COMMISSION TRACKER SYSTEM

MUHAMMAD HARIZ BIN ZAINUDDIN

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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This report is submitted in partial fulfillment of the requirements for the Bachelor of [Computer Science (Software Development)] with Honours.

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

DECLARATION

I hereby declare that this project report entitled

COMMISSION TRACKER SYSTEM

is written by me and is my own effort and that no part has been plagiarized without citations.

STUDENT : harizzainuddin Date : 09/09/2021

MUHAMMAD HARIZ BIN ZAINUDDIN

I hereby declare that I have read this project report and found this project report is sufficient in term of the scope and quality for the award of Bachelor of [Computer Science (Software Development)] with Honours.

SUPERVISOR : _____ Date : 09/09/2021

([DR LIZAWATI BINTI SALAHUDDIN])

DECLARATION

DEDICATION

To my beloved family and friends which have always given me the spirit and encouragement during the development of the system. Those who has always giving a good advice during the hard time and work especially my supervisor Dr Lizawati Binti Salahuddin. All of this cannot be achieved if there are no support and prayers from my beloved father and mother. Alhamdulillah, all praises to Allah for this success and honour.

ACKNOWLEDGEMENTS

Firstly, I would like to praise to the Almighty God for giving me the courage and spirit to complete this project successfully. I am very thankful to my parents for their prayers, support, and encouragement while developing this project. Furthermore, I am also very thankful to my friends for their knowledge sharing and being very supporting and motivating throughout this journey. I wish to express my deepest appreciation to my supervisors, Dr. Lizawati Binti Salahuddin for her guidance, advice, knowledge, and enthusiasm throughout my project.

I am thankful for the helpful advice and suggestion while doing my project, "Commission Tracker System" which is a part of the final year project required for Bachelor of Computer Science (Software Development) with Honors. Without the guidance, it is impossible to complete the project. Not to forget, I would like to thanks to all my lecturers who has taught me throughout my study at Universiti Teknikal Malaysia Melaka.

ABSTRACT

.
Commission Tracker System is a web-based application that implement an automated commission calculation for an insurance company. The top management of the company usually need to manually generate their own report while their agents will need to gradually ask about their commission and sales which will lead to more workloads and time consuming. This project aims to develop a web-based application that can ease the work in an insurance company efficiently and reduce their workloads. The programming language that has been used to develop this system are PHP, HTML, CSS and Javascript. The database for this system would be PhpMyAdmin which is already provided in the Laragon would be use. This system is developed by using the approach of waterfall methodology which make the development process became more systematic. This web-based application is developed, conducted, and tested in Windows Operating System. The system is used when the admin successfully approved the customer which has been key in by the agents and the system calculates the commission based on that plan automatically. This application is intended to help the management of the company to manage the records and data more effectively. Moreover, the agents can also monitor their overriding agent and their sales which can make the company become more profitable.

ABSTRAK

"Commission Tracker System" adalah aplikasi berasaskan web yang melaksanakan pengiraan komisen automatik untuk syarikat insurans. Pihak atasan syarikat sering dikehendaki untuk menjana laporan secara manual sementara agen yang lain akan sering bertanya tentang komisen dan jualan meraka di mana ia akan memberikan lebih banyak kerja dan banyak penggunaan masa. Projek ini bertujuan untuk mengembangkan aplikasi berasaskan web yang dapat memudahkan pekerjaan di syarikat insurans dengan cekap dan mengurangkan beban kerja mereka. Bahasa pengaturcaraan yang telah digunakan untuk membangunkan sistem ini adalah PHP, HTML, CSS dan Javascript. Pangkalan data yang akan digunakan untuk sistem ini adalah PhpMyAdmin di mana ia telah tersedia ada di dalam Laragon. Sistem ini dibangunkan dengan menggunakan pendekatan metodologi air terjun atau lebih dikenali sebagai "Waterfall" yang akan menbuatkan proses pembangunan menjadi lebih sistematik. Aplikasi berasaskan web ini dibangunkan, dijalankan, dan diuji dalam sistem operasi Windows. Sistem ini digunakan apabila admin berjaya meluluskan pelanggan yang telah dimasukkan oleh ejen dan sistem mengira komisen berdasarkan rancangan itu secara automatik. Aplikasi ini bertujuan untuk membantu pengurusan syarikat menguruskan rekod dan data dengan lebih berkesan. Selain itu, ejen juga dapat mengawasi ejen utama mereka di dalam penjualan mereka yang dapat meningkatkan keuntungan syarikat.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Commission Tracker System is a system that will ease the management of a company in handling and managing the agents. The top management also can view and manage the reports of the sales made by the agents according to the package provided by the company. On the same time, top management also can manage the request made by the agents if they have successfully brought a new customer to subscribe the plan of the company. Frequently, agent will get the commission based on the plan that the customer subscribed. The commission will be calculated based on the price of the plan set by the company with the total sales of the overriding agent and then the commission of the agent will be produced. Most importantly, the top management can manage the commission for their agents to give them more motivation to boost the sales and reach the target that the top management has set. On the other hand, the agents can check their commissions and their overriding agent commissions to motivate and boost the sales of the company. This system will replace the old method of calculate manually and using pen and paper to record their sales and to check their commission. By doing this, it will make the management become more efficient and systematic.

1.2 Problem Statement

Top management of the company need to manually produce the report every month to monitor the sales of the company which will consume a lot of time and energy. On the other hand, the agents also always need to ask the top management whether the sales made by them has already calculated into their commission. They also need to calculate their commission manually which will cause of high probability of miscalculation. Furthermore, agents will have the trouble in guiding their overriding agent because they did not know the progress of their overriding agents and need to ask them frequently which will be led to a time consuming.

1.3 Objective

i. To design a solution to calculate commission automatically and managing the organization of the insurance company from top management to agents.

ii. To develop a Commission Tracker web-based system using php, html, javascript and css referring to the information that has been gathered.

iii. To test the system efficiency and usability by conducting user acceptance testing based on questionnaires.

1.4 Scope

i. Top Management of Company
   - Manage insurance plan of the company.
   - Manage the company agents.
   - Manage the announcement and request.
   - View company sales report.
   - Manage the commission based on price of plan.

ii. Agents and overriding agents of the Company.
   - Add and manage the customers.
   - View the sales commission.
   - Monitor overriding agent performance.
   - View and add the announcement.
   - Manage user profile.

1.5 Project Significance

This system is developed to help the management of the company in managing their company in more efficient and systematic way. This system allows the sales to be calculated automatically after agents submit the customer and gets approval from the top management. Automatic sales report also has been implemented for the management to check the sales of the company and for the agents to have a view on their sales. This will thus help the company to boost and monitor their sales by using this Commission Tracker System.

1.6 Expected Output

The expected outcome is Commission Tracker System will ensure the management of the company to become more systematic and efficient by generating and produce the reports automatically which will reduce the workloads. On the same time, it also can automatically calculate the commissions made by the agents and replacing the old method of manual calculation which will save a lot of time. Agents can also monitor the progress of their overriding agents by using the Commission Tracker System.

1.7 Conclusion

This chapter discussed the problem statements, objectives, scopes, project significance and expected outcome of the system. It will provide a way for user to understand more about the starting point of the development of this system.

CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter covers the detail of the project that related to literature review and project methodology used to complete and work excellent with this project. The focus in this chapter will be about facts and findings, methodology of the project, the requirement of the project and the schedule and milestone of the project. This is used to achieve the project goal with a perfect outcome.

2.2 Facts and finding

Fact finding is one of the formal processes to collect information and data. Usually the method would be research, interviews, or questionnaires to get the information needed. This section will represent the data which have been gathered.

2.2.1 Domain

Commission Tracker System is a web-based application that focuses mainly on the insurance company business that will monitor the management of the sales. The system will be mainly developed by using Laragon. Laragon is a software distribution which provides the Apache web server, MYSQL database, Php and Perl all in one package. It has all the features needed to develop Commission Tracker System. The source code editor is by using Sublime Text 3.

Figure 2.1 Laragon

Basically, this system is developed mainly by using Php, HTML, CSS and JavaScript for its front-end and back-end. HTML and CSS are used to make the graphical user interface while PHP is used in the back end processed such as calculation, running SQL statements and many more. The database for this system would be PhpMyAdmin which is already provided in the Laragon would be use. SQL is used to make any process that are related to database such as insert, update, and delete.

2.2.2 Existing System

(a) Manual methods with papers

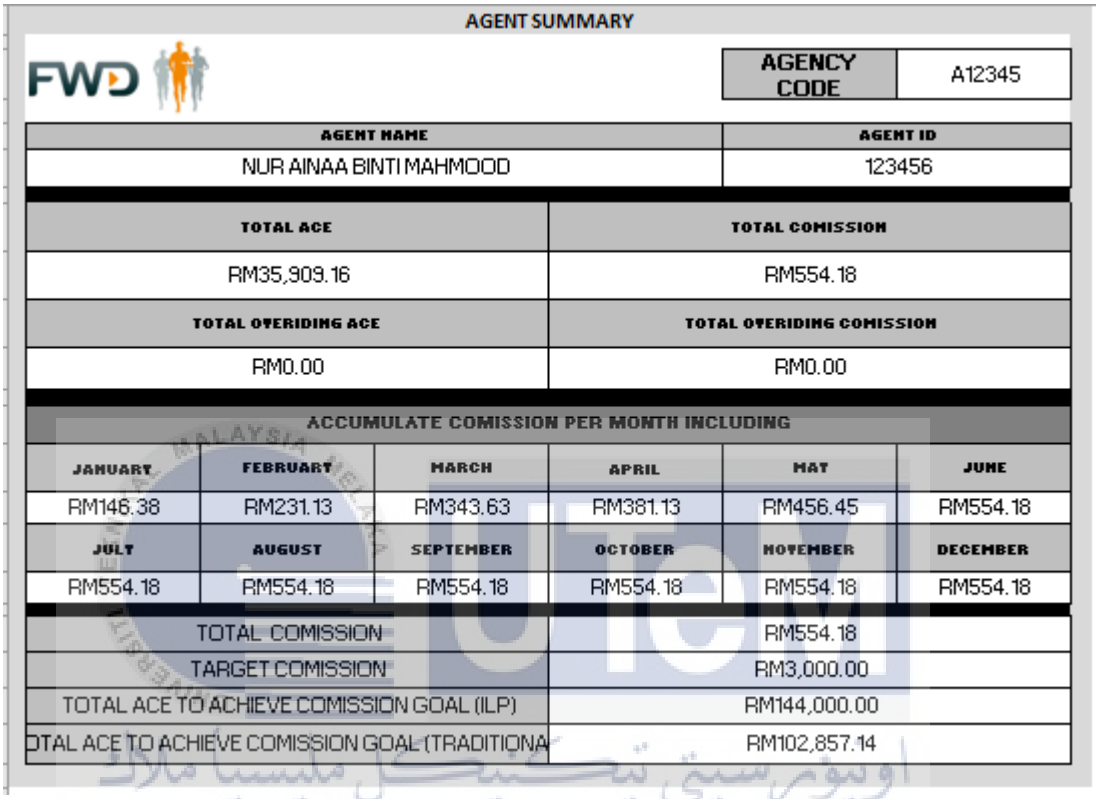
The current existing system does not have a simple way on dealing with the management. The top management of the company need to record every detail of the customer by using pen and paper which it will consume a lot of time. The management also will get stress in making and producing the report if there are too many papers to deal with. Furthermore, the commission for the agents also need to be calculated manually by using calculator which is a lot of work to do in the management.

The agents also will have the problem in securing their commission and sales because they did not know whether the management have already key in their sales. The agents will need to call and get the confirmation every time they have made their sales which is a lot of work compared to the proposed system. The agents also need to request a report from the management if they wanted to see their performance in making their sales. Moreover, the agents cannot monitor their overriding agents which will be huge loss for the agents and the company.

This manual method is not wrong because before this, we only rely on this method as the technology is not yet evolve in the past year. However, this method needs to be replaced as we have a lot of more advance technology

which can help the company to manage their management in more systematic and efficient way. Hence, it also can reduce the risk of miscalculation during the commission calculation.

(b) Microsoft Excel



AGENT SUMMARY

AGENCY CODE	A12345

AGENT NAME	AGENT ID
NUR AINAA BINTI MAHMOOD	123456

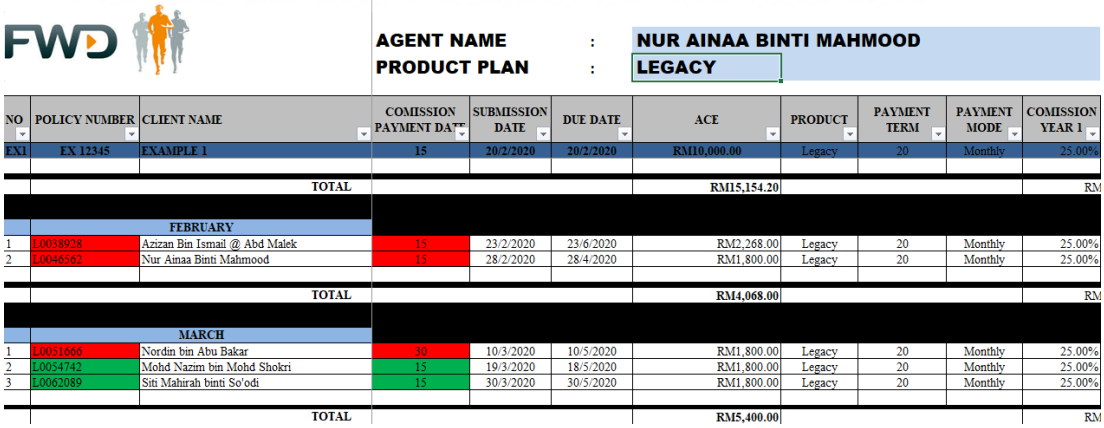
TOTAL ACE	TOTAL COMISSION
RM35,909.16	RM554.18
TOTAL OVERIDING ACE	**TOTAL OVERIDING COMISSION**
RM0.00	RM0.00

ACCUMULATE COMISSION PER MONTH INCLUDING

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
RM146.38	RM231.13	RM343.63	RM381.13	RM456.45	RM554.18
JULY	**AUGUST**	**SEPTEMBER**	**OCTOBER**	**NOVEMBER**	**DECEMBER**
RM554.18	RM554.18	RM554.18	RM554.18	RM554.18	RM554.18

TOTAL COMISSION	RM554.18
TARGET COMISSION	RM3,000.00
TOTAL ACE TO ACHIEVE COMISSION GOAL (ILP)	RM144,000.00
OTAL ACE TO ACHIEVE COMISSION GOAL (TRADITIONA	RM102,857.14

Figure 2.2 Summary of sales



AGENT NAME : NUR AINAA BINTI MAHMOOD
PRODUCT PLAN : LEGACY

NO	POLICY NUMBER	CLIENT NAME	COMISSION PAYMENT DATE	SUBMISSION DATE	DUE DATE	ACE	PRODUCT	PAYMENT TERM	PAYMENT MODE	COMISSION YEAR 1
EX1	EX 12345	EXAMPLE 1	15	20/2/2020	20/2/2020	RM10,000.00	Legacy	20	Monthly	25.00%
		TOTAL				RM15,154.20				RM
		FEBRUARY								
1	L0038928	Azizan Bin Ismail @ Abd Malek	15	23/2/2020	23/6/2020	RM2,268.00	Legacy	20	Monthly	25.00%
2	L0046562	Nur Ainaa Binti Mahmood	15	28/2/2020	28/4/2020	RM1,800.00	Legacy	20	Monthly	25.00%
		TOTAL				RM4,068.00				RM
		MARCH								
1	L0051666	Nordin bin Abu Bakar	30	10/3/2020	10/5/2020	RM1,800.00	Legacy	20	Monthly	25.00%
2	L0054742	Mohd Nazim bin Mohd Shokri	15	19/3/2020	18/5/2020	RM1,800.00	Legacy	20	Monthly	25.00%
3	L0062089	Siti Mahirah binti So'odi	15	30/3/2020	30/5/2020	RM1,800.00	Legacy	20	Monthly	25.00%
		TOTAL				RM5,400.00				RM

Figure 2.3 Example of data input

Based on figure 2.2 and figure 2.3 are the example of the system by using the Microsoft Excel. This information is provided by Nur Aina binti Mahmood from FWD Takaful agent. This system is user-friendly and easy to use where you can just key in the value into the box provided and the system will automatically calculate your commission. The system also provides the summary of the sales for the agents which is very useful in monitoring own sales.

Moreover, this system is also completed with every plan that the company provided where user can just put down the customer details in the plan or package that they have subscribed. Sometimes, the agent does not know whether the top management already key in their commission or not. So, agent need to always ask the top management whether the customer already been approved or not. By using this system, the agent can monitor its own sales but there will be probability to some error if the top management forgot to key in the data. This will consume some time and will be a huge workload for them. Moreover, the agents cannot monitor their overriding agents because each of the agents can only hold their programs.

The program does not require internet where user can just do their work without the need of internet which is very comfortable in business.

2.2.2.1 Comparison Between Existing and Proposed Application

Table 2.1 Comparison Between Existing and Proposed Application

Features	Application		
	Manual methods with papers	Microsoft Excel	Commission Tracker System
Automated commission calculation		✓	✓
Generate Report			✓
Monitor own sales		✓	✓
Monitor overriding agent			✓
Announcement and request			✓

Table 2.1 shows the comparison between existing and proposed application. Regarding the data collected in Table 2.1, each existing system is not equipped with generate report, monitor overriding agent and notification functions. The proposed application which is Commission Tracker System upgrade its features by adding these functions in order to help the management of the company becomes more efficient and systematic.

