SMART REMINDER

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BORANG PENGESAHAN STATUS TESIS*

JUDUL : SMART REMINDER

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SMART REMINDER

LAU JUN NING

This report is submitted in partial fulfilment of the requirements for the
Bachelor of Computer Science (Software Engineering)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2017

DECLARATION

I hereby declare that this project report entitled

SMART REMINDER

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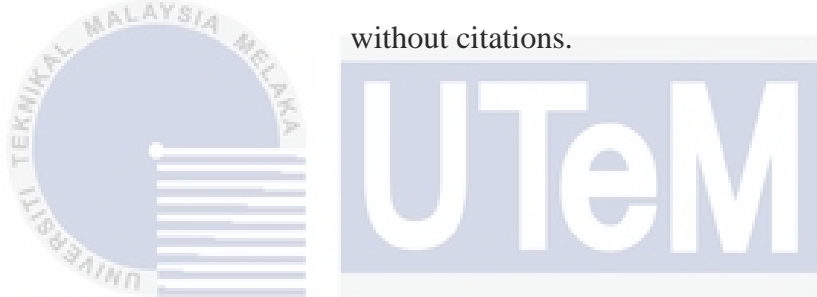
STUDENT   : _____   Date: _____

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SUPERVISOR   : _____   Date: _____

              (Mrs. Rosmiza Wahida Abdullah)

DEDICATION

This is dedicated to my beloved family, thank you very much for the unconditional supports with my studies. Thank you for giving me the chance to take my desired field of studies and provide me a chance to improve myself through the journey of my life.

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I would like to present my thanks and appreciation to Pn. Rosmiza Wahida Abdullah for giving assistants and advises throughout the whole semester to complete this project successfully. I have learned many things and gain a lot of knowledge under the guidance from her.

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ABSTRACT

Smart Reminder is a native android application system that design for people who are easily forget task had to be done. It allows user being reminded on specific time which the task had to be done on time. It is some sort of life hack application which can help you to keep your promise on some task and remind you so that user will never miss another deadline. Besides, the simple and powerful user interface will let the user experience being enjoy to use this application. By simply create a reminder for each deadline and this application will do the work for you, meetings, birthdays will not be missed again, daily reminders that helps to remind user to keep notified. Smart Reminder considered smart because of it's features which is able to process the data from message notification which identify the text whether it is date or time and then suggest user to set a reminder on that particular time or date. The objective of this development is to provide a reminder to help user to get organized and keep reminded with notification and able to help user experience on an easy and procedure heavy-free application. The methodology to build on this development is waterfall model, because of its clear requirements that allow stages can be implemented stage by stage that help to schedule the whole project for Smart Reminder. Smart Reminder is a simple but useful application due to reminder natural behaviour on settling human problem which have limited memory.

ABSTRAK

Smart Reminder adalah sistem aplikasi android asli yang direka untuk orang yang mudah lupa tugas harus dilakukan. Ia membolehkan pengguna diingatkan pada masa tertentu yang tugasnya perlu dilakukan tepat pada masanya. Ini adalah sejenis aplikasi yang boleh membantu anda untuk memastikan janji anda dalam beberapa tugas dan mengingatkan anda supaya pengguna tidak akan terlepas tarikh akhir yang lain. Selain itu, antara muka pengguna yang mudah dan berkuasa akan membolehkan pengalaman pengguna menikmati menggunakan aplikasi ini. Dengan hanya membuat peringatan untuk setiap tarikh akhir dan permohonan ini akan melakukan kerja untuk anda, mesyuarat, hari ulang tahun tidak akan dilewatkan lagi, peringatan harian yang membantu mengingatkan pengguna supaya diberitahu. Smart Reminder dianggap pintar kerana ia ciri yang mampu memproses data dari pemberitahuan mesej yang mengenal pasti teks sama ada tarikh atau masa dan kemudian menyarankan pengguna untuk menetapkan peringatan pada masa atau tarikh tertentu itu. Objektif pembangunan ini adalah untuk memberikan peringatan untuk membantu pengguna untuk teratur dan terus diingatkan dengan pemberitahuan dan dapat membantu pengalaman pengguna mengenai aplikasi mudah berat dan prosedur bebas berat. Metodologi untuk membina pembangunan ini adalah model air terjun, kerana keperluannya yang jelas yang membolehkan peringkat dapat dilaksanakan tahap demi tahap yang membantu menjadualkan seluruh projek untuk Pengingat Pintar. Smart Reminder adalah aplikasi yang mudah tetapi berguna kerana mengingatkan tingkah laku semula jadi untuk menyelesaikan masalah manusia yang mempunyai memori yang terhad

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CHAPTER I

INTRODUCTION

1.1 Introduction

This chapter will discuss about the idea of Smart Reminder application. Smart Reminder is one of the most significant apps and needed by human nowadays. Massive event or activity data information which are date and venue will not be able to be memorized perfectly by human. As the number of reviews and rating on reminder apps shows how important of reminder apps are. By building a smart reminder apps that is different with classic traditional task reminder apps, it helps change the way of living and making human life easier by inserting and Intelligent searching function into this reminder apps. Manually inserting data information on the task is not needed for this application because of the intelligence of this apps.

1.2 Project Background

Smart Reminder is a reminder tool to allow user manage his timetable more orderly. Hence, result in more quality work and efficiency of producing best result. Human tends to forget special occasions or simply normal task that will happen in the future. This reminder apps will solve the problem of setting up reminder every time with complex procedure manually. Smartphone had been one of the most important gadget in nowadays because of communication of information and between humans, multitasking is one of the most common things happen around us. But what if we got

plenty of task had to be done all the time? That's why the idea having Smart Reminder is to solve this problem which manually setup reminder for a task is too complex and time consuming. Besides, human may make mistake by miss out the task to be setup to be reminded, this apps may intelligently asked user whether want to set a reminder for the task or occasion. It is very easy to use and helpful to minimize human effort along the time.

1.3 Problem Statement

There are three problems statement had been identified which are:

1. User forgot the task should had been doing by the time at certain place.

   People with hectic life will forgot if he or she come across with plenty of event or task that had to be done in certain period. Even remember the date and time where the event was, people may forget the details of the event which is a disaster for business man.

2. Complex data inserting procedures that need control by users.

   Typical reminder apps require a lot of information being keyed in by users and messy UI will probably cause impatient and tired of using the apps.

3. User having problem of forgetting adding the task to the reminder list

   Reminder application typically would not suggest user to set a reminder for an event or occasion. This cause less efficiency of the product that users had to remind to set reminder, which is a big problem cause reminder apps tends to solve the problem remember to do something while users forgot to set reminder will result in ineffective of the product.

1.4   Objective

Objective of this project to be developed are:

- To create an alternative reminder apps that let the user easily being alarmed.

  People tend to be forgotten some of the task in daily life when they had hectic or busy working days. Mass information traffic on mobile communication apps were exchange while some of them were important occasions or events that must be attend on time. This application provides an alternative reminder apps besides than manually old fashion reminder apps.

- To create a reminder apps that are not complex in terms of graphics and functionality.

  Classic reminder apps require heavy and complex input from user in order to set a reminder on a specific task. Simple UI and user-friendly way of input method simplify the stressful and bored procedure.

- To create a reminder apps that will automatically add task into reminder list by after processing the related data inside smart phone and decide by itself.

  Even with reminder application installed in the smartphone, users may lose focus on specific chat group which maybe receive an event invitation but forgot to set a reminder for that event in the smartphone.

1.5   Scope

The project scopes are divided into two categories which are:

i.   Users

The user of this system application include people who have smartphones as a medium to control and monitor daily task and usually use communication application such as WhatsApp, Facebook Messenger as communication tools to get information on events to be attend.

ii.   Functionality

There are a few functionalities in Smart Reminder Application including set remind function for the task or event. It also has task calendar which user can monitor and manage the task that had to be done to be shown in smart calendar UI. Besides, it had on functionality that can categorized this reminder application onto Intelligence. That is Smart Reminder able to process mass data from the communication application and define the date or day or time which will suggest user whether want to set reminder for that action or the date.

1.6   Project Significance

This project may look not as significant as other applications but it eventually may help increase productivity of a person because of its intelligence behavior to simplify the messy procedure on setting up a reminder and without forgetting all of the task had to be done at a specific time. This product may reduce time on doing a thing compare with service provided by other reminder applications.

1.7   Expected Output

This application is able to set reminder on the smart phone for specific event or task without any effort in order to result being remind on time where the event is being held. This application also able to suggest users whether to set a reminder on a date, time or day by processed the information intelligently when information system about the key word being found.

1.8 Conclusion

Smart Reminder application can solve the problems and achieve the objectives in providing a reminding service on specific task in order to have task being remembered by the users. Users of this application also will be suggested to set a reminder on the day and time that event to be happened intelligently by this application itself if the user miss or forget to set a reminder for the action.
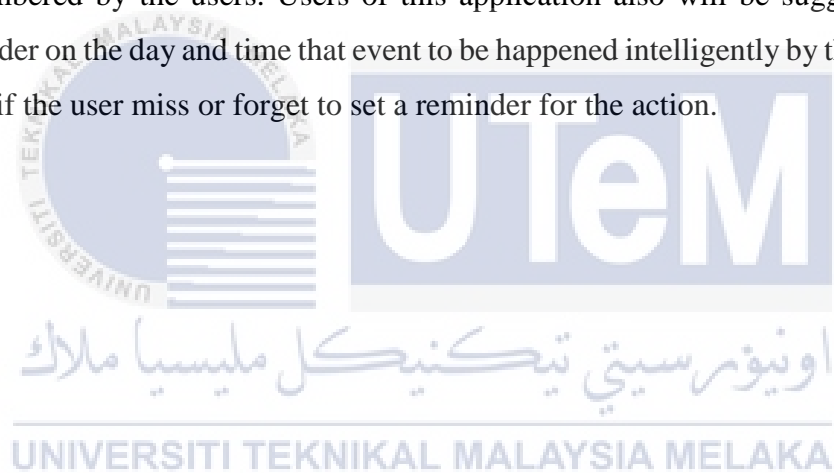
CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1   Introduction

From previous chapter, overall description of problem statements and objective of the project had been stated. The project will develop a reminder application to help user manage every important task without missing any event and get reminded on time and it must be intuitive to use and effortless while learn to use. In this chapter, literature review and methodology used to develop this project will be included. Besides, comparison with some of the reminder application occurred in the market are also in this chapter.

2.2   Facts and findings

This section is mainly focus on literature review on the technology will be used and the existing systems and the technique that has been done by pass researchers. For this project, many decisions on which technology and software were chosen based on certain research has been done.

2.2.1   Domain

Domain of the project will be discussed and literature review on the technology that evolved from scratch to the technology used will be included.

Domain for this project is to develop a mobile application that can helps those who are tends to be easily forgotten daily task. Historically, people remind themselves manually which means by taking a small notebook at his sides, and write down the task that should be done in following days or weeks. It does not say's that using small notes to remind is a wrong way but thinking to be more convenient if got a kind of application that helps do the reminding works without carrying pen or books were there to save human a lot of mess. As communication theory and technology been growing, innovation and invention of mobile phones change from basic mobile phones to smart phones. People define smart phones as a kind of smart devices that serve plenty of capabilities to meet huge needs and able to customized or specialized application to fulfil a user's computing and connectivity needs. Smart phones are all about connectivity, it does not set boundary on connecting one with another, it also connects user and the mobile phone together by having application or function that able to solve daily needs which eventually will connect surroundings to you just like a real assistant.

2.2.1.1 Smart

In this subsection, some findings about 'smart' with regard to Natural Language Processing were written. According to Oxford Dictionary (smart): Smart - (of a device) programmed so as to be capable of some independent action. Based on the definition stated, smart device is able to do some independent action or job in order to help human towards a better life. The device can be considered as intelligent agent where it takes action and mimics human action in problem solving. By only creating a notification by itself automatically sounds not as smart as it works, but with Natural Language Processing technology and algorithm, the device will work well as an intelligent agent. Chowdhury (2003), says that Natural Language Processing (NLP) is an area of research that explores how computers can be used to understand and manipulate natural language text to do useful things. NLP aim to gather knowledge on how human understand and use language so that appropriate tools and techniques can be developed to help computer understand what human natural language to perform desired tasks.

In 2001, Liddy stated that Natural Language Processing is a theoretically motivated range of
computational techniques for analysing and representing naturally occurring texts
at one or more levels of linguistic analysis for the purpose of achieving human-like
language processing for a range of tasks or applications. Which means NLP
technology able to understand what human language are by giving enough human
natural language sample by learning the pattern and structure of the sentences, it can
exploit the intention and entities of the sentences just like we human does. With that
information and intelligent which machine learnt, developers can make use of those
information and perform more detail task and help in developing many useful systems.

2.2.1.2 <u>Reminder application</u>

Reminder application is suitable for busy people or someone who tends to forget work
had to be finished. Writing them down on a piece of paper is troublesome and bad idea
because of keeping track on that piece of paper is hard. Reminder application supposed
to let user set and forgot the work and then get remind by this application when times
is up. The importance of this application is that attributes needed to remind such as
birthdays, anniversary, business meetings as well as simple gathering were able to
registered into reminder application where attending those events on time will reflect
the personalities and attitude of that user which are important from time to time. There
are wide range of field which reminder application can be working on, but usually
reminder application developed in mobile platform because reminder should be
personal, close to user anytime and event could be registered immediately. Android is
open source platform that provides service with information without collecting license
fees this make mobile application growth to become more user friendly and effective
variety of application. This aspect changes old fashion type of reminder application on
android. Although reminder application is just a simple application which function as
reminding people on the task and user after creating reminder for the daily task and
forget about them. Due to mass amount of reminder application available in apps store
or internet nowadays, details on the features of the reminder application become very
important. Social networking sites such as Facebook have reminder algorithm and
function but people still not satisfied with what social network can do that is why
reminder application on smart phones which able to ease out our memories are needed.

When software become more high level of complexity on its functionality, details will decide which are the winner is. Listing all upcoming events like Birthday, showing the list that user had registered, contact reminder system which function in user could directly select contact person from Contact List to set on that user has to send the reminder to. Of all the features that had been stated above, it only focused on one goal, which aim for easy to use, user friendly, accurate as well as precise and most importantly is automatic. Automatic features that mention here is like the attribute Contact reminder system. User do not have to manually type in the contact person detail and phone number of the person user want to send the reminder to, with Contact Reminder System, user can just tap on the contact person on the contact list showed up and the contact person will be registered into the list that user want to send the reminder to when times come.
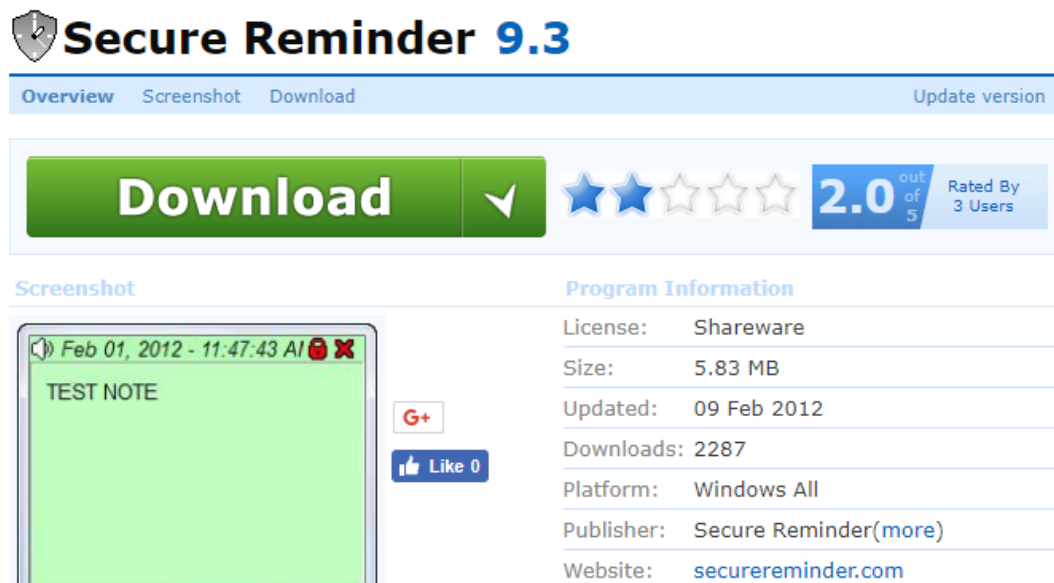
2.2.2   Existing System

Before continue on the next section, research on this domain has reveal three existing systems has been studied. These three reminder applications are Secure Reminder, Life Reminder and Reminder. Three of them are reminder application that occur in the market. So, comparison between will be made among of them.

