-wide system presents a compelling opportunity to enhance collaboration and data sharing among users within the same company. By grouping users who share common customers or objectives, this feature enables seamless communication and collaboration, fostering a more cohesive and efficient work environment. Real-time data sharing facilitates better coordination and alignment of efforts, ultimately leading to improved performance and profitability for the company as a whole. This integrated approach encourages synergy among team members, allowing for the exchange of insights, strategies, and best practices, thereby maximizing the collective potential of the organization.

In essence, these recommendations offer strategic avenues for refining the Sales and Customer Relationship Management system, enhancing its functionality, and enriching the user experience. By incorporating these enhancements, the system can better meet the evolving needs and expectations of users, empowering them to achieve greater efficiency, effectiveness, and success in their business endeavors.

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FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Year 3 Sem 3	Study week no.: 2
Student Name & ID: Wee Jeng Kai 20ACB02333	
Supervisor: Ts Tan Teik Boon	
Project Title: Sales and Customer Relationship Management System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

I have developing the sales dashboard UI.

2. WORK TO BE DONE

In the following weeks, I will be doing for the sales dashboard backend design.

3. PROBLEMS ENCOUNTERED

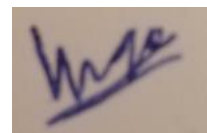
This week is going smooth and nothing had happen.

4. SELF EVALUATION OF THE PROGRESS

So far I am ok with the progress going.



Supervisor's signature



Student's signature

Final Year Project Weekly Report

Trimester, Year: Year 3 Sem 3	Study week no.: 4
Student Name & ID: Wee Jeng Kai 20ACB02333	
Supervisor: Ts Tan Teik Boon	
Project Title: Sales and Customer Relationship Management System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

I have developing the sales dashboard backend design.

2. WORK TO BE DONE

In the following weeks, I will be doing for the customer past purchase analysis UI.

3. PROBLEMS ENCOUNTERED

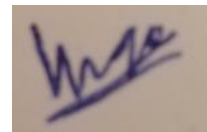
I had encounter some problem since this is very few times I had done configuring the backend design.

4. SELF EVALUATION OF THE PROGRESS

I should have learn more about backend during my university study.



Supervisor's signature



Student's signature

Final Year Project Weekly Report

Trimester, Year: Year 3 Sem 3	Study week no.: 6
Student Name & ID: Wee Jeng Kai 20ACB02333	
Supervisor: Ts Tan Teik Boon	
Project Title: Sales and Customer Relationship Management System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

I have configuring for both backend and front end for the customer past purchase analysis module.

2. WORK TO BE DONE

In the following weeks, I will be continue for the module since it is quite a large module.

3. PROBLEMS ENCOUNTERED

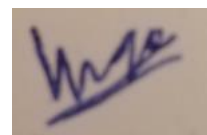
I had encounter some problem during the integration of backend to frontend, but the problem had solved.

4. SELF EVALUATION OF THE PROGRESS

I should had push myself to done the fyp2 project faster.



Supervisor's signature



Student's signature

Final Year Project Weekly Report

Trimester, Year: Year 3 Sem 3	Study week no.: 8
Student Name & ID: Wee Jeng Kai 20ACB02333	
Supervisor: Ts Tan Teik Boon	
Project Title: Sales and Customer Relationship Management System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

I continue developing the sales dashboard backend design.

2. WORK TO BE DONE

In the following weeks, I will be testing the application for refining purpose.

3. PROBLEMS ENCOUNTERED

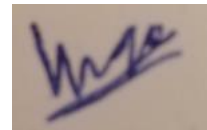
In this week, I had not encounter some problem.

4. SELF EVALUATION OF THE PROGRESS

I am doing great.



Supervisor's signature



Student's signature

Final Year Project Weekly Report

Trimester, Year: Year 3 Sem 3	Study week no.: 10
Student Name & ID: Wee Jeng Kai 20ACB02333	
Supervisor: Ts Tan Teik Boon	
Project Title: Sales and Customer Relationship Management System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

I am fixing bug when the testing progress running.

2. WORK TO BE DONE


In the following weeks, I will be testing and refining the backend design to make the application better.

3. PROBLEMS ENCOUNTERED

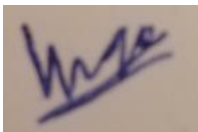
I had encounter some bug like missing data or unmatched data type during the call of data from firebase.

4. SELF EVALUATION OF THE PROGRESS

I think I should work more on backend related work.



Supervisor's signature



Student's signature

Final Year Project Weekly Report

Trimester, Year: Year 3 Sem 3	Study week no.: 12
Student Name & ID: Wee Jeng Kai 20ACB02333	
Supervisor: Ts Tan Teik Boon	
Project Title: Sales and Customer Relationship Management System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

I had test the application and it running smoothly.

2. WORK TO BE DONE


In the following weeks, I will be doing for my fyp2 report.

3. PROBLEMS ENCOUNTERED

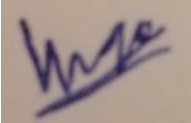
No problem had encountered during this week.

4. SELF EVALUATION OF THE PROGRESS

I am doing great.



Supervisor's signature



Student's signature

Final Year Project Weekly Report

Trimester, Year: Year 3 Sem 3	Study week no.: 14
Student Name & ID: Wee Jeng Kai 20ACB02333	
Supervisor: Ts Tan Teik Boon	
Project Title: Sales and Customer Relationship Management System	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

I had done the fyp2 report and prepared for the FYP submission.

2. WORK TO BE DONE

In the following weeks, I will be preparing for my presentation.

3. PROBLEMS ENCOUNTERED

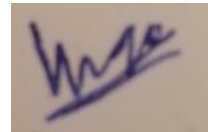
No problem had encountered during this week.

4. SELF EVALUATION OF THE PROGRESS

I am doing great.



Supervisor's signature



Student's signature

POSTER



CUSTOMER RELATIONSHIP MANAGEMENT SYSTEM

WHAT IS THE PROBLEM?

- Poor route optimization
- Inefficient Customer Management System
- Poor real-time access to sales activity



FUTURE WORKS

- Interactive sales dashboard
- Customer past purchase analysis
- Calendar Appointment System

ENVIRONMENT

- Figma
- Android Studio



OBJECTIVES

- GEO-based customer tracking
- Centralized customer management system
- Real-time sales activity update



CONTRIBUTION

- Free solution include all necessary feature
- Simple and easy to use
- Support large amount of users

PLAGIARISM CHECK RESULT

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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

Full Name(s) of Candidate(s)	Wee Jeng Kai
ID Number(s)	20ACB02333
Programme / Course	BACHELOR OF COMPUTER SCIENCE (HONOURS)
Title of Final Year Project	SALES AND CUSTOMER RELATIONSHIP MANAGEMENT SYSTEM

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Signature of Supervisor

Name:
Ts Tan Teik Boon

Date:
25/4/2024

Signature of Co-Supervisor

Name:

Date:



UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF INFORMATION & COMMUNICATION TECHNOLOGY (KAMPAR CAMPUS)

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Student Name	WEE JENG KAI
Supervisor Name	Ts Tan Teik Boon

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I, the author, have checked and confirmed all the items listed in the table are included in my report.

(Signature of Student)

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