2.3 Project Methodology

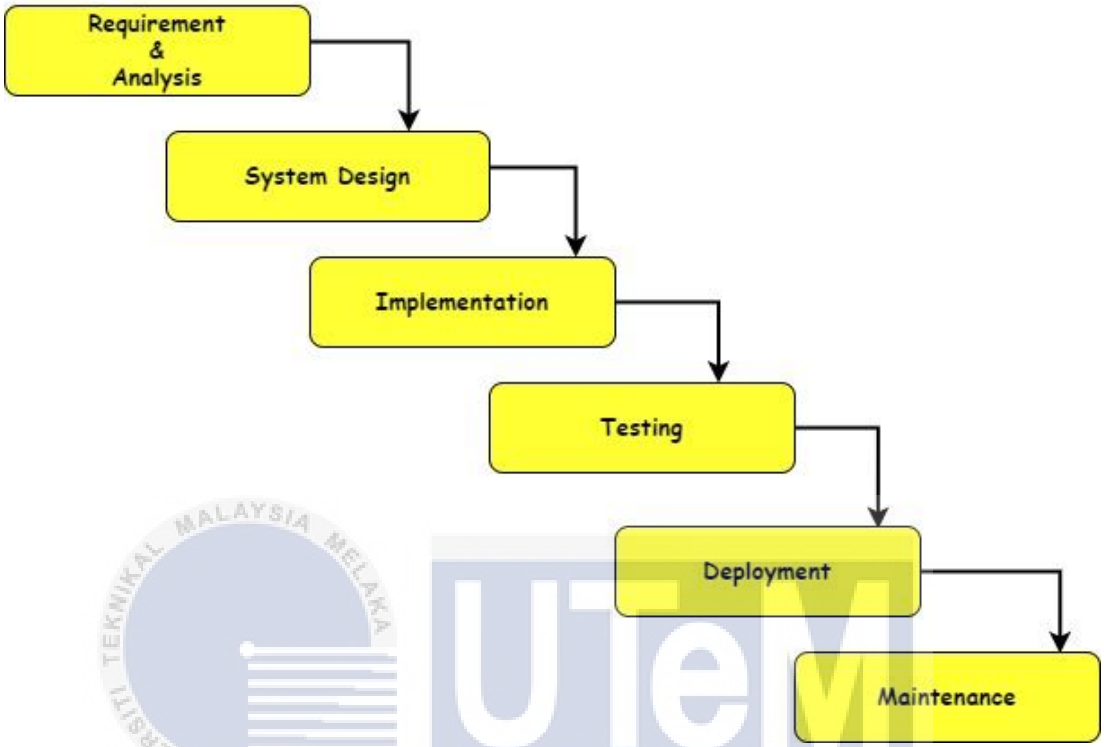


Figure 2.4 Waterfall Methodology

Figure 2.4 shows the waterfall methodology. For the development of Commission Tracker System, I use the approach of waterfall methodology which is the easier approach because it is in a linear sequential flow. Each phase must be accomplished in a waterfall before model before moving forward to another phase to start. This shows that any stage in the process of growth starts only when the earlier stage is already fulfilling all its requirement. Hence, the stages in this methodology will not be overlap. The phases of this methodology will be described further below:

i. Requirement and Analysis

This is the early phase of the development of Commission Tracker System. During this phase, a lot of items and data were produced and gathered such as analyzing the problems, planning the work, type of system that need to be created, meeting with supervisor and some of the insurance agent to discuss all of the idea and prepare the necessary equipment to build and develop the system.

ii. System Design

The system design will be studied from the first phase of the stage and the design for this system can be completed. The system design will help to identify the required technique and help to identify the whole system architecture of Commission Tracker System.

iii. Implementation

During this stage, I will begin the implementation of the system based on the requirement and the design which has been identify in the previous stage. The implementation needs to be completed before moving to the testing part.

iv. Testing

After finish implement the system, I will conduct a testing on each of the functionality of the system based on the modules that has been developed. This is to find any failure or fault in the system.

v. Deployment

Once the testing is completed without any issue, the system would be deployed to the market to use all its functionality.

vi. Maintenance

Maintenance is performed to produce client environment adjustment. Commission Tracker System will be upgraded to a better version if there is any issue to begin with.

2.4 Project Requirement

This section discusses the project requirement that are needed in this system development, which is software and hardware requirements.

2.4.1 Software Requirement

There is several software that are required in developing this project. The software required will be show in table 2.2.

Table 2.2 Software Requirement

Software	Description
Windows 7 with SP1 or above	Use to run all the software required.
Microsoft Words 2016	Use to write the reports.
Google Chrome	Use to find useful information and to test the project.
Laragon Server	Use to run the project on server side.
Sublime Text 3 or other code editor	Use as a platform for code editor for the project.

2.4.2 Hardware Requirement

There is also some hardware that is used in developing the project. The hardware requirement is described as the table 2.3.

Table 2.3 Hardware Requirement

Hardware	Description
CPU – Intel or AMD processor with 64-bit support	Requires running some of the software.
GPU – Intel Graphics 610 or equivalent	For smoother graphic rendering.
System memory – 4GB RAM	To run the software without any disturbance.
Disk Storage – 4GB of free space	To save the project.
Internet	To use some of the functions.

2.4.3 Other Requirement

The other requirement is the interview with some agent of the insurance company. In developing the project, I have interview with one of the FWD Takaful agent which is Nur Aina binti Mahmood which helps a lot in giving the information needed in developing the project.

2.5 Project Schedule and Milestone

Project schedule and milestone is presented by using Gantt chart in order to visualize the planning of activities for the project development. The following figure represent the Gantt chart which is used to keep track of the progress in developing Commission Tracker System and to ensure each deliverable are completed within the timeline.

Task Activities			DURATION (Days)
START DATE	END DATE	DESCRIPTION	
16/3/21	22/3/21	Proposal discussion and submission	6
23/3/21	5/4/21	Prepare ERD, flowchart and system design.	12
6/4/21	12/4/21	Implementation of admin module.	6
13/4/21	23/4/21	Progress 1 (Demo) and report Chapter 1 & 2.	10
24/4/21	3/5/21	Implementation of agent module.	9
4/5/21	14/5/21	Progress 2 (Demo) and report Chapter 3.	10
15/5/21	24/5/21	Implementation of overriding agent module.	9
25/5/21	31/5/21	Progress 3 (Demo) and report chapter 4 & 5.	6
1/6/21	8/6/21	System testing.	7
9/6/21	30/6/21	Final Presentation.	21

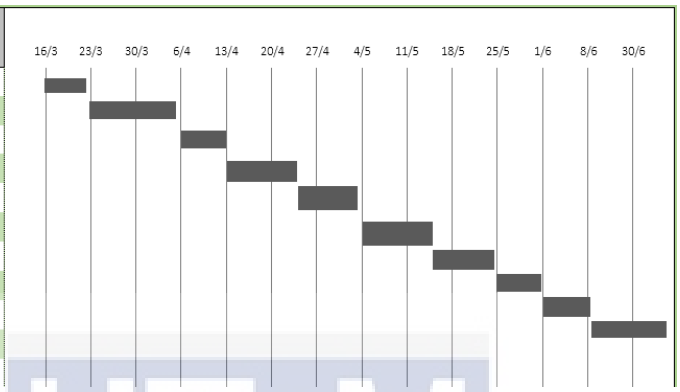


Figure 2.5 Gantt Chart of Commission Tracker System

Figure 2.5 shows the Gantt Chart for the development of Commission Tracker System.

2.6 Conclusion

As conclusion, this chapter discussing the facts and finding, methodology and project requirement to finish the project. With the right methodology chosen, each process of finishing the project can be accomplished smoothly and produce the best result.

CHAPTER 3: ANALYSIS

3.1 Introduction

This chapter represents the problem analysis with the existing system that will be discussed as well as the requirement analysis for the new system. The process will be improved to recognize the problem and capture entirely the necessary requirements of the current system. The new system analysis will be performed by improving the functionality of the current system. This will be achieved by displaying the diagrams illustrating the flow of the new system process. Some explanation for detail information on the new system will also be provided.

3.2 Problem Analysis

i. Too many works for the management

The existing system did not have the function of generate report automatically which can ease the work of the management team. They will need a lot of time to gather and analyze the data for them to make the report.

ii. Agents hard to monitor their overriding agents.

The existing system do not have the function to monitor overriding agent. They will need to always call and ask their overriding agent for their sales which is not efficient.

iii. Do not have an official management system for the company.

The existing system usually use papers and pen to record all of the evidence. Other than that, they also need to compile all the Microsoft Excel in order to get all of the sales.

3.3 Requirement Analysis

In this section, the data required by the system will be covered in terms of data requirement, functional requirement, non-functional requirement and other requirement.

3.3.1 Data Requirement

This segment describes the data dictionary positioning used to record all data. The provided data can be used as the system data input and output. The data dictionary is explained from table 3.1 until table 3.5.

Table 3.1 Table Agent

No	Attribute	Data Type	Size	Constraint	Description
1	agent_ID	Int	4	Primary Key	Store agent ID
2	Username	Varchar	255	Not Null	Store agent username
3	agent_email	Varchar	255	Not Null	Store agent email
4	full_name	Varchar	255	Not Null	Store agent full name
5	Password	Varchar	255	Not Null	Store agent password
6	Type	Varchar	255	Not Null	Store agent type
7	phone_no	Int	11	Not Null	Store phone number
8	agent_group	Varchar	255	Not Null	Store agent group
9	Address	Varchar	255	Not Null	Store agent address
10	Postcode	int	5	Not Null	Store agent postcode
11	City	Varchar	255	Not Null	Store agent city
12	agent_stat	Varchar	255	Not Null	Store agent status

Table 3.2 Table Customer

No	Attribute	Data Type	Size	Constraint	Description
1	cust_ID	Int	4	Primary Key	Store customer ID
2	cust_name	Varchar	255	Not Null	Store customer name
3	cust_phone	Int	11	Not Null	Store customer phone number
4	cust_plan	Varchar	255	Not Null	Store customer subscribed plan
5	cust_agent	Varchar	255	Not Null	Store customer agent
6	cust_email	Varchar	255	Not Null	Store customer email
7	cust_address	Varchar	255	Not Null	Store customer address
8	cust_city	Varchar	255	Not Null	Store customer city
9	cust_postcode	int	5	Not Null	Store customer postcode
10	status	Varchar	255	Not Null	Store customer approval
11	price	Double		Not Null	Store plan particular price
11	agent_ID	Int	4	Foreign Key	Store agent ID
12	plan_ID	Int	4	Foreign Key	Store plan ID

Table 3.3 Table Commission

No	Attribute	Data Type	Size	Constraint	Description
1	commission_ID	Int	4	Primary Key	Store commission ID
2	TotalSales	Int	10	Null	Store total sales
3	Totalcommission	Int	10	Null	Store total commission
4	Totalovercommission	Int	10	Null	Store total overriding commission
5	TotalOverridingSales	Int	10	Null	Store total overriding sales
6	Overall_Income	Int	10	Null	Store overall income

Table 3.4 Table Plan

No	Attribute	Data Type	Size	Constraint	Description
1	plan_ID	Int	4	Primary Key	Store plan ID
2	plan_name	Varchar	255	Not Null	Store plan name
3	pricepermonth	Int	10	Not Null	Store plan price
4	plan_desc	Varchar	255	Not Null	Store plan description

Table 3.5 Table Announcement

No	Attribute	Data Type	Size	Constraint	Description
1	announcement_ID	Int	4	Primary Key	Store announcement ID

2	announcement_subject	Int	10	Not Null	Store announcement subject
3	announcement_body	Int	10	Not Null	Store announcement body
4	announcement_date	Int	10	Not Null	Store announcement date
5	agent_ID	Int	4	Foreign Key	Store agent ID

3.3.2 Functional Requirement

This part will discuss about how the system functions, the functional requirements described system performance capabilities in activities.

3.3.2.1 Use Case Diagram

Use case diagram is a dynamic or behavior diagram shows the functionality of the system using actors and use cases.

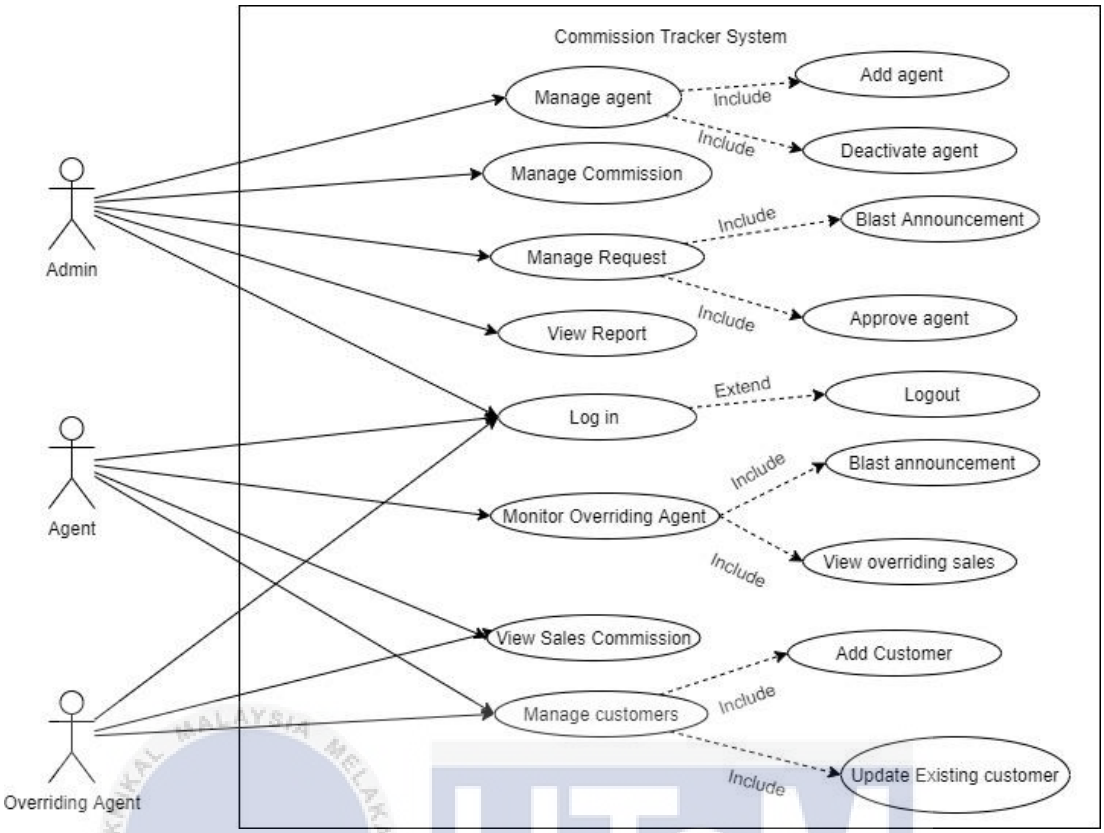


Figure 3.1 Use case Diagram of Commission Tracker System

Figure 3.1 shows the use case diagram of Commission Tracker System. It shows each module for the user. For admin, admin can manage agent, manage commission, manage request, view report and log in to the system. For agent, agent can log in, monitor overriding agent, view sales commission hence agent can also manage the customer. However, for overriding agent, it is the same as agent but overring agent do not have the function of monitor overriding agent.

3.3.3 Flow of Commission Tracker System

Before entering the system according to their status of user, each of the user need to perform the login function by inserting their username and password and the system will validate the user based on their system to redirect them to their homepage. Each of the user also have the function of log out to log out from the system.

For admin part, admin can manage the agent. By managing the agent, admin can add a new agent and deactivate the existing agent. The system will give the form to the admin to fill in when admin wanted to add an agent and the result will be stored in the database. While for the deactivate agent, the system will load data from database

and admin can choose whether wanted to deactivate or activate the agent. If the agent has been deactivated, the agent cannot login to the system. Admin can also manage the commission where admin can change the description or the price of the plan. Next, admin can also blast the announcement for the agents. The form will be prompt for the admin and admin will fill in the form and the announcement will be published on each of the agent's homepage. Furthermore, admin can also manage the request made by the agents where the agents will enter the customer details for the admin to approve. If admin approve the customer, the commission and sales for the agents will be calculated by the system according to the insurance plan. Last but not least, admin can view the report of the company which include the sales of the company and the commission made by the agents.

For the agent and overriding agent, they can manage the customer. In this part, it consists of two functions where they can add a new customer by filling in the details or they could update the details of the customer if they wanted to change anything. Next, they can also view their sales commission in the commission function. In this part, they will get to know their commission based on their sales of insurance and their total sales of the plan provided by the company. Both agents and overriding agents also can view the announcement made by the administrator at their homepage.

To differentiate between agent and overriding agent is that the agent has the function of monitor overriding agent. This function can make the agent make an announcement and view the sales of their overriding agent. Hence, agents also get some commission if their overriding agents successfully make an insurance sale. Below will be describe the flow events of the system.