Figure 2.2.2.1: Screenshot of Secure Reminder

1) Secure Reminder

Secure Reminder is a desktop software and scheduler program for Windows. It is an advanced Reminder application that helps someone organize their life into order. Secure reminder remind user on daily task until special dates or events such as birthday or anniversary before they occur. Secure reminder provide service as task and event scheduler, personal information organizer and password generator. Main features of this application software are that this reminder store and manage information quickly in a safe and secure environment and it's search features also one of the highlight.
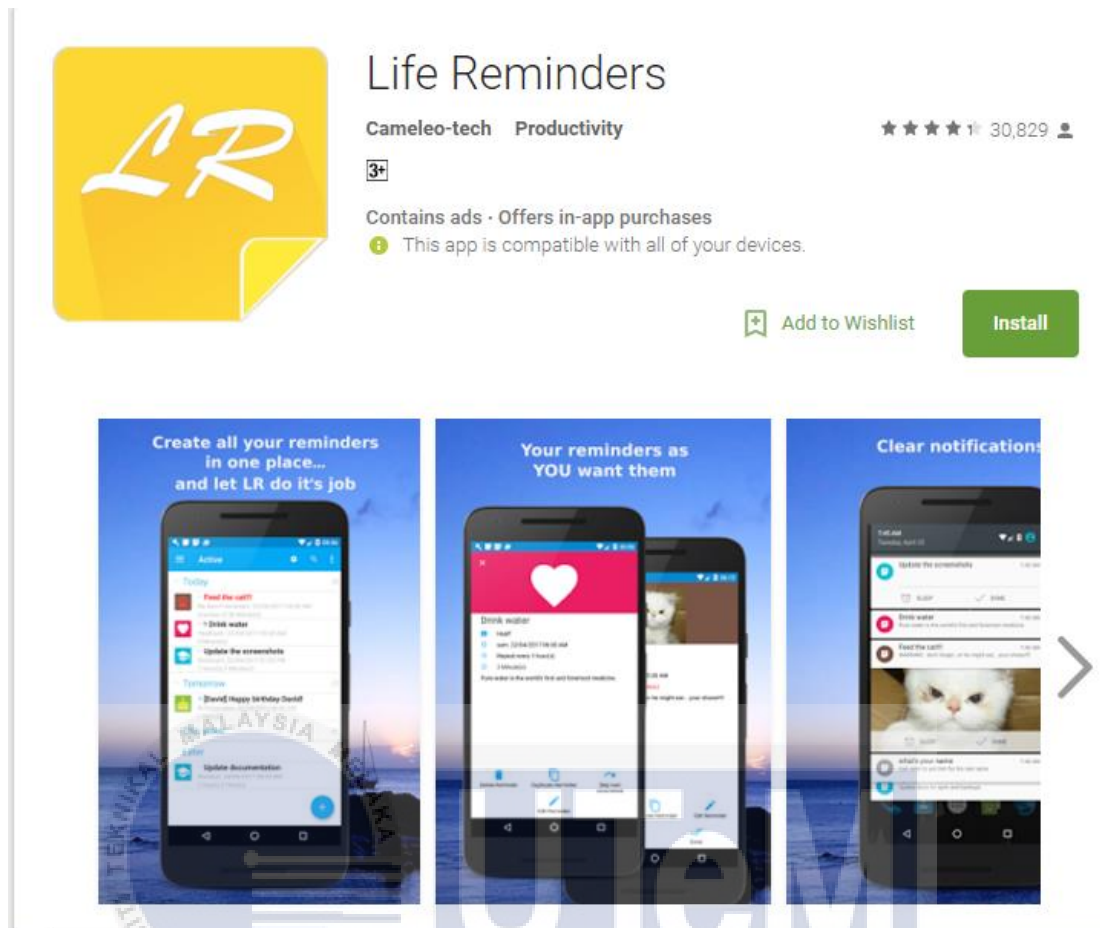
Figure 2.2.2.2: Screenshot of Life Reminders

2) Life Reminders

Life Reminders basically is a classic mobile reminder application that reminds something on specific given time. User can create and forget the task or events but when time comes, it confirmed that user will be reminded by it. The advantage of this application over other application is that the tiny little features service provided by this application makes it so fun and hook on to use it. There are 7 languages available for this application and the features such as theme skin was available for user in order to provide more satisfy user interface and may choose by customer. Besides, sending SMS and Email of that particular event when time comes were only basic functionality of this great application and furthermore is that it able to customize this reminder application based on user needs that make this application software great.
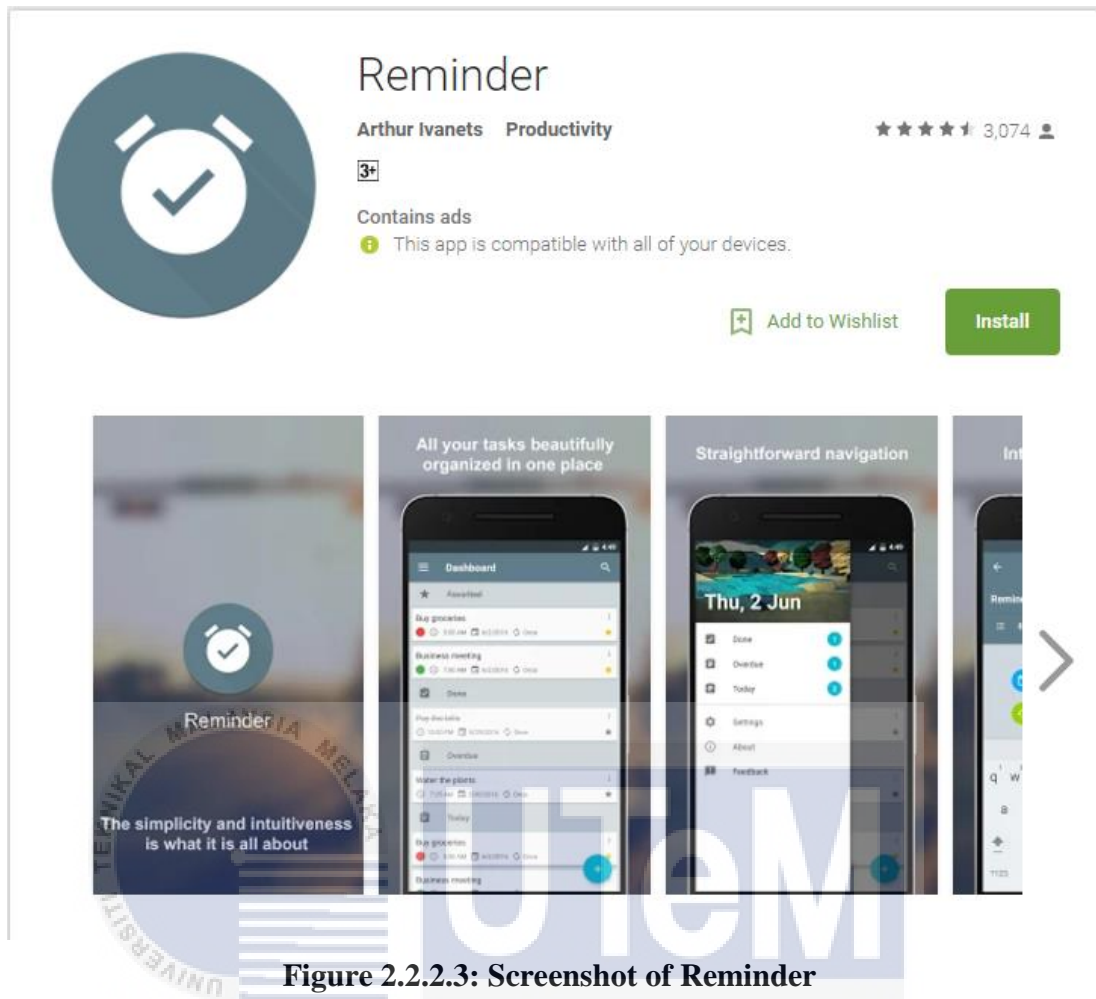
Figure 2.2.2.3: Screenshot of Reminder

3) Reminder

Reminder is an android application which extends reminder application back to simple and intuitive application. Production team focus on simplicity which some of the user love it, because of all the task customer registered was beautifully placed and organized in a proper manner at a place. Besides, simple but important functionality with straight forward navigation in this application with gorgeous theme helps user to stay organized with getting your things done in time. Deadlines, meetings, birthday, Bill paying, Medication reminding was part of the event could be scheduled in this application.

2.2.3 Technique

There are two techniques being used in developing the project.

2.2.3.1 Native Android Technique

Android application development techniques are mobile application are coded in a IDE which is java language based. There are some studies stated that Android mobile programming techniques that need to implemented some features which are social medias update and accessing API's. Besides, no boundaries and open source also one of the benefit using this technique to develop an application since this platform were accepted. By defining the features to develop a mobile android application, the features must be utilized since android programming were easy to adopt which help with rich set of libraries and API. Everyone can build android application with the knowledge of Java and it is easy to integrate with its behavior which is easy for customization. It can be customized based on the business need or personal needs and most importantly it is open sourced and free.

2.2.3.2 Wit.Ai Bot Engine

There are several bot engines available in the internet such as api.ai. Wit.Ai is chosen because of several factors. First, Wit.ai contain powerful machine learning algorithm it has huge communities that able to share the data sampling for the machine to learn. Although it may be time consuming training the machine with plenty of examples but in the end, this bot able to works well and define the intent of the conversation.

Wit.ai relies on machine learning and rules-based system, and one of the rules-based system is call Ducklings. It is an open sourced probabilistic parser to detect entities such as dates and times. This technology can help the machine understand what natural human language is meant. Next, by having the intent and entities provided by Wit.ai, many helpful function or development process could be carry out.

2.3 Project Methodology

This project uses Waterfall Methodology as research method, this model software development lifecycle has fixed phases and specific deliverables. With this model, phases and stages had to be done one at a time only in order to carry on to another phase. After each phase, review is conducted to determine project develop in the right or wrong path. The reason choosing Waterfall Model is that it is easy to use, understand and simple.

The sequential phases in Waterfall model are:

- Requirement Gathering and analysis: All possible requirements of Smart Reminder application to be developed are define in this stage and documented in a requirement specification document. This stage collects all the information and the requirements in developing this project and analysis the flow of project and what the project can do. The requirements for this project includes creating reminder on a specific task, scanning on specific words to work and interpret on, notify user or remind user when the time comes.

- System Design: The requirement specifications from first phase are studied in this phase and system design is prepared for next phase. System Design helps in specifying hardware requirements such as which API of android should be used to develop this application and also lock on the system architecture in overall picture. The graphical user interface design is prepared and for the system requirements are using Android Studio as IDE. Accessibility and security of the system also will be addressed in this stage.

- Implementation: With information gathered from system design, the system is first developed in small programs stated in the design specification which are many parts of functionalities of Smart Reminder such as creating a reminder, register the event as a task, auto check on the potential event happening and etc. All of the product design specification is integrated in the next phase. Each unit is developed and tested for its functionality which is referred to as Unit Testing. Coding started in this phase. With all the

information gathered, using Java programming language, starting to develop the project.

- Integration and Testing: All the units developed in the implementation phase are combine together into a system after testing of each unit. By testing each unit of component before integrated is named as Unit Testing which this testing is to ensure that they are error free and fully meet the requirement of the Smart Reminder requirement outlined. After each component or functionalities are tested without defects or reach the satisfy level of the requirement stated earlier, all the components will integrate together and system testing will take place. Most important thing in this system testing is to ensure each unit can function well after integrated together. After the project is done by part to part, functional and non-functional testing will be carry out in this phase and solve any errors if found. If any defects are found, review on the current system and logged and feedback will be constructed and enable correction on what's wrong on the reminder application.

- Deployment of system: Once the system product has been tested and verified as good for use, the project product will step into the market. Project is ready to deploy in consumer mobile phone and product of the project is ready to use.

- Maintenance: After deploying to the market after installation on customer devices, this stage take place and involves making modifications to the system to improve the current system. There will have some issues come up in the client environment and to fix those issues, modifications occur by delivering those changes in the customer environment. Defects will be uncovered during live use of the system by customer, so every change made to the product will recorded, new versions are released after changes are made and exhibiting as an updated version of product to enable customer gain benefit for the update version in the future.

2.4　Project Requirements

In this section will discuss about the software and hardware requirement needed in developing the system.

2.4.1　Software Requirements

Software requirement are crucial for a mobile application. In this project, software that are needed are Windows OS, Android Studio 2.2, SQLite Database, Android Emulator and server.

Name	Description
Windows OS	Operating system
Android Studio 2.2	Development tool
WampServer	Windows web development environment to connect on web service.
SQLite database	Used to store application data.
Android Emulator	Tool to open and test on the application.

Table 2.4.1: Software Requirement

2.4.2　Hardware Requirement

Table 3 introduces the requirement of hardware for this project.

Hardware	Minimum requirement
Computer/Laptop	1.60 GHz or faster processor. 8GB RAM 8GB Installation Size
Android Smartphones	Android 5.0 or above

Table 2.4.2: Hardware Requirement

2.5 Project Schedule and Milestones

Project schedule and milestone is used for show the task allocated in different time frame during development stage and used to measure project progress. Gantt Chart is used to as a tool to represent project schedule.

2.5.1 Gantt Chart

		Task Name	Start	Finish	Duration	Feb 2017	Mar 2017	Apr 2017	May 2017
1		Smart Reminder Project	13-Feb-17	25-May-17	74d				
2		1. Requirement Gathering and Analysis	13-Feb-17	24-Feb-17	10d				
3	•	Requirement specification	13-Feb-17	15-Feb-17	3d				
4	•	Analysis on project flow	16-Feb-17	17-Feb-17	2d				
5	•	Project Test Plan	20-Feb-17	21-Feb-17	2d				
6	•	Manage project requirement changes	22-Feb-17	23-Feb-17	2d				
7	•	Refine System Definition	24-Feb-17	24-Feb-17	1d				
8		2. System Design	27-Feb-17	27-Mar-17	21d				
9	•	Prototype User Interface	27-Feb-17	02-Mar-17	4d				
10	•	Study and refine software requirement	03-Mar-17	08-Mar-17	4d				
11	•	Design Architecture	09-Mar-17	16-Mar-17	6d				
12	•	Structure Implementation Modules	17-Mar-17	23-Mar-17	5d				
13	•	Design Database	24-Mar-17	27-Mar-17	2d				
14		3. Implementation	28-Mar-17	06-Apr-17	7d				
15	•	Set Up development environment	28-Mar-17	31-Mar-17	3d				
16	•	Implement Modules	31-Mar-17	06-Apr-17	4d				
17		4. Integration and Testing	06-Apr-17	02-May-17	18d				
18	•	Integrate and test modules	06-Apr-17	17-Apr-17	7d				
19	•	Improve test modules	17-Apr-17	26-Apr-17	7d				
20	•	Fixed modules with bugs and review on the modules	26-Apr-17	02-May-17	4d				
21		5. Deployment of system	02-May-17	11-May-17	7d				
22	•	Prepare and procedures for deployment	02-May-17	04-May-17	2d				
23	•	Product deployment	04-May-17	09-May-17	3d				
24	•	Review on the deployment phase	09-May-17	11-May-17	2d				
25		6. Maintenance	12-May-17	25-May-17	10d				
26	•	Regular Updating and Fix	12-May-17	18-May-17	5d				
27	•	Fixed all the bugs found in testing and in deployment phase	19-May-17	25-May-17	5d				

Figure 2.5.1: Milestone of Smart Reminder project

2.6   Conclusion

In conclusion, this chapter focus on literature review, methodology, existing system and techniques used in this project. Waterfall methodology has been used in building this project. By study research of previous studies within existing research report, it helps to prevent effort duplication and making same mistakes as them. All of the elements inside this chapter are crucial in developing a successful project.

CHAPTER III

ANALYSIS

3.1 Introduction

This section will discuss about analysis of this project and how it will be developed. Analysis on the problem facing by existing reminder system and find the correct path to the requirement development when anything goes wrong can be define by undergo analysis on the project or the system. It will focus on the requirement derived from the analysis of the problem in contain in detail.

3.2 Problem Analysis

In order to give user a better user experience on using reminder application, problem analysis should be carry out and find out the problems happen behind. First, rough flow of application used to gather user input was a mess that will cause user difficult to understand what to type in for the application in order to create a reminder on a particular task. This will lead to user having bad experience and eventually stop using the application. Next, a reminder usually created by gathering user input such as the date and time and the content of the task to be reminded. Lack of automated action that gather the information of the particular task that should be remind on the user and create the reminder itself. Lacking of this features means require a lot of user effort to key in data in order to set one particular reminder. User may lose his sight on the particular task that had to be reminded if there are plenty of data should be key in.

3.3   Requirement Analysis

In the previous chapter, some problem statement had been listed out. This section will introduce the requirement analysis of the project, includes data requirement, functional requirement and non-functional requirements. With Smart Reminder system, user only need to start the application and from the messaging content, system will read and analyze itself whether it is useful and decide to create a reminder action for the particular event.

3.3.1   Data Requirement

In this project, the system developed with only one database and one table to store all the information of the reminder task created. Which means when user key in the information to create the reminder, the data will be stored into the database table. When the reminder task had been removed or deleted by the user, the data or information of the particular reminder task will be deleted from the database as well. The table include all the information such as content, title, color, icon and etc.

3.3.2   Functional Requirement

This section describes all the functional requirements of the system. The functional requirements are defined and classified in below table. A use case diagram is provided as well.
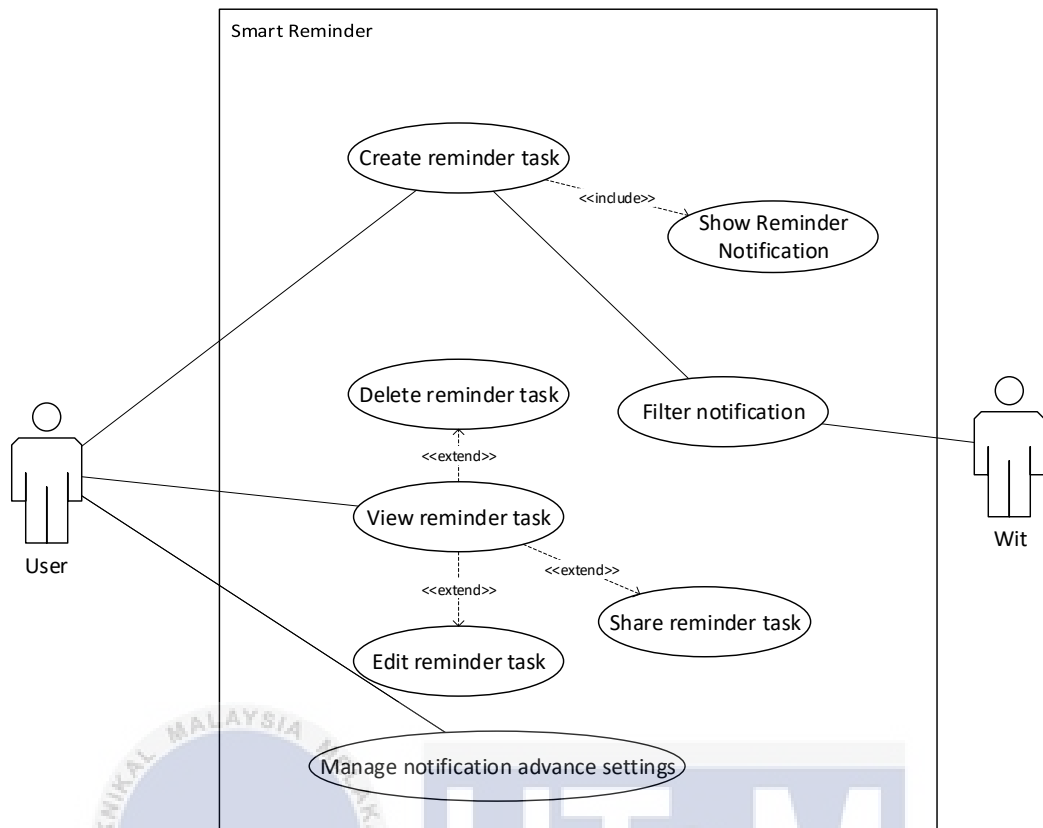
Figure 3.3.2: Use case diagram if Smart Reminder

Functional ID	Functional Requirement	Description
TC1	Create reminder task	System may fill in reminder information through typing or key in by user.
TC2	Delete reminder task	System should able to let user delete the reminder and reminder data in the SQLite database and ask for confirmation before deletion.
TC3	Edit reminder task	User should be able to update reminder task in the SQLite database and allow modification on the reminder task information.

TC4	Show Reminder Notification	Notification should be able to push to the user device at the requested time and can be shown without information error.
TC5	Share Reminder Task	System able to share the reminder task through Facebook or messaging in order to keep the event contact with the related person.
TC6	Manage notification advance settings	User should be able to pick and save the choices of the preferences that the push notification user had chosen to be reminded of.
TC7	Filter Notification	System should create and store the information of the reminder event into database after filtering the message content from the push notification user received.
TC8	View Reminder Task	System shall show all the reminder task in order following date and the interface should arrange in their position align to each other.

Table 3.3.2.1: Functional Requirement

3.3.3   Non-Functional Requirements

This section describes all the non-requirements of Smart Reminder. The table below shows the list of non-functional requirements and the descriptions of it.

Non-Functional Requirement	Description
Good performance and fast response time	After user done on the edit preferences of the notification or edit the information of the reminder task, it must be updated in small amount of time to provide fluent flow of the application.
Good usability and easy to understand	The system should be well designed to let user be able to learn and understand how it works and perform in no time even the system used only once by user.
User friendly	The system shall complete executing without error.

Table 3.3.3.2: Non-Functional Requirement

3.4   Conclusion

This chapter concludes with the analysis of the problem stated in previous chapter and produce some requirements to develop on this system which covers mainly on functional and non-functional requirements. In analysis stage, developers gather all the important project requirements and decides what and how should be the system developed in upcoming stage and all the requirements mentioned above determine the completability of the system in the future in terms of its usability and satisfaction of user experience.

CHAPTER IV

DESIGN

4.1 Introduction

In this section, it will focus on discussing the overall system architecture for the project and the graphical user interface for the whole system. The chapter begins with introduction of high level design and system architecture. User interface and the detail design of it also included in this chapter.

4.2 High-Level Design

Since there are only one table in this project, this section will only include System Architecture, user interface design and entity relationship diagram.
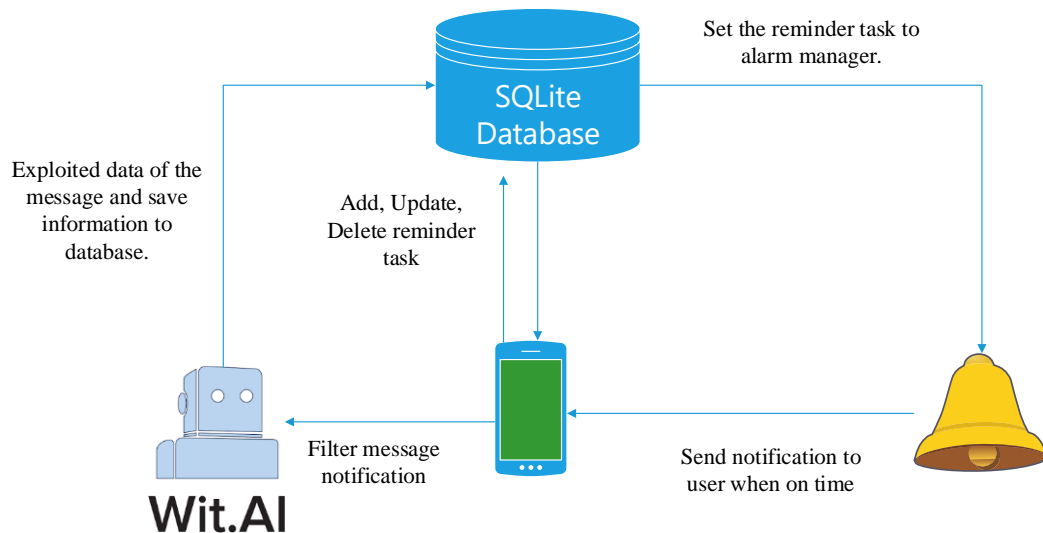
4.2.1 System Architecture

Figure 4.2.1: System Architecture for Smart Reminder

Smart Reminder is a system all about improving user experience on creating a reminder task in order to notify user when times come and increase the effectiveness of the system as well. This system was developed with Android Studio and the functionality of this system will focus on helping user to create or set a reminder on a specific task as easy as possible.

The system contains several functions, which are add, update and delete on the reminder that had been created. Add reminder function will act as creating reminders on specific events with users key in the detail information about the event and able to choose color or icon of the particular notification of the reminder, where update option will allow user modify the information of the existing reminder task and able to save it inside the database that changes was made while for delete function system allow user delete the reminder and the detail information of the reminder is removed from database and cannot be restored.

Besides, user can choose preferences on how notification pattern and alarm manager works when the reminder task being reminded on the user. There are some choices such as vibration or flick with light when notification occur on the specific reminder or adding some side action which mark as done from the notification bar straight forward or set some time interval for snoozing action for the particular notification. Once the user clicked on the notification inside the notification bar, user

will be lead to the detail page of the notification reminder which shows the information of the reminder that just reminded user. From that page, user may choose to delete the reminder task or edit it as a new reminder was also a choice for the user to pick on.

Lastly, there are another functionality in this system which is automated adding reminder task after filtering the message content received by user. The system having a AI engine which will filter the intent of the message decide whether the content inside the message is worth or important for the user and check for the date or time for the particular message and if the exploitation of the action and intent of the message is successful, then the system will automatically create a reminder on that event.

4.2.2   User Interface Design

Figure 4.2.2.1: Homepage view

This two interface was the user interface of the home page of the system. Figure of the left side was showing the active notification of this system where figure on the right side was the page that view the list of the inactive notification. When user firstly run the application, system will show the active notification view at first with a scrollbar

which user able to scroll to left side with navigation to reach to the inactive notification view.
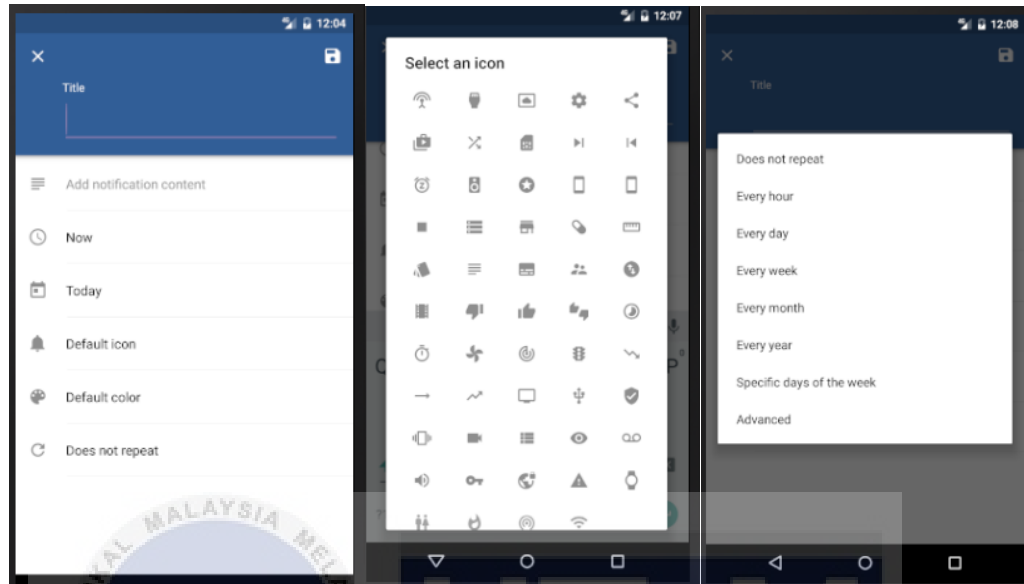

Figure 4.2.2.2: Create reminder task page

Figure 4.2.2.2 shows when in homepage, user click on the floating action button which had a symbol "plus" on it, it will triggered create reminder action and lead user to create reminder page. Figure at the left side shows the default create reminder page view, where there are simple and ordered form to let user key in the detail of the event to be reminded. Data and time picker was integrated inside the button Now and Today while color picker also used to enhance the user experience of this system. Figure on the middle shows what it looks like when users tap on the icon row while figure on the right show the option can be choose for advanced option on the behavior of the notification.
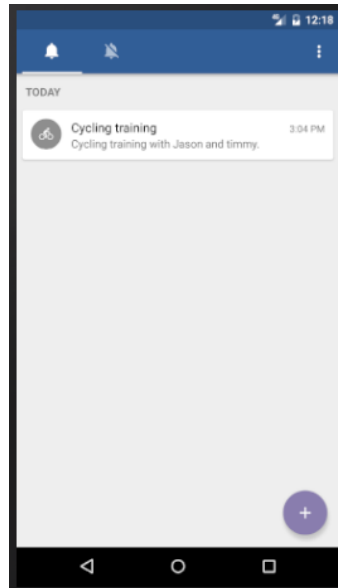
Figure 4.2.2.3: Homepage after creating reminder

After click on the icon on the top right side in the view, information of the reminder will be save into database and show the active notification on the homepage active notification list.