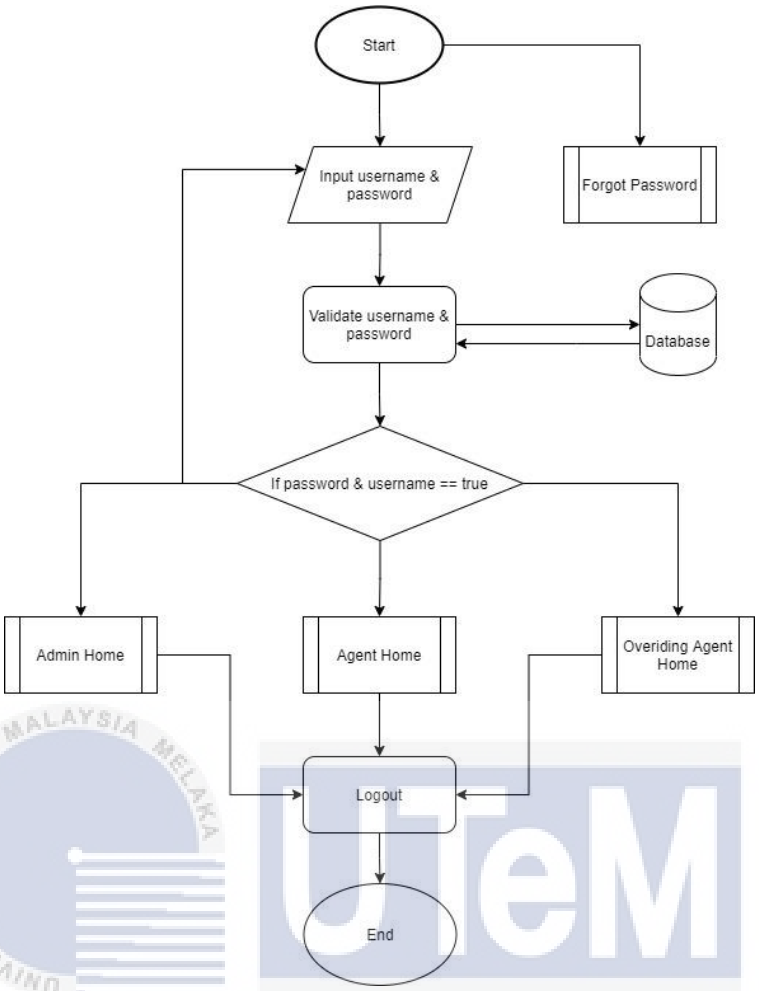


Figure 3.2 Authentication flow

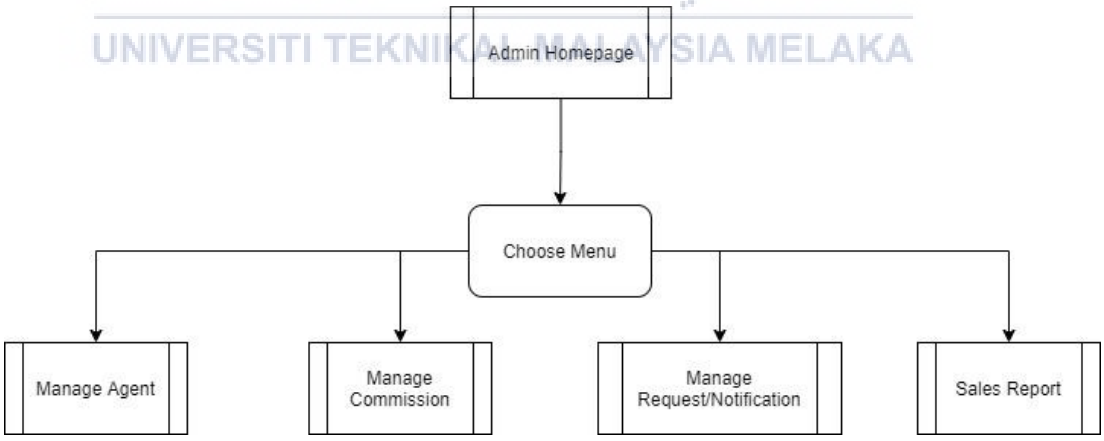


Figure 3.3 Admin homepage flow

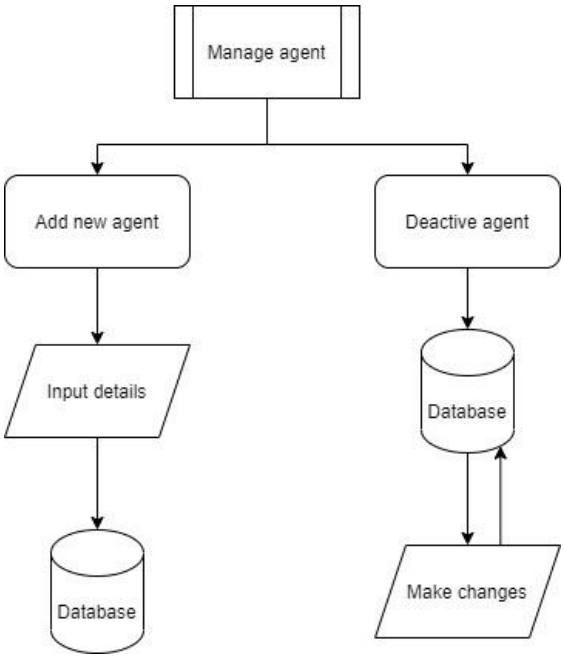


Figure 3.4 Admin manage agent flow

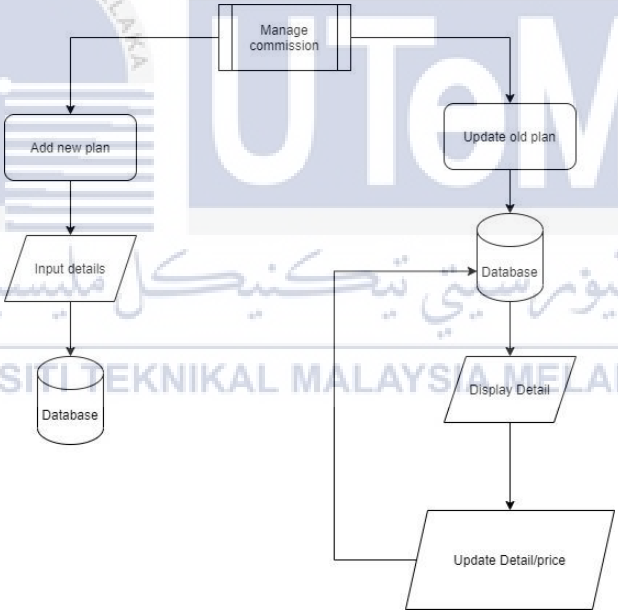


Figure 3.5 Admin manage commission flow

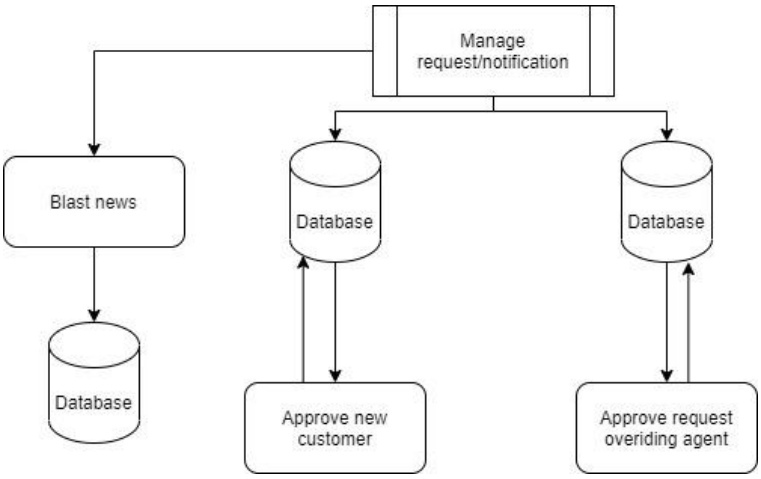


Figure 3.6 Admin manage request flow

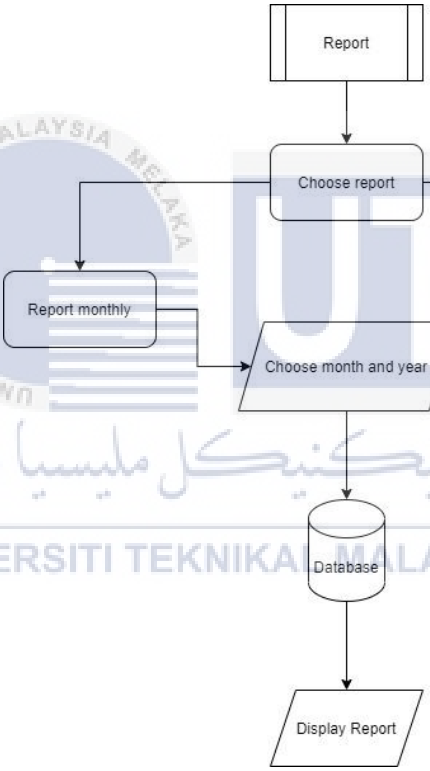


Figure 3.7 Admin view report flow

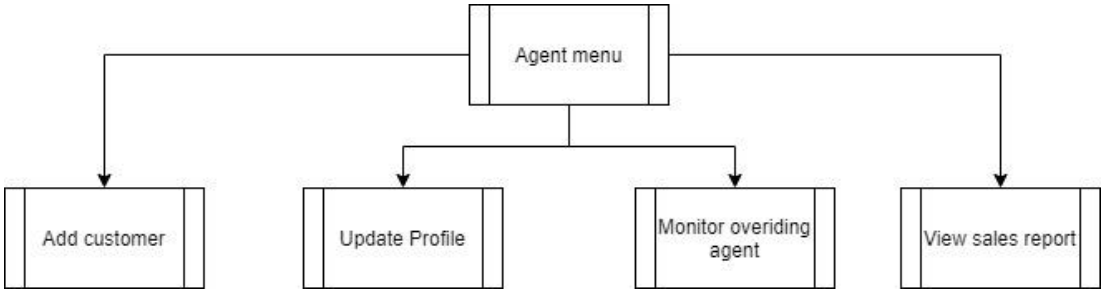


Figure 3.8 Agent homepage

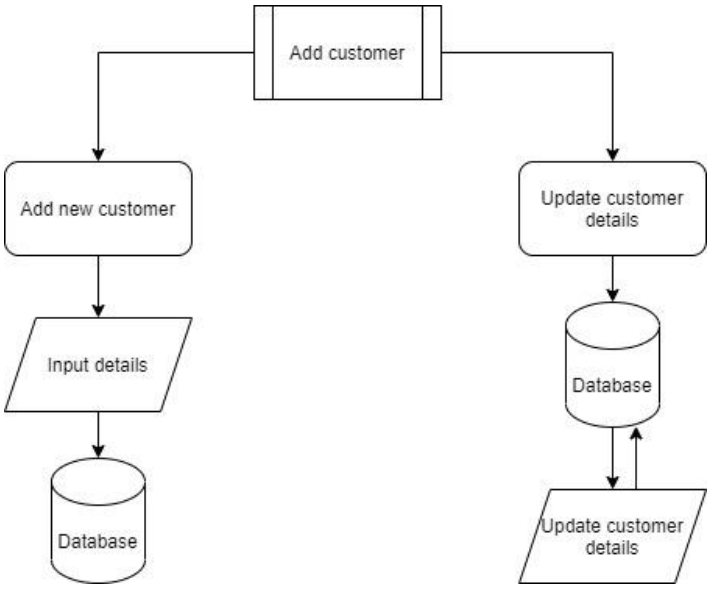


Figure 3.9 Add customer flow

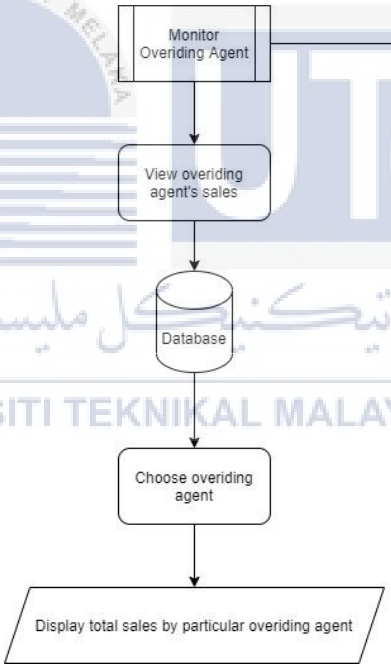


Figure 3.10 Monitor overriding flow

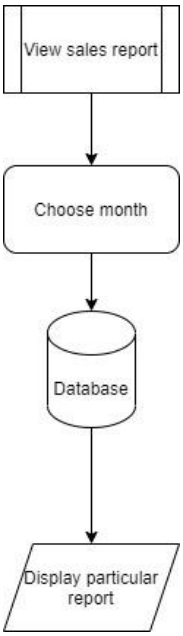


Figure 3.11 View sales report flow

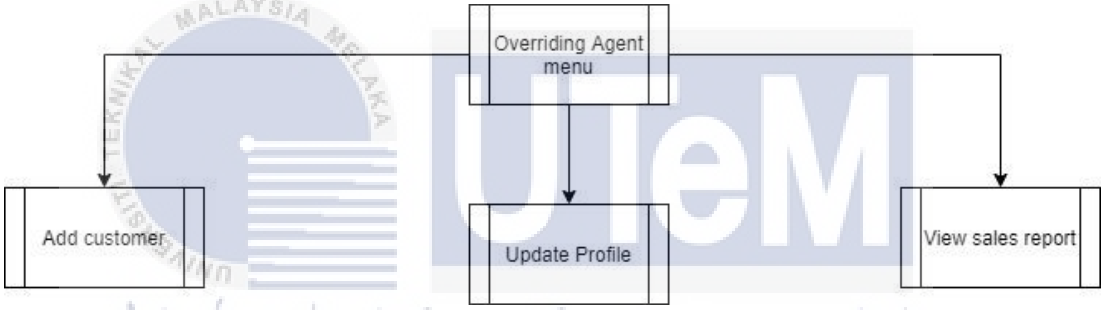


Figure 3.12 Overriding agent homepage

3.3.4 Non-Functional Requirement

This section shows the functionality, limitation, and operation of this system. Table 3.6 shows non-functional requirement in detail.

Table 3.6 Non-Functional Requirement

Requirement	Description
Usability	The system should enable the user to insert, update, delete and view data from the database.
Adaptability	The system can be run in any browser with an internet connection.
Reliability	The system should be reliable to store data taken from the user.

Maintainability	The application must be easy to be maintained as the database is stored on the server side.

3.3.5 Other Requirement

This section shows the other requirements which are needed in the development phase, which is software and hardware requirements.

3.3.5.1 Software Requirement

Table 3.7 shows the software requirement during the development of the system.

Table 3.7 Software Requirement

Software	Description
Windows 7 with SP1 or above	Use to run all the software required.
Microsoft Words 2016	Use to write the reports.
Google Chrome	Use to find useful information and to test the project.
Laragon Server	Use to run the project on server side.
Sublime Text 3 or other code editor	Use as a platform for code editor for the project.

3.3.5.2 Hardware Requirement

Table 3.8 shows the hardware requirement needed in developing the system.

Table 3.8 Hardware Requirement

Hardware	Description
CPU – Intel or AMD processor with 64-bit support	Requires running some of the software.

GPU – Intel Graphics 610 or equivalent	For smoother graphic rendering.
System memory – 4GB RAM	To run the software without any disturbance.
Disk Storage – 4GB of free space	To save the project.
Internet	To use some of the functions.

3.4 Conclusion

In conclusion, this chapter explains how the current system works and what method it uses to ensure that the future system overcomes the current problems. In addition, this section briefly describes the data flows for each method including the needed requirements such as functional, non-functional, and other requirements.

CHAPTER 4: DESIGN

4.1 Introduction

This chapter focuses on system design that includes high-level design and detailed system design. System design is used to define the elements of a system, such as architecture modules, components, and interfaces.

4.2 High-Level Design

High-level design will cover the system architecture, user interface design and database design of Commission Tracker System.

4.2.1 System Architecture

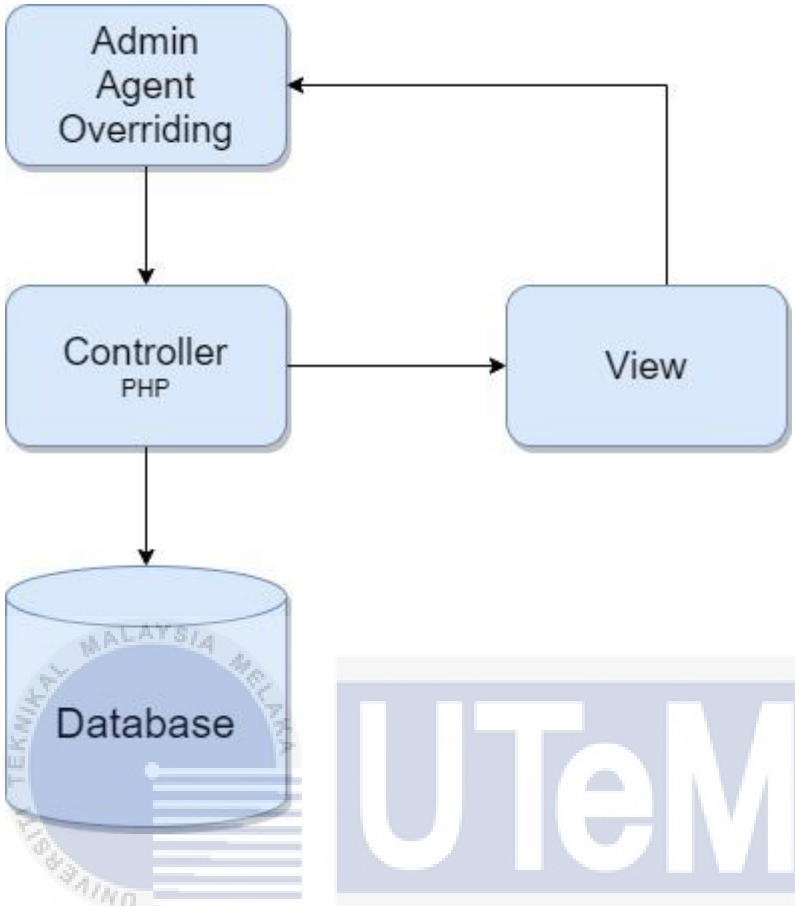


Figure 4.1 System Architecture of Commission Tracker System

Figure 4.1 shows the system architecture of Commission Tracker System. The user which are admin, agent and overriding agent call the function from the controller and the controller will send the information to the view and display to the user. The controller will only communicate with the database.

4.2.2 User Interface Design

This segment will show the user interface design of Commission Tracker System. The interface of the system will be shown in figure 4.2 until figure 4.16.

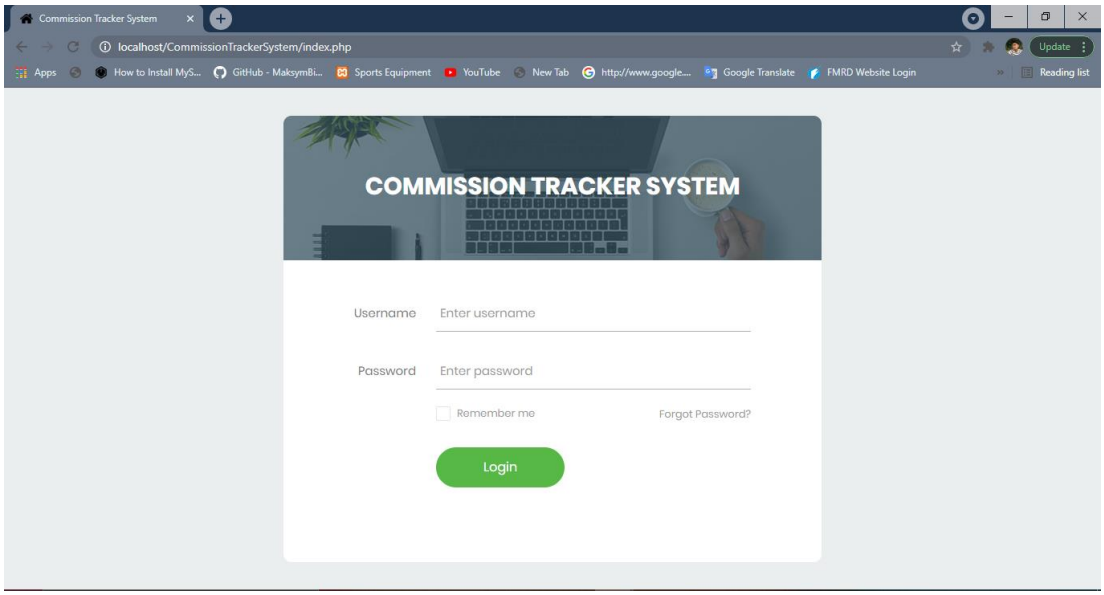


Figure 4.2 Login page

Figure 4.2 shows the login page for each of the user if the user wanted to enter and use the system.

Figure 4.3 Admin Homepage

Figure 4.3 shows the admin homepage where it will show the total user, request and announcement of the system.

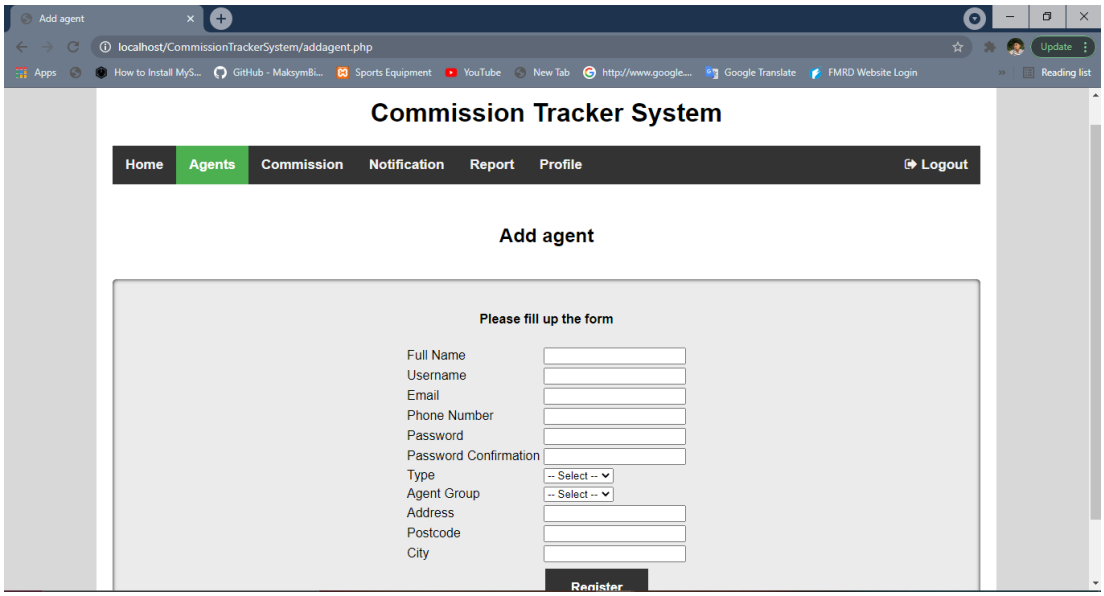


Figure 4.4 Manage agent by adding agent

Figure 4.4 shows the screen of manage agent of add agent where admin need to fill up the form to register a new user.