Figure 4.2.2.4: View detail notification page

When user click on the notification reminder task in the homepage, system shows the view of the detail information of that particular reminder. User can choose to edit, delete and more settings which include "Share" and "Mark as Done" option.
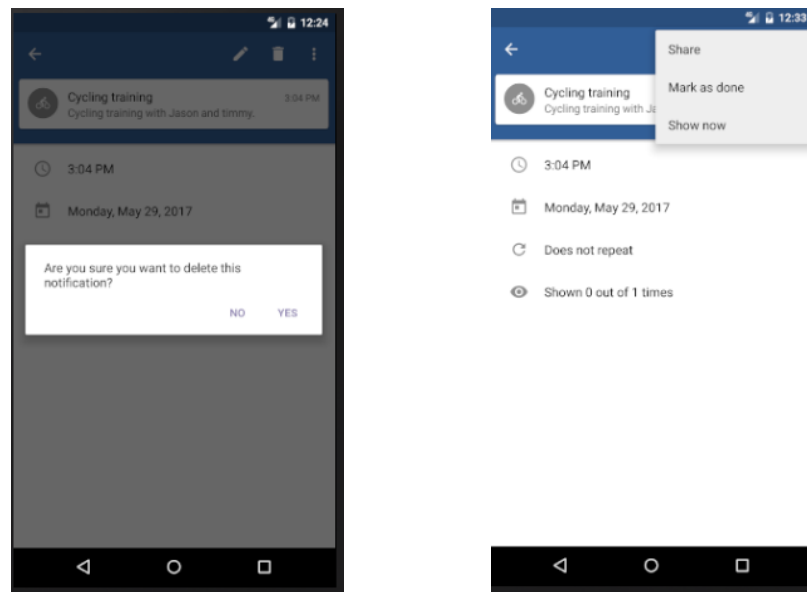
Figure 4.2.2.5: View detail notification page

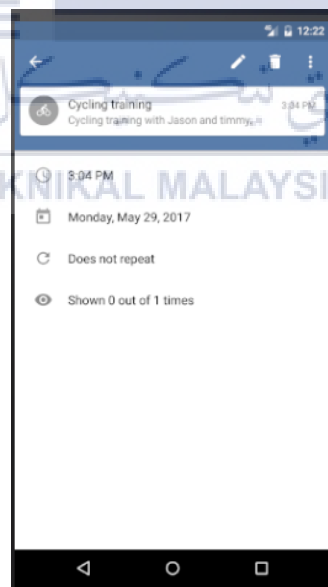From Figure 4.2.2.4, if user click on rubbish bin icon which indicates delete action, system will show confirmation message that ask user sure about the remove action on that notification. If user click on more icon, system will show the list of more option which Share button can function to share this notification reminder to any person user would like to share with through Facebook or other messaging platform and even SMS while Mark as Done button function like what had been stated there that this active notification will move to inactive notification and will not be remind user since it categorized in inactive notification.
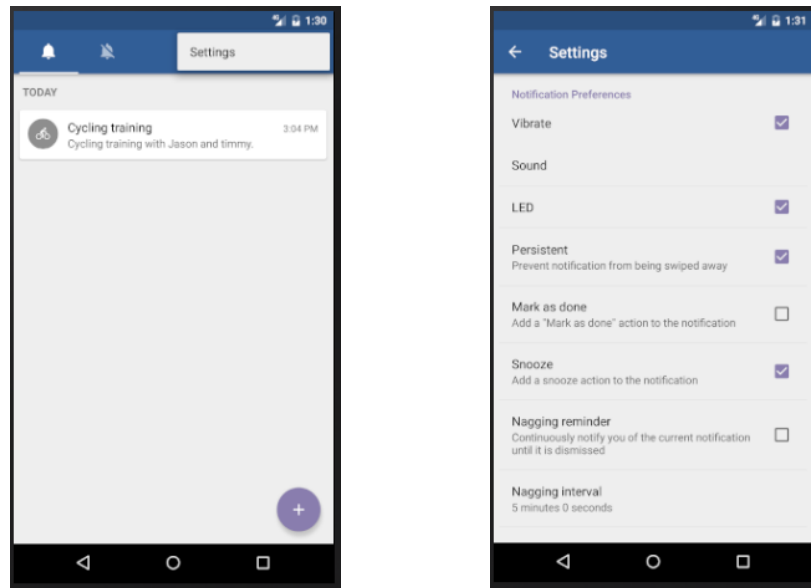
Figure 4.2.2.6: Setting configuration page

From figure 4.2.2.1, if user click on the three dots icon, system will show settings option and user may choose the preferences that user was more favor with. Checkbox interface was used for each option due to system only need yes or no for the features of the notification that will remind user.
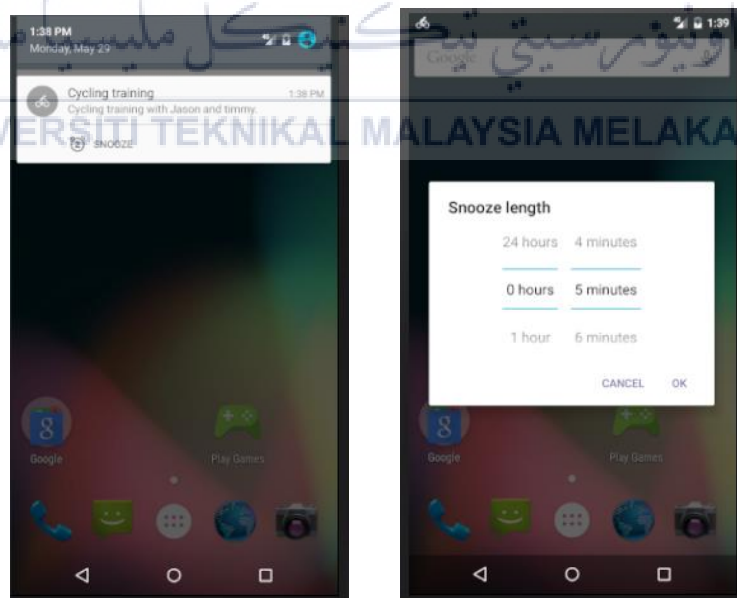
Figure 4.2.2.7: Notification occurs

In figure 4.2.2.7 shows that when notification occur when the time that set by user were reach. If user click on snooze button show in the notification, a dialog will jump out and ask for snooze length to take action.

4.2.3 Entity Relationship Diagram (ERD)
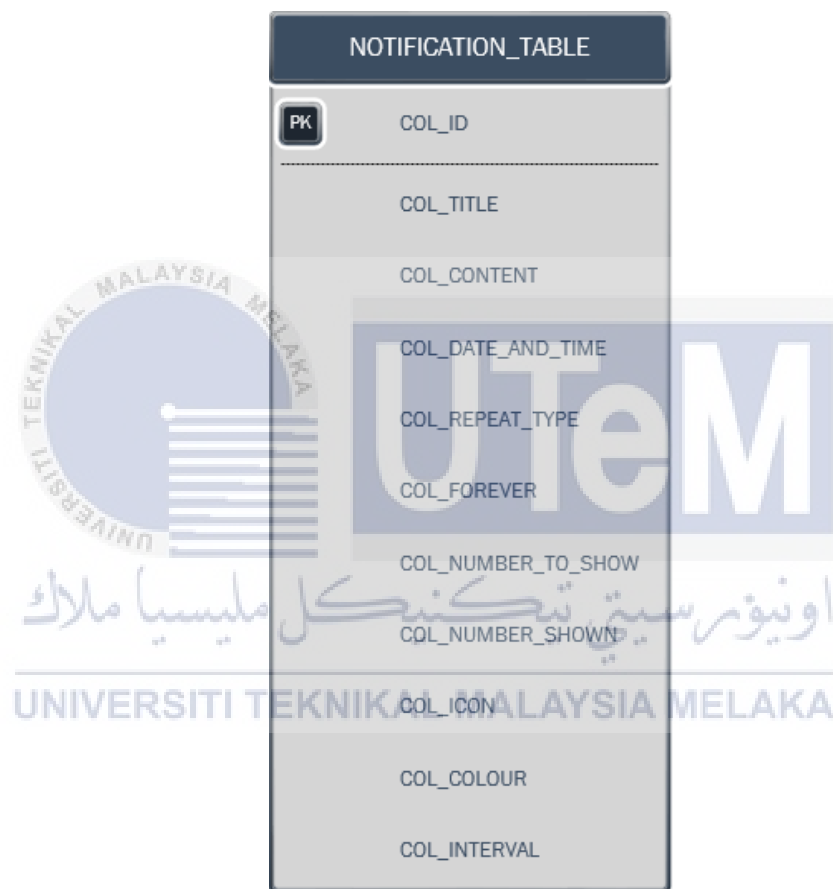
Figure 4.2.3: Entity Relationship Diagram for Smart Reminder

4.3 Detailed Design

This section describes all the table and its design structure for Smart Reminder.

4.3.1 Software Design

In this part, Sequence Diagram will be prepared to show the detail of every function and it sequence when running.

Figure 4.3.1.1: Sequence Diagram for Functional ID TC1

Above figure shows the flow of the process when functional requirement Create Reminder is running.
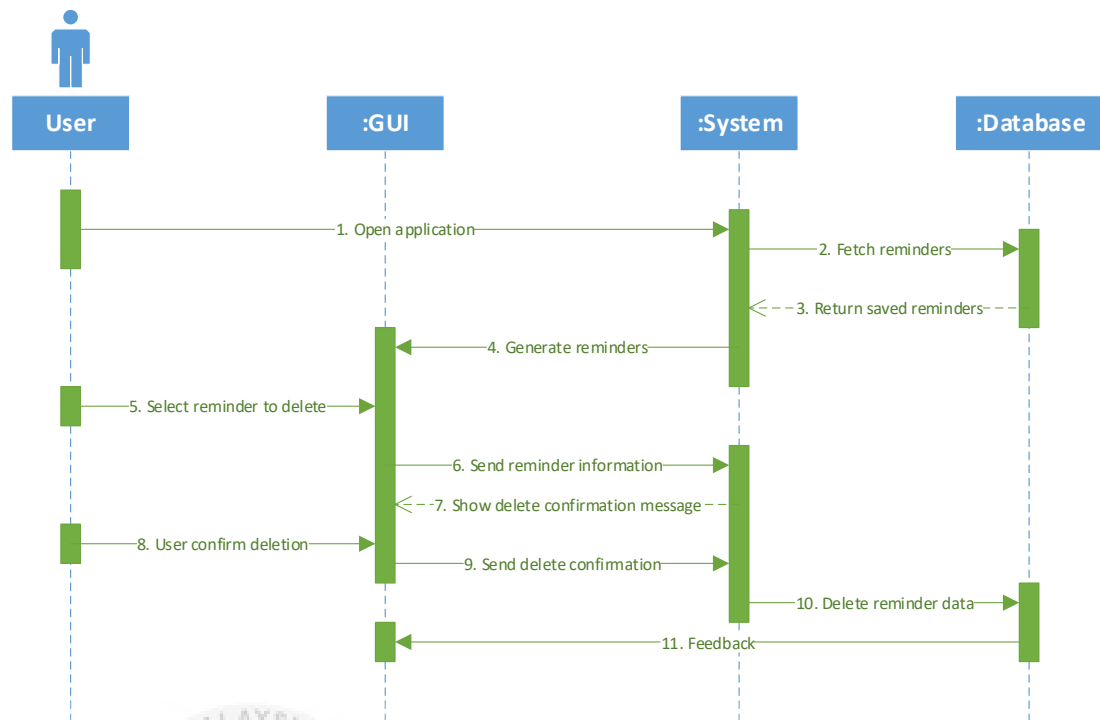
Figure 4.3.1.2: Sequence Diagram for Functional ID TC2

Above figure shows the flow of the process when functional requirement Delete Reminder is running.
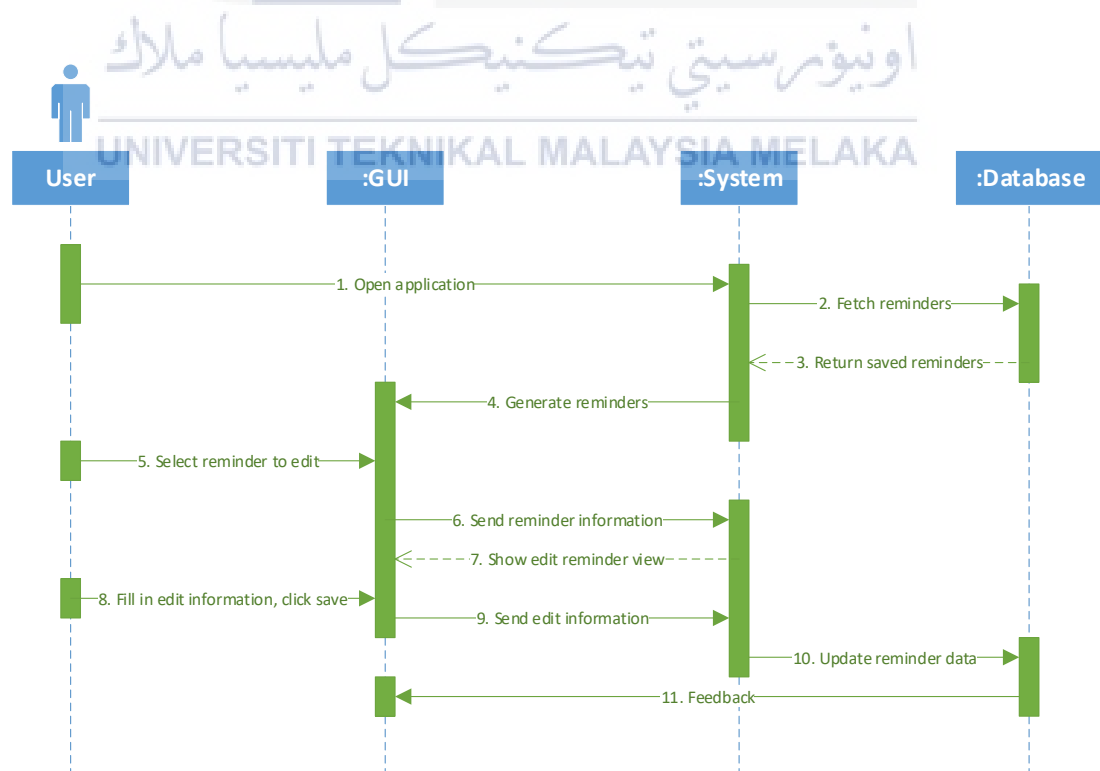
Figure 4.3.1.3: Sequence Diagram for Functional ID TC3