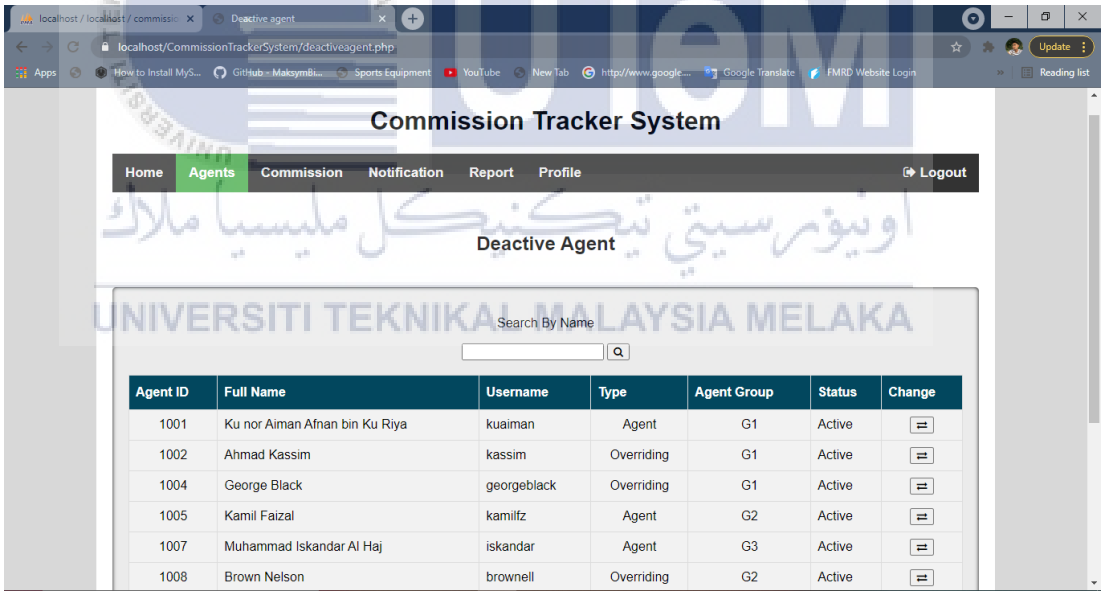


Figure 4.5 Manage agent status

Figure 4.5 shows the screen of manage agent where admin can change the status of agent and overriding agent. If the status has been deactivated, the user cannot use the system.

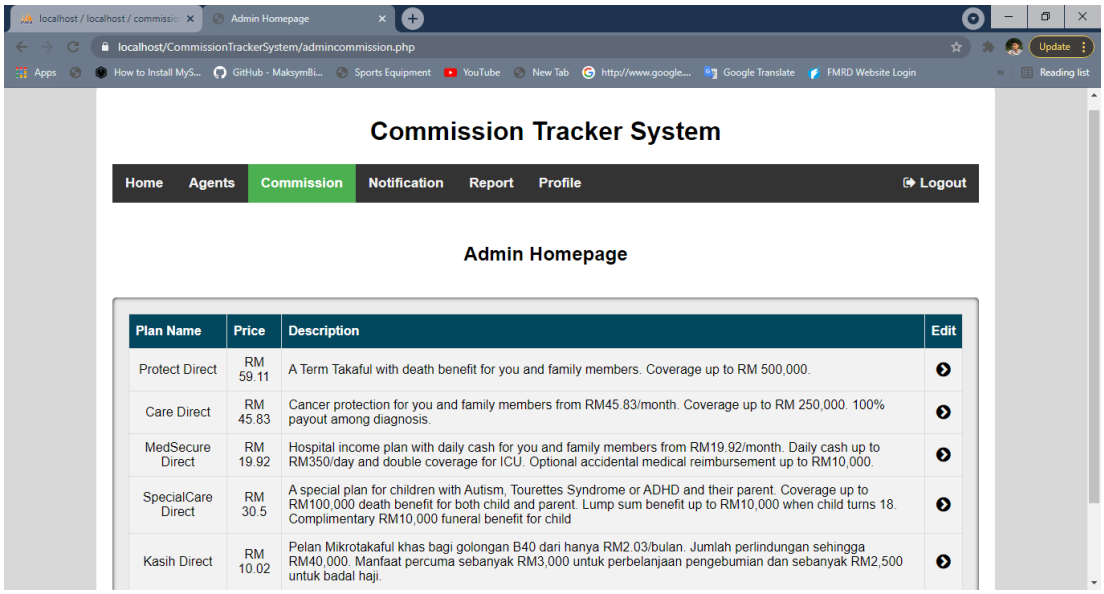


Figure 4.6 Admin commission

Figure 4.6 shows the screen of commission settings of the plan. The commission will be change according to the price so admin need to change the price of the plan.

Figure 4.7 Admin notification

Figure 4.7 shows the admin notification where admin can approve the customer subscription of plan and can go to other function which is blast announcement.

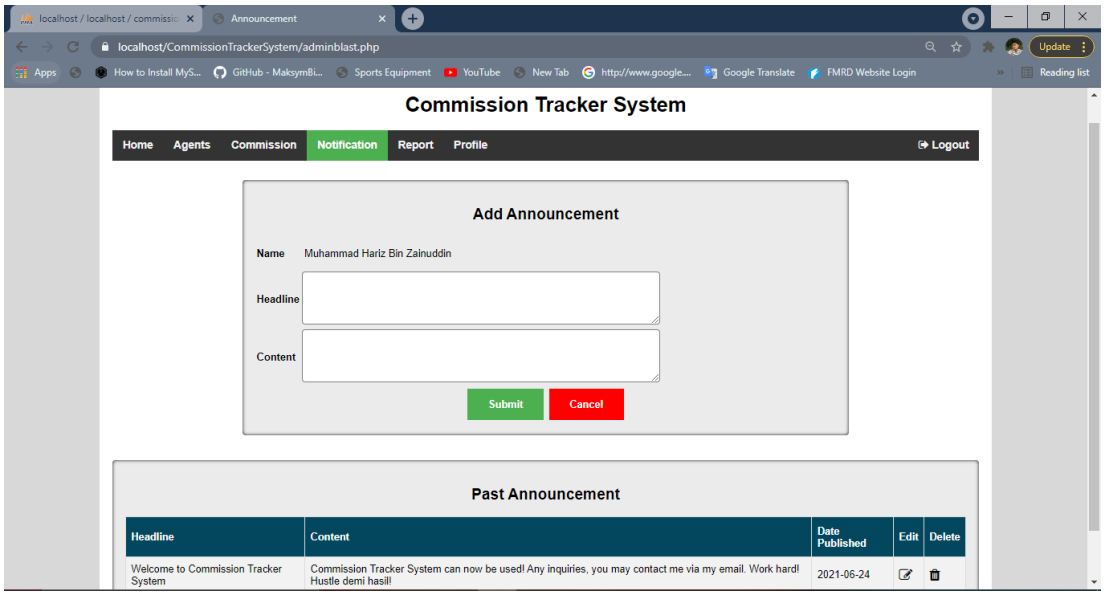


Figure 4.8 Blast announcement

Figure 4.8 shows the function of blast announcement where this announcement will be displayed on the screen of agent and overriding agent. Admins need to fill the form and click on the button to proceed.

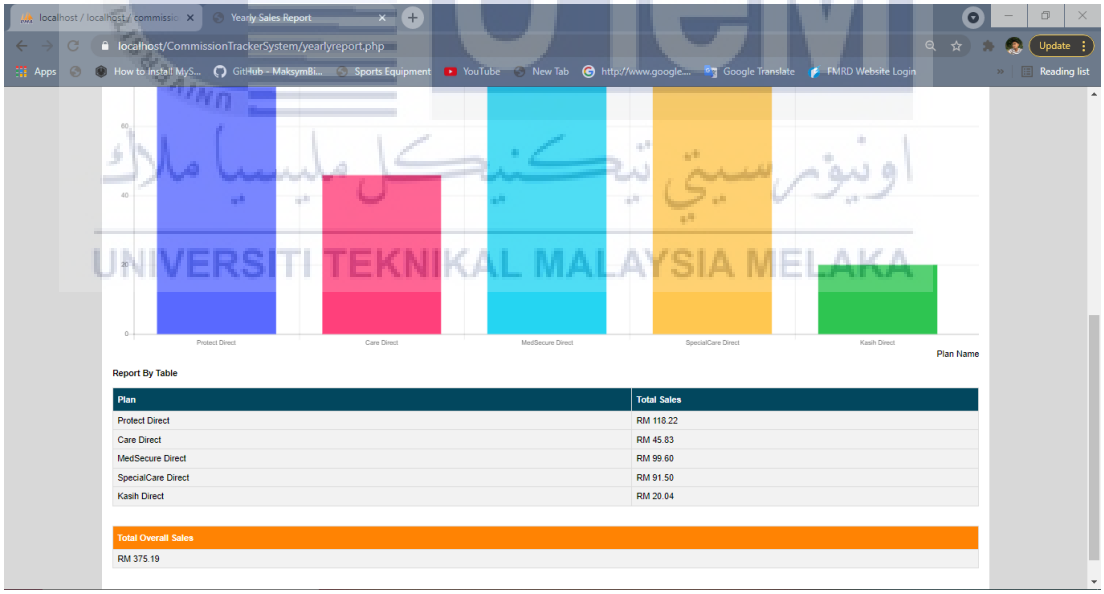


Figure 4.9 Admin Report

Figure 4.9 shows the report page for admin. Admin can view the report of sales of the company from the agents of the company. Admin can choose whether to display yearly report or monthly report and need to insert the month and year to view the report.

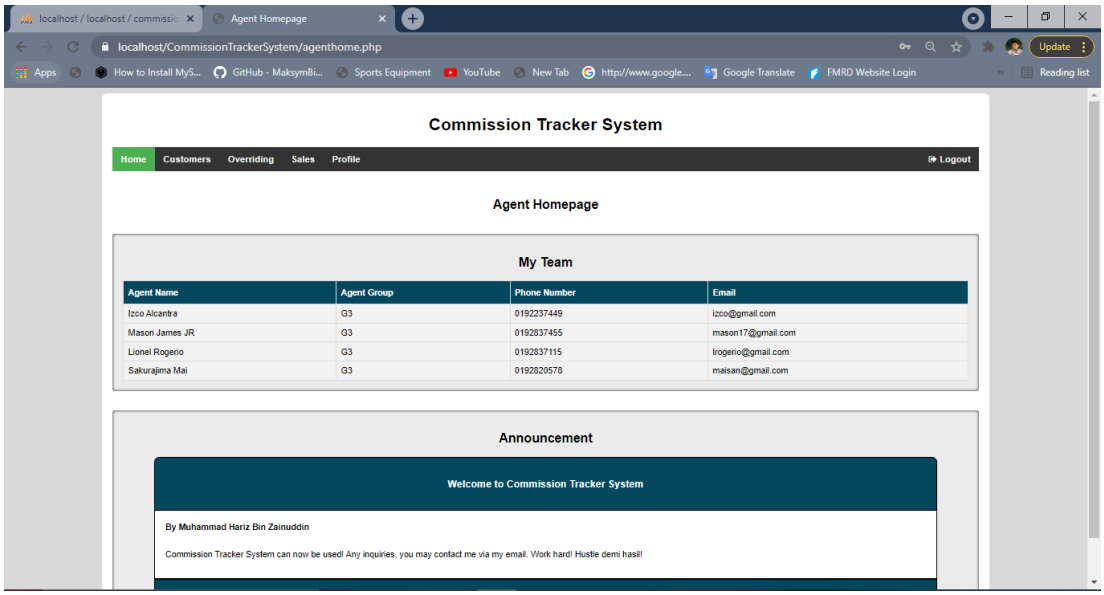


Figure 4.10 Agent homepage

Figure 4.10 shows the agent homepage where it will display the announcement made by the admin and its group of overriding agent.

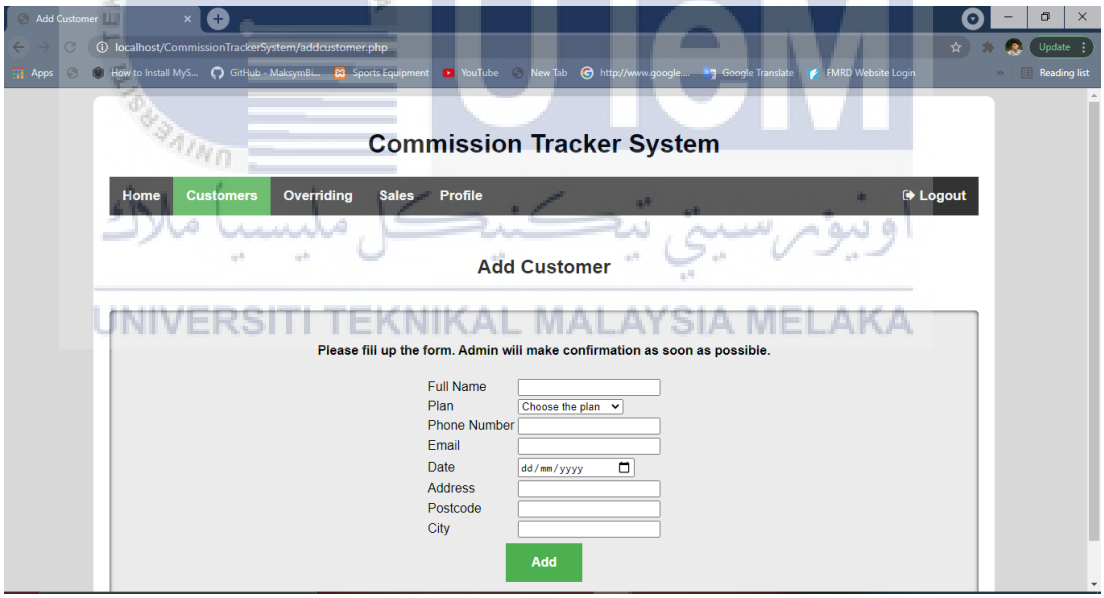


Figure 4.11 Add customer

Figure 4.11 shows the page of adding a customer by agent. Agent needs to fill up the form and click on the button to send the request to the admin.

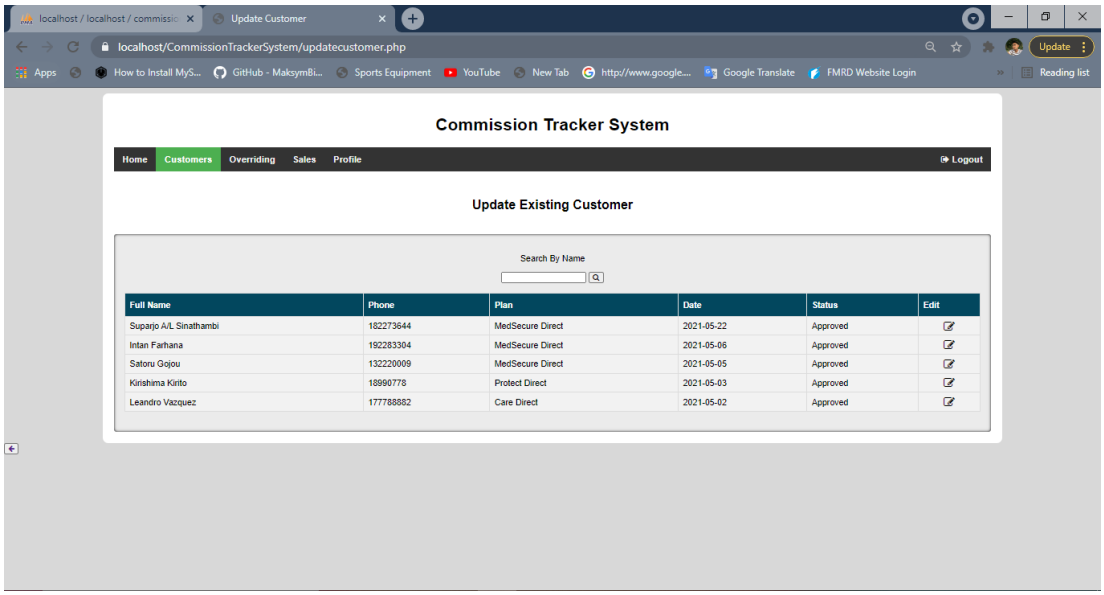


Figure 4.12 Update existing customer

In the figure 4.12, it shows the customer of the agent where the agent could manage the profile of the customer if the agent wanted to change anything or have an error in it.