Above figure shows the flow of the process when functional requirement Edit Reminder is running.
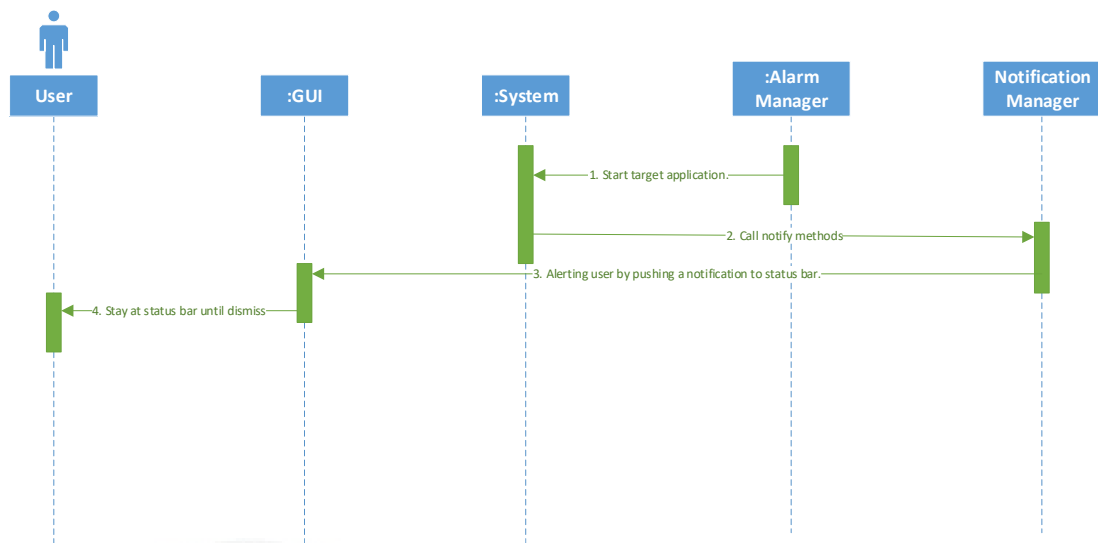
Figure 4.3.1.4: Sequence Diagram for Functional ID TC4

Above figure shows the flow of the process when functional requirement Show Reminder Notification is running.
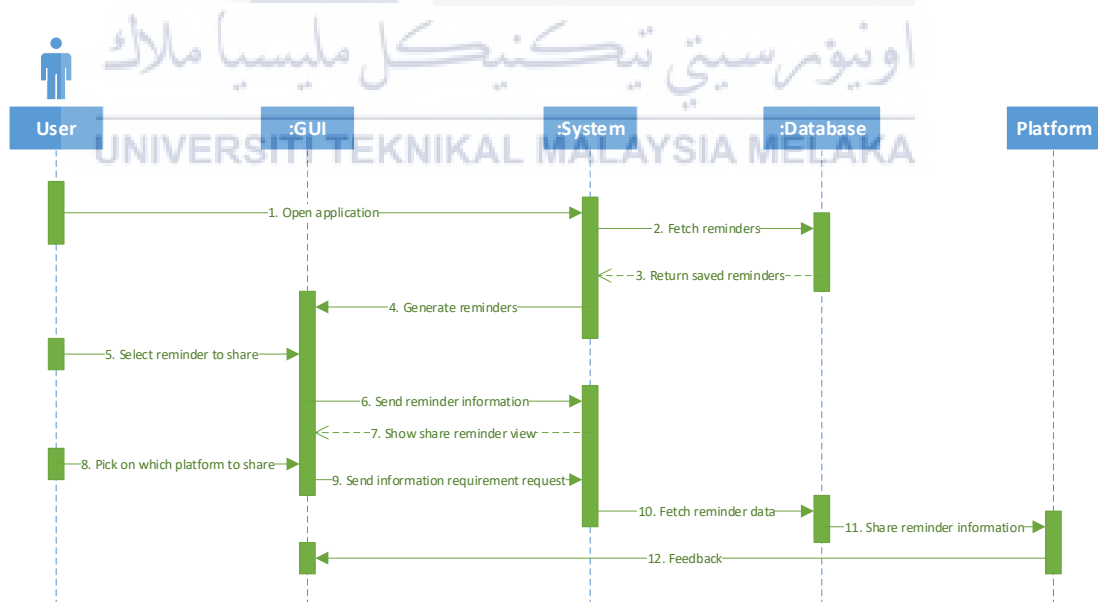
Figure 4.3.1.5: Sequence Diagram for Functional ID TC5

Above figure shows the flow of the process when functional requirement Share Reminder Task is running.
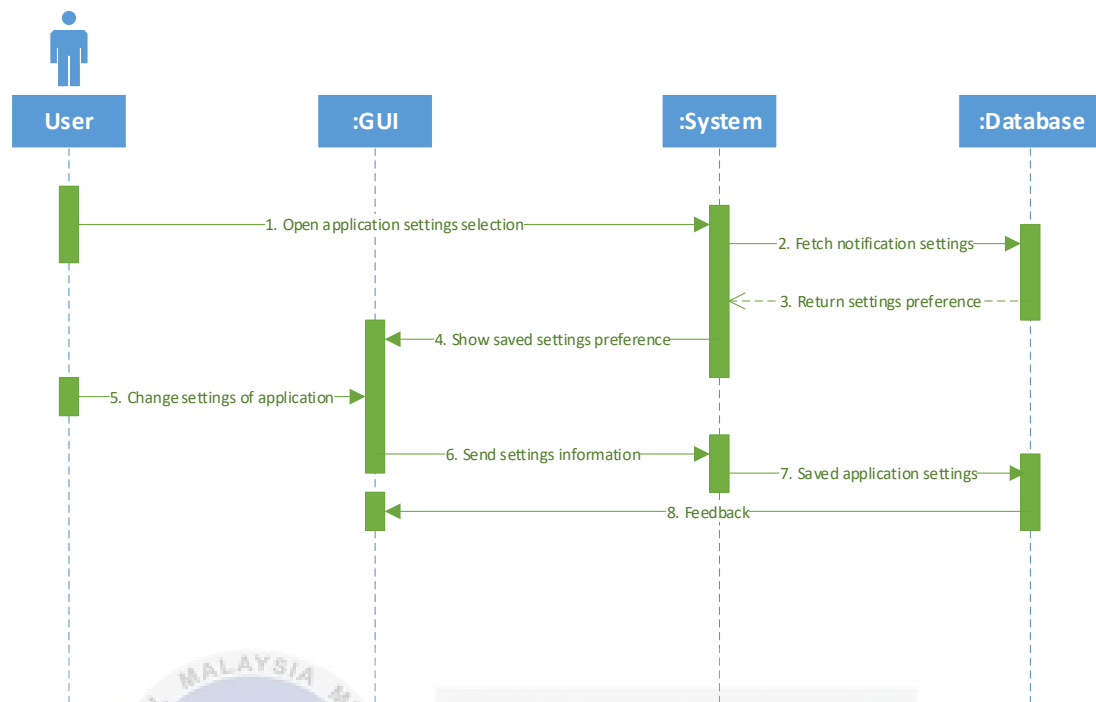
Figure 4.3.1.6: Sequence Diagram for Functional ID TC6

Above figure shows the flow of the process when functional requirement Manage Notification Advance Settings is running.
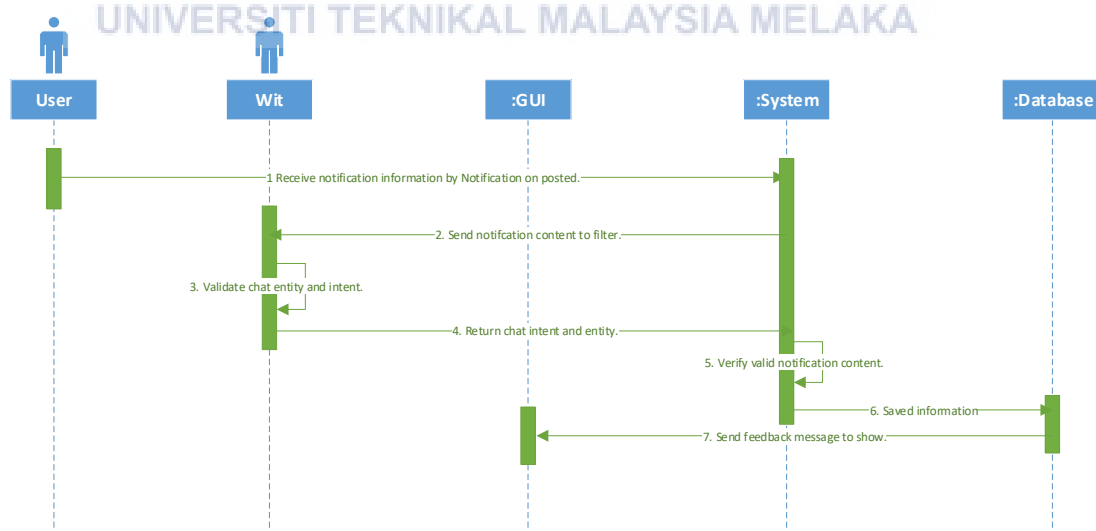
Figure 4.3.1.7: Sequence Diagram for Functional ID TC7

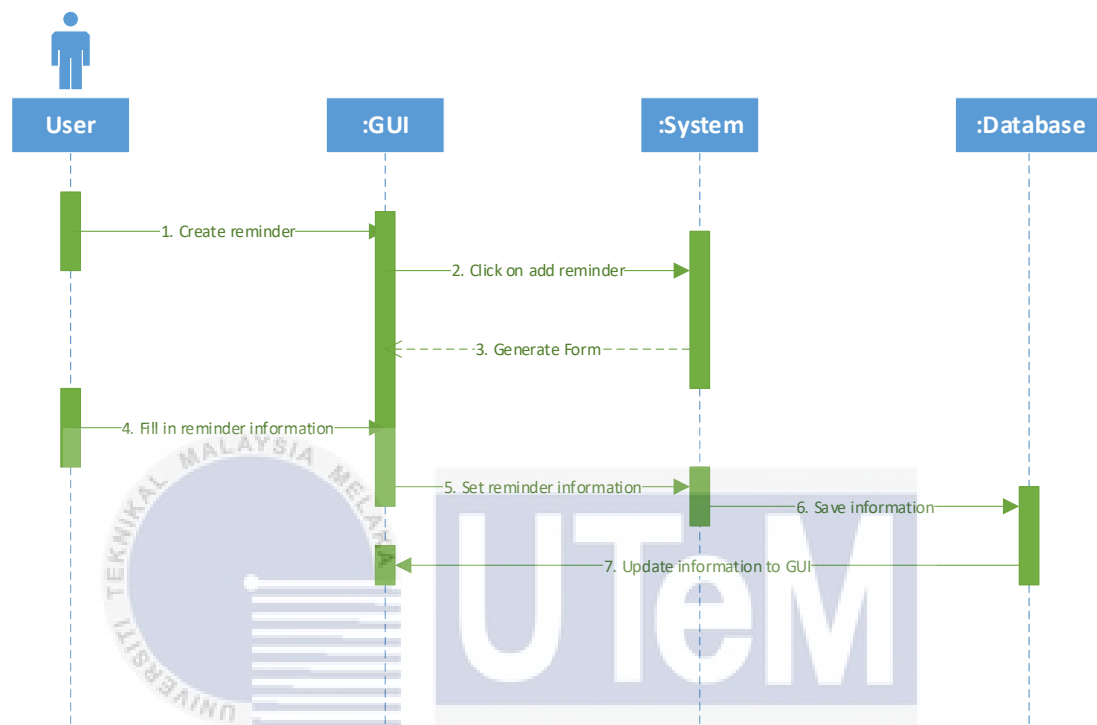Above figure shows the flow of the process when functional requirement Filter Notification is running.
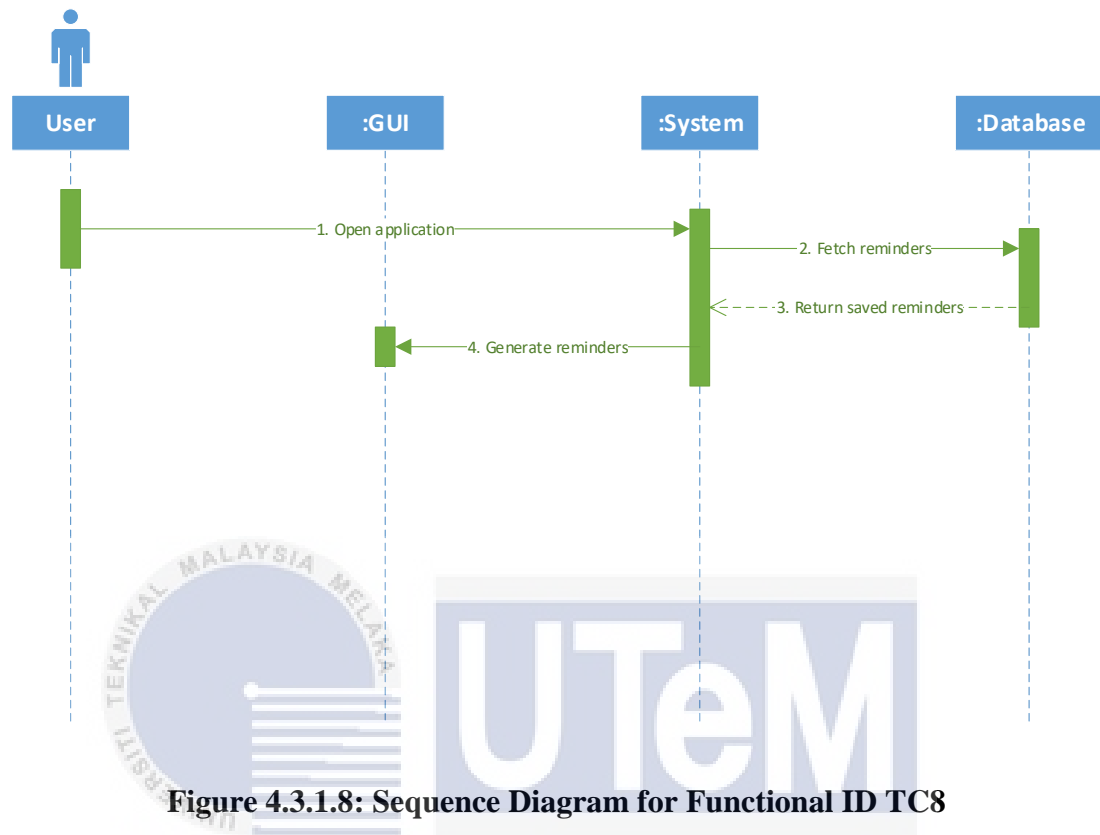
Figure 4.3.1.8: Sequence Diagram for Functional ID TC8

Above figure shows the flow of the process when functional requirement View Reminder Task is running.

4.3.2 Physical Database Design

Name   :   NOTIFICATION_TABLE

Description   :   Table 1 stores the details of the notification.

Attributes/Fields   :

Field Name	Description	Type	Required	PK @ FK
COL_ID	Id for the notification	INTEGER	Y	PK

COL_TITLE	Notification title	TEXT	Y	-
COL_CONTENT	Notification content	TEXT	N	-
COL_DATE_AND_TIME	Date and time for the notification to occur	INTEGER	Y	
COL_REPEAT_TYPE	Notification repeat type	INTEGER	Y	
COL_FOREVER	Notification advanced settings which allow user to choose whether to set notification as forever	TEXT	Y	
COL_NUMBER_TO_SHOW	Number of the notification to be show	INTEGER	Y	
COL_NUMBER_SHOWN	Number of the notification shown	INTEGER	Y	
COL_ICON	Code of the icon for the notification	TEXT	Y	
COL_COLOUR	Code of the colour for the notification	TEXT	Y	
COL_INTERVAL	Time interval for every notification	INTEGER	Y	

Table 4.3.2: NOTIFICATION_TABLE

4.4   Conclusion

This design chapter explain about design activities such as physical database design, system architecture and user interface design. Screen shots if all interfaces show the function of each interfaces and how they connect together to form a full function system. One table are design and stored inside SQLite database and these design activities help to eliminate the redundant error or problems during implementation phase. Brief explain on how this system works also helped in completing requirements design for set up in previous chapter.

CHAPTER V

IMPLEMENTATION

5.1   Introduction

In this part, software implementation will be discussed as well as which database and IDE that had been used in order to runs the project, where configuration on the devices and settings which need to be allow the access on and finally version control of the project will be mention in this chapter as well.

5.2   Software Development Environment Setup

To develop this software application there are several software tools had to be preinstalled in order to enhance development experience which include Android Studio, Android Emulator, SQLite Database, Software Development Kit(SDK) and Java Development Kit(JDK).

Software	Purpose	Requirement	Suggestion
Android Studio 2.3.1	Code editing, debugging and performance tooling for android	• Window 7 or above • 3 GB RAM minimum, 8 GB RAM	Download the latest version from https://developer.and-roid.com/studio/index.html

	mobile coding, java based.	recommended; plus 1 GB for the Android Emulator • Java version with JDK 8	
Android Emulator	Run android or debug software mobile project on the laptop.	-	It could be download together from android studio.
Software Development Kit for Wit	Set of software development tools helps in creation of application.	-	It could be download from https://github.com/wit-ai/wit-android-sdk
Java Development Kit 8	Collection of libraries used in developing software applications.	-	Download JDK from Oracle Website: http://www.oracle.co-m/technetwork/java/java-se/downloads/index.html.

Table 5.2.1: Software needed to installed

5.3   Software Configuration Management

5.3.1   Configuration Environment Setup

In order to let users, have full access to all functionality of this application, user need to setup the configuration on their own hardware device.
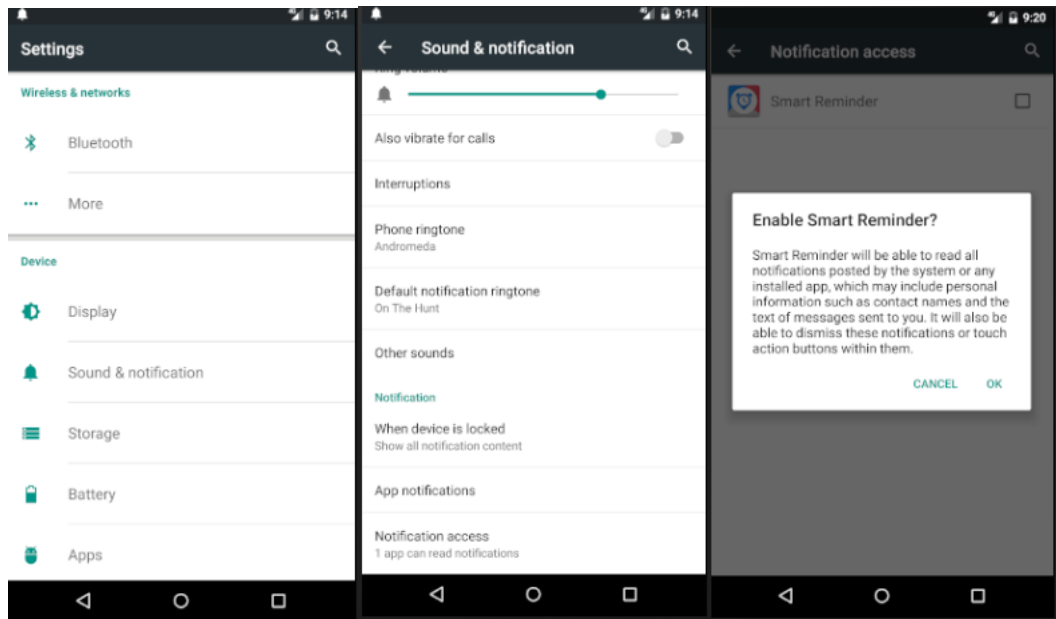
Figure 5.3.1.1: Configuring Notification Access

Firstly, after downloading this application, software user need to go to phone settings and tap on the sounds and notification and manage the notification accessibility to enabling Smart Reminder to read the notification that push to the device.
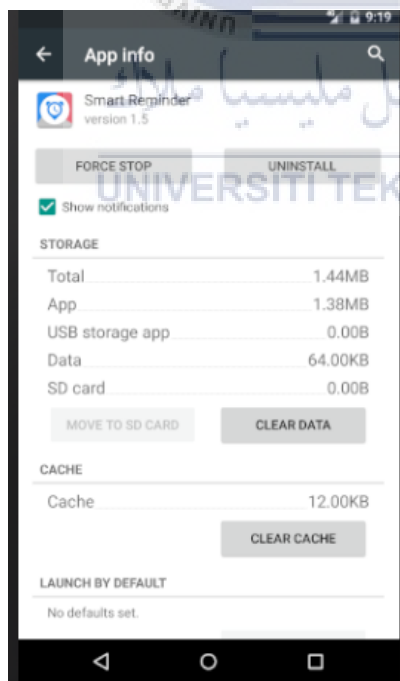
Figure 5.3.1.2: Configuring Application Access

Next, go to application manager and allow notification to be displayed on the notification bar in this device. Last is that the device must have internet service to have

the full functionality of this application. After that, there are notification preferences can be chosen by user according to different lifestyle.

5.3.2   Version Control Procedure

Version control is the process where a system record changes in the project for a specific time so developer able to recall the version later. GitHub is a platform where enable user to share their project code and act as a version control tool. Git could create a directory that record any changes in the folder that save the project from time to time. Plus, Android Studio have IDE extension that integrated with Git that able user to share project to GitHub easily.
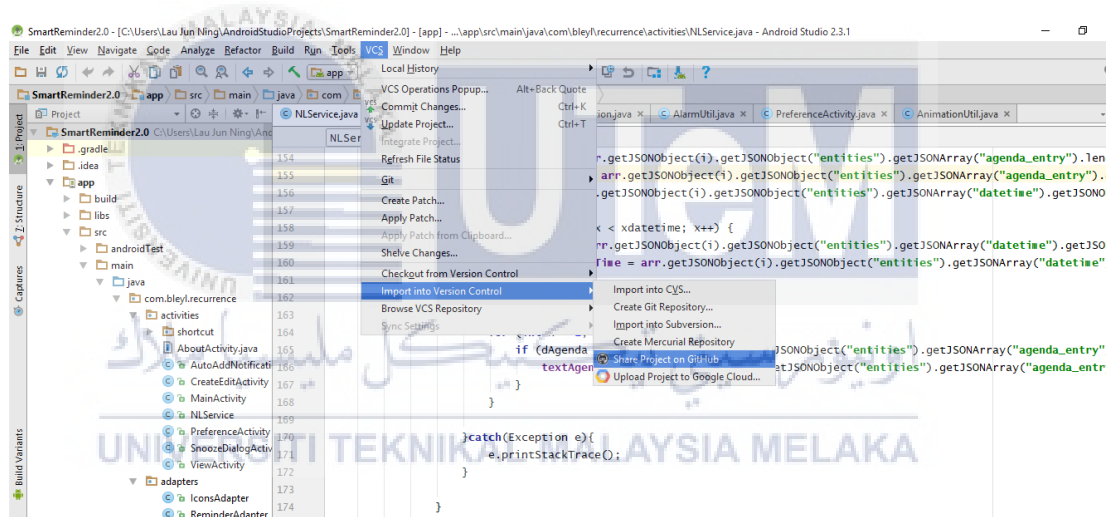
Figure 5.3.2: Android Studio IDE extension integrated with Git

5.4   Implementation Status

Below table shows the implementation status of the progress on developing the project.

Software Module	Description	Duration to complete

Manage Notification	This module mainly focused on Create, Edit, View and Delete reminder notification task.	3 Weeks
Manage Notification Advance Settings	This module is to provide several preferences on notification to suit behaviour of user such as snooze option and other more.	3 Weeks
Filter Intent	This module mainly on configuration an AI bot that able to analysis the chat and grasp the intent and entity that require by the apps and find a way to link the service to the application.	4 Weeks
Show Reminder Notification	This module is function as showing reminder notification in exact time set by the user with the help of alarm manager and notification manager library.	3 Week
Share Reminder task	This module is function as sharing reminder notification task information to different platform.	3 Weeks

Table 5.4: Implementation Status of Smart Reminder

5.5 Conclusion

In this chapter, importance of elements related to implementation had been showed. Start from software development environment setup which is the preparation of environment and software tools before developing application follow with software configuration management that discussed about setup configuration of software for the project to run smoothly. Implementation status mirrored out that status of each modules of the project helps in supporting the progress in developing the application. For the next chapter will mainly discuss on testing process conduct on the project.

CHAPTER VI

TESTING

6.1 Introduction

In this chapter, activities in testing phases and plans will be discussed in this chapter. I will be using part of alpha testing strategy to identify possible issue bugs and focus on carrying out the tasks that simulating a real user that might perform by real user. Test strategy used and the testing process will be further discussed in this chapter.

6.2 Test Plan

This segment will describe Test Organization and Test Environment of the testing process carrying out. Besides, Test Schedule also provided in the following segment where in the schedule will explain the duration and the process of the timeline of the testing activities to be carry out.

6.2.1 Test Organization

In this testing process, there are 2 kind of tester personnel involved in testing this project. First is the developer and second is the user. The tester will have their own responsibilities and their role on testing different aspect of the project. Test

organization is very crucial in testing to make sure each of the personnel able to complete job had been arrange to them to complete this project successfully.

Role	Responsibilities	Name
Developer	Individual that responsible on develop this project application and manage resource for the software.	Lau Jun Ning
Tester/ User	People who runs testing according to test plan document. In the end evaluate the project.	Ho Hock Wah, Wan Zhi Yan

Table 6.2.1: Test Organization of Smart Reminder Test Cases

6.2.2 Test Environment

For test environment, fix testing bed requirement had been selected with particular setup of the software and hardware for the project testing with network configured. Selected environment of testing to be carried out is in android phone with Tizen Operating System or Google OS. For developing this project, developer used android emulator embedded with Nexus 5 and Google Android OS. For other tester, they perform the testing using their own phones which shown below. One more important configuration is that the android version of the smartphone must above android 4.4 and must have internet service. By using different hardware mirrored that the application able to perform in several environments that result in good adaptation capability.

BRAND	Operating System
Nexus 5X	Android 6.0 (Marshmallow)
Oppo F1 plus	Android 5.1
Samsung Galaxy S4	Android 4.2

Table 6.2.2: Test Environment Tested for Smart Reminder

6.2.3   Test Schedule

This segment shows duration of the project testing that will be conducted on Smart Reminder project

.

Testing activities	Type of Testing	Description	Duration
Unit Testing	Functional	Test whether application is functioning according to report.	2 days/ 4 times
Integration Testing	Functional	To test or check the defects availability when all interfaces are combined.	2 days / 5 times

Table 6.2.3: Table of Testing Schedule

6.3   Test Strategy

In this section, white box and black box testing technique are used to test the project functionality as the project test strategy. By using this strategy, test personnel had to verify function of the application and get expected result data to determine the application to follow the goal plan of this project. Black box testing will involve application user where both testing will share same goals which are finding defects in this project application and fix it to ensure smooth performance.

6.3.1   Classes of Tests

1.   Unit Testing

As for unit testing, testing personnel will test all component that characteristics that are vital to the performance of the unit under test, check for the codes to ensure each line of codes are working and functioning as it were intended to and as in project unit testing will more focus on validation of user input.

2. Integration Testing

For integration testing, developer test on the value communicate between project component where to evaluate the joint ability integrated between modules to make sure value passed were correct and the code of line were debug correctly. Which means smaller software module that had been tested in unit testing will be combined and test again as a whole to check for defects or error.

6.4   Test Design

In this section, all testing that had carried out will be listed and all the result and details of the testing phase will be showed in this section. Besides all the data inside the test case will be organized and available to the tester personnel.

6.4.1   Test Description

In this part, describing test cases and test procedures on the functionalities of Smart Reminder will be show and pre-condition to be meet before running testing will be listed on the testing to the application. There are 8 categories for the test cases testing on the software modules where here will only show the most important module that is test case on filter notification functional requirement while other test cases on different module will be listed in appendix.

Test Case ID	Test Case	Pre-Condition	Expected Result
TC7_1	If a new Facebook chat notification received with entity agenda event and valid datetime, check on the functionality of the filter intent module of the app.	• Enable application notification in Notification manager and notification access inside the settings of your phone. • User have Facebook messenger apps and account. • Have internet service	Smart Reminder will auto set a reminder notification task with title "exam" and content with the sender name with reminder time set on next Monday 6pm.
TC7_2	If a new WhatsApp chat notification received with entity agenda event and valid datetime, check on the functionality of the filter intent module of the app.	• Enable application notification in Notification manager and notification access inside the settings of your phone. • User have WhatsApp messenger apps and account. • Have internet service	Smart Reminder will auto set a reminder notification task with title "attend the cosmetic talk" and content with the sender name with reminder time set on tomorrow 6pm.
TC7_3	If a new WeChat chat notification received with entity agenda event and valid datetime, check on the functionality of the filter intent module of the app.	• Enable application notification in Notification manager and notification access inside the settings of your phone. • User have WeChat messenger apps and account. • Have internet service	Smart Reminder will auto set a reminder notification task with title "tuition class" and content with the sender name with reminder time set on next today 8pm.
TC7_4	Receive several messages from Facebook and check duplication of filtering same message.	• Enable application notification in Notification manager and notification access inside the settings of your phone. • User have Facebook messenger apps and account. • Have internet service	Smart Reminder will only create a notification reminder task with title "exam" without duplication.

TC7_5	Receive several messages from WhatsApp and check duplication of filtering same message.	• Enable application notification in Notification manager and notification access inside the settings of your phone. • User have WhatsApp messenger apps and account. • Have internet service	Smart Reminder will only create a notification reminder task with title "attend the cosmetic talk" without duplication.
TC7_6	Receive several messages from WeChat and check duplication of filtering same message.	• Enable application notification in Notification manager and notification access inside the settings of your phone. • User have WeChat messenger apps and account. • Have internet service	Smart Reminder will only create a notification reminder task with title "tuition class" without duplication.

Table 6.4.1: Test Description for Functional ID TC7

6.4.2 Test Data

In this section, all the tested data with the steps will be listed for Filter Intent module to show the exact steps and flow of the testing process on going in order to be more efficient in testing this Smart Reminder application. Another module can refer to appendix.

Test Case ID	Test Steps	Test Data	Expected Result
TC7_1	1. Use another Facebook account and send a Facebook chat to the user phone. 2. Wait for the chat notification to push on user phone.	• Facebook Message: Eh, next Monday 6pm have exam at hall.	Smart Reminder will auto set a reminder notification task with title "exam" and content with the sender name with reminder time set on next Monday 6pm.
TC7_2	3. Use another WhatsApp account and send a chat to the user phone. 4. Wait for the chat notification to push on user phone.	• WhatsApp Message: Hey, tomorrow 6pm must attend the cosmetic talk.	Smart Reminder will auto set a reminder notification task with title "attend the cosmetic talk" and content with the sender name with reminder time set on tomorrow 6pm.
TC7_3	5. Use another WeChat account and send a chat to the user phone. 6. Wait for the chat notification to push on user phone.	• WeChat Message: Just now teacher inform me that today 8pm have tuition class.	Smart Reminder will auto set a reminder notification task with title "tuition class" and content with the sender name with reminder time set on next today 8pm.
TC7_4	7. Use another Facebook account and send two same content Facebook chat messages to the user phone. 8. Wait for the chat notification to push on user phone.	• Facebook Message: Eh, next Monday 6pm have exam at hall. • Facebook Message: Eh, next Monday 6pm have exam at hall.	Smart Reminder will only create a notification reminder task with title "exam" without duplication.

TC7_5	9. Use another WhatsApp account and send two same content of chat messages to the user phone. 10. Wait for the chat notification to push on user phone.	• WhatsApp Message: Hey, tomorrow 6pm must attend the cosmetic talk. • WhatsApp Message: Hey, tomorrow 6pm must attend the cosmetic talk.	Smart Reminder will only create a notification reminder task with title "attend the cosmetic talk" without duplication.
TC7_6	11. Use another WeChat account and send two same content of chat messages to the user phone. 12. Wait for the chat notification to push on user phone.	• WeChat Message: Just now teacher inform me that today 8pm have tuition class • WeChat Message: Just now teacher inform me that today 8pm have tuition class	Smart Reminder will only create a notification reminder task with title "tuition class" without duplication.

Table 6.4.2: Test Data for Functional ID TC7

6.5   Test Result and Analysis

In this part, test data with actual result will be compare with the expected result to gather valuable information on the Filter Intent module functionality. Test cases result will be listed and documented whether it is pass or fail and overall satisfaction of the tester users will be literate in the end of this section. Other software module test result can be found in appendix.

Test Case ID	Test Case	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC7_1	If a new Facebook chat notification received with entity agenda event and valid datetime, check on the functionality of the filter intent module of the app.	1. Use another Facebook account and send a Facebook chat to the user phone. 2. Wait for the chat notification to push on user phone.	• Facebook Message: Eh, next Monday 6pm have exam at hall.	Smart Reminder will auto set a reminder notification task with title "exam" and content with the sender name with reminder time set on next Monday 6pm.	The entity of datetime and agenda_entry can be filter and grasp from the chat without error and save those information as a reminder.	Pass
TC7_2	If a new WhatsApp chat notification received with entity agenda event and valid datetime, check on the functionality of the filter intent module of the app.	1. Use another WhatsApp account and send a chat to the user phone. 2. Wait for the chat notification to push on user phone.	• WhatsApp Message: Hey, tomorrow 6pm must attend the cosmetic talk.	Smart Reminder will auto set a reminder notification task with title "attend the cosmetic talk" and content with the sender name with reminder time set on tomorrow 6pm.	The entity of datetime and agenda_entry can be filter and grasp from the chat message without error and save those information as a reminder.	Pass

TC7_3	If a new WeChat chat notification received with entity agenda event and valid datetime, check on the functionality of the filter intent module of the app.	1. Use another WeChat account and send a chat to the user phone. 2. Wait for the chat notification to push on user phone.	• WeChat Message: Just now teacher inform me that today 8pm have tuition class.	Smart Reminder will auto set a reminder notification task with title "tuition class" and content with the sender name with reminder time set on next today 8pm.	The entity of datetime and agenda can be filter and grasp from the chat message without error and save those information as a reminder.	Pass
TC7_4	Receive several messages from Facebook and check duplication of filtering same message.	1. Use another Facebook account and send two same content Facebook chat messages to the user phone. 2. Wait for the chat notification to push on user phone.	• Facebook Message: Eh, next Monday 6pm have exam at hall. • Facebook Message: Eh, next Monday 6pm have exam at hall.	Smart Reminder will only create a notification reminder task with title "exam" without duplication.	There is duplication of notification reminder with same title and datetime event are recorded and saved.	Fail
TC7_5	Receive several messages from WhatsApp and check duplication of filtering same message.	1. Use another WhatsApp account and send two same content of chat	• WhatsApp Message: Hey, tomorrow 6pm must attend the cosmetic talk.	Smart Reminder will only create a notification reminder task with title "attend the cosmetic talk" without duplication.	There is duplication of notification reminder with same title and datetime event	Fail

		messages to the user phone. 2. Wait for the chat notification to push on user phone.	• WhatsApp Message: Hey, tomorrow 6pm must attend the cosmetic talk.		are recorded and saved.	
TC7_6	Receive several messages from WeChat and check duplication of filtering same message.	1. Use another WeChat account and send two same content of chat messages to the user phone. 2. Wait for the chat notification to push on user phone.	• WeChat Message: Just now teacher inform me that today 8pm have tuition class • WeChat Message: Just now teacher inform me that today 8pm have tuition class	Smart Reminder will only create a notification reminder task with title "tuition class" without duplication.	There is duplication of notification reminder with same title and datetime event are recorded and saved.	Fail

Table 6.5.1: Test Result for TC7

System	Number of Test	Number of Passed Test	Percentage (%)
Smart Reminder	27	24	88.89%

Table 6.5.2: Test Analysis Table for Smart Reminder

In Table 6.5.2, it shows that there are total of 27 test cases were conducted on this application because of this application with small amount number of user typing input and user-friendly interface made it less prone to error. The main module which is the filter intent module which need integration between Wit.ai and the application itself. In table 6.5.1 shows the testing procedures conducted on this module which show that testing had a little problem with 3 failures among 6 tests. Modification will be done on that particular error in order to fulfil the requirement of the functional modules of the application itself in order to perform successfully and provide great user experience for the tester and user personnel.

As conclusion, this project has 88.89% of pass rate in testing phases and that shows that there is still space to improve and the application had met big portion of requirement of this project.

6.6   Conclusion

In this chapter, all testing procedure and process had been carried out and documented including information about tester personnel and test schedule with the testing type and steps with precondition to be conducted. Testing on this project application were crucial because it does verify the functionality and measure on the degree of completion of this application. Although there are some bugs defined during the testing but it had been fixed in time before the deadline of the software project submission. The test had been conducted and analysis had made and the system does satisfy project needs with 100% pass rate in the end.

CHAPTER VII

CONCLUSION

7.1   Observation on Weakness and Strengths

This project is developed to help individual which are busy as now intelligence behaviour elements of software were hot topics among worldwide. From the process of developing in this project, there are plenty of strength and weakness as well of this project. The strength is that with automated filtering notification from big mass of chat could really helpful and it does imitate human intelligence that increase productivity and free human up to be more creative. This project does faster decision and actions compare to human that need to read every message and look for important information inside chat message, this technology could help alongside human to achieve another level of productivity. Besides, it could avoid error that done by humans sometimes. Human naturally makes mistakes from time to time which may miss to set reminder for crucial events, with Smart Reminder data could be processed with error-free result no matter how big the dataset is given but there are also some of the weakness that exists in this project.

In this project, weakness is that it could not sync the reminder to the Calendar reminder inside the device itself and the response time may count as slow if the test data provided is big. Besides that, I found that some of the phone OS not able to use the notification listener service due to the operating system itself not supporting the version. Plus, android version above 4.4 just able to use it smoothly because of the technology used were new. I tried that Color OS from Oppo brand phone not able to use and after I do some findings, community of Color OS also stated that this OS were

not support the service. Internet service must be required before using filter notification function that internet service needed to send the chat information to the engine at server side and received back to the system. Sometimes, the date format inside the chat message could not identified by the engine due to the understanding of the AI engine is different with human chatting behaviour. So for this period, it only able to identified datetime with formal format and small amount of human used format.

7.2   Propositions for Improvement

There is some proposition for improvement by other's regarding my project, which is when there are duplication of event entity and datetime being grasp by the wit engine, it should not able to add into reminder task because it is duplicated events even with same user. Which means this should help user in managing the application easier and more convenient. But this problem had been fixed after consulting from supervisor and evaluator.

Next, more dataset on chat sentences should use to train the AI engine in order to understand every type and style of human chatting intent that occur in human society in order the engine to understand what the chat messages are meant.

Besides, another improvement that could be carry out is that should add manual on configuration on the notification access from the device for the software application to work smoothly and it should have a toggle button to enable and disabling the auto filter notification function of this project application.

7.3   Project Contribution

The importance of developing this project is to introduce artificial intelligence software application to more user, to let them understand what AI could do to help human in daily life and of course to help busy people to do their work by imitate their

activity. This project would help me and act as personal manager on my daily life and most probably a lot of people because nowadays are age of information, plenty of information was shared among human that could not reach them efficiently, with a software could act as a human to help will increasingly improve productivity and solve messy problem that got to user.

7.4   Conclusion

This project is developed to help humans to manage their daily life and act like personal manager. Individuals could get benefits from the application since user could save time by filtering messages manually. The efficiency and user experience for this application is so easy to learn and simple shown in the test result were mean to achieve the objective of the project requirements.

In conclusion, this project still got space for improvement but overall it does function well and meet the requirements in this project that could help human in solving daily life problems by reminding important events or activities that mean a lot for them.

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APPENDICES I

TEST DESCRIPTION

Test Case ID	Test Case	Pre-Condition	Expected Result
TC1_1	Creating reminder without any input.	• Open application	Display error message "Title cannot be empty"
TC1_2	Creating reminder with input on every section.	• Open application	Successfully adding new notification reminder task to the main view of the application.
TC1_3	Creating reminder with past date or time.	• Open application	Display error message "Cannot set initial date in the past".

Test Description of Create Reminder Functionality

Test Case ID	Test Case	Pre-Condition	Expected Result
TC2_1	Delete a reminder task that in active notification view.	• Open application • There is an event in the list.	In the active notification view, the particular event reminder task had been removed.
TC2_2	Delete a reminder task that in inactive notification view.	• Open application • There is an event in the list.	In the inactive notification view, the particular event reminder task had been removed.

Test Description of Delete Reminder Functionality

Test Case ID	Test Case	Pre-Condition	Expected Result
TC3_1	Edit the information of the active reminder task with a past date and time.	• Open application • There at least an active reminder task available	Display error message "Cannot set initial date in the past".
TC3_2	Edit the information of the active reminder task with a future date or time.	• Open application • There at least an active reminder task available	In the notification reminder view, the particular event reminder task had been updated with the specified changes.

Test Description of Edit Reminder Functionality

Test Case ID	Test Case	Pre-Condition	Expected Result
TC4_1	Wait for notification to pop up in the exact time.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.
TC4_2	Check notification received when app is not running.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.
TC4_3	Check notification if it is clickable or not.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after click it, it will response and open the application.
TC4_4	Check notification if it is clickable, if it is, does it open the application or open relevant activity.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after you click it, it will response corresponding on the view of the specific notification that had just click on.

Test Description of Show Reminder Notification Functionality

Test Case ID	Test Case	Pre-Condition	Expected Result
TC5_1	Share reminder task to WeChat to check functionality.	• Got WeChat apps inside the phone.	Able to share the reminder task to WeChat.
TC5_2	If able to share reminder task to WeChat and the shared content is match with the reminder task information.	• Got WeChat apps inside the phone.	Inside WeChat apps, the chat with the contact person had just chosen will show message with "Testing Notification" and "test123".

Test Description of Share Reminder Task Functionality

Test Case ID	Test Case	Pre-Condition	Expected Result
TC6_1	Set the notification preferences into persistent mode and check for its functionality.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	The notification unable to be swiped away but able to click on it.
TC6_2	Set notification settings of the apps with mark as done action to the notification.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	The push notification should have a button with "Mark as Done" shown.
TC6_3	Set notification settings of the apps with snooze action to the notification.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	The push notification should have a button with "Snooze" and if it is click, after a short amount of time, the notification will push once again to the user.

TC6_4	Set notification settings of the apps with nagging action to the notification.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	The push notification will continuously notify user of the current notification until it is dismissed.
TC6_5	Set notification settings of the apps with nagging action to the notification and set the nagging interval to a specified period.	• Enable application notification in Notification manager and notification access inside the settings of your phone.	The push notification will continuously notify user of the current notification until it is dismissed with 5 minutes interval period.

Test Description of Manage Notification Advance Settings Functionality

Test Case ID	Test Case	Pre-Condition	Expected Result
TC8_1	Reminder task that created must displayed in correct position.	• There is notification reminder task had been created.	The notification reminder task position should align in a line without out of order.
TC8_2	Reminder task that created must displayed with correct symbol and value.	• There is notification reminder task had been created.	The reminder task should show correct icon and symbol with correct datetime that had set.
TC8_3	Reminder task in main page will be sort according to the date.	• There is notification reminder task had been created.	The reminder task should arrange according to date segment.

Test Description of View Reminder Task Functionality

TEST DATA

Test Case ID	Test Steps	Test Data	Expected Result
TC1_1	1. Click on "+" floating action button. 2. Click on the save button on top of the application.	Title: Content: Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	Display error message "Title cannot be empty"
TC1_2	1. Tap on "+" floating action button. 2. Insert event for title. 3. Insert notification content in the text field. 4. Pick a time from the time picker and click ok. 5. Click on date picker and select a date then click ok. 6. Pick an icon. 7. Pick a colour and click done. 8. Click save button on top of the application.	Title: Taking medicine Content: Cough medicine. Time: 2.00pm Date: Today Icon: Custom Icon Colour: Orange colour (#E47E30) Repeat: Does not repeat	Successfully adding new notification reminder task to the main view of the application.

TC1_3	1. Tap on "+" floating action button. 2. Insert event on title text field. 3. Pick a time from time picker. 4. Pick a date from date picker. 5. Click save button on top of the application.	Title: Sport Content: Badminton with friend. Time: 2.00pm Date: Yesterday Icon: Default Icon Colour: Default colour Repeat: Does not repeat	Display error message "Cannot set initial date in the past".

Test Data of Create Reminder Functionality

Test Case ID	Test Steps	Test Data	Expected Result
TC2_1	1. Navigate the reminder task at the active notification list. 2. Select the active notification task to be deleted. 3. Click button with rubbish bin icon at top right side of the application. 4. Select "yes" on the confirmation message. 5. Return to the active notification list view.	-	In the active notification view, the particular event reminder task had been removed.
TC2_2	1. Navigate the reminder task at the inactive notification list. 2. Select the inactive notification task to be deleted. 3. Click button with rubbish bin icon at top right side of the application. 4. Select "yes" on the confirmation message. 5. Return to the inactive notification list view.	-	In the inactive notification view, the particular event reminder task had been removed.

Test Data of Delete Reminder Functionality

Test Case ID	Test Steps	Test Data	Expected Result
TC3_1	1. Navigate the active reminder task list view want to edit. 2. Tap on the reminder you want to edit. 3. Click on the pencil button on top right of the application. 4. After finishing editing, tap on the save button.	Title: Sport Content: Badminton with friend. Time: 2.00pm Date: Yesterday Icon: Default Icon Colour: Default colour Repeat: Does not repeat	Display error message "Cannot set initial date in the past".
TC3_2	1. Navigate the active reminder task list view want to edit. 2. Tap on the reminder you want to edit. 3. Click on the pencil button on top right of the application. 4. After finishing editing, tap on the save button.	Title: Sport Content: Badminton with friend. Time: 3.30pm Date: Tomorrow Icon: Default Icon Colour: Default colour Repeat: Does not repeat	In the notification reminder view, the particular event reminder task had been updated with the specified changes.

Test Data of Edit Reminder Functionality

Test Case ID	Test Steps	Test Data	Expected Result
TC4_1	1. Open Smart Reminder application. 2. Create a reminder. 3. Wait for the time you have set your reminder to notify.	Title: Testing Notification Content: Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.
TC4_2	1. Open Smart Reminder application. 2. Create a reminder. 3. Go to application manager of the phone and click end process for Smart Reminder. 4. Wait for the time you have set your reminder to notify.	Title: Testing Notification Content: Time: 2pm Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.
TC4_3	1. Open Smart Reminder application. 2. Create a reminder. 3. Wait for the time you have set your reminder to notify	Title: Testing Notification Content: Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after click it, it will response and open the application.

TC4_4	1. Open Smart Reminder application. 2. Create a reminder. 3. Wait for the time you have set your reminder to notify	Title: Testing Notification Content: Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after you click it, it will response corresponding on the view of the specific notification that had just click on.

Test Data of Show Reminder Notification Functionality

Test Case ID	Test Steps	Test Data	Expected Result
TC5_1	1. Open Smart Reminder application. 2. Create a reminder. 3. Click the created reminder in the notification reminder list view. 4. Click on the three dotted button on top right. 5. Tap on "Share" button and choose WeChat 6. Pick contact person to share with.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	Able to share the reminder task to WeChat.
TC5_2	1. Open Smart Reminder application. 2. Create a reminder. 3. Click the created reminder in the notification reminder list view. 4. Click on the three-dotted button on top right. 5. Tap on "Share" button and choose WeChat 6. Pick contact person to share with.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	Inside WeChat apps, the chat with the contact person had just chosen will show message with "Testing Notification" and "test123".

Test Data of Share Reminder Task Functionality

Test Case ID	Test Steps	Test Data	Expected Result
TC6_1	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Persistent". 5. Return to main view and create a reminder. 6. Wait for reminder notification to notify. 7. Swipe the notification to right side.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The notification unable to be swiped away but able to click on it.
TC6_2	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Mark As Done". 5. Return to main view and create a reminder. 6. Wait for reminder notification to notify.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The push notification should have a button with "Mark as Done" shown.
TC6_3	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Snooze".	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color	The push notification should have a button with "Snooze" and if it is click, after a short amount of time, the notification will push once again to the user.

	5. Return to main view and create a reminder. 6. Wait for reminder notification to notify. 7. Click on the snooze button of the notification.	Repeat: Does not repeat	
TC6_4	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Nagging Reminder". 5. Return to main view and create a reminder. 6. Wait for reminder notification to notify.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The push notification will continuously notify user of the current notification until it is dismissed.
TC6_5	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Nagging Reminder". 5. Tap on the Nagging Interval button and select a time. 6. Return to main view and create a reminder. 7. Wait for reminder notification to notify.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat Nagging Interval: 5 minutes	The push notification will continuously notify user of the current notification until it is dismissed with 5 minutes interval period.

Test Data of Manage notification advance settings Functionality

Test Case ID	Test Steps	Test Data	Expected Result
TC8_1	1. Open Smart Reminder application. 2. Create a reminder.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The notification reminder task position should align in a line without out of order.
TC8_2	1. Open Smart Reminder application. 2. Create a reminder.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The reminder task should show correct icon and symbol with correct datetime that had set.
TC8_3	1. Open Smart Reminder application. 2. Create a reminder.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The reminder task should arrange according to date segment.

Test Data of View Reminder Task Functionality

TEST RESULT

Test Case ID	Situation	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC1_1	Creating reminder without any input.	1. Click on "+" floating action button. 2. Click on the save button on top of the application.	Title: Content: Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	Display error message "Title cannot be empty"	Display error message "Title cannot be empty"	Pass
TC1_2	Creating reminder with input on every section.	1. Tap on "+" floating action button. 2. Insert event for title. 3. Insert notification content in the text field. 4. Pick a time from the time picker and click ok. 5. Click on date picker and select a date then click ok. 6. Pick an icon.	Title: Taking medicine Content: Cough medicine. Time: 2.00pm Date: Today Icon: Custom Icon Colour: Orange colour (#E47E30) Repeat: Does not repeat	Successfully adding new notification reminder task to the main view of the application.	Successfully adding new notification reminder task to the main view of the application.	Pass

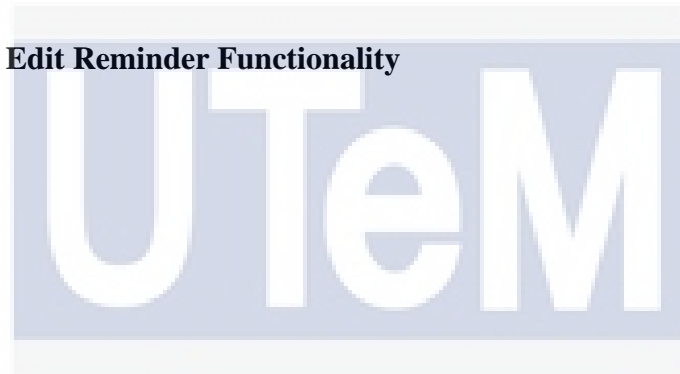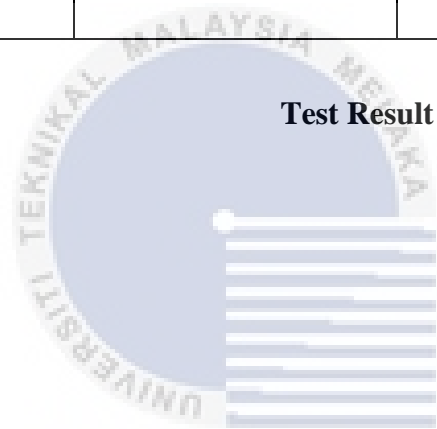|		7. Pick a colour and click done. 8. Click save button on top of the application.				
TC1_3	Creating reminder with past date or time.	1. Tap on "+" floating action button. 2. Insert event on title text field. 3. Pick a time from time picker. 4. Pick a date from date picker. 5. Click save button on top of the application.	Title: Sport Content: Badminton with friend. Time: 2.00pm Date: Yesterday Icon: Default Icon Colour: Default colour Repeat: Does not repeat	Display error message "Cannot set initial date in the past".	Display error message "Cannot set initial date in the past".	Pass

Test Result of Create Reminder Functionality

Test Case ID	Test Case	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC2_1	Delete a reminder task that in active notification view.	1. Navigate the reminder task at the active notification list. 2. Select the active notification task to be deleted. 3. Click button with rubbish bin icon at top right side of the application. 4. Select "yes" on the confirmation message. 5. Return to the active notification list view.	-	In the active notification view, the particular event reminder task had been removed.	In the active notification view, the particular event reminder task had been removed.	Pass
TC2_2	Delete a reminder task that in inactive notification view.	1. Navigate the reminder task at the inactive notification list. 2. Select the inactive notification task to be deleted. 3. Click button with rubbish bin icon at top right side of the application. 4. Select "yes" on the confirmation message. 5. Return to the inactive notification list view.	-	In the inactive notification view, the particular event reminder task had been removed.	In the inactive notification view, the particular event reminder task had been removed.	Pass

Test Result of Delete Reminder Functionality

Test Case ID	Test Case	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC3_1	Edit the information of the active reminder task with a past date and time.	1. Navigate the active reminder task list view want to edit. 2. Tap on the reminder you want to edit. 3. Click on the pencil button on top right of the application. 4. After finishing editing, tap on the save button.	Title: Sport Content: Badminton with friend. Time: 2.00pm Date: Yesterday Icon: Default Icon Colour: Default colour Repeat: Does not repeat	Display error message "Cannot set initial date in the past".	Display error message "Cannot set initial date in the past".	Pass
TC3_2	Edit the information of the active reminder task with a future date or time.	1. Navigate the active reminder task list view want to edit. 2. Tap on the reminder you want to edit. 3. Click on the pencil button on top right of the application.	Title: Sport Content: Badminton with friend. Time: 3.30pm Date: Tomorrow Icon: Default Icon Colour: Default colour Repeat: Does not repeat	In the notification reminder view, the particular event reminder task had been updated with the specified changes.	In the notification reminder view, the particular event reminder task had been updated with the specified changes.	Pass

		4. After finishing editing, tap on the save button.				

Test Result of Edit Reminder Functionality

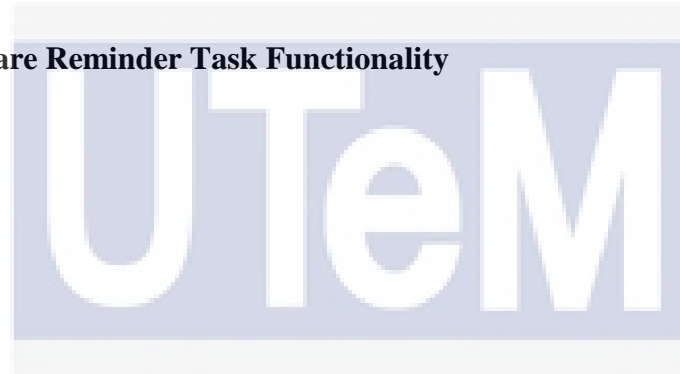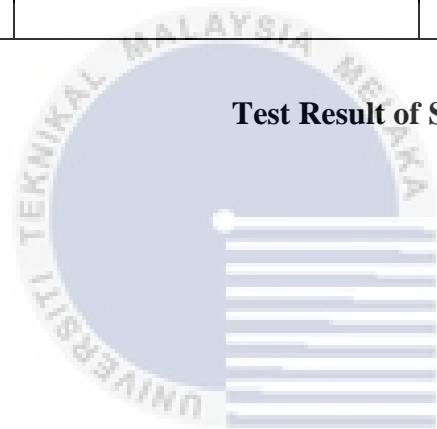| Test Case ID	Test Case	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC4_1	Wait for notification to pop up in the exact time.	1. Open Smart Reminder application. 2. Create a reminder. 3. Wait for the time you have set your reminder to notify.	Title: Testing Notification Content: Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.	Pass
TC4_2	Check notification received when app is not running.	1. Open Smart Reminder application. 2. Create a reminder. 3. Go to application manager of the phone and click end process for Smart Reminder. 4. Wait for the time you have set your reminder to notify.	Title: Testing Notification Content: Time: 2pm Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.	A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder.	Pass

| TC4_3 | Check notification if it is clickable or not. | 4. Open Smart Reminder application.
5. Create a reminder.
6. Wait for the time you have set your reminder to notify | Title: Testing Notification
Content:
Time: Now
Date: Today
Icon: Default Icon
Colour: Default Color
Repeat: Does not repeat | A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after click it, it will response and open the application. | A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after click it, it will response and open the application. | Pass |
| TC4_4 | Check notification if it is clickable, if it is, does it open the application or open relevant activity. | 1. Open Smart Reminder application.
2. Create a reminder.
3. Wait for the time you have set your reminder to notify | Title: Testing Notification
Content:
Time: Now
Date: Today
Icon: Default Icon
Colour: Default Color
Repeat: Does not repeat | A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after you click it, it will response corresponding on the view of the specific notification that had just click on. | A notification with title "Testing Notification" will appear in the notification bar for your scheduled reminder and after you click it, it will response corresponding on the view of the specific notification that had just click on. | Pass |

Test Result of Show Reminder Notification Functionality

Test Case ID	Test Case	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC5_1	Share reminder task to WeChat to check functionality.	1. Open Smart Reminder application. 2. Create a reminder. 3. Click the created reminder in the notification reminder list view. 4. Click on the three dotted button on top right. 5. Tap on "Share" button and choose WeChat 6. Pick contact person to share with.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	Able to share the reminder task to WeChat.	Able to share the reminder task to WeChat.	Pass
TC5_2	If able to share reminder task to WeChat and the shared content is match with the reminder task information.	1. Open Smart Reminder application. 2. Create a reminder. 3. Click the created reminder in the notification reminder list view. 4. Click on the three dotted button on top right. 5. Tap on "Share" button and choose WeChat	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color	Inside WeChat apps, the chat with the contact person had just chosen will show message with "Testing Notification" and "test123".	Inside WeChat apps, the chat with the contact person had just chosen will show message with "Testing Notification" and "test123".	Pass

		6. Pick contact person to share with.	Repeat: Does not repeat			

Test Result of Share Reminder Task Functionality

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Test Case ID	Test Case	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC6_1	Set the notification preferences into persistent mode and check for its functionality.	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Persistent". 5. Return to main view and create a reminder. 6. Wait for reminder notification to notify. 7. Swipe the notification to right side.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The notification unable to be swiped away but able to click on it.	The notification unable to be swiped away but able to click on it.	Pass
TC6_2	Set notification settings of the apps with mark as done action to the notification.	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Mark As Done". 5. Return to main view and create a reminder. 6. Wait for reminder notification to notify.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The push notification should have a button with "Mark as Done" shown.	The push notification should have a button with "Mark as Done" shown.	Pass

TC6_3	Set notification settings of the apps with snooze action to the notification.	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Snooze". 5. Return to main view and create a reminder. 6. Wait for reminder notification to notify. 7. Click on the snooze button of the notification.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The push notification should have a button with "Snooze" and if it is click, after a short amount of time, the notification will push once again to the user.	The push notification should have a button with "Snooze" and if it is click, after a short amount of time, the notification will push once again to the user.	Pass
TC6_4	Set notification settings of the apps with nagging action to the notification.	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Nagging Reminder". 5. Return to main view and create a reminder. 6. Wait for reminder notification to notify.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The push notification will continuously notify user of the current notification until it is dismissed.	The push notification will continuously notify user of the current notification until it is dismissed.	Pass
TC6_5	Set notification settings of the apps with nagging action to the notification and set the nagging	1. Open Smart Reminder apps. 2. Click on the top right side three dotted button. 3. Select settings. 4. Tick on the checkbox with "Nagging Reminder".	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon	The push notification will continuously notify user of the current	The push notification will continuously notify user of the current	Pass

| | interval to a specified period. | 5. Tap on the Nagging Interval button and select a time.
6. Return to main view and create a reminder.
7. Wait for reminder notification to notify. | Colour: Default Color
Repeat: Does not repeat
Nagging Interval: 5 minutes | notification until it is dismissed with 5 minutes interval period. | | |

Test Result of Manage Notification Advance Settings Functionality

Test Case ID	Test Case	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
TC8_1	Reminder task that created must displayed in correct position.	1. Open Smart Reminder application. 2. Create a reminder.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The notification reminder task position should align in a line without out of order.	The notification reminder task position should align in a line without out of order.	Pass
TC8_2	Reminder task that created must displayed with correct symbol and value.	1. Open Smart Reminder application. 2. Create a reminder.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The reminder task should show correct icon and symbol with correct datetime that had set.	The reminder task should show correct icon and symbol with correct datetime that had set.	Pass
TC8_3	Reminder task in main page will be sort according to the date.	1. Open Smart Reminder application. 2. Create a reminder.	Title: Testing Notification Content: test123 Time: Now Date: Today Icon: Default Icon Colour: Default Color Repeat: Does not repeat	The reminder task should arrange according to date segment.	The reminder task should arrange according to date segment.	Pass

Test Result of View Reminder Task Functionality