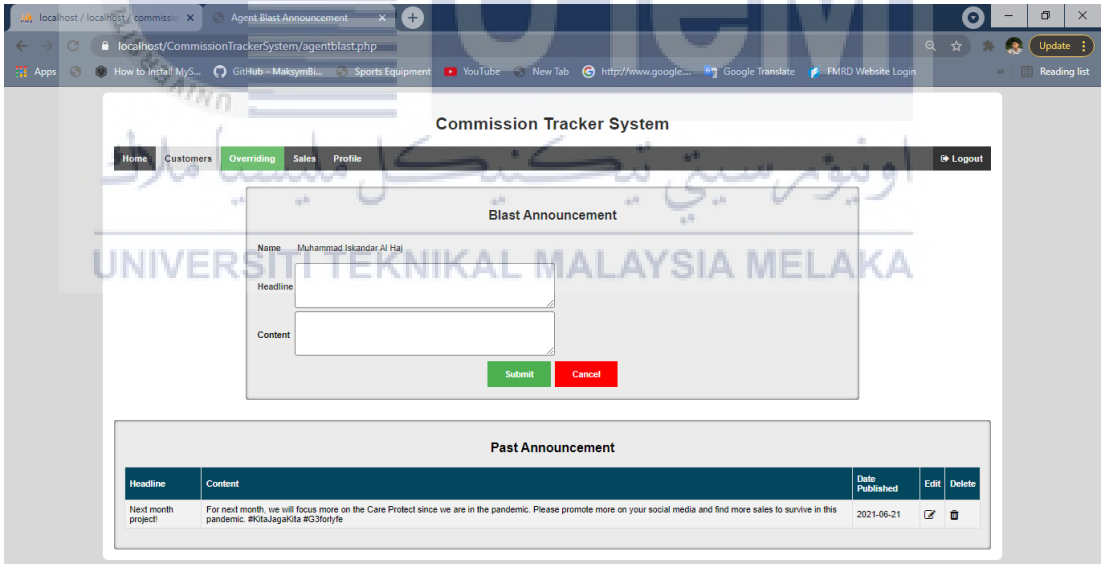


Figure 4.13 Agent blast announcement function

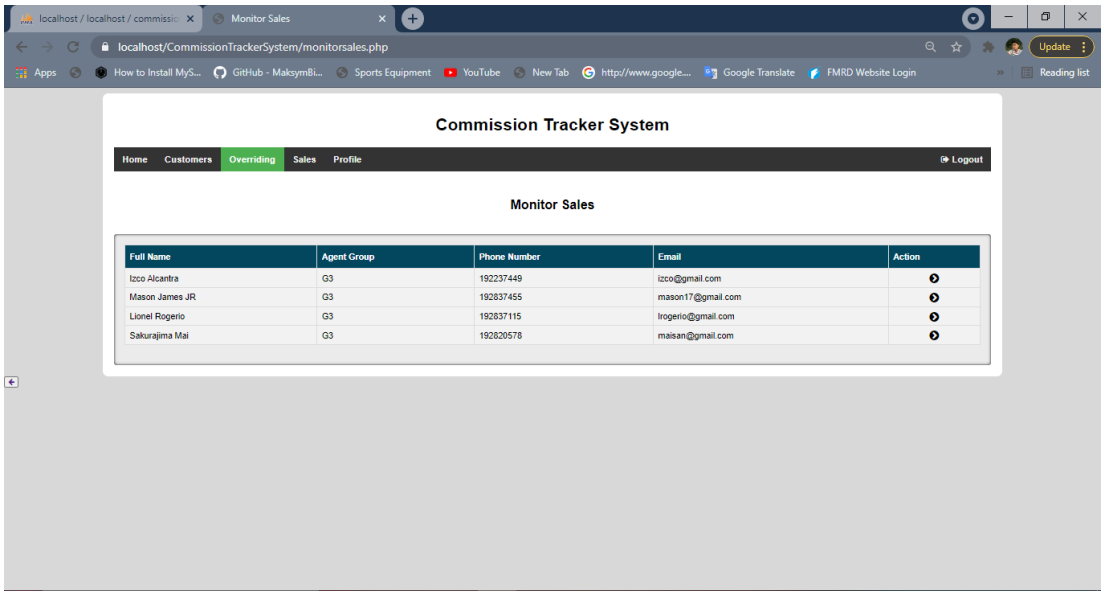


Figure 4.14 Monitor overriding sales

In figure 4.13 and 4.14 the agent can manage the overriding agent by blasting the announcement and monitor the sales of the overriding agent under him/her.

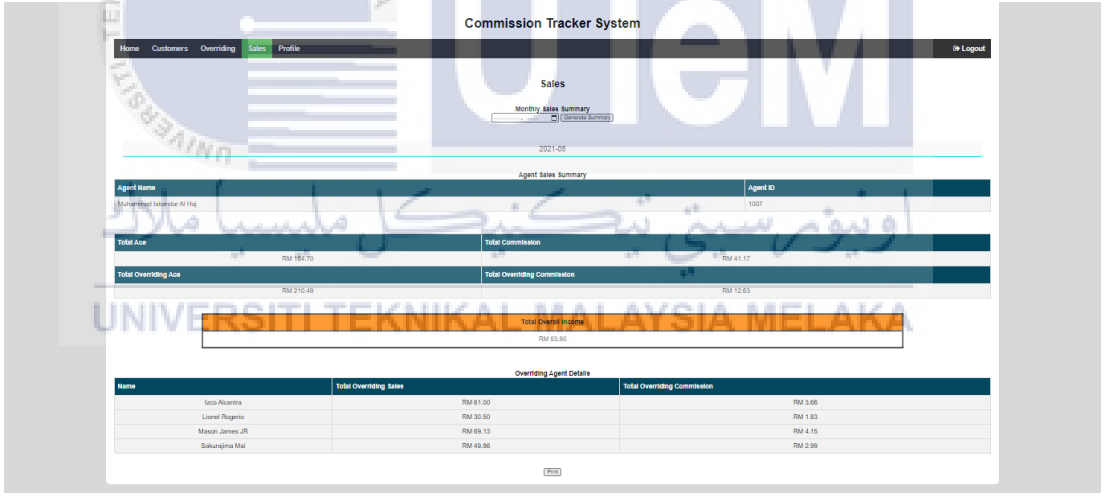


Figure 4.15 Agent Sales

Figure 4.14 shows the screen of agent sales for the company. This section will also show the commission of the agent will receive.

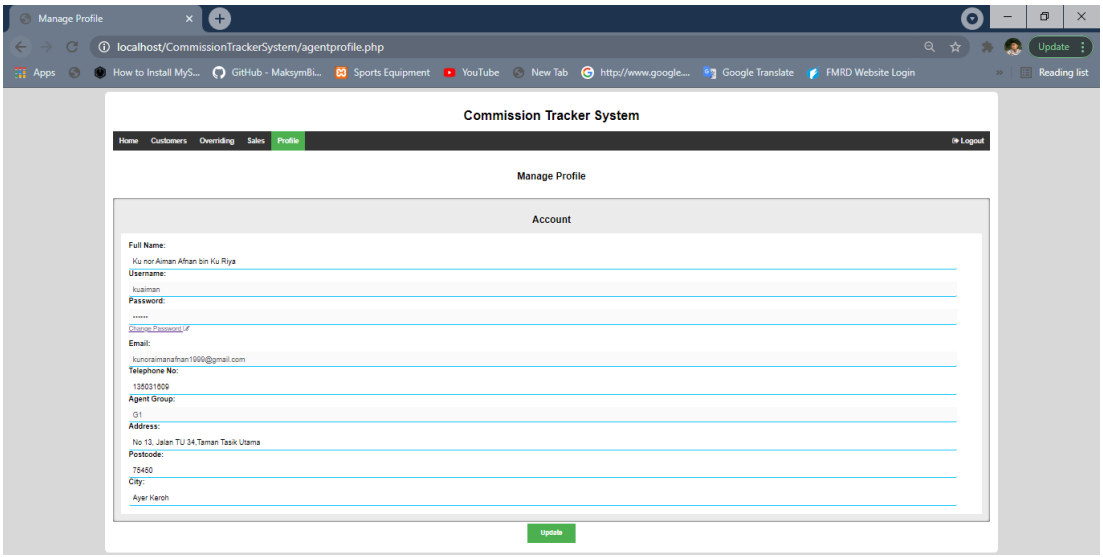


Figure 4.16 Manage profile

Figure 4.15 shows the screen where user can manage their profile to change anything necessary.

Figure 4.17 Overriding agent homepage

Figure 4.16 shows the overriding agent homepage where it will display the announcement made by the admin and the agent above him. It will also show the leader of the group. The other function would be the same as the agent which is manage customer, view sales, and update profile.

4.2.3 Database Design

The section will discuss about the database design which will represented by the Entity Relationship Diagram (ERD) for Commission Tracker System.

4.2.3.1 Conceptual and Logical Database Design

Conceptual and logical database design will explain on how the application works based on the requirements. It is important for the system to meet the user requirement with performance of the system. Figure 4.17 shows the Entity Relationship Diagram for the Commission Tracker System that has been used for the database.

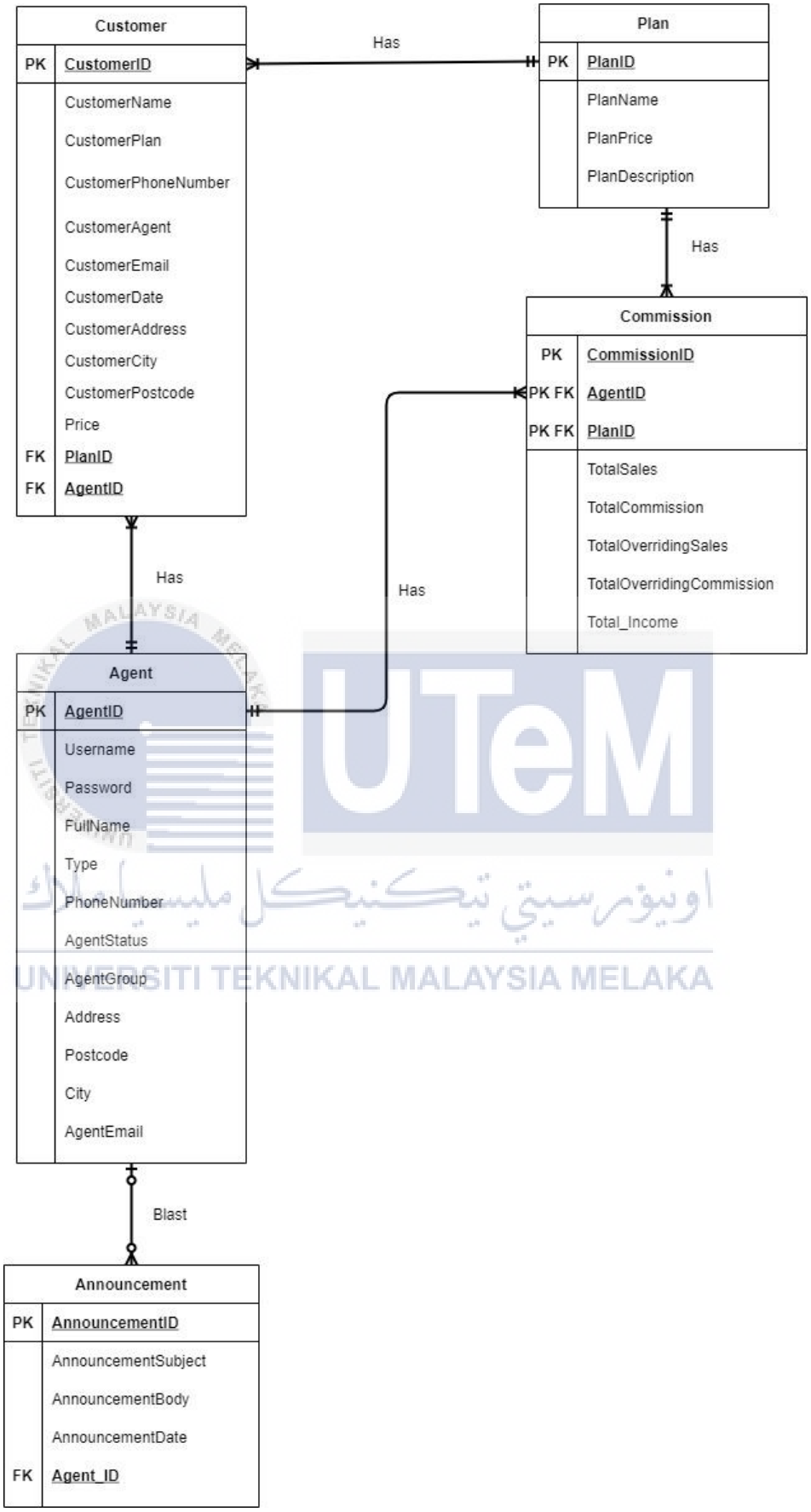


Figure 4.18 Entity Relationship Diagram

4.3 Detailed Design

Detailed design will discuss about the software design and the physical database design.

4.3.1 Software Design

Software design is a technique to convert the software requirement into software execution. This method requires a good understanding of the user requirement and operates to find the optimal solution. The plan used should be a good design for the planned solution to be implemented.

4.3.1.1 Use Case Specification

(a) Use case: Log in

1. **Brief description:** This use case will show the way user wanted to enter the system by giving the username and password.
2. **Pre-condition:** User already registered.
3. **Post-Condition:** User log in to the system.
4. **Actor:** Admin, agent, overriding agent
5. **Primary flow:**
    I. Users open the system website.
    II. System will give form of username and password for user to fill in.
    III. Users enter the username and password and then click on the login button else user click on forgot password button [E1].
    IV. System will validate the user based on the username, password and type of the user.
    V. Use case end.
6. **Alternative flow:** Not applicable.
7. **Exceptional flow:**
    I. [E1] – Forgot password page will appear. User needs to enter the email and a new password will be send to the email.
8. **“Include” use case:** Not applicable.
9. **“Extend” use case:**
    I. Logout – User click on the button log out to end the session of user.

10. **Rules:** User must already register to the system.
11. **Constraint:** Not applicable.

(b) Use case: Manage agent

1. **Brief description:** This use case will show the function of manage agent.
2. **Pre-condition:** Log in as admin.
3. **Post-condition:** Can perform the function.
4. **Actor:** Admin
5. **Primary flow:**
    I. The use case starts when admin click on agent menu at the navigation bar.
    II. The system will give two options for admin which is add agent and deactivate agent.
    III. If admin choose to add agent, then [I1], else if admin choose to deactivate agent, then [I2].
    IV. Use case end.
6. **Alternative flow:** Not applicable.
7. **Exceptional flow:** Not applicable
8. **"Include" use case:**
    I. [I1] – Admin will go to another screen and then will need to fill in the form to add a new user. After finish fill in the form, click the add button to register a new agent. Use case end.
    II. [I2] – Admin will to another screen, and it will show the list of agent and overriding agent. Admin can choose to activate and deactivate the user. Use case end.
9. **"Extend" use case:** Not applicable.
10. **Rules:** Must be logged in as admin.
11. **Constraint:** Not applicable.

(c) Use case: Manage commission

1. **Brief description:** The use case will describe the way how the agent will manage the commission.

2. **Pre-condition:** Log in as admin.
3. **Post-condition:** Admin can update the commission.
4. **Actor:** Admin
5. **Primary flow:**
    I. Use case starts when admin click on commission at the navigation bar.
    II. The system will display the plan of the company with the edit button.
    III. Admin can click the edit button at the plan to edit the commission.
    IV. The system will provide a form for admin to update the commission and admin will put the new price for the plan.
    V. Admin click on update button and the system will store the new price into the database.
    VI. Use case end.
6. **Alternative flow:** Not applicable.
7. **Exceptional flow:** Not applicable.
8. **"Include" use case:** Not applicable.
9. **"Extend" use case:** Not applicable.
10. **Rules:** Already logged in as admin.
11. **Constraint:** Not applicable.

(d) Use case: Manage request

1. **Brief description:** The use case will describe the function of request at the admin part.
2. **Pre-condition:** Log in as admin.
3. **Post-condition:** User can manage the request made.
4. **Actor:** Admin
5. **Primary flow:**
    I. Use case starts when admin click on the notification at the navigation bar.
    II. The system will show the screen a list of customers to be approve which was send by the agents and a blast announcement button.
    III. Admin will need to choose whether to approve the customer or not.

IV. After admin choose the decision, the system will store the data into the database.

V. If admin choose blast notification, then [I3].

VI. Use case end.

6. **Alternative flow:** Not applicable.
7. **Exceptional flow:** Not applicable.
8. **"Include" use case:**
   I. [I3] - The screen will show a form for admin to fill in order to make an announcement. Admin will fill in the form required and click on the publish button and the system will store it into the database. Use case end.
9. **"Extend" use case:** Not applicable.
10. **Rules:** Already logged in as admin.
11. **Constraint:** Not applicable.

(e) Use case: View report

1. **Brief description:** This use case will describe the process of view report for admin.
2. **Pre-condition:** Log in as admin.
3. **Post-condition:** Admin can view the report.
4. **Actor:** Admin
5. **Primary flow:**
   I. Use case starts when admin click on report at the navigation bar.
   II. The system will fetch the data from database and display the report to the admin. There will be select type of report below the navigation bar.
   III. If admin select another report, then [A1].
   IV. The system will display the report in the form of graph and table.
   V. Use case end.
6. **Alternative flow:**
   I. [A1] – If admin choose another report, the system will refresh the page and display the report based on what admin wanted. Report will be display in the form of graph and table. Use case end.

7. **Exceptional flow:** Not applicable.
8. **“Include” use case:** Not applicable.
9. **“Extend” use case:** Not applicable.
10. **Rules:** Already logged in as admin.
11. **Constraint:** Not applicable.

(f) Use case: Monitor overriding agent

1. **Brief description:** This use case will show the function of monitor overriding agent.
2. **Pre-condition:** Log in as agent.
3. **Post-condition:** Agent can use the function of monitor overriding agent.
4. **Actor:** Agent
5. **Primary flow:**
   I. Use case starts when agent click on overriding on the navigation bar.
   II. The system will show the list of overriding agent under that particular agent and an announcement button. If agent click on announcement button, then [A3].
   III. Agents choose the overriding agent that he/she wanted to monitor, and the system will redirect agent into a new page.
   IV. The system will display the sales of the overriding agent.
   V. Use case end.
6. **Alternative flow:**
   I. [A3] – Agent will go to another page. The system will give form to the agent to fill in and after filling in the form agent will click on publish button. System will save the data in the database and display the announcement at overriding agent homepage.
7. **Exceptional flow:** Not applicable.
8. **“Include” use case:** Not applicable.
9. **“Extend” use case:** Not applicable.
10. **Rules:** Must logged in as agent.
11. **Constraint:** Not applicable.

(g) Use case: View sales report

1. **Brief description:** This use case describes the view sales report function.
2. **Pre-condition:** Log in as agent or overriding agent.
3. **Post-condition:** User can view the commission and sales.
4. **Actor:** Agent, Overriding agent
5. **Primary flow:**
    I. The use case starts when user click on sales at the navigation bar.
    II. The system will display the commission and sales of the user for the past month.
    III. If there is no data, then [E2].
    IV. User can select to view on the previous month commission and sales.
    V. The system will refresh and display the data if user choose another month.
    VI. Use case end.
6. **Alternative flow:** Not applicable.
7. **Exceptional flow:**
    I. [E2] – If there is no data then the system will not display anything. Use case end.
8. **"Include" use case:** Not applicable.
9. **"Extend" use case:** Not applicable.
10. **Rules:** Must logged in as agent or overriding agent.
11. **Constraint:** Cannot view for a future month.

(h) Use case: Manage customer

1. **Brief description:** The use case describes the flow of manage customer performed by agent and overriding agent.
2. **Pre-condition:** Must logged in as agent or overriding agent.
3. **Post-condition:** The function of manage customer can be used.
4. **Actor:** Agent, Overriding agent
5. **Primary flow:**
    I. Use case starts when user click on customer at the navigation bar.

II. The system will give two option which is add customer [I4] or update existing customer [I5].

III. User needs to choose the option.

IV. Use case end.

6. **Alternative flow:** Not applicable.
7. **Exceptional flow:** Not applicable.
8. **"Include" use case:**
   I. [I4] – The system will display a form for user to fill. User needs to fill the form and click on add button. The system will prompt a message and save the data in the database. Use case end.
   II. [I5] – The system will display the list of customers under the user. User will choose the customer which the user wanted to update anything. Use case end.
9. **"Extend" use case:** Not applicable.
10. **Rules:** Must logged in as agent or overriding agent.
11. **Constraint:** Not applicable.

4.3.2 Physical Database Design

In physical database design, data definition language (DDL) is used to manage the table and object in database using CRUD (Create, Retrieve, Update and Delete). The DDL command used in MySQL database is shown as below:

I. CREATE – To create a table in database.

- CREATE-TABLE <table name>

II. UPDATE – To update the attributes in the table.

- UPDATE <table name> SET <column name> = <new value> WHERE <condition>

III. INSERT – To insert the attributes into the table.

- INSERT INTO <table name> (<column1, …>) VALUES (<value1, …>)

IV. DELETE – To delete the attributes in the table.

- DELETE FROM <table name> WHERE <condition>

4.4 Conclusion

This chapter has set out how to implement the system efficiently. This chapter also describing the design for the user interface, system design, and database design for Commission Tracker System. Database design is being defined by the ERD. While detailed design defines the software design and database design of the application.

CHAPTER 5: IMPLEMENTATION

5.1 Introduction

This section describes the process of developing and implementing Commission Tracker System. The main purpose of the implementation stage is to finish the development process and module of Commission Tracker System such as sales module, notification module, authentication module and others and follow all the necessary requirements which includes the software development environment setup and software configuration management of Commission Tracker System.

5.2 Software Development Environment Setup

The system will be mainly developed by using Laragon. Laragon is a software distribution which provides the Apache web server, MYSQL database, Php and Perl all in one package. It has all the features needed to develop Commission Tracker System. The source code editor is by using Sublime Text 3.

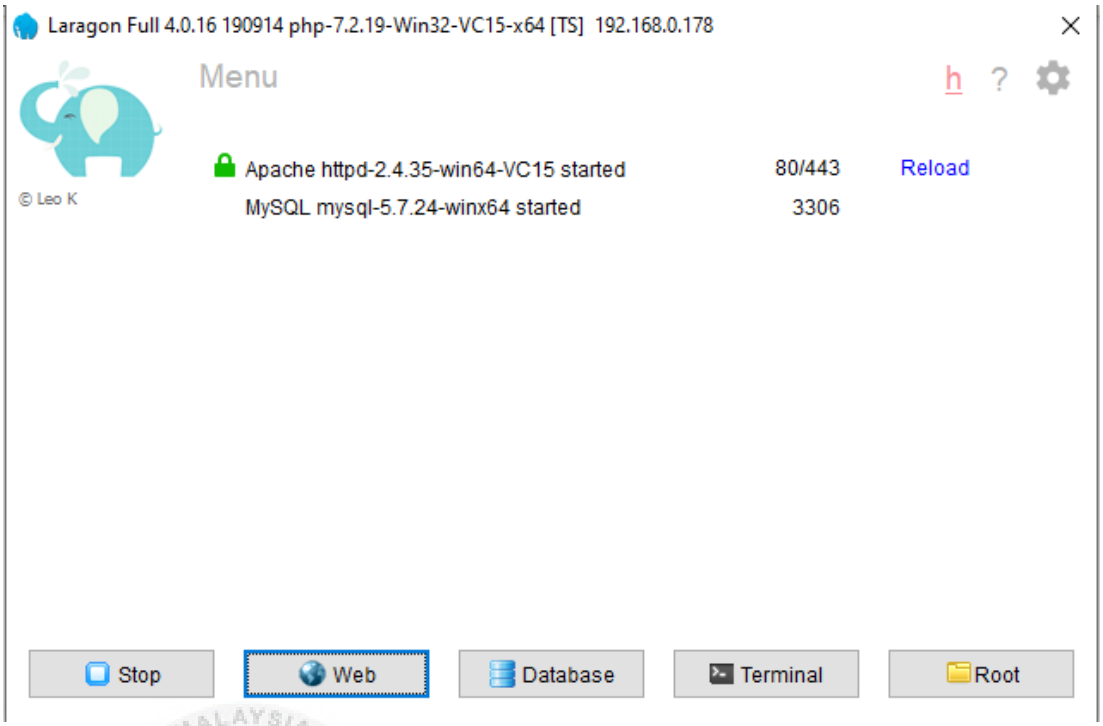


Figure 5.1 Laragon software

The database management software we choose is PhpMyAdmin which also provided in Laragon. It provides a relatively painless installation and way to manage the configuration changes. Also, is provide a GUI tool for managing MySQL databases.

The system is developed mainly by using Php, HTML, CSS and JavaScript for its front-end and back-end. HTML and CSS are used to make the graphical user interface while PHP is used in the back end processed such as calculation, running SQL statements and many more. The database for this system would be PhpMyAdmin which is already provided in the Laragon would be use. SQL is used to make any process that are related to database such as insert, update, and delete.

Figure 5.2 Language use in development

5.3 Software Configuration Management

Software configuration management will discuss more on configuration environment setup and the version control procedure when implementing the Commission Tracker System.

5.3.1 Configuration Environment Setup

The tool that used is Laragon which includes Apache server and MYSQL database in it. The process is easy where you just need to start the software and the server and database will be available. You need to save your file in the Laragon folder in order to make in run smoothly in your localhost. Laragon can be downloaded at *https://laragon.org/download/index.html.*

In the database, we need to create the database for the system so we just simply click database at Laragon and it will redirect us to PhpMyAdmin database where you will need to login to it. After that, create your database account by following the ERD for the system. The database should be able to perform the basic function of the operation of CRUD (Create/Retrieve/Update/Delete) and provide enough storage space.

The most important part is the email sender where we need to make some changes in Laragon settings at mail sender. Put in your existing account email that you wish to use and Laragon will send a verification to the email that you put in. Tick the enabled box. Then, verify the email and the mail sending function can be used immediately. The process can be shown in figure below.

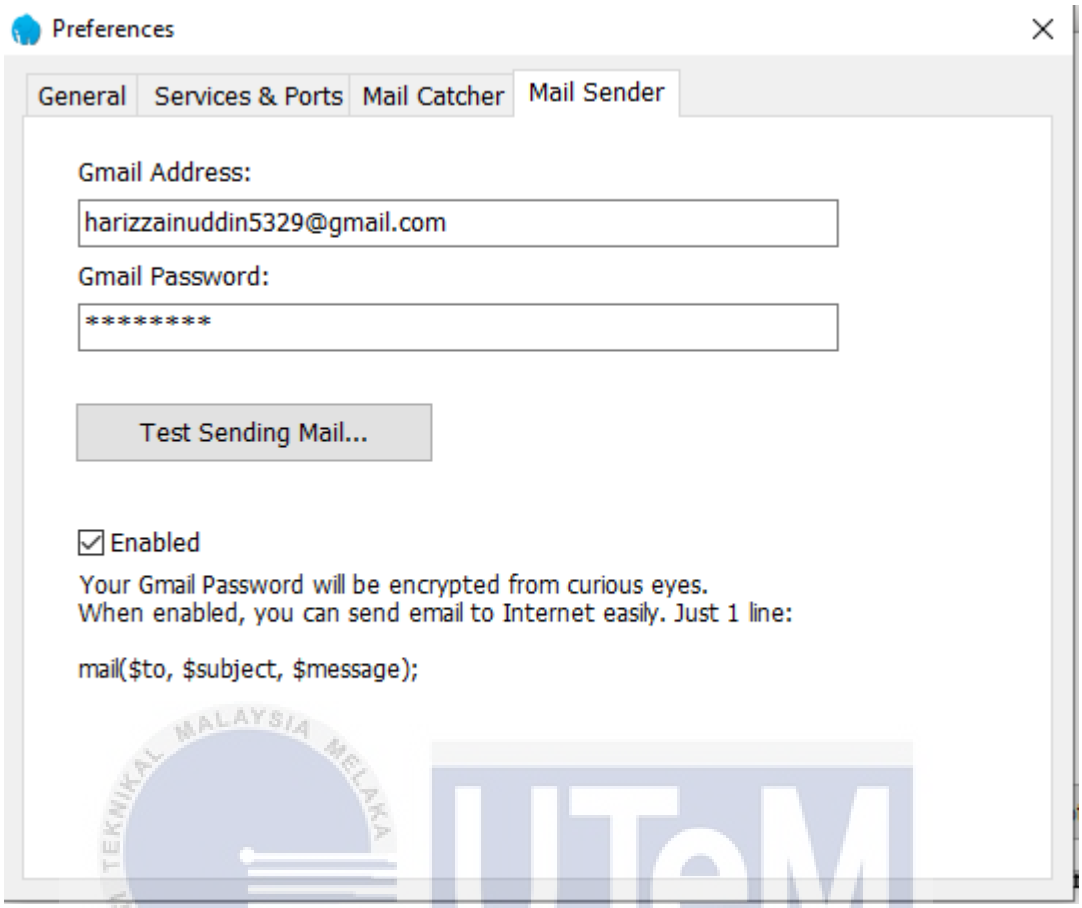


Figure 5.3 Mail sender

5.3.2 Version Control Procedure

To maintain the version control procedure, the progress of the implementation will be saved in Laragon file. If anything, need to be updated or change, it will easily just by opening the file and make the changes. The project also is saved on 000webhost every time there are changes made. Project is saved after work done as a precaution of a data loss and can be referred at any time. Project update can also be done by updating the source code in 000webhost to prevent any data loss.

As for the report, I use the Microsoft Teams where the supervisor has created for the student. In Teams, there will be date for any document you have uploaded so each time I uploaded a new document, the supervisor will upload a new document with comments to improve the report. By doing this, the report can be managed smoothly and the changes can be recorded wisely without any difficulty.

5.4 Implementation Status

This section explains the progress of development status for each module developed for this project. Table 5.1 represents the progress development status of Commission Tracker System.

Table 5.1 Implementation Status

Module	Duration	Date completed	Description
Authentication module	1 weeks	12 April 2021	Authentication module handles the authentication of user for the system based on their type of user.
Management module	2 weeks	26 April 2021	Management module will include the management of user in the aspect of insert, update, view, and delete of the information
Search and request module	2 weeks	10 May 2021	This module will allow the user to make and approve request hence searching something based on the information.
Monitoring module	2 weeks	24 May 2021	Monitoring module is for agent to monitor its overriding agent based on sales and make announcement.
Commission Module	1 week	31 May 2021	Commission module is to calculate the commission and sales made by the agent and overriding agent.
Report Module	1 week	7 June 2021	Report module is for admin to monitor all of the sales made by the agents for the company.

5.5 Conclusion

To put in a conclusion, this chapter describes the setup of software development environment, software configuration management and version control procedure and status of the implementation. The following chapter will address project testing that fulfils the specified requirement.

CHAPTER 6: TESTING

6.1 Introduction

In this section, testing is performed to see whether the system meets the system's perquisite criteria. It mainly describes about the test plan that were conducted such as test organization, test schedule based on the system. Test strategy, test design and test result are presented in the testing section based on the testing made by the testers.

6.2 Test plan

Test plan is focused on the scope, purpose, detailed operations, and schedule of test operations that should be conducted. Test plan is group by three main components which are test organization, test schedule and test environment. The tests were procced with unit testing, integration testing, system testing and user acceptance testing. The test plan for the system is to help the testing operations to achieve an efficient system test.

6.2.1 Test Organization

Test organization will describe about the responsibilities of the tester. The organization will be shown in table 6.1. The testers which are Muhammad Hariz, Tengku Hazim and Muhammad Haiqal which briefly have the knowledge about Computer Science in testing and Muhammad Azri which is an insurance agent will conduct the unit testing, integration testing and system testing to help achieve the objectives and goals of the system. For user acceptance testing, it will be 40 volunteers who want to have experience in Commission Tracker System.

Table 6.1 Test Organization

Tester ID	Responsibility	Tester Name
Tester 0001	- Participate and conduct the unit testing, integrating testing and system testing.	- Muhammad Hariz bin Zainuddin - Muhammad Haiqal - Muhammad Azri - Tengku Mahmud Hazim
Tester 0002	- Participate and conduct the user acceptance testing to evaluate the system performance.	- 40 respondents

6.2.2 Test Environment

A test environment is a setup of software and hardware to execute test cases during the testing activities. Some main fields to setup are Database Server, web browser, Operating System and server are shown in Table 6.2.

Table 6.2 Test Environment

Hardware/Software	Specification
Database Server	MYSQL
Web Browser	Google Chrome
Server	Laragon
Operating System	Windows 10
Internet	Any Internet connection.

6.2.3 Test Schedule

Test schedule is a record for system's test schedule. All the testing done for the system depending on the module state. Table 6.3 represents the details of the testing process.

Table 6.3 Test Schedule for Commission Tracker System

Type	Description	Start Date	End Date
Unit Testing	Confirm and validate the correct coding of the subsystem and perform the desired functionality.	26 July 2021	1 August 2021
Integration Testing	Test the subsystem interface.	2 August 2021	5 August 2021
System Testing	Evaluate and check the system whether it complies with the demands.	6 August 2021	10 August 2021
User Acceptance Testing	Prove and shows that the system meets the customer's requirements and able to function well.	24 August 2021	26 August 2021

6.3 Test Strategy

Test strategy presents the structure for estimating the length and duration of testing effort at the level of confidence that business case needs. It will explain about the classes of test according to each of the testing. The top-down testing strategy method and black box testing will be used by this system.

6.3.1 Classes of Tests

It is composed of four test classes consisting of unit testing, integration testing, system testing and user acceptance testing. The test classes description is explained below:

i. Unit Testing

Unit testing will monitor and check the source code, implements the necessary features, fulfils the efficiency, and handles the circumstances correctly. Individual units or components of a software will be tested to validate that each unit of the software code performs as expected. Several activities conducted during unit testing are code inspection that checks the code against a list of frequently found problems or deficiencies in programs, checking for execution malfunction, and verify the correctness of the code.

ii. Integration Testing

Integration testing will proceed with the interface testing between the top-level module corresponding to the entire system and the modules invoked at the top-level module. The purpose of this testing is to expose defects in the interaction between the software modules when they are integrated.

iii. System Testing

System testing is mainly to check the integration of software systems with other parts, including functional and non-functional requirements to

check against the need of the system. System testing is generally conducted during the development environment. The product of this testing is a product that is ready to be deploy and accepted by the target users. The system must also meet the criteria that has been set out in the specifications.

iv. User Acceptance Testing

Acceptance testing focuses on the target environment of the targeted user to guarantee proper functioning of the system in that is ready to be deploy. The contrast of system testing and user acceptance testing are the setting where acceptance testing can be performed by performing a sub-set of test instances used during system testing.

6.4 Test Design

Test design focuses on the testing itself which includes on how many testing circumstances that need to be carried out and how the testing is approached. It also includes the creation and writing of software test suites but requires specificity and thorough input. The test cases were conducted based on each of the modules of the system. After that, the anticipated outcome is determined and documented. By doing this, it shows the passing and failing tests, mitigate mistakes rapidly, and refine projects to attain overarching objectives.

6.4.1 Test Description

Test case ID is recognized during the process, the explanation is provided to clarify what the test all about and the module of the system. The list of test cases is registered with the real and anticipated results as shown in table 6.4 until table 6.8. Table 6.4 explained the authentication functionality throughout the system. Table 6.5 explained the testing that covers the report module. Next, table 6.6 shows the testing that occurs in commission functionality which covers both agents and overriding agents' function. Table 6.7 explained about testing in announcement module meanwhile table 6.8 was on the testing towards management module.

Table 6.4 Test Case Authentication

Test Case ID	CTS_Authentication		
Description	To test the authentication functionality based on user.		
Module	Authentication		
Prepared By	Muhammad Hariz	**Date Prepared**	

Review/Updated		**Date Reviewed**	
Tested By	Muhammad Haiqal	**Date Tested**	

Test Activities					
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
CTS1001	Enter a valid username and password.	Username = “admin” Password = “abc123”	An alert displayed “You have login successfully” and redirect to user homepage.	User login successfully and the alert displayed accordingly.	Pass
CTS1002	Enter a valid username and invalid password.	Username = “admin” Password = “zzz1111”	An alert box will pop up and displayed “Account not found. Please check your username and password.” and redirect user to login page.	Login unsuccessful and the alert box displayed correctly.	Pass
CTS1003	Enter invalid usernam	Username = “aaaaa”	“Account not found. Please check your	Login unsuccessful and the alert	Pass

	e and invalid password.	Password = “aaaaa”	username and password.” and redirect user to login page.	box displayed correctly.	
CTS1004	Click on the forgot password link.	-	Redirect user to forgot password page.	Redirect user to forgot password page.	Pass
CTS1005	Enter a correct email.	Email = “hqlzainuddin@gmail.com”	New password will be sent to the email.	New password sent to the email.	Pass
CTS1006	Enter an incorrect email.	Email = “aaaa@aaa”	Error showed “Email is required”.	Error showed “Email is required”.	Pass
CTS1007	Enter email that does not exist.	Email = “abcnce@mmm.com”	An alert box displayed “Email does not exist”.	An alert box displayed correctly.	Pass
CTS1008	Check user type login – Admin	Username = “admin” Password = “abc123”	Redirect to admin homepage.	Redirect to admin homepage.	Pass
CTS1009	Check user type login – Agent	Username = “Iskandar” Password = “abc123”	Redirect to agent homepage.	Redirect to agent homepage.	Pass
CTS1010	Check user type login – Overriding agent	Username = “brownell” Password = “abc123”	Redirect to overriding agent homepage.	Redirect to overriding agent homepage.	Pass

Table 6.5 Test Case Report

Test Case ID	CTS_Report		
Description	To test the report module functionality.		
Module	Report		
Prepared By	Muhammad Hariz	**Date Prepared**	

Review/Updated		**Date Reviewed**	
Tested By	Muhammad Haiqal	**Date Tested**	

Test Activities					
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
CTS1011	Check report data based on month.	Month = “May” Year = “2021”	Data displayed based on graph, table and total overall sales.	Data displayed based on graph, table and total overall sales.	Pass
CTS1012	Check print function.	Click on print button.	A screen to print will appear.	A screen to print will appear.	Pass
CTS1013	Check report data based on month.	Did not enter anything.	Error messages appear “Please fill out this field”.	Error messages appear “Please fill out this field”.	Pass
CTS1014	Check report data based on year.	Did not enter anything.	Error messages appear “Please fill	Error messages appear “Please fill	Pass

			out this field".	out this field".	
CTS1015	Check report data based on year.	Year = "2021"	Data displayed based on graph, table and total overall sales.	Data displayed based on graph, table and total overall sales.	Pass
CTS1016	Check report data based on month that does not have sales.	Month = "January" Year = "2021"	Display 0 result.	Display 0 result.	Pass
CTS1017	Check report data based on year that does not have sales.	Year = "2019"	Display 0 result.	Display 0 result.	Pass

Table 6.6 Test Case Commission

Test Case ID	CTS_Commission		
Description	To test the commission functionality based on user.		
Module	Commission		
Prepared By	Muhammad Hariz	**Date Prepared**	

Review/Updated		**Date Reviewed**	
Tested By	Muhammad Azri	**Date Tested**	
Test Activities			

ID	Test Scenario	Test Data	Expected Result	Actual Result	Status
CTS1018	Log in as admin. Click on commission.	-	Display all the plan with price, description and edit button.	Display all the plan with price, description and edit button.	Pass
CTS1019	Log in as admin. Click on edit button.	-	Display the corresponding plan.	Display the corresponding plan.	Pass
CTS1020	Log in as admin. Edit any field in the plan.	Plan = “Protect Direct” Price = “45.50”	The field will change according to the changes.	The field change according to the changes.	Pass
CTS1021	Log in as admin. Add new plan.	Plan = “Testing” Price = “10.00” Description = “Testing”	An alert box will appear “Successfully add a new plan”.	An alert box appears “Successfully add a new plan”.	Pass
CTS1022	Log in as agent. Choose month and year.	Agent = “Iskandar” Month = “May” Year = “2021”	Display agent sales summary with overriding sales.	Display agent sales summary with overriding sales.	Pass
CTS1023	Log in as agent. Choose month and	Agent = “Iskandar” Month = “January”	Display 0 result at each field.	Display 0 result at each field.	Pass

	year that did not have sales.	Year = “2021”			
CTS1024	Log in as agent. Click on print button.	-	Screen to print will appear.	Screen to print appear.	Pass
CTS1025	Log in as overriding agent. Choose month and year.	Agent = “Sakurajima” Month = “May” Year = “2021”	Display agent sales summary.	Agent sales summary displayed.	Pass
CTS1026	Log in as overriding agent. Choose month and year that did not have sales.	Agent = “Sakurajima” Month = “January” Year = “2021”	Display 0 result in each field.	0 result displayed in each field.	Pass
CTS1027	Log in as overriding agent. Click on print button.	-	Screen to print will appear.	Screen to print appear.	Pass

Table 6.7 Test Case Announcement

Test Case ID	CTS_Announcement		
Description	To test the announcement functionality based on user.		
Module	Announcement		
Prepared By	Muhammad Hariz	**Date Prepared**	

Review/Updated		**Date Reviewed**	
Tested By	Muhammad Azri	**Date Tested**	

Test Activities					
ID	**Test Scenario**	**Test Data**	**Expected Result**	**Actual Result**	**Status**
CTS1028	Log in as admin. Click on blast announcement.	User = “admin”	Add new announcement with blank field and past announcement will be display.	Add new announcement with blank field and past announcement displayed.	Pass
CTS1029	Log in as admin. Add new announcement.	Headline = “Testing” Content = “Testing”	Alert pop up “Successfully add new announcement”.	Alert pop up “Successfully add new announcement”	Pass
CTS1030	Log in as admin. Edit announcement.	Headline = “Testing” Content = “Testing Edit”	Alert pop up “Successfully update the announcement”.	Alert pop up “Successfully update the announcement”.	Pass
CTS1031	Log in as admin. Delete the	Headline = “Testing”	Alert pop up “Successfully deleted”.	Alert pop up “Successfully deleted”.	Pass

	announce ment	Content = “Testing Edit”			
CTS1032	Log in as agent. Click on overriding then blast announce ment.	User = “Iskandar”	Add new announcement with blank field and past announcement will be display.	Add new announcement with blank field and past announcement will be display.	Pass
CTS1033	Login as agent. Add new announce ment.	Headline = “agent test” Content = “Testing”	Alert pop up “Successfully add new announcement ”.	Alert pop up “Successfully add new announcement ”.	Pass
CTS1034	Login as agent. Edit the announce ment.	Headline = “agent test edit” Content = “Testing edit”	Alert pop up “Successfully update the announcement ”.	Alert pop up “Successfully update the announcement ”.	Pass
CTS1035	Login as agent. Delete the announce ment.	Headline = “agent test edit” Content = “Testing edit”	Alert pop up “Successfully deleted”.	Alert pop up “Successfully deleted”.	Pass
CTS1036	Login as admin. Check announce ment at homepage.	-	All announcement s should appear.	All announcement s appeared.	Pass

CTS1037	Login as agent. Check announce ment at homepage.	-	Admin and own announcement should appear.	Admin and own announcement appeared.	Pass
CTS1038	Login as overriding agent. Check announce ment at homepage.	-	Admin and agent announcement should appear.	Admin and agent announcement appeared.	Pass

Table 6.8 Test Case Management

Test Case ID	CTS_Management		
Description	To test the management functionality based on user.		
Module	Management		
Prepared By	Muhammad Hariz	**Date Prepared**	

Review/Updated		**Date Reviewed**	
Tested By	Tengku Hazim	**Date Tested**	

Test Activities

ID	Test Scenario	Test Data	Expected Result	Actual Result	Status
CTS1039	Log in as admin. Click on agent.	-	Two options will appear. Add agent and deactive agent.	Two options appeared which are add agent and	Pass

				deactive agent.	
CTS1040	Log in as admin. Add agent.	Enter all required field.	Email will be sent to the email entered and pop up “Successfully Registered”.	Email sent to the email entered and “Successfully Registered” pop up.	Pass
CTS1041	Log in as admin. Click on change button for active user.	-	Status will change to deactive and pop up “Successfully updated! Status has been deactivated!”.	Status change to deactive and pop up “Successfully updated! Status has been deactivated!”.	Pass
CTS1042	Log in as admin. Click on change button for deactive user.	-	Status will change to active and pop up “Successfully updated! Status has been activated!”.	Status change to active and pop up “Successfully updated! Status has been activated!”.	Pass
CTS1043	Log in as admin. Use search name function.	“Ku”	Result will display name with “Ku” in it.	Result displayed with name “Ku” in it.	Pass
CTS1044	Log in as admin.	-	Result of customers	Result of customers	Pass

	Click on notification.		with pending status will appear.	with pending status appeared.	
CTS1045	Log in as admin. Approved on any customer.	-	A pop up “Successfully approved the customer.” will appear	A pop up “Successfully approved the customer.” appeared.	Pass
CTS1046	Log in as admin. Not approved on any customer.	-	An email will be sent to the agent to change anything and pop up “You have denied the customer”.	An email sent to the agent to change anything and pop up “You have denied the customer”.	Pass
CTS1047	Log in as admin. Use search customer function.	“Farouq”	Name with “Farouq” will appeared.	Name with “Farouq” appeared.	Pass
CTS1048	Click on profile.	-	Display all the user information.	Display all the user information.	Pass
CTS1049	Change any field in profile.	-	Pop up “Successfully updated!”.	“Successfully Updated!” pop up.	Pass
CTS1050	Change password	New password = “abc1111” Confirmation password = “aaa”	Pop up “Failed to update! Passwords are not the same.”	“Failed to update! Passwords are not the same.” Pop up.	Pass

CTS1051	Log in as agent. Click on customers.	-	Two options will appear. Add customer and update existing customer.	Two options appeared. Add customer and update existing customer.	Pass
CTS1052	Log in as agent. Add new customer.	Enter all required field.	A pop up "Successfully added! Admin will make confirmation later."	"Successfully added! Admin will make confirmation later." Will pop up.	Pass
CTS1053	Log in as agent. Update existing customer.	Click on any customer. Edit any field.	A pop up "Successfully Updated!" will appear.	A pop up "Successfully Updated!" appeared.	Pass
CTS1054	Log in as agent. Use search existing customer function.	"Muhammad"	Customer with "Muhammad" will be showed.	Customer with "Muhammad" is shown.	Pass
CTS1055	Log in as agent. Click on overriding.	-	Two options will appear. Blast announcement and monitor overriding agent.	Two options appeared. Blast announcement and monitor overriding agent.	Pass
CTS1056	Log in as agent. Click on action	Month = "May"	Sales Summary of the particular	Sales Summary of the particular	Pass

	button for any agent.	Year = “2021”	agent will appear.	agent appeared.	
CTS1057	Log in as overriding agent. Click on customers.	-	Two options will appear. Add customer and update existing customer.	Two options appeared. Add customer and update existing customer.	Pass
CTS1058	Log in as overriding agent. Add new customer.	Click on any customer. Edit any field.	A pop up “Successfully added! Admin will make confirmation later.”	“Successfully added! Admin will make confirmation later.” pop up	Pass
CTS1059	Log in as overriding agent. Update existing customer.	Click on any customer. Edit any field.	A pop up “Successfully Updated!” will appear.	A pop up “Successfully Updated!” appeared.	Pass
CTS1060	Log in as overriding agent. Use search existing customer function.	“Kurosaki”	Customer with “Kurosaki” will be showed.	Customer with “Kurosaki” is shown.	Pass

6.4.2 Test Data

Test data shows valid data and invalid data modules, field modules and test data when testing the entire system. Details are shown in the figures below.

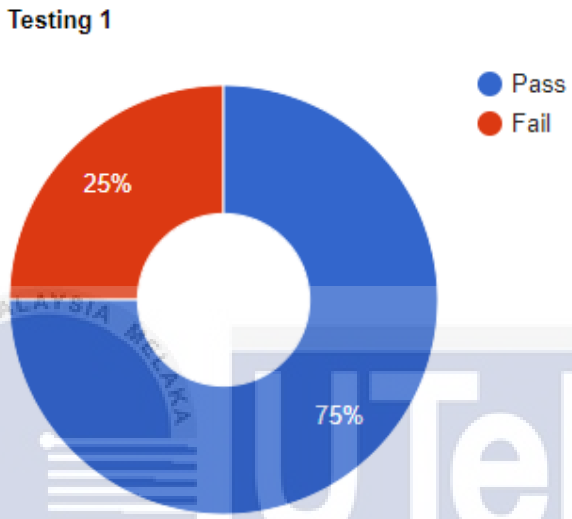


Figure 6.1 Testing phase 1

Figure 6.1 shows the first test results with 75% passed and 25% failed according to the test case that have been done.

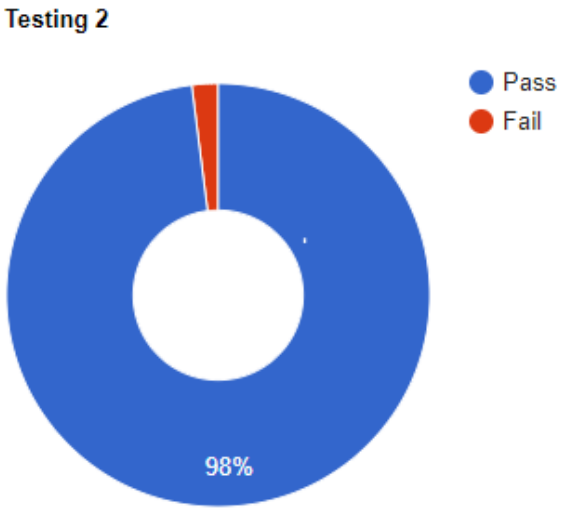


Figure 6.2 Testing phase 2

Figure 6.2 demonstrates the second test phase of the testing. The performance level was increased to 98% and 2% fail. Most of the phase 1 failures have been updated and the feature works correctly, but some of it does not work correctly.

6.4.3 Test Result and Analysis

Based on the findings for this testing, it shows that most of the functionalities work properly and correctly after it has been corrected. The error discovered from the first phase of testing has been fixed and tested for the second time. So, most of the error has been completely corrected before it is being deployed. After everything is set, the system is ready to be deployed for the targeted user.

6.5 User Acceptance Testing

User acceptance testing is conducted to study the acceptance of Commission Tracker System by measuring 6 components of perceived ease of use, perceived usefulness, capability, trustworthiness, attitude, and intention to use. These six components are guided by the supervisor to conduct user acceptance testing more effectively. As being told by the supervisor, it is required to gathered at least 30 minimum respondents for the user acceptance testing to achieve a better result in the testing. To identify the satisfaction level of the potential users to use this system, an

introductory evaluation of system demonstration is being conducted. Commission Tracker System is demonstrated to users and all the functionality and features is being explained. The questionnaire is created by using an online platform which are Google Forms as a method to do user acceptance testing. The testing materials were divided into two-parts which are Section A contained basic details of respondents and Section B contained the measurements items. Refer to Appendix A for the questionnaire. Table 6.9 lists all measurement items in this testing.

To study the acceptance level of the users by using Commission Tracker System, 40 respondents voluntarily participated in this testing which being conducted from 24 August 2021 until 26 August 2021. All of the participants were asked to use the proposed application and then require to answers the questionnaire in Google Forms.

Table 6.9 List of Questionnaires

Components	**Questions**
Perceived ease of use	- I find Commission Tracker System easy to use. - Interaction with Commission Tracker System is understandable and clear.
Perceived usefulness	- Using Commission Tracker System enhances the effectiveness of my work. - Using Commission Tracker System makes it easier to stay inform about the current sales and commission. - I find Commission Tracker System functionalities will help me ease my work.
Capability	- Functionalities and capabilities of Commission Tracker System meets ideas and needs.
Trustworthiness	- I trust Commission Tracker System to handle the information and data of the user.
Attitude	- It is pleasure for me to use the Commission Tracker System.
Intention to use	- I intended to use Commission Tracker System to improve the efficiency of my work.

6.5.1 Test Result and Analysis

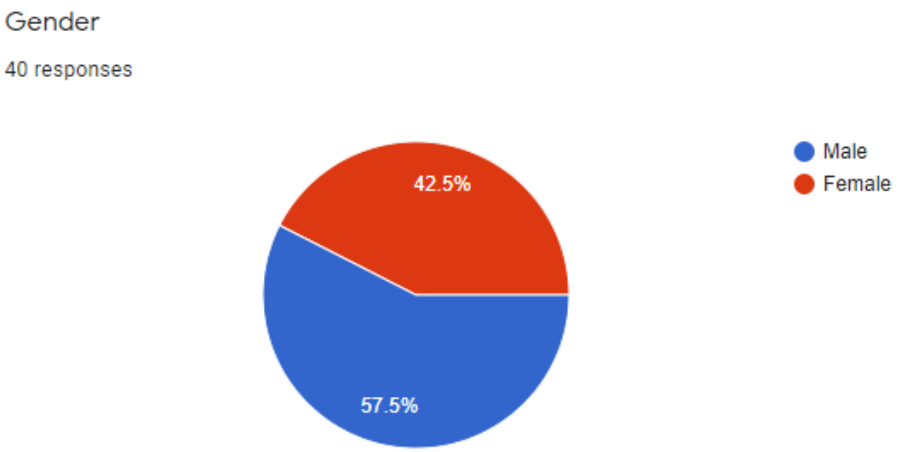


Figure 6.3 Pie Chart of Questionnaire Question

Figure 6.3 represent that 57.5% which are 23 males and 42.5% which are 17 females voluntarily participated in this testing.

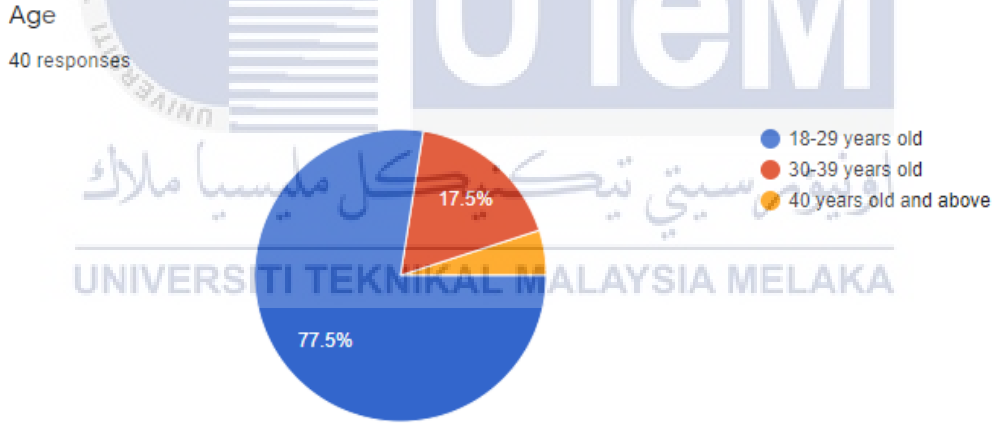


Figure 6.4 Pie Chart of Questionnaire Question

Figure 6.4 describes the age of the respondents. Most of them are in the range of 19-29 years old with 31 respondents. 7 of them are from 30-39 years old and 2 people above 40 years old.

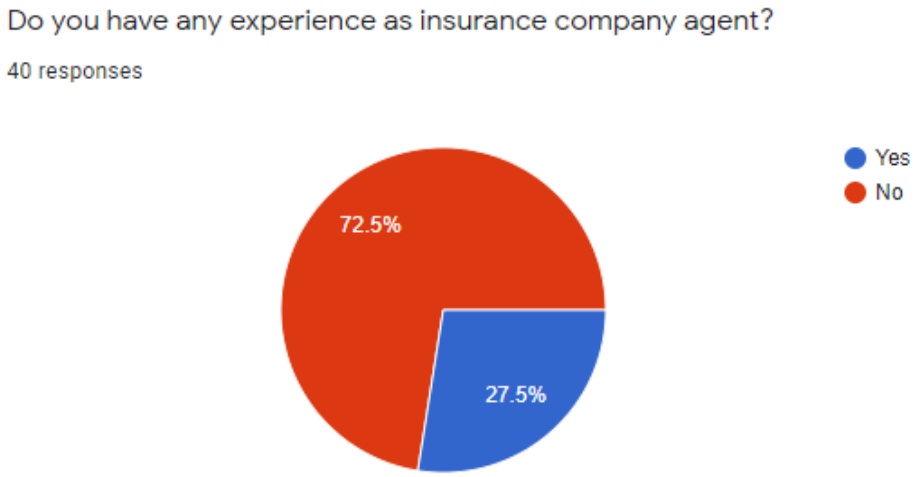


Figure 6.5 Pie Chart of Questionnaire Question

Figure 6.5 represent whether the respondents have the experience as an insurance company agent. 29 respondents who equal to 72.5% did not have the experience however 11 respondents already have the experience as insurance company agent.

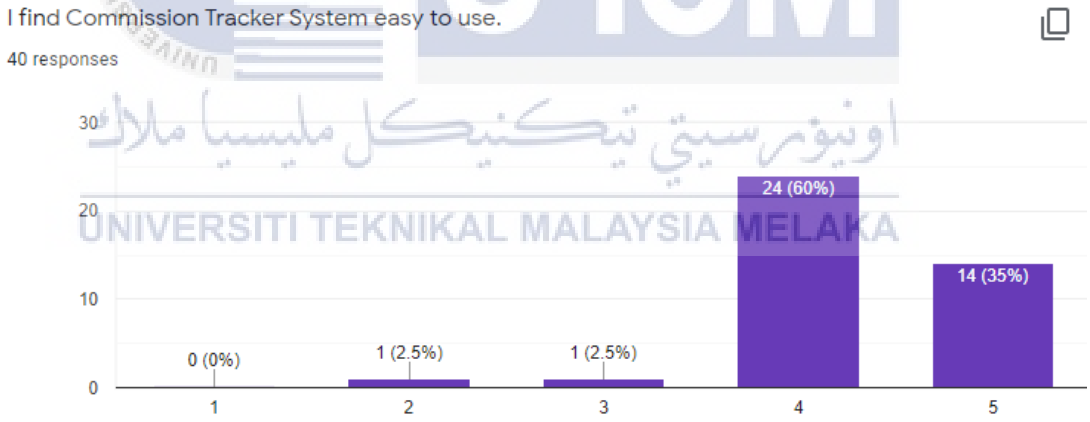


Figure 6.6 Bar Chart of Questionnaire Question

Figure 6.6 represent those 14 respondents strongly agree that the system is easy to use while 24 respondents agree, 1 respondent neutral and 1 respondent disagree.

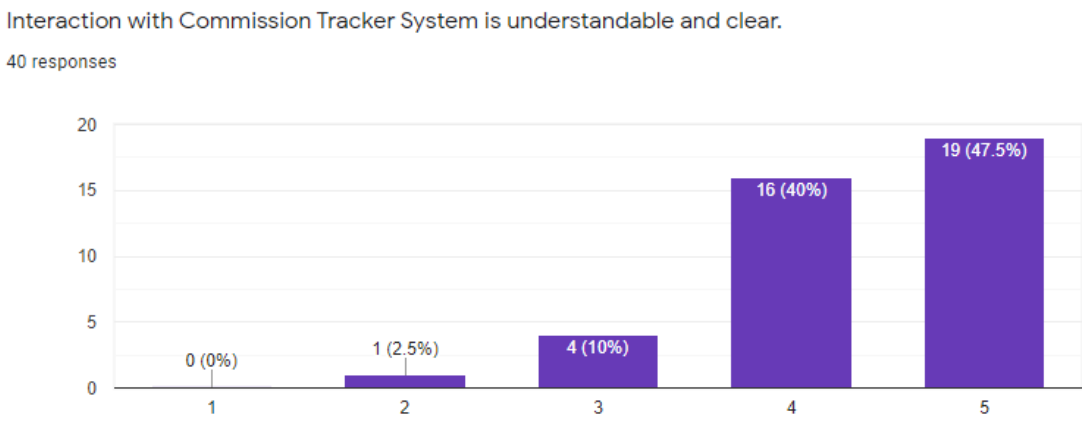


Figure 6.7 Bar Chart of Questionnaire Question

Figure 6.7 shows that 19 respondents strongly agree that interaction with the system is understandable and clear while 16 respondents agree, 4 respondents neutral and 1 respondent disagree.

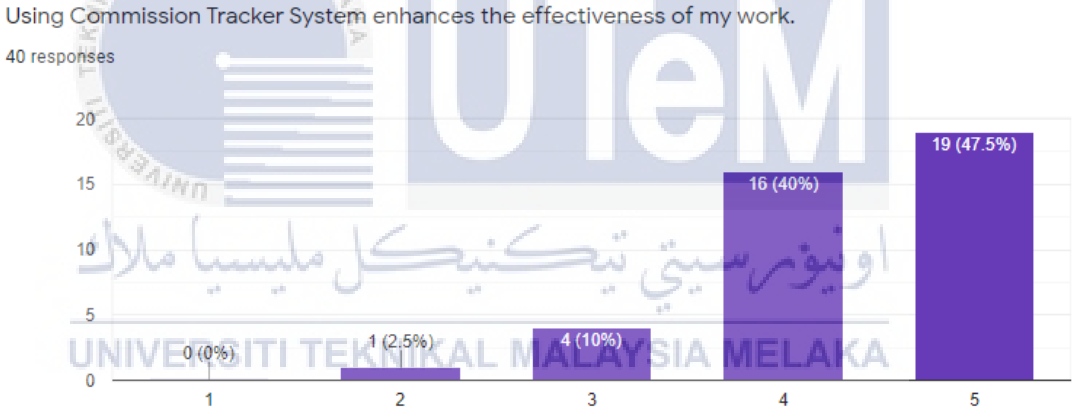


Figure 6.8 Bar Chart of Questionnaire Question

Figure 6.8 shows that 19 respondents strongly agree that using the system may enhance the effectiveness of the work while 16 respondents agree, 4 respondents neutral and 1 person disagree.

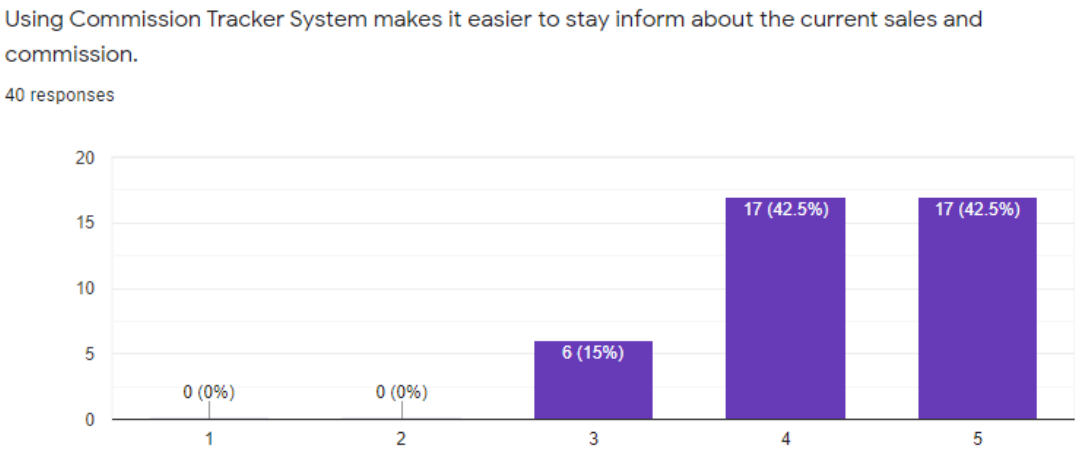


Figure 6.9 Bar Chart of Questionnaire Question

Figure 6.9 represent 17 respondents strongly agree with using the system makes it easier to stay inform about the current sales and commission while 17 other respondents agree and 6 respondents neutral.

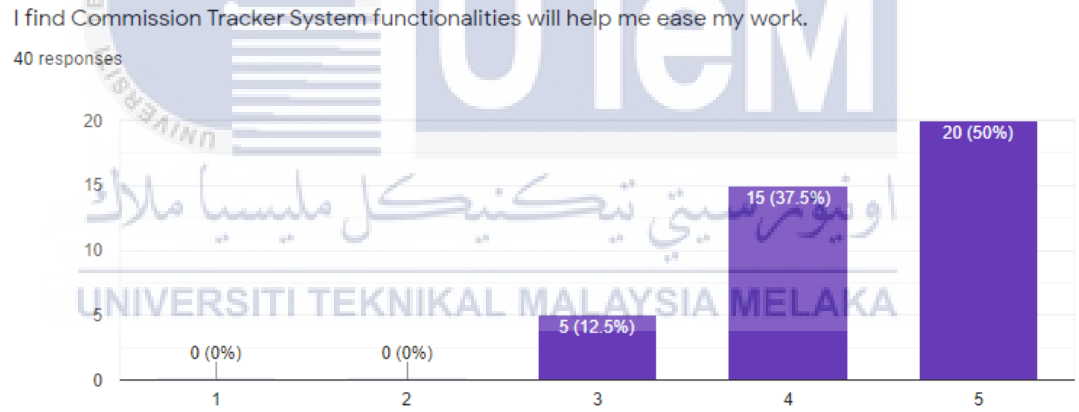


Figure 6.10 Bar Chart of Questionnaire Question

Figure 6.10 represent those 20 respondents strongly agree that the system functionalities will help them ease their work while 15 respondents agree and 5 respondents neutral.

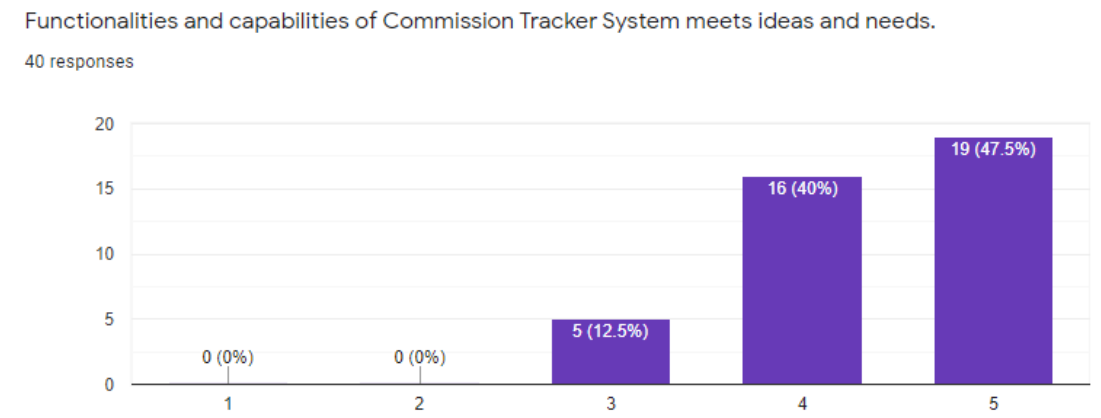


Figure 6.11 Bar Chart of Questionnaire Question

Figure 6.11 represent those 19 respondents strongly agree in functionalities and capabilities of the system meets their ideas and needs while 16 respondents agree and 5 respondents neutral.

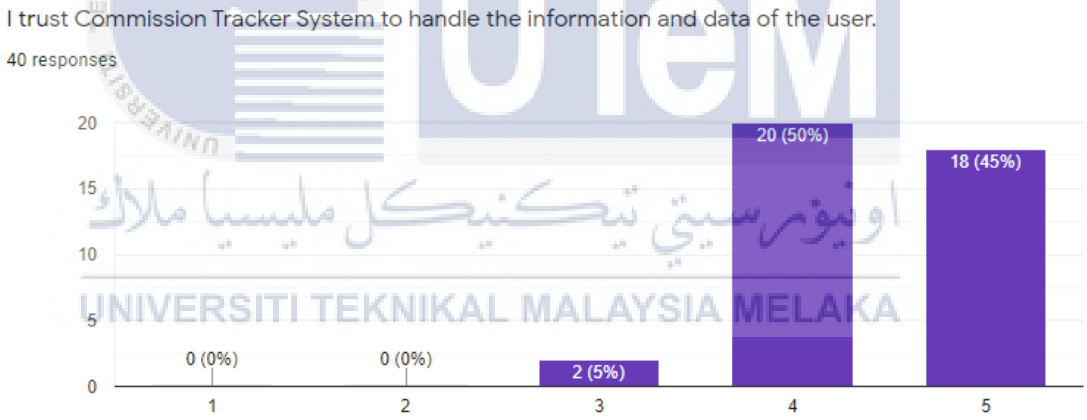


Figure 6.12 Bar Chart of Questionnaire Question

Figure 6.12 represent 18 respondents strongly agree to trust the system in handling the information and data of user while 20 respondents agree and 2 respondents neutral.

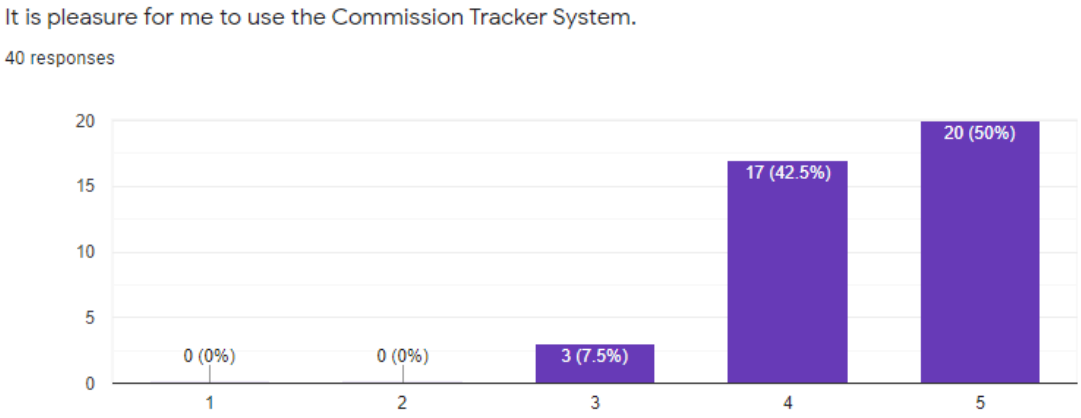


Figure 6.13 Bar Chart of Questionnaire Question

Figure 6.13 shows that 20 respondents strongly agree to the feeling of pleasure to use the system while 17 respondents agree and 3 respondents neutral.

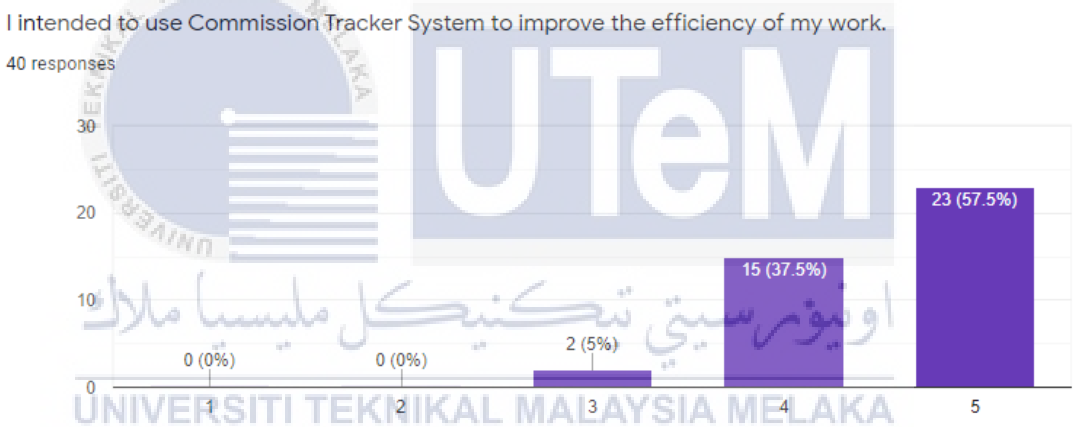


Figure 6.14 Bar Chart of Questionnaire Question

Figure 6.14 represent those 23 respondents strongly agree that they intended to use the system to improve the efficiency of their work while 15 respondents agree and 2 respondents neutral.

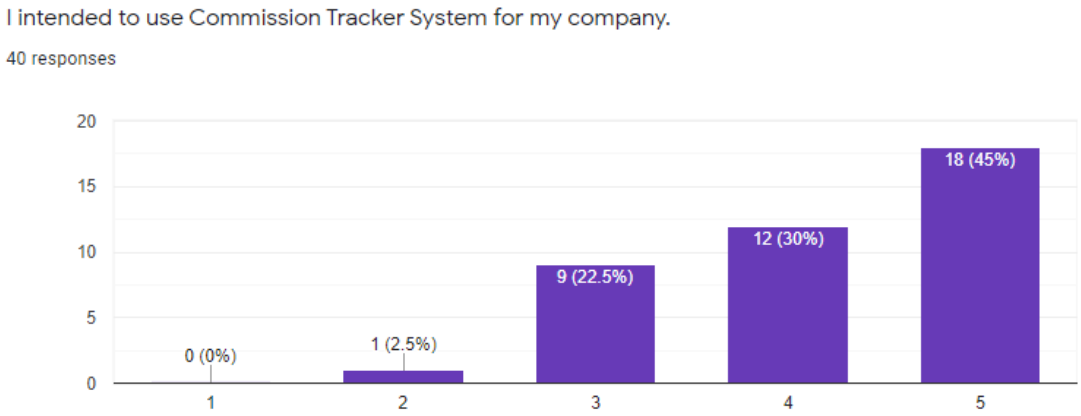


Figure 6.15 Bar Chart of Questionnaire Question

Figure 6.15 shows that 18 respondents strongly agree to use the system for their company while 12 respondents agree, 9 respondents neutral and 1 respondent disagree.

6.6 Conclusion

In conclusion, this section mostly describes about the technique used to test and verify the system to ensure that all requirements are met by the quality of the proposed system. Testing must be thoroughly planned because it can cost time consuming to fix some of the defects. The test plan includes several tests that examine different aspects of the system. The next section will discuss the conclusion of the project.

CHAPTER 7: PROJECT CONCLUSION

7.1 Introduction

This chapter concludes the entire project in terms of the weakness, strength, and improvements. It also explains the entire project in terms of opportunity for improvement and project contribution for the target user.

7.2 Observation on Weakness and Strengths

The observation on weakness and strength is important as we need to know the system capabilities. The weakness and strength will be further explained in the points below.

7.2.1 System Strengths

The strength of the Commission Tracker System is the system can calculate the commission of an agent automatically after the agent key in their customers. This will eliminate the task of the top management to calculate the commission manually hence gave the agent an opportunity to know their commission without need to contact the top management first. The report made for the sales will also be automatically calculated as soon as admin confirm the customer registered by the agents. Other than that, the strength of the system can also be shown at the part where agent can monitor their overriding agent sales to guide them getting better and improve the sales of the company. Announcement can also be made by the top management and agents for their overriding agents in case they wanted to make some announcement in improving or news about the company.

7.2.2 System Weaknesses

There are a lot of weakness can be seen through the development of the system such as this system can only works with the use of internet where it will significantly impact on people who did not have any internet connection. Next, the system also did not have a big hierarchy for the agents because currently overriding agents is set on the lowest hierarchy in the system. As an insurance company, it should have a big hierarchy where there should be more hierarchy as it is now. Other than that, the system is too dependent on the top management to make confirmation and registered agent where it will impact if the top management did not make the request as soon as possible. The system also comes with not really good interface design and there was no notification alert from the system if any request coming up.

7.3 Propositions for Improvement

There are a lot of improvement that can be made despite the completion of the system. Firstly, the hierarchy of the agents in the company need to improve to make more hierarchy in them. Next, this system can be implemented as mobile apps where it can be accessed by using handphone as the hand phone can be carried easier than a laptop. The design and interface of the system also need some improvement where it should be more interactive and user friendly by getting help from an experience designer regarding this insurance system. Other than that, the system should also made with a notification pop up so it will alert the user regarding any request made which can fasten the work done and improve the experience of the user.

7.4 Project Contribution

The system has a great potential to be used in an insurance company. With this system, top management as admin can monitor all the sales of their agents and made calculation and report automatically which will reduce the workloads. While for the agent and overriding agent, they can check their commission without the need to contact the top management and the agent can monitor their overriding agent regarding their sales. Furthermore, this system will store all of the records inside the database which will reduce the human error and usage of paper.

7.5 Conclusion

The Commission Tracker System was developed by taking 14 weeks to fulfills its objectives. The project purpose and requirement are being fulfill however the design should be improved. This system can be enhanced to be a complete and better system with the improvement made based on its weakness. However, it requires more time and people to enhance the system to be more efficient and complete.

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APPENDIX A

QUESTIONAIRE

Commission Tracker System

Commission Tracker System is a system that will help the management of a company in handling and managing the agents where top management can view and manage the reports of the sales made by the agents and the agents can keep track and manage their commission and customer based on the insurance package.

* Required

SECTION A

This section consists of three questions for respondent's basic information.

1. Gender *

Mark only one oval.

- Male
- Female

2. Age *

Mark only one oval.

- 18-29 years old
- 30-39 years old
- 40 years old and above

3. Do you have any experience as insurance company agent? *

Mark only one oval.

- Yes
- No

SECTION B

This section consists of five items need to be measured when using Commission Tracker System.

4. I find Commission Tracker System easy to use. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly agree

5. Interaction with Commission Tracker System is understandable and clear. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

6. Using Commission Tracker System enhances the effectiveness of my work. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

7. Using Commission Tracker System makes it easier to stay inform about the current sales and commission. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

8. I find Commission Tracker System functionalities will help me ease my work. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

9. Functionalities and capabilities of Commission Tracker System meets ideas and needs. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

10. I trust Commission Tracker System to handle the information and data of the user. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

11. It is pleasure for me to use the Commission Tracker System. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

12. I intended to use Commission Tracker System to improve the efficiency of my work. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

13. I intended to use Commission Tracker System for my company. *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree