EASY-Z NOTES MOBILE APPLICATION IN ANDROID PLATFORM

(GPS FEATURE)

SITI ZULAIKHA BINTI AZMAN

Bachelor of Computer Science (Graphic & Multimedia Technology) with Honors

UNIVERSITI MALAYSIA PAHANG

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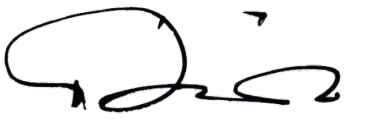

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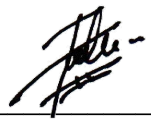

(Student's Signature)

Full Name : SITI ZULAIKHA BINTI AZMAN

ID Number : CD15048

Date : 7 JANUARY 2019

EASY-Z NOTES MOBILE APPLICATION IN ANDROID PLATFORM (GPS FEATURE)

SITI ZULAIKHA BINTI AZMAN

Thesis submitted in fulfillment of the requirements
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Faculty of Computer Systems & Software Engineering

UNIVERSITI MALAYSIA PAHANG

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ABSTRAK

Terdapat beberapa isu apabila dikaitkan dengan aplikasi mudah alih. Ia bergantung kepada kehendak pengguna, sebagai contoh, tetapan aplikasi mudah alih tersebut. Untuk aplikasi Nota mudah alih, komplikasi yang berkait rapat ialah had untuk fungsi-fungsi dalam aplikasi tersebut. Antaranya ialah warna tema, jenis-jenis nota, dan keselamatan untuk simpanan nota. Warna tema sepatutnya dipelbagaikan untuk menjadikan aplikasi nota mudah alih tersebut menarik untuk kegunaan pengguna. Pengguna perlu disediakan dengan pelbagai pilihan untuk jenis-jenis nota yang akan dibuat. Aplikasi mudah alih tersebut seharusnya menyediakan pelbagai jenis nota untuk pilihan pengguna, bukan hanya nota dalam bentuk teks dan senarai sahaja. Jadikan aplikasi nota mudah alih lebih dengan pelbagai fungsi dan sistem kekunci juga seharusnya diimplikasikan dalam keselamatan penyimpanan nota-nota. Apabila sistem keselamatan nota tidak diambil kira, kemungkinan untuk kehilangan nota secara automatik akan berlaku apabila peranti yang digunakan oleh pengguna berlaku sebarang komplikasi. Fungsi sandaran dan memulihkan nota boleh dilaksanakan dalam aplikasi nota mudah alih. Nota Easy-Z akan dibina untuk mengatasi sebarang bentuk kekangan dan had untuk fungsi-fungsi dalam aplikasi nota berdasarkan keperluan pengguna dan akan diuji sama ada ia memenuhi keperluan pengguna. Keperluan pengguna yang telah dikumpul akan dianalisa untuk membina aplikasi nota mudah alih yang lebih baik. Pembinaan aplikasi nota mudah alih menggunakan sumber kod dalam komputer. Sumber kod yang sama akan digunakan dalam implimentasi aplikasi nota mudah alih boleh diaplikasikan dalam beberapa fungsi yang sama bentuk, dan ia akan jadi mudah untuk penjimatan masa dalam pembinaan lengkap aplikasi nota mudah alih. Aplikasi Nota Easy-Z mempunyai pelbagai warna tema di mana pengguna boleh memilih berdasarkan kehendak pengguna. Jenis-jenis nota yang diimplikasikan ialah nota teks, lukis, senarai nota dengan GPS, dan gambar. Pengguna boleh membuat pelbagai nota. Nota Easy-Z disediakan dengan fungsi sandaran dan memulihkan nota-nota di mana pengguna boleh menyimpan data nota dalam kad SD. Fungsi yang dititikberatkan dalam Nota Easy-Z ialah GPS yang diimplimentasikan dalam jenis senarai nota dimana pengguna boleh menyimpan lokasi yang telah dikesan oleh sistem GPS untuk pengguna lihat semula tanpa pengguna perlu mencari semula lokasi yang hendak dituju apabila membuka fungsi senarai nota. Masa akan dikurangkan dan sesuai untuk pengguna dalam penggunaan aplikasi Nota Easy-Z mudah alih.

ABSTRACT

There are some issues when it comes to some mobile applications. It is because the differentiation of users' desire, for example is the preference of that application. For notes mobile application, the complication found is limitation of its features. The limitations are color theme, type of notes, and notes security. Theme should be in variety color for user to make more choice in creating interesting notes. User needs to create different type of notes. The application should provide more type of notes that not only contain text or list notes. Make it more in variation and locking system needs to be implemented for notes security. When there is no security, the notes created can be easily being deleted automatically when the complication of device occur. The backup and restore features can be applied. The Easy-Z Notes will be developed to overcome any form of constraints and limitations based on user requirements and will be tested whether it fulfilled the requirements. The user requirements gathered will be analyzed to develop better notes mobile application. The development of notes mobile application used some source codes. Same source code can be applied on certain functions that have the same pattern and it becomes easier and reduce time taken in completing the notes application development. Easy-Z Notes application consists of more color themes where user can choose based on their needs. The type of notes implemented are text, draw, to-do-list with GPS, and photo notes. User can create any type of notes. Easy-Z Notes contributes with backup and restore function where user can save the notes data in SD card. The notable for Easy-Z Notes is GPS feature in to-do-list notes where user can easily save the location detected by GPS for user review later without need to search the location whenever user open the to-do-list notes. Time will be reduced and convenient for user in using Easy-Z Notes mobile application.

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CHAPTER 1

INTRODUCTION

The overview of project will be discussed in this chapter. First section of this chapter explains the project's background. The second section will be problem statement of the project. The following section states the objectives of the project and followed by the fourth section which deliberates on the project scope.

1.1 Background of project

Mobile application is defined as a software application or service developed specifically for use on small, wireless computing devices such as smartphones and tablets, rather than laptop or desktop computer. Notes is a mobile application system that will be created for users in all ages to manage their notes very well just through their device such as smartphone.(Kai, 2017)

Note looks like hiring a personal assistant which is a little bit of tedious job and can be such a reminder for users. It will be a problem if user do manually which means notes on papers rather than using an application which is much easier. It is because the papers will be easily being torn or missing. There will be the case where user need to write notes on repeatedly and it will be wasting time. Moreover, user will need more papers in notes repeatedly. It will also become troublesome to bring along anywhere in pockets. The best option is to have the Notes application installed in mobile phone.

Notes application can be a personal assistant to help user in remembering the personal work that user need to complete for the day. It also reminds about the reminder that have being already set for the day. User can make the reminder

for this application by setting alarm that can be repeated daily, monthly or yearly. It is one of the ultimate applications in creating the notes and reminders in mobile phone and helps user in organizing the notes in a simple way. User will be able to finish all the tasks that already be indicated without forgetting any one of them. The application came out with some features that really help the user to make the notes in many ways such as by using handwriting or drawing, video recording and type manually. Most of sticky note applications which amazing quick memo have some basic features. They can be accessed quickly at anytime and anywhere.

Easy Z Notes Android application is a user friendly because it can be customized according to the user needs. It consists color, more features on type of notes, etc. It will be saved safely. Besides, it is not only can save, but it also can be edit, delete, input with picture. Easy Z Notes can be a good alternative to paper for making any notes.

1.2 Problem Statements

All the applications have their own problem statements when they were created for the new version. At that time, there are notes applications that only allowed the user to make simple notes in words that only can be edit and save only. The user cannot make the notes become interesting, for example by applying some colors, and input with pictures. The limitation of the features from previous application will make the application looks simply.

There are some applications that provide the color pastel features only that may seem uninteresting, thus some bright colors may be applied as well in Easy-Z Notes. Besides, the functions should be in variety types to make the notes become more attractive and uses, not only limitation to some features. Users feel hard when they already make the list of the necessary things that they need, then they need to search the nearby location in other apps to shop urgently. For example, a mother made a list for shopping groceries, then she needs to find the nearby shop in other application, thus Easy-Z Notes provide GPS searching function in features. Other than that, share, backup and restore notes will be needed in the application to share and store the notes from being lost.

Based on the limitation of features, the current applications may really does not contribute much to user. In order to improve the current application, it is

relevant to develop Easy Z Notes with several new features that will help user to manage their notes in alternative way.

1.3 Objectives

The objectives of the project are listed as below:

i. To study the production of the application that can be easily modified to overcome any form of constraints in a real situation.
ii. To develop the Easy-Z Notes application in applying the features from current application with the requirement gathered including in GPS function.
iii. To test Easy-Z Notes Application achieved the objectives and met with user requirements collected through acceptance testing during the project.

1.4 Scope

The scopes of the project are listed as below:

i. System Functionality
    - The Easy Z Notes application can note the important things which is very helpful for user as a reminder with more features provided, so that the user can be modify their notes based on their needs.

ii. System User
    - The Easy Z Notes application is available for user from all ages including children which are the students in primary school around 11 years old and adults and this application is available for android users only.

iii. System Platform
    - The android application will generate the notes that the user already noted on in Easy Z Notes application.

iv. System Data
    - The Easy Z Notes application will be developed by gathering data from the existing applications and the requirements based on user needs for the features in the application.

1.5 Thesis Organization

This thesis consists of five (5) chapters. Chapter 1 discussed on introduction of the project. Chapter 2 will emphasize on the literature review. This chapter consists of the concept of the project, technology, techniques and existing application will be reviewed. The methodologies in the project development includes inside this chapter. Chapter 3 will discuss further on the methodology used in the project development. Chapter 4 will discuss on the application process and the user interfaces needed in the project. Besides, the implementation of the application will also be discussed in this chapter including the result and discussion. Chapter 5 will discuss on the conclusion of the project.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews and explains details of three existing applications that have almost the same roles that used by users to manage their notes affectively. The selected applications are discussed and studied over. Each of them has different specialty in features and functions that being applied in their system.

Note taking applications can be divided into two categories, reliable and syncing. Reliable type let user jot down all the notes that we want to remember quickly, easily and handy where user can refer all the notes anytime and anywhere no matter where we are. Syncing type let us to sync any kind of document and the notes can be synchronized between computers, mobile devices, and browsers by using the account of that application. The data is synced between those devices by Dropbox, OneDrive or iCloud. There are two type of note application which are notebook application and notepad application. Notebook turns to be more features and functions than notepad. It is not also for quickly write down the notes, but it also can craft a formatted document with applying styles, images, and other features provided. It can contain as many notes or books as we need. It is just like creating a hierarchy of nested books for us. Notepad is lighter than notebook and supposedly is simple than notebook. Notepad is simply like plain text that can be jotted down quickly for notes. Both are useful, and users used based their own need.

2.2 Review of Existing System

There are some Notebook applications that are available now, for examples are Evernote and Microsoft OneNote, while for examples of notepad applications are Memo Notepad and Drive Notepad. The common advantages for

both note taking applications are can easily and quickly jot down the notes as many as user wants.

There are many sticky note applications that had been developed in either android or iOS platform for mobile application, but all of them still need some improvement for satisfaction in user needs. Some of those application still lack in sufficient functions and user interface quality that could assist user in managing their sticky notes. Those applications will be discussed briefly about their features and functions.

2.2.1 ColorNote Notepad Notes Application ("ColorNote Notepad Notes," 2018)

ColorNote is a simple and impressive notepad application. It affects editing experience in writing the notes, messages, e-mails, and shopping and to-do lists. This application applied two note taking formats which are lined-paper styled text option and checklist option. The list can be viewed in traditional ascending order, grid format or color.

It looks like simple word processing program where the users are allowed to input the characters that they are willing to type. When the notes already saved, the users can edit, share, make a reminder or delete the notes on menu's button. One the notes are checked off; the application appeared with the list's title and will be displayed on main menu. When users use checklist mode, many items can be added as user needs in arranging the notes' order with dragging activated buttons in edit mode. When they are done, the users can check or uncheck the lists with a quick tap, which will pin a line split. The lists' titles are slashed along after done checking. The user interface of the application can be seen in Figure 2.1.

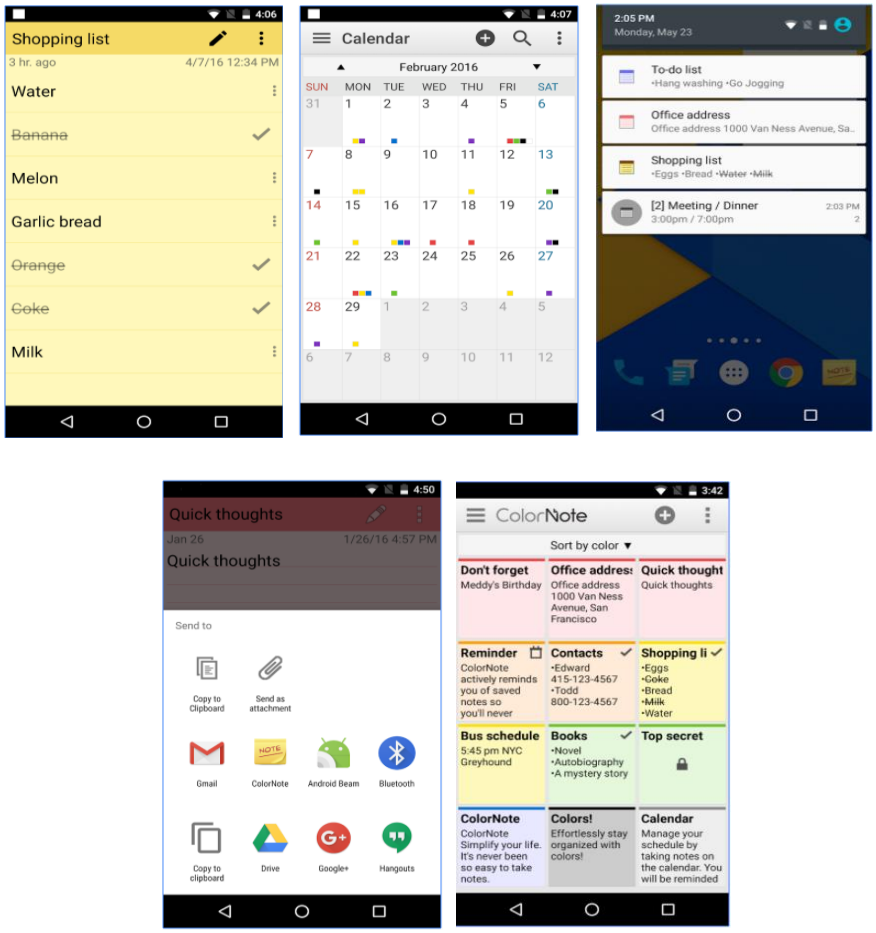

Figure 2.1: ColorNote Application

2.2.2 Sticky Note (Bratag, 2011)

It is unsubstantial Android application likes widget where it is being installed like regular applications. The users can add the application to home screen as a widget. Each sticky note is a widget, so that the users can create many sticky notes as they need, and they will be stick on the home screen. There will be no problem since the size of widget is 1x1 section of icon grid, thus more notes can be stick on home screen at once and they can be easily removed from the home screen to trash.

This application is the fastest solution with the concept applied. This is just a basic sticky note solution. The feature for customization which is color; is handy where the users can apply color to their sticky notes from a different color selection. The sticky notes became small size on the home screen, so obviously the users need to tap the notes to view the full notes. This application provides quick access in that information such as shopping list, a reminder, or any important note that had been set up. The user interface of the application can be seen in Figure 2.2.

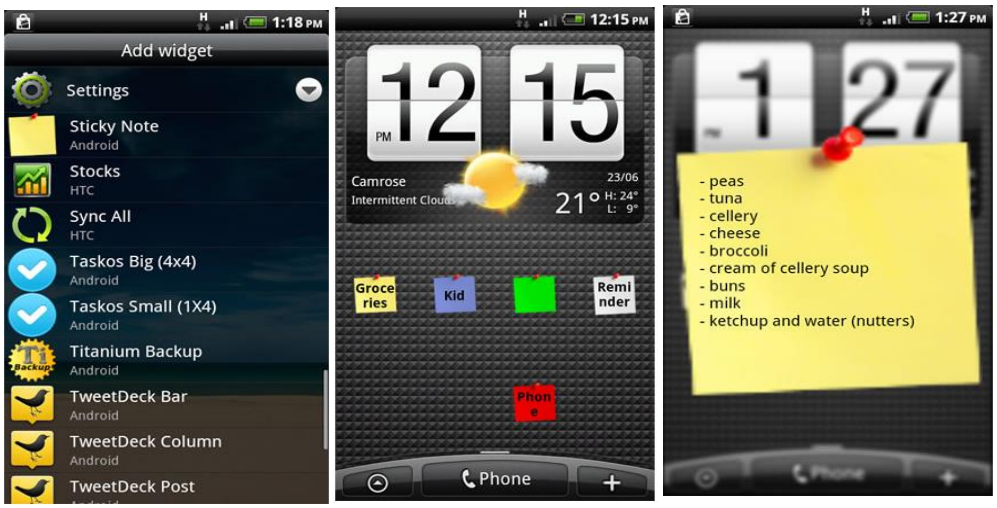

Figure 2.2: Sticky Note Application

2.2.3 Keep My Note ("Keep My Note," 2018)

It is such a simple and easy WordPad that the users can access for quick notes and to-do list note taking formats. The application serves the notes in folder organizing. Thus, the users can see the notes straight from the folder. This application can be in widget for to-do list and sticky notes. In the word processing program, the fonts can be changed based on user needs such as bold, italic, underline, strikethrough, and highlight options. Other than word processing program, handwriting notes and drawings are provided. The users can use the drawings mode to make the notes become interesting. To make the application, the developer input the voice recognition concept to make it as smart application. The users no need to worry for the notes lost because the application has its own backup.

The features provided based on the user needs and they can set up by themselves for resizing, type and color of fonts, theme and pictures attachment. When the notes done in the application, the users can share the notes and to-do lists with other applications. The most important thing, the notes can be lock and unlock by applying in having their own password. The users can access the application offline without being online. Notes are useful when the alert concept is being applied for reminder. Keep My Note with alerts where the users can make reminder for their motes and to-do lists.

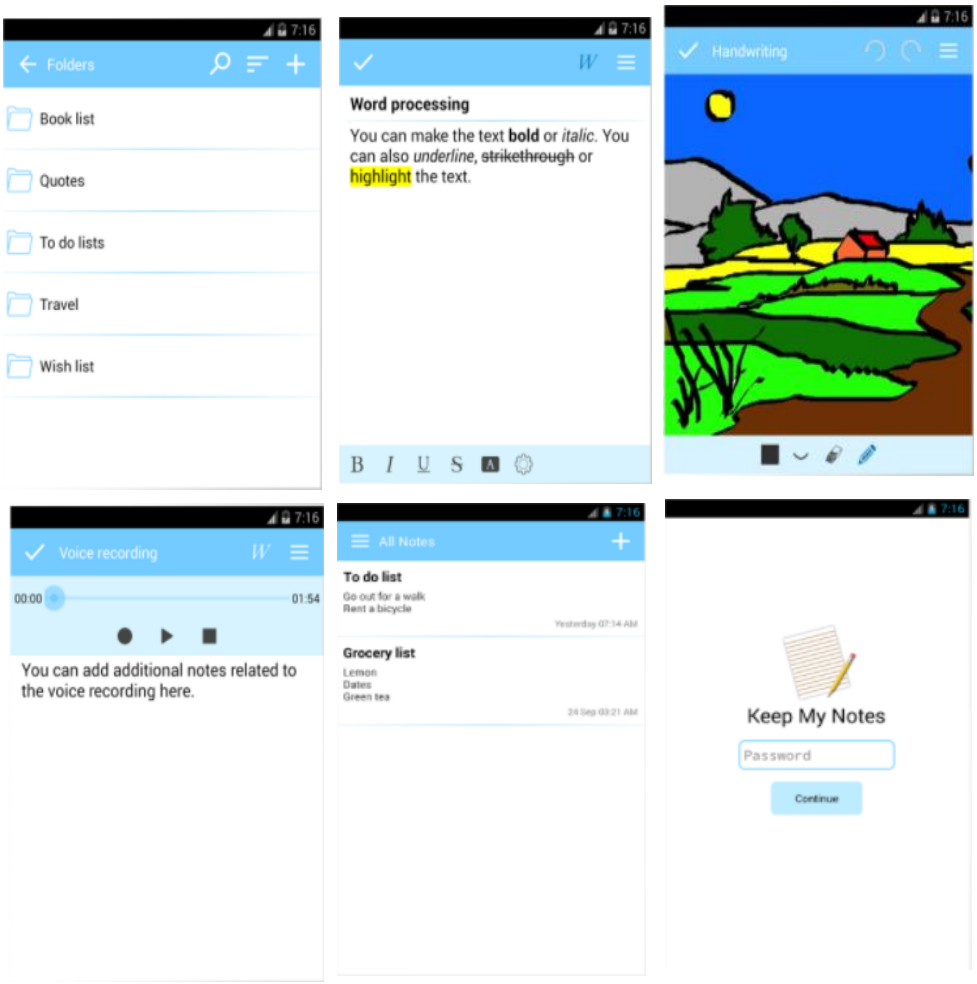

Figure 2.3: Keep My Note Application

2.3 Comparison on Existing Applications

Those applications can be differentiated by comparing their features and functions that have been identified and tabularized. The table of comparison between three existing applications is the following below: -

Table 2.1: Table of comparison between three existing applications

Existing Application	Users	Software /Platform	Features
ColorNote Notepad Notes	Suitable for users (students and adults).	**Software**: Application, Database. **Platform**: PC, Android in varies devices.	✓ Taking notes: text notes and checklists ✓ Color-coding ✓ Putting sticky notes ✓ Setting a remainder ✓ Managing schedule with calendar ✓ Fonts setting up ✓ Locking notes ✓ Sharing notes ✓ Archiving notes ✓ Backing up notes ✓ Using auto link ✓ Searching for notes ✓ Searching the web (Android 4.0 and up)
Sticky Note	Suitable for users (students and adults).	**Software**: Application, Database. **Platform**: Android in	✓ Putting sticky notes ✓ Color-coding Flaws: It is too simple with basic features in making notes.

		varies devices.	
Keep My Note	Suitable for users (students and adults).	**Software**: Application, Database. **Platform**: PC, Android 2.3.3 and up.	✓ Taking notes: text notes and checklists ✓ Color-coding ✓ Setting a remainder ✓ Locking notes ✓ Sharing notes ✓ Archiving notes ✓ Backing up notes ✓ Using voice recognition ✓ Fonts setting up

All the applications have their own criteria and function, thus the summary of them can be referred to Table 2.2 below:

Table 2.2: Table of criteria that need to be compared by three existing applications.

Criteria	ColorNote Notepad Notes	Sticky Note	Keep My Note
Graphical User Interface (GUI) (Color, Fonts, Design)	Great GUI with attractive design, fonts and color applied in the application.	Simple notes with edit text only.	The GUI apply some pastel color that make the application looks not too attractive.
Functionality	The application is user friendly because the application is easy to use and has smooth flow by organizing the sequence of features in the application.	Easily to be used by user where the navigation is too simple.	The navigation in the application is simple and easy to use.

Other than criteria, there will be the pros and cons for the applications. Table 2.3 below shows the comparison between advantages and disadvantages of the applications.

Table 2.3: Table of comparison of three existing applications on advantages and disadvantages.

Criteria	ColorNote Notepad Notes	Sticky Note	Keep My Note
Advantages	• More features. • Bright color themes.	• Easy to use.	• More features
Disadvantages	Less type of notes provided.	Simple and less features.	Pastel color themes.

By referring to Table 2.1, Table 2.2, and Table 2.3, those applications have their own advantages and disadvantages. The users might able to sometimes forget some important things that really need to be remembered. These notes applications give big benefit to users because they need to apply well in their mobile device and handy to bring anywhere. Moreover, the remainder can be set up for the notes. The notes preference can be edit based on the user needs. The advantages for those applications depend on the user needs for the application preferences where they prefer to write their notes as wish. Sometimes, the users need to jot down only in the note application without change the preferences like color theme, fonts, and add some images. Otherwise, some users may use to make the notes become attractive by applying the color theme, using handwriting and drawings, and changing some fonts based on their needs.

The notes should be in simple applications, but with multiple functions ColorNote Notepad Notes is such a complete application with perfect features while Keep My Note is a medium application because the features provided are less than ColorNote Notepad Notes and Sticky Notes is a small application with

some basic features for overall notes applications. Those application are user friendly because they are easily to use and can be understand well by working on them. Thus, Easy Z Notes application is supposed to be a simple application with varies features that being inspired and derived from other note applications in a smart phone that give efficient ideas in note management for users. Besides, it can be operated on smart phone to be user friendly and fulfil users' needs. The exceptional features that can be implemented in this application are type of notes in to-do-list with GPS features where the users can save the location in the notes and it will make them easier in finding the location later. For example, the user needs to type the 'mall' and the GPS will track the shop location for users. Other than that, it also consists of bright color themes notes, and backup notes.

As a conclusion, each of those existing applications have their own features in note management for user needs and their satisfactions. The Easy Z Notes application seems much easier to use and applying the concept from overcoming the weakness in those existing applications to give satisfaction in user needs.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter discussed about the approach and framework of Easy Z Notes Application. Besides, the method, model and tools of software and hardware that will be applied in the system development are also will be explained along in this chapter.

3.2 Methodology

There are a few of factors that should be considered before doing methodology evaluation. For examples are organizational strategic goals and core values, key business drivers, constraints, stakeholders, risks, complexity, and project size and cost. For the development of Easy Z Notes Application, the method that will be used is agile method. This method is suitable for the project that need to be developed flexibly and faster. It requires for short delivery cycles that are called sprints. It can be the best method for project development that has less control and real time communication for self-motivated team settings. Besides, agile can be categorized in highly interactive that allows for project in rapid adjustments. Agile commonly will be used for large projects because it will become easier when there are some modifications of parts that need to be done after identifying some issues. It does not need to wait for testing phase completed.

The development will use an agile methodology. It used primarily for software development projects. It is a lightweight agile project management framework with broad applicability for managing and controlling the iterative and incremental projects of all types. Besides, it can be the basis of project development. It is suitable for object-oriented development framework which is possible to make the improvement for the quality of software and the changing requirements from user. Sticky Notes is an application that can manage user

notes in various type of notes provided with some other features. Thus, it requires some testing repeatedly due to satisfaction of user and the method helps the application to ensure that it is executable and give satisfaction to user.

There are some benefits in using agile method such as reduces risk, repeatable processes, allows feedback immediately, provides fast turnaround and reduces complexity. Besides, the method gives more advantages in stakeholder engagement, focus on users, predictable cost and schedule, continuous adaption to change circumstances, and the late changes in requirements are allowed. The phases in SDLC involve are planning, design, development, implementation and testing. Each complete cycle is called as iteration and it can consist for an iteration or more.

3.2.1 Planning

The feasibility and scope of the problems in current Note applications are identified and come out with solutions. There will be some resources, costs, time and risks that are fully considered for Easy-Z Note application. This planning phase is more likely the project proposal.

3.2.2 Analysis

This phase involves requirements gathering from user interviews for project development to achieve the project objectives. The gathered requirements are analysed and studied for their validity and the possibility of requirements cooperation in the Easy-Z Note Application development. After analysing and studying the user requirements, a requirement specification document of Easy-Z Note is prepared as references and guidelines for the next of the development.

3.3.3 Design

The designs of Easy-Z Note application are created based on the user requirement specifications which IS functional that includes the description of interface requirements and non-functional specifications are new enhancements or features from current Note application. The interfaces of Easy-Z Notes are designed in this phase. The hardware and software components, some entities and their relationships of this application are identified. The use case, context diagram, and others are created for more understanding. Besides, the software

requirement specification and software design documentation for Easy-Z Notes application will be conducted in this phase.

3.3.4 Implementation

After designing the phases for the application development is done, the modules and tasks that are needed and actual coding implementation are started. This phase is important and become the focus for the developer in developing Easy-Z Note application. It is because the code for readable computer is produced along with other activities in this phase.

3.3.5 Testing

When code implementation completed, testing phase will be conducted by testers. There are two types of testing occurred in this phase which are integration and system testing. Easy-Z Note application will conduct user acceptance testing (UAT) at the last part of testing phase and it will be performed by end users where it is for ensuring the application meets their requirements and expectations based on the functional and non-functional requirements. At this step, errors and defects may be found and they will make some phases involve such as analysis, design and coding implementation.

3.4 Product Description

3.4.1 User Characteristics

Users description will be shown in Table 3.1 below.

Table 3.1: User Characteristics of Easy-Z Notes

User	Education Level	Background Experience
Users (11 years old and above)	Primary school and above	Users that have knowledge on using the mobile applications.

3.4.2 User Requirements

The users need some extra features that are being provided from the application due to the limitation of features of previous application. Besides, the bright theme color should be applied in the Easy-Z Notes application. For user friendly, the users can access the GPS function to search the nearby location in the Easy-Z Notes without opening other application and save the result searching in the application.

3.4.3 User Characteristics

Notes application is constrained by SD Card because it needs to fetch data from database to be input in SD Card. It will use for back up function. The users feel hard to find the nearby location when they need the listed things in to-do-list notes. The application will provide the GPS function where the location can be saved for the location detected and it will be used for users' review later. Because of the GPS accessing, the internet connection should be used for user to search the nearby locations.

1.5 Software Product Features

3.5.1 Product Information

Easy-Z Notes application has only one actor which is user for ages 11 years and above which are students and adults. Figure 3.1 shows a use case diagram for user in using this application. There are some main features that user can apply while using it.

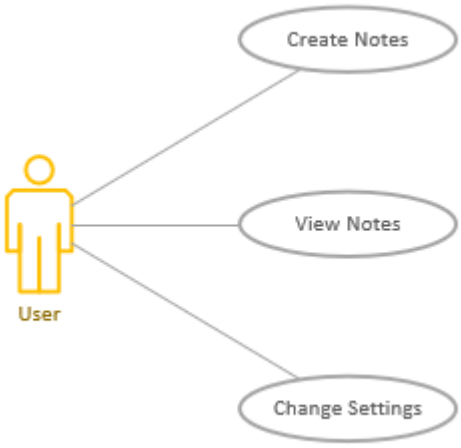

Figure 3.1: Use Case Diagram of Sticky Notes

Create Notes use case provides some functions that can be used by user. The user can create any type of notes based on user needs. It contains draw, text, photo, and to-do-list. First type is text notes where the user can create the notes in text form like paragraph. The title can be written in the space provided at the top left of user interface. Second is a draw note. It provides user to draw by using hand and eraser to erase the drawing. The user can make the selection based on user's need. For the photo note, it also will provide a space for note descriptions and the photo can be browse from the phone gallery and accessing the camera and

video from phone itself. Besides, there will be a space for user to jot down any note that have being applied same with the other type of notes. Next is the to-do-list type of note which is suitable for user that wants to create in list form of note and being provided with GPS function for user to search and save the nearby location that have being detected based on user needs.

View Notes use case consists of some features which are add note and search notes. Search is used for searching in quick action by typing one or two alphabet and the system will view the notes that relate with the keyword that has entered by user, while add note is new created note by user like in Create Notes use case. Besides, this use case also consists of functions on delete, edit, and reminder.

Settings use case provides more features on setting. Notes provides settings for the notes preference to make the notes meet with user requirements. There are more background colors that user can sets before creating the folder. Furthermore, there are also backup, restore, and about notes function where the user can make notes back up in the SD card storage and restore the notes from the folder in SD card. Besides, there is a share feature in the to-do-list notes that user can share the notes with others through social media application.

3.5.2 Product Perspective

Figure 3.2 shows the activities and interaction between user from all ages around 11 years old above and Note Android application.

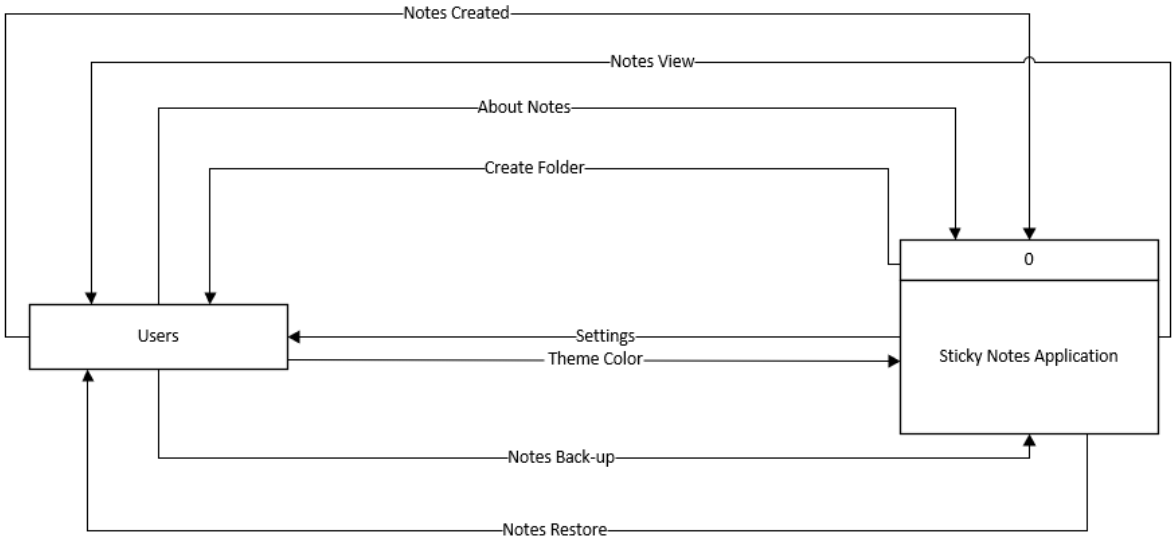

Figure 3.2: Context Diagram of Sticky Notes

3.5.3 User Interfaces

View Notes shows the notes that user already created with some folder on the interface like stated in Figure 3.3. There are setting, search, and add function. Setting symbol has three shape of rectangle that was arranged horizontally at the top left of user interface. It consists the user needs such as backup, restore, and about of application descriptions. Search button can be selected for user to search the notes that they want to view by inserting the necessary words. Add function is used for user to create a new folder.

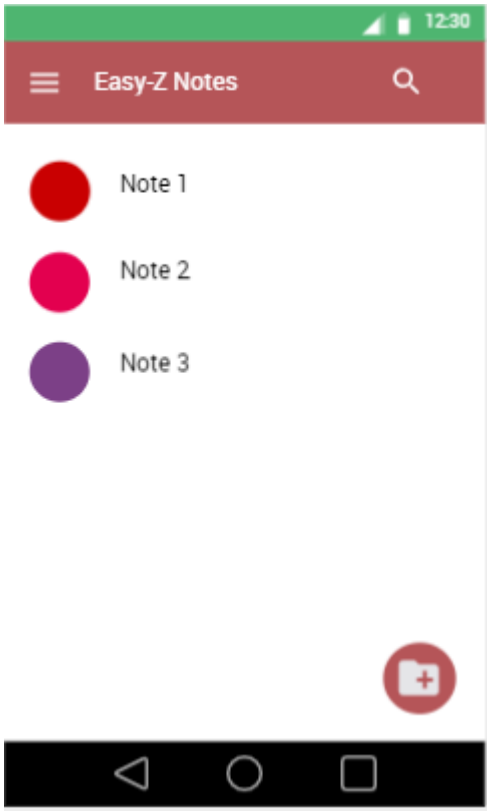

Figure 3.3: View Notes user interface

Figure 3.4 below shows a search function where it is used for user to make quick action in searching their notes without scrolling and checking the notes one by one. The searching result will appear at View Notes (Figure 3.3).

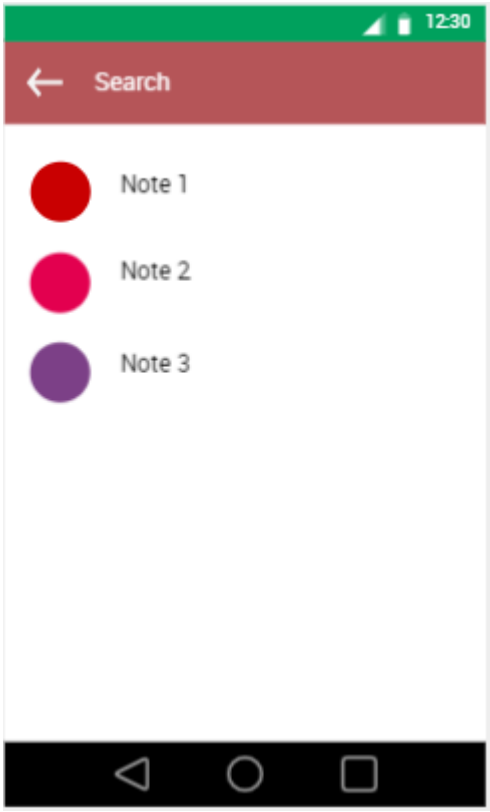

Figure 3.4: Search Notes user interface.

Theme color can be a main role for any notes that user want to create because it will make the notes become attractive. Figure 3.5 below shows the color theme pop up in a dialog box where the user needs to choose the theme color first before creating the notes. There are some choices of color themes in a stack arrangement. The pop up appears when the user selects an add folder icon at the right bottom on Figure 3.3, which is the View Notes user interface.

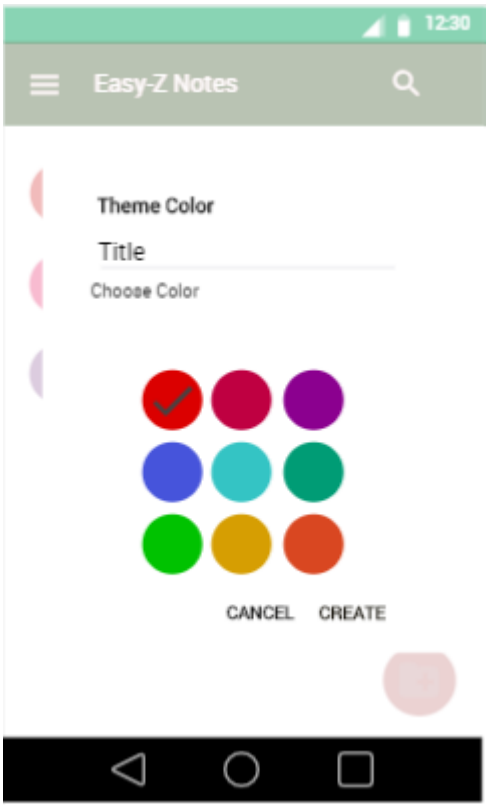

Figure 3.5: Color Theme user interface

After creating a folder, user can select the folder created to make the notes by choosing any type of notes that preferred. There is also an add function in the type of notes user interface. It provides user with four type of notes which are draw, text, photo, and to-do-list. The type of notes user interface can be referred to Figure 3.6. The interface is in red color theme because the folder that have being created, choose the Red color theme by selecting one of the color in a stack of color themes.

Figure 3.6: Type of Notes user interface.

Figure 3.7 below shows draw note user interface. It consists a space for drawing and two icons for pencil and eraser. The pencil can be used by user to make drawing line, while the eraser symbol uses to erase the unnecessary drawing. The back and delete icon also can be seen in the interface. Their functions are same with other which are to save and delete the notes.

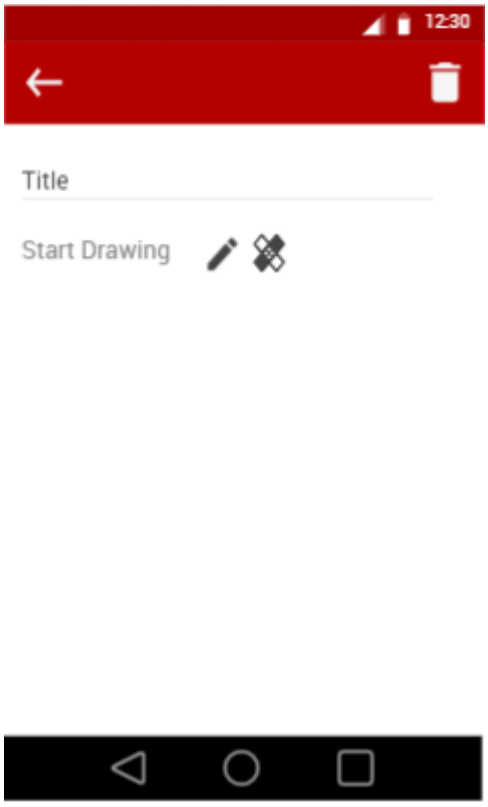

Figure 3.7: Draw Notes user interface.

Figure 3.8 shows the text note user interface where the user can create the note like the usual text in paragraph. There is a title on the above interface where the user can input the title name for the note. Delete icon appears the most at the right top on the user interfaces. It uses to delete the notes that user do not need. The specialty for the notes is where the user can choose the font style to create the notes below. The font styles that have being provide are bold, italic, and underline. User can select the style of font before starting to write any notes if needed. The back icon is used for user to reverse the interface and when the user selects the back icon, the notes will be automatically being saved. The user has no worry when the back icon is not selected on purposely because it has been implemented with automatic saving notes function.

Figure 3.8: Text Note user interface.

The same features from text note have being applied in photo notes for font styles like bold, italic, and underline. Figure 3.9 below shows Photo Notes user interface. There will be a space for note taking and picture uploading where the user can select an image from the phone gallery or using phone camera for taking picture and recording a video. All the type of notes can be edited and deleted. The image that have being uploaded or taken from camera will appear at the below of note taking. There are three button of function which consists of Camera, Video, and Gallery.

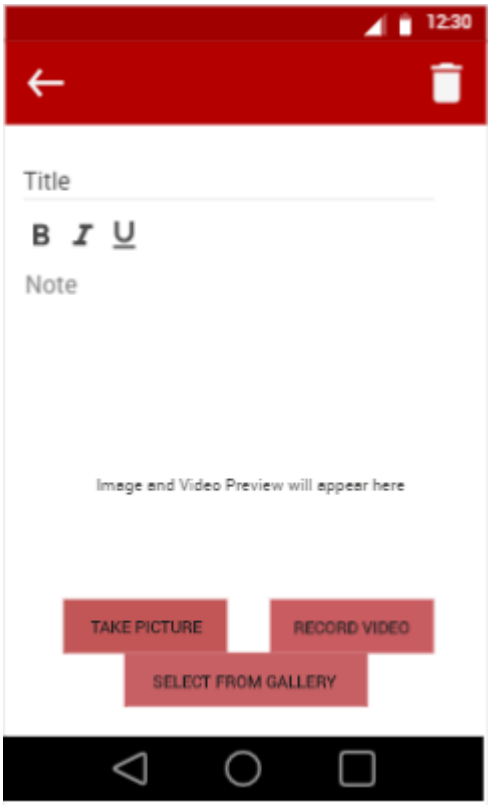

Figure 3.9: Photo Notes user interface.

As shown in Figure 3.10, to-do-list notes used the list view that will make it easier to add notes one by one. This type of note is suitable for user which needs to do some list and refer the notes later. Besides, the features will add up with GPS function where the users can easily search the list of nearby location that have being tracked by GPS and the detected location can be saved for user to refer later. The location detected is based on the filter places that have being selected by user in GPS function. Delete button is provided automatically when user already key in the notes needed. Figure 3.8 consists the list view of notes that have been created. It also consists of a back, setting and add icon. There are some information that have been set up by user which are reminder, and the saved location.

Figure 3.10: To-Do-List Notes user interface.

Add icon in Figure 3.10 is used to create a new list of notes. Figure 3.11 below shows a dialog box for inserting or editing a task for to-do-list notes function. By entering a title in a Enter title space provided, the user already can make a list of notes that the user wants. The list can be written in a space below a title entering. The interface consists of some buttons which are Select Date, Select Time, and Select Location and two selection either the user wants to continue creating the notes, or cancel on creating the notes. It also has back icon and setting icon.

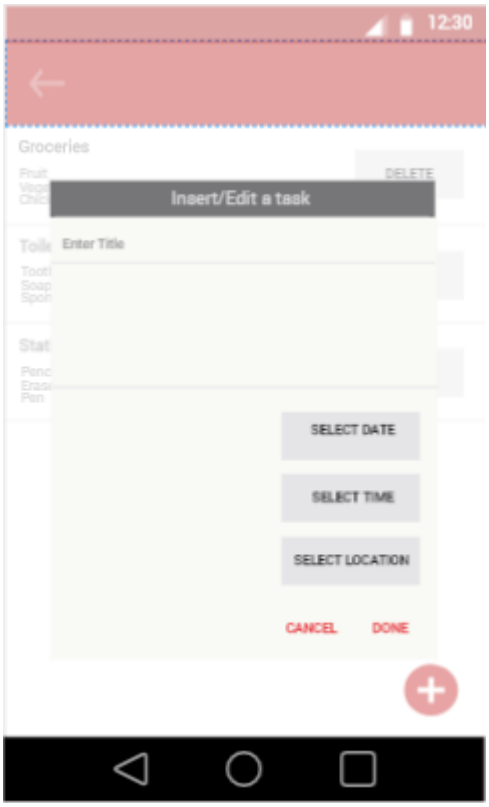

Figure 3.11: Insert/Edit To-Do-List Notes user interface.

Date selection is appeared when user select the Select Date Button in Figure 3.11 above. Date is used for user to make a reminder. User interface of Date Selection can be referred to Figure 3.12 below. Click on OK selection if user want to continue the date selection, otherwise click Cancel selection.

Figure 3.12: Select Date user interface.

After creating the date reminder, the selection will appear on TextView in Insert/Edit To-Do-List Notes user interface. Then, user will proceed with the other button selection. Figure 3.13 below shows the date selection user interface.

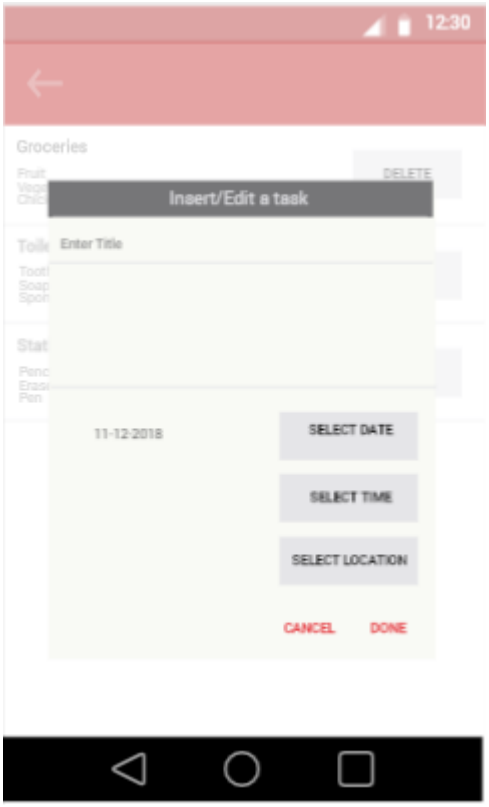

Figure 3.13: Date selection user interface.

Reminder need to be set up by choosing the date and time. Thus, the user can select the time in hour and minute based on the user needs. Figure 3.14 below shows Select Time user interface. The time chosen will be shown on the top of select time dialog box. After done with the time selection, select OK to continue with other function, but if user do not want to proceed with the reminder, user can select CANCEL.

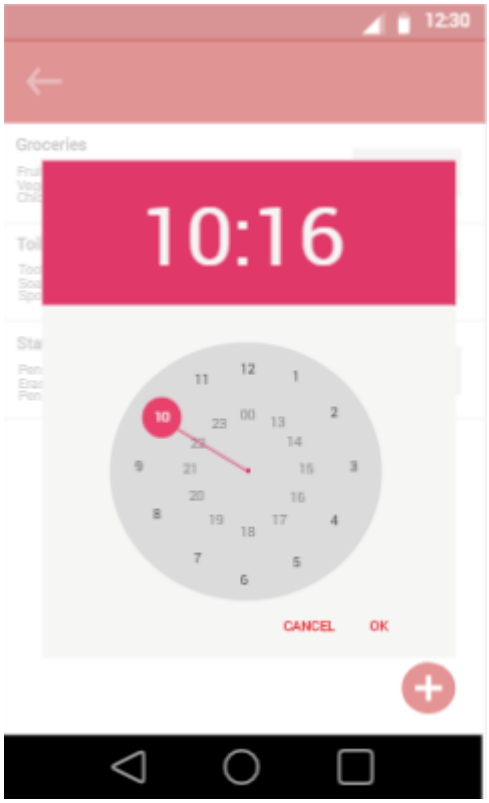

Figure 3.14: Select Time user interface.

Same application that have being implemented in date selection user interface. The time selection will appear on the TextView in Insert/Edit To-Do-List Notes user interface. Then, Select Location button can be selected to find the nearby location. Time selection user interface can be referred to Figure 3.15 below.

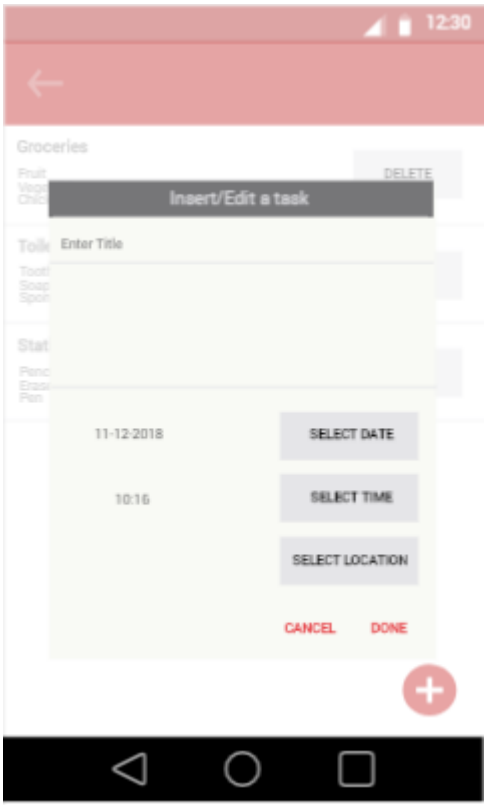

Figure 3.15: Time selection user interface.

After clicking a SELECT LOCATION Button, the user will be brought to nearby location detection in list view as shown in Figure 3.16, but there is a map icon for user to view the nearby places in map view that can be seen in marker icon. There will be the full address for the nearby location, distance from current location, saved button, back icon, map view icon, and filter places icon at the top right of Nearby Location user interface. Save button is used for user to save the nearby location and the saved location will appear on the TextView in Insert/Edit To-Do-List Notes user interface like the date and time selection as mentioned above.

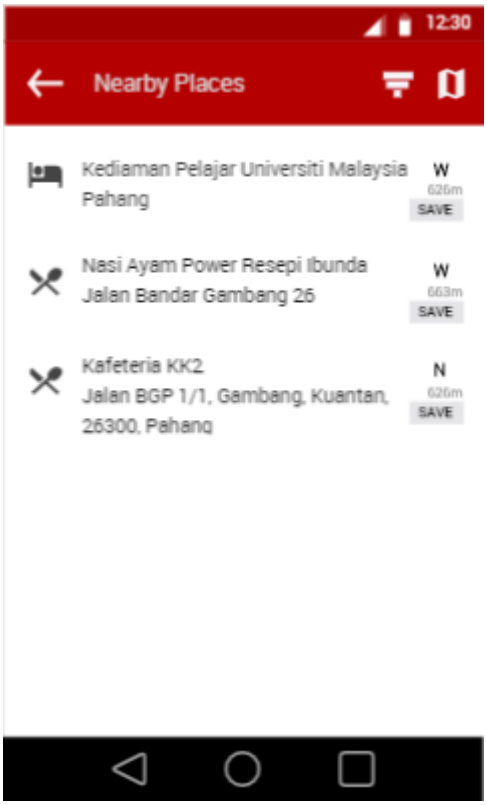

Figure 3.16: Nearby Location List View user interface.

Figure 3.17below shows the nearby location selection user interface. It will be shown after user select the location in the list view. After selecting the location in the list view, the application will go to map view to show more detail about the location selected. The information that are provided is the location address, and the type of the location.

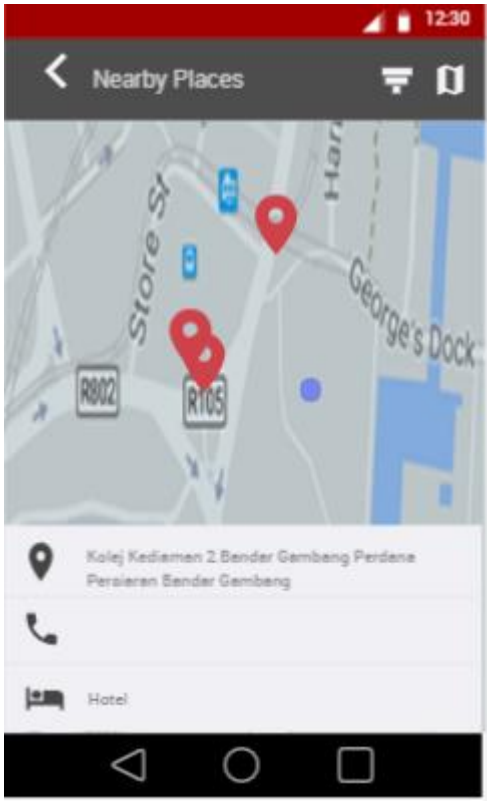

Figure 3.17: Nearby Location Selection user interface.

User can view the nearby location detection in map to be seen more clearly because the map shows the current location too. Thus, the user can clearly see the location from current place. The map view will appear after user selecting the map icon on the Nearby Location List View which is positioned at the top right of user interface. The Nearby Location Map View user interface can be referred to Figure 3.18 below.

Figure 3.18: Nearby Location Map View user interface.

There are some places that have being provided for user to filter based on the user needs. After selecting the places in the dialog box, user can continue to the nearby location detection based on the places that they have being filtered by selecting APPLY Button. Otherwise, user can select CANCEL Button to cancel the filter places and continuing with the list view or map view nearby location detection. Filter Places user interface can be referred to Figure 3.19 below.

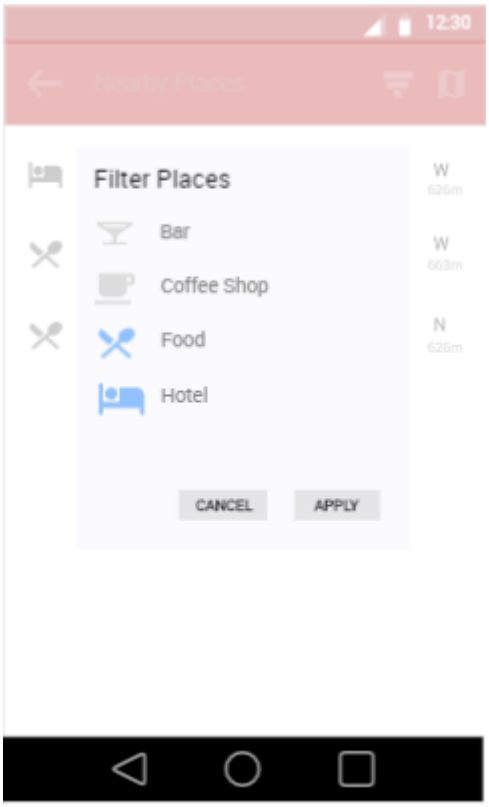

Figure 3.19: Filter Places user interface.

The list view notes can be sorting by selecting the Sort by function at the top right of Sort by user interface as stated in Figure 3.20 below.

Figure 3.20: Sort by user interface.

After selecting the Sort by function, the type of sorting will appear accordingly in dialog box. The choices of the sorting selection are title, created, and accessed. Sorting notes user interface can be referred to Figure 3.21 below.

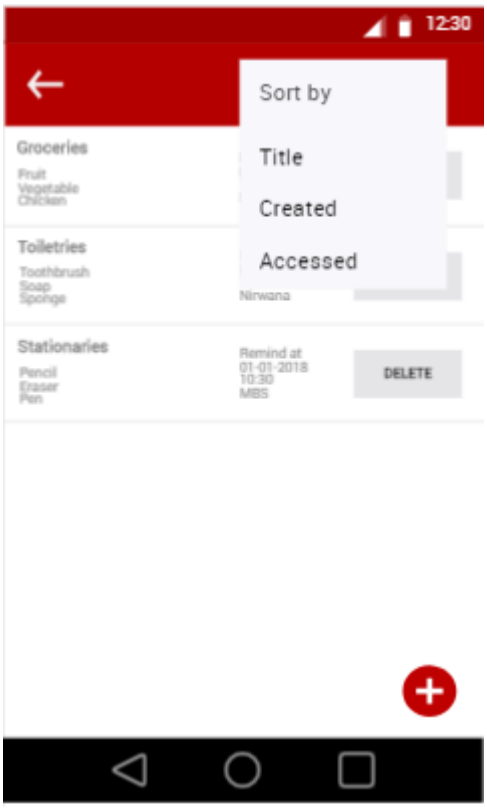

Figure 3.21: Sorting notes user interface.

Figure 3.22 shows the setting functions. This settings user interface will appear after user clicks the settings symbol button on the top left corner on user interface. It contains back up, restore, and about function.

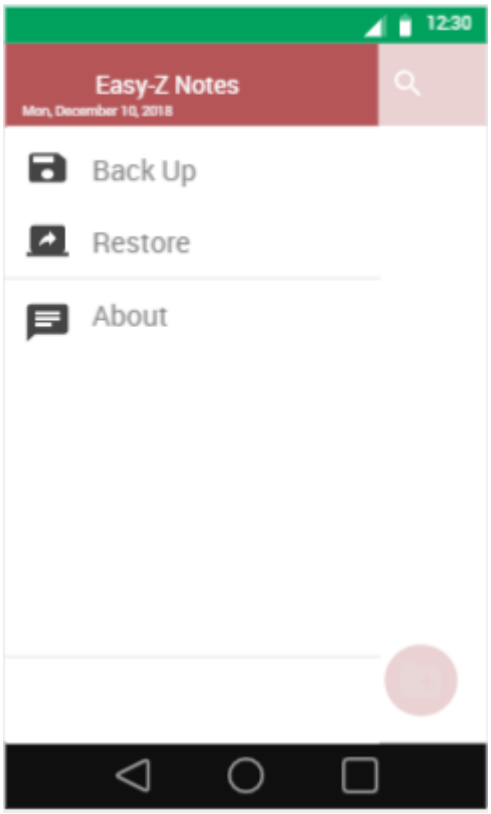

Figure 3.22: Settings user interface.

The Backup Data user interface can be referred to Figure 3.23below for user after selecting a Backup function in Settings menu. Select a folder that user wants to backup data. After selecting a folder, select Choose button to continue backup data. If user want to cancel the backup notes function, the user can select Cancel Button. New folder can be created by selecting new folder icon at the right bottom of user interface.

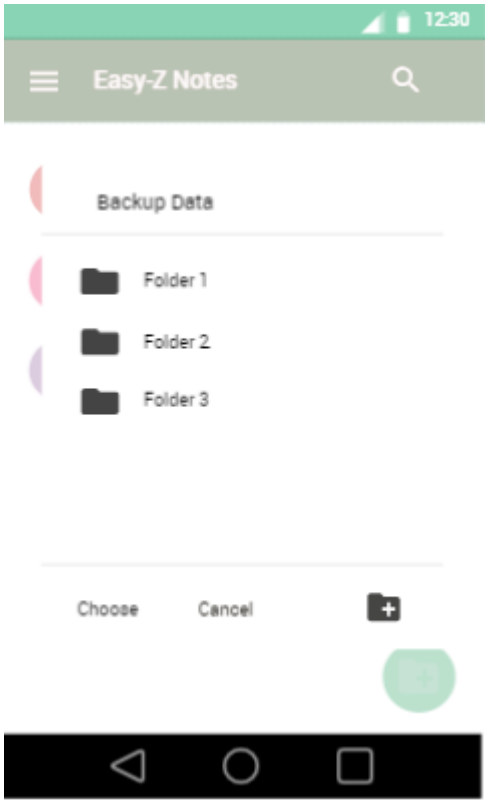

Figure 3.23: Backup Data user interface of Easy-Z Notes.

Figure 3.24 below shows New Folder user interface. Name a folder in the New Folder then select Create to continue in backup data. Cancel selection is used when user do not want to continue in creating new folder for backup function.

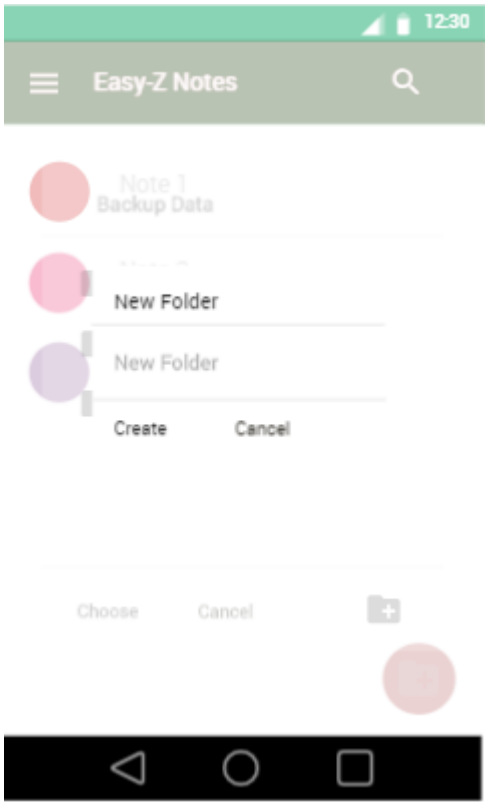

Figure 3.24: New Folder for Backup Data user interface of Easy-Z Notes.

The Restore Data user interface can be referred to Figure 3.25 below. Select a folder that user wants to restore data. After selecting a folder, the data will be automatically restored, and system will pop up a snackbar of restore message at the bottom of interface. Select Cancel for cancelation of restore data.

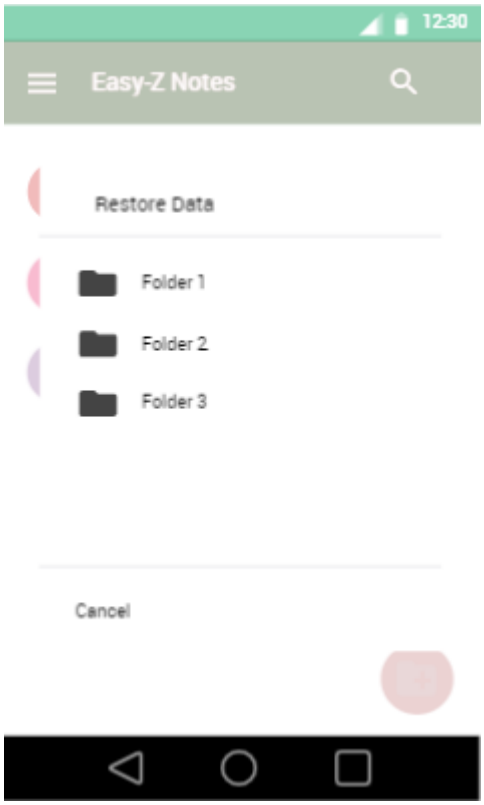

Figure 3.25: Restore Data user interface of Easy-Z Notes.

About user interface will appear as pop up after selecting About on Settings user interface as stated in Figure 3.22. About pop up a message on Easy-Z Notes description as stated in Figure 3.26 below. Select OK button to continue the Easy-Z Notes mobile application.

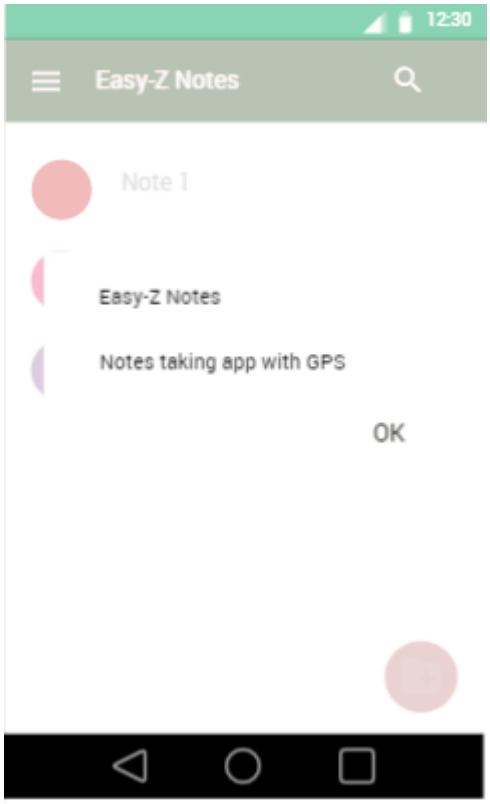

Figure 3.26: About user interface of Easy-Z Notes.

3.5.4 Hardware Interfaces

This application has direct hardware interface which is SD Card that will used by backup and restore function.

3.5.5 Software Interfaces

This mobile application needs to communicate with SQLite because it needs to fetch data from its database.

3.6 General Architecture

Figure 3.27 show a general architecture of Notes application. It consists of three layers which are application layer, object model layer, and engine layer.

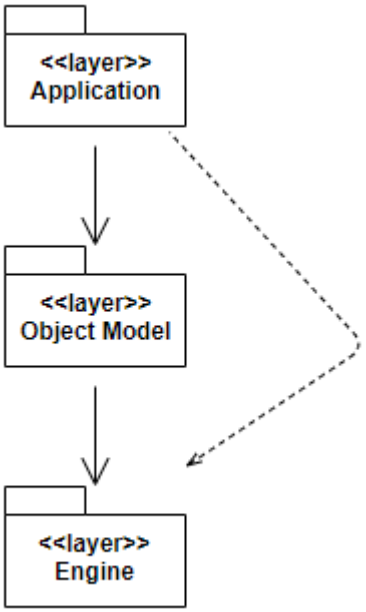

Figure 3.27: General Architecture of Easy-Z Notes application

3.6.1 Application Layer

The application layer consists of application-specific design elements which are all user interfaces designs of Easy-Z Notes application.

3.6.2 Object Model Layer

The object model layer is like a central store that consists of all information of Notes application and its event. For example, when the application needs to show the notes, the module that supposed to concern need to provide the features of the notes.

3.6.3 Engine Layer

The engine layer provides variety of features. It does not attentive the application layer because it only involves the object model layer which consists all the engine layer need. When it receives the event from previous layer, it reacts upon it.

3.7 Static Organization

This topic will identify the internal organizational structure of the Easy-Z Notes application. It will describe about the relationship of application sub application. The package

modules for Notes application as stated in Figure 3.28 which consists of UserModule, NotesModule, and SettingsModule.

Figure 3.28: Package Modules of Easy-Z Notes application.

3.7.1 UserModule

The package provides all the types of notes that user can choose based on their needs such as Draw Notes, Text Notes, Photo Notes, and To-Do-List Notes.

3.7.2 NotesModule

This package consists of one part which is View Notes. It provides some features for user such as view and search notes. It will make a such quick action for users.

3.7.3 SettingsModule

The package has some choices for notes setting. Users able to access setting based on their needs like back up, restore, and about.

3.8 Dynamic Organization

Figure 3.29 shows the components and their relationships between each other in the Easy-Z Notes application.

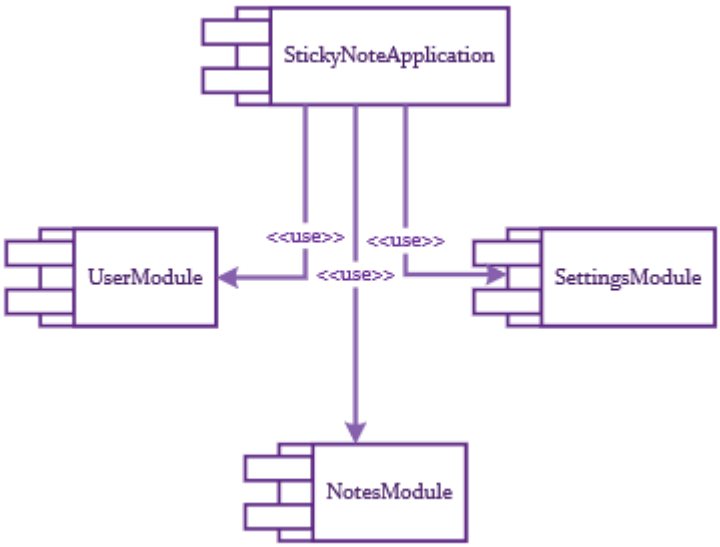

Figure 3.29: Component Diagram of Easy-Z Notes application.

3.9 Hardware and Software

An application must require a certain condition to make it run perfectly on a platform. This section will be discussed about hardware and software requirements for the Easy-Z Notes Android application project.

3.9.1 Importance of Hardware Chosen

3.9.1.1 ASUS Laptop

Sticky Notes application will be developed on Windows 10 platform which is essential for installing some development tools that are the best. Some software like Microsoft Project, Microsoft Visio and Android Studio can be installed well in Windows 10 platform. The specification of the laptop as shown below: -

- Intel Core i5-5200U, up to 2.7GHz
- 4GB RAM
- Windows 10 (64-bit) operating system

3.9.1.2 1TB Hard Disk Space

The hardware is connected with the laptop during the development of Note application as data back-up for the project to avoid any losing of work project and corruptions. It will make the project be kept safe.

3.9.1.3 Logitech Wireless Mouse M185

Mouse which is an input device, is associated with the laptop by connecting using USB. It moved along on a flat surface with far distance about two metres. It makes the cursor on the screen moves along with the moving the mouse. There are mouse buttons at the right and left side that can be pressed to make the cursor functioned.

3.9.1.4 Huawei p8 Lite

The device is used to run the Easy-Z Note application by connecting the USB with the laptop during the code running test in Android Studio software.

3.9.1.5 SD Card

SD Card of 4GB and above can be used in this application. This device will be used for back-up and restore function where the notes will be stored in SD Card as storage.

3.9.2 Importance of Software Chosen

3.9.2.1 Android Studio 3.1

Android Studio is a software and application development tool that consists IDE and SDK software, and library for users to develop software application.

3.9.2.2 Microsoft Office (Word) 2016

It helps more in handling the software development process. The documentation of the Easy-Z Notes application can be completed using this software.

3.9.2.3 Microsoft Office (Visio) 2016

It helps to construct the use case diagram, context diagram, package module, component diagram, and flow chart for Easy-Z Notes application.

3.9.2.4 Microsoft Office (Project) 2016

It was used in creating the Gantt chart for all the process during the development of the project. It will show the duration for each activity that already set up.

3.9.2.5 Google Chrome Web Browser 1.33.3.5

This software is a free web browser for all that contribute a platform to get more researches by connecting to internet.

3.9.2.6 SQLite

It is a local web server that keep the suitable setting for SQL. It can be run in any of the computer machine with any operating system. It is such a popular because it is quick, reliable, open source and free to use for all of users. It is used for Android software.

3.9.2.7 Fluid UI

Fluid UI is an online application where it can be used to design the user interfaces of mobile application. It is free and available for user to use anytime and anywhere with Internet connection.

3.10 Overview of Hardware and Software Chosen

The hardware and software that will be used in the development of Easy-Z Notes are mentioned below in the summary table below as referred to Table 3.3.

Table 3.2: Table of overview of hardware and software chosen.

Development Tools	**Functions**
Hardware	
ASUS Laptop	To install some development tools for developing the project.
1TB Hard Disk Space	To back up the project if any corruption happens.
Logitech Wireless Mouse M185	To make the cursor move easily, quickly and reduce time.
Huawei p8 Lite	To run the Sticky Notes application project.
SD Card	To store the notes as back up.

Software	
Android Studio 3.1	To develop Sticky Note application by applying some codes.
Microsoft Office (Word) 2016	To make the project documentation.
Microsoft Office (Visio) 2016	Used for making the use case diagram, context diagram, package module, component diagram, and flow chart.
Microsoft Office (Project) 2016	To make the project Gantt chart.
1.5.1.1 Google Chrome Web Browser 1.33.3.5	Used in searching information as resources by using internet connection.
SQLite	Setting for SQL in project database.
Fluid UI	It is used in designing the user interfaces for project.

3.11 Gannt Chart

Refer to Appendix A.

3.12 Flow Chart

Refer to Appendix B.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Introduction

This chapter deliberates about the integration and results of testing of Easy-Z Notes. There will be the results of developed interfaces, functions, and user acceptance test that will be used in testing phase as well as discussions and their explanation that the objective proves of the project are fulfilled. The purpose of this chapter is to discuss about all the setup of development that has been made. The android smart phone was being used as emulator where it was used to run the application. The database that has being used is SQLite.

4.2 Implementation

The development setup for the proposed application will be discussed. Android smart phone was being used to run the mobile application as an emulator, while for database, SQLite will be used in order of storing the data that have being input from user.

In the implementation phase, there must be some complications where there will be strength, weakness, or challenges. Easy-Z Notes mobile application creates its strength for the development phase which are the design itself where the position of features is in a consistent position for each of the application interface. It gives benefit to user in term of user friendly. User uses easily with comfortability. Besides, the designs may be look simply, but the features in designing the apps give user ease to use and suitable with the user ages. In developing certain functions that a bit similar with others, the same source code and techniques can be applied. Thus, the process of development will become fast and reduce time taken of implementation.

During this mobile application development, there are some objections occurred in combining the user interfaces of Easy-Z Notes. It became error in the source code because some data cannot retrieve from each other. It can be overcome in fixing the error by referring the solution in google information where there are more reviews from other people that have the same objections.

Besides, there is a big issue that occurred with the software that is used which is Android Studio. It happened when it comes to version updated. Developer must be aware and take a fast action to solve the issue. It can be categorized as a complicated issue when it relates with the software used itself. Sometimes, the technician also cannot resolve the issue. Developer took more time in solving the issue about Android Studio software. It will ask developer to keep updating the settings and others. Moreover, the time taken to fix the error from software is a bit long. When the software is in fixing error pending, the other task cannot be done because all the code functions must be implemented and tested using the software. After solving the complicated software issue, the Easy-Z Notes mobile application that have being implemented about fifty percent during that time became error because of the software updated version. The application become crash when developer want to run in mobile device. The solution of the application issue took time more due to settings problem in Android Studio software. Then, the developer proceeded with the other task by implementing the code separately with the Easy-Z Notes mobile application because it is better than just concentrate on complicated issue without taking any initiative in proceeding the coding implementation.

Due to big issue that relate with Android Studio software, the other code implementation also become pending, thus the complete Easy-Z Notes mobile application cannot be proceeded. Until now, the Easy-Z Notes mobile application is incomplete due to error in combining the separate coding implementation in different mobile application. The paused functions are photo notes, to-do-list notes, and searching function. Those three functions have been developed separately before from the Easy-Z Notes mobile application. As a result, User Acceptance Testing (UAT) cannot be performed completely because some functions are not combining completely due to problems occurred before. The code implementation in developing Easy-Z Notes mobile application is still in progress.

4.3 Development of Environment Setup

Easy-Z Notes application was developed by using an Android Studio with Java programming language. This type of language is a bit hard for a beginner, but after learning from tutorial step by step, the hardship can be overcome and easy to learn, but some complicated codes took a long time to learn and understand in developing the application.

4.4 Development of Database Setup

SQLite management is used to manage the database of Easy-Z Notes application. It is known as a simplest database because it is a non-client server database engine. The fact is it is being fixed into the client's program. This will give benefits on user to easily save and review the notes after creating them. The screenshot of some part of the codes that have being implemented for database is shown below in Figure 4.1 which is the code implementation in OpenHelper.java and Figure 4.2 is the Controller.java.

```
public static final String COLUMN_SQL        = "_sql";

public OpenHelper(Context context) { super(context, NAME, factory: null, VERSION); }

@Override
public void onCreate(SQLiteDatabase db) {
    // Main table to store notes and categories
    db.execSQL(
        "CREATE TABLE IF NOT EXISTS " + TABLE_NOTES + " (" +
            COLUMN_ID        + " INTEGER PRIMARY KEY AUTOINCREMENT, " +
            COLUMN_PARENT_ID + " INTEGER DEFAULT -1, " +
            COLUMN_TITLE     + " TEXT DEFAULT '', " +
            COLUMN_BODY      + " TEXT DEFAULT '', " +
            COLUMN_TYPE      + " INTEGER DEFAULT 0, " +
            COLUMN_ARCHIVED  + " INTEGER DEFAULT 0, " +
            COLUMN_THEME     + " INTEGER DEFAULT 0, " +
            COLUMN_COUNTER   + " INTEGER DEFAULT 0, " +
            COLUMN_DATE      + " TEXT DEFAULT '', " +
            COLUMN_EXTRA     + " TEXT DEFAULT ''" +
            ")"
    );

    // Undo table to make delete queries restorable
    db.execSQL(
        "CREATE TABLE IF NOT EXISTS " + TABLE_UNDO + " (" +
            COLUMN_SQL + " TEXT" +
            ")"
    );
```

Figure 4.1: Code Implementation in OpenHelper.java

```
public <T extends DatabaseModel> ArrayList<T> findNotes(Class<T> cls, String[] columns, String where, String[] whereParams, int sortId) {
    ArrayList<T> items = new ArrayList<>();

    SQLiteDatabase db = helper.getReadableDatabase();

    try {
        Cursor c = db.query(
            OpenHelper.TABLE_NOTES,
            columns,
            where,
            whereParams,
            groupBy: null, having: null,
            sorts[sortId]
        );

        if (c != null) {
            while (c.moveToNext()) {
                try {
                    items.add(cls.getDeclaredConstructor(Cursor.class).newInstance(c));
                } catch (Exception ignored) {
                }
            }

            c.close();
        }

        return items;
    } finally {
        db.close();
```

Figure 4.2: Code Implementation in Controller.java

4.5 Testing and Result Discussion

4.5.1 User Acceptance Test

A User Acceptance Test (UAT) is arranged to evaluate the functions of Easy-Z Notes that have being developed. There are three modules containing some main functionalities that must be tested. Module one, Create Notes consists of four functionalities which are “Add Draw”, “Add Text”, “Add Photo”, and “Add To-Do-List. Module two, View Notes approaches of two functionalities, “View Notes”, and “Search Notes”. Lastly, module three, Settings subsists of some functionalities. There are “Color Theme”, “Backup Data”, “Restore Data”, and “About. As mentioned in Implementation discussion, complete UAT cannot be conducted due to error occurred in combining some functions in a mobile application which is Easy-Z Notes. A total of 3 ump students are randomly selected to proposed UAT to trying out the Easy-Z Notes mobile application. After testing, each student is requisite to put a sign in a document as a proof that the application has been tested. The testing process will be conducted as a flow for one by one functionalities follow the data provided in the UAT to sustain whether the application functional well in specific situation. The objective of proposing the UAT is to navigate the application based on real environment where the

requirements are intending to be achieved. The complete UAT is attached in Appendix B and the policy of the UAT are listed as follows: -

1. Assign UAT form to tester (respondent from student in UMP).
2. Tester pursue the test case correspondingly to attempt the application along with the test data that have being provided.
3. Tester justice the real result and the expected result.
4. Tester assess the result whether “Pass” or “Fail” and add up with comment (Optional).
5. Tester sign and defer the UAT form.

4.5.2 Result Discussion

After completing the UAT form that have being collected from tester, the results data would be analysed and examined in establishing the Easy-Z Notes in order either the Easy-Z Notes mobile application have met the requirements and objectives.

The objectives of the Easy-Z Notes are not fulfilled completely based on the overall test cases results as expected. Easy-Z Notes not functional well in those three modules which are Create Notes, View Notes, and Note Settings that are being divided accordingly. It is because the code implementation for combining the user interfaces are in progress. The overall results of UAT that have being conducted by three users can be referred in Appendix C. Most of the Easy-Z Notes mobile application implementation was followed as in Chapter 4 which is stated in designing phase.

Some screenshots of Easy-Z Notes mobile application can be referred below: -

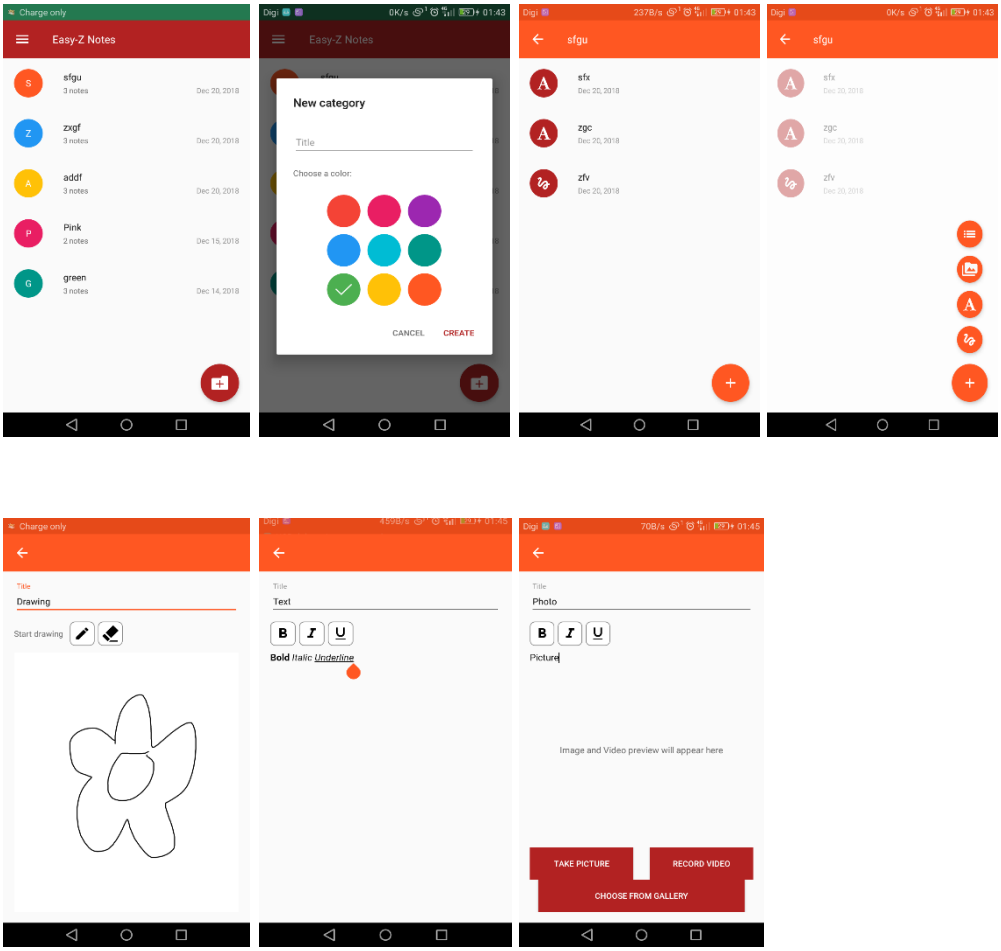

Figure 4.3: Screenshots of Easy-Z Notes mobile application.

The application that have been implemented separately due to complexity occur during the implementation phase are To-Do-List Notes with GPS function. The screenshots of some interfaces for those functions can be referred to Figure 4.4 below: -

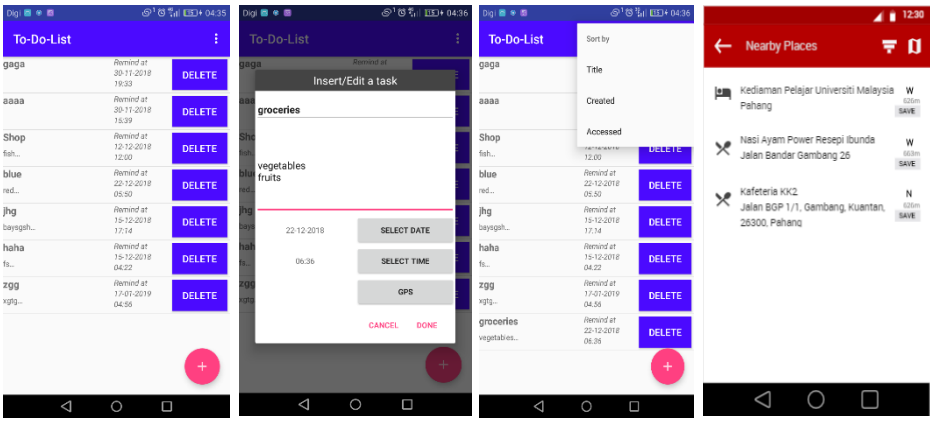

Figure 4.4: Screenshots of To-Do-List functions.

4.6 User Manual

User manual can be classified as a guidance in following the procedures for the first-time user in using the application. It contains description of the functionalities, hard and soft constraint, and possibility of Easy-Z Notes application. The entire of user manual can be referred in Appendix D.

CHAPTER 5

CONCLUSION

5.1 Introduction

This chapter deliberates about the integration and results of testing of Easy-Z Notes. There will be the results of developed interfaces, functions, and user acceptance test that will be used in testing phase as well as discussions and their explanation that either the objective proves of the project are fulfilled.

5.2 Research Constraints

The limitations of Easy-Z Notes are mentioned below, and they will be enhanced in the future:

I. Easy-Z Notes provides GPS function in to-do-list notes and the user can only save the location required in the application. The application is not automatically guiding the user to the location. Thus, user needs to search the location that have being saved in Easy-Z Notes at Google Maps separately. The saved location detected is used for user reference if the user wants to review later.

II. The notes in Easy-Z Notes mobile application are being saved in SD card only. In future development, Easy-Z Notes can be upgraded with more storage options in backup function like DropBox, Google Drive, and other.

III. The Easy-Z Notes is still having a limitation of features. More features can be implemented and combined in Easy-Z Notes that suitable be used for users from all ages. Thus, the Easy-Z Notes may become more interesting and can be used with variety functions.

5.3 Future Work

Easy-Z Notes is currently developed for mobile application in Android platform only. For future, Easy-Z Notes will be developed on IOS platform as well. Furthermore, Easy-Z Notes will be extended and integrated for more features that will give user more satisfaction than features that have being developed now. Backup functions should be stored in variety storage, not only SD card, so that the storage will become wider. Lastly, users will be able to share the notes from any type of notes in mobile application with other users through social applications.

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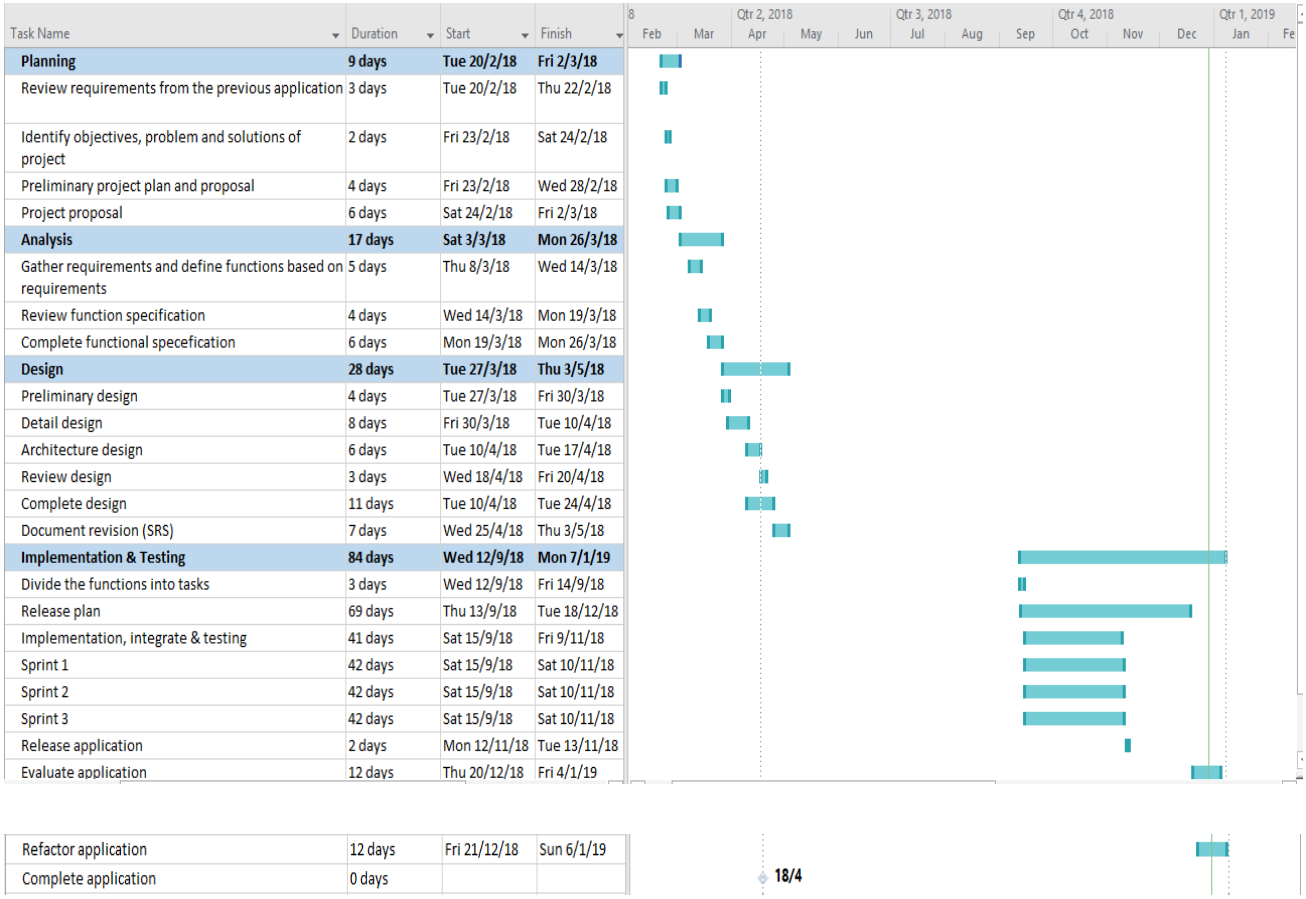
APPENDIX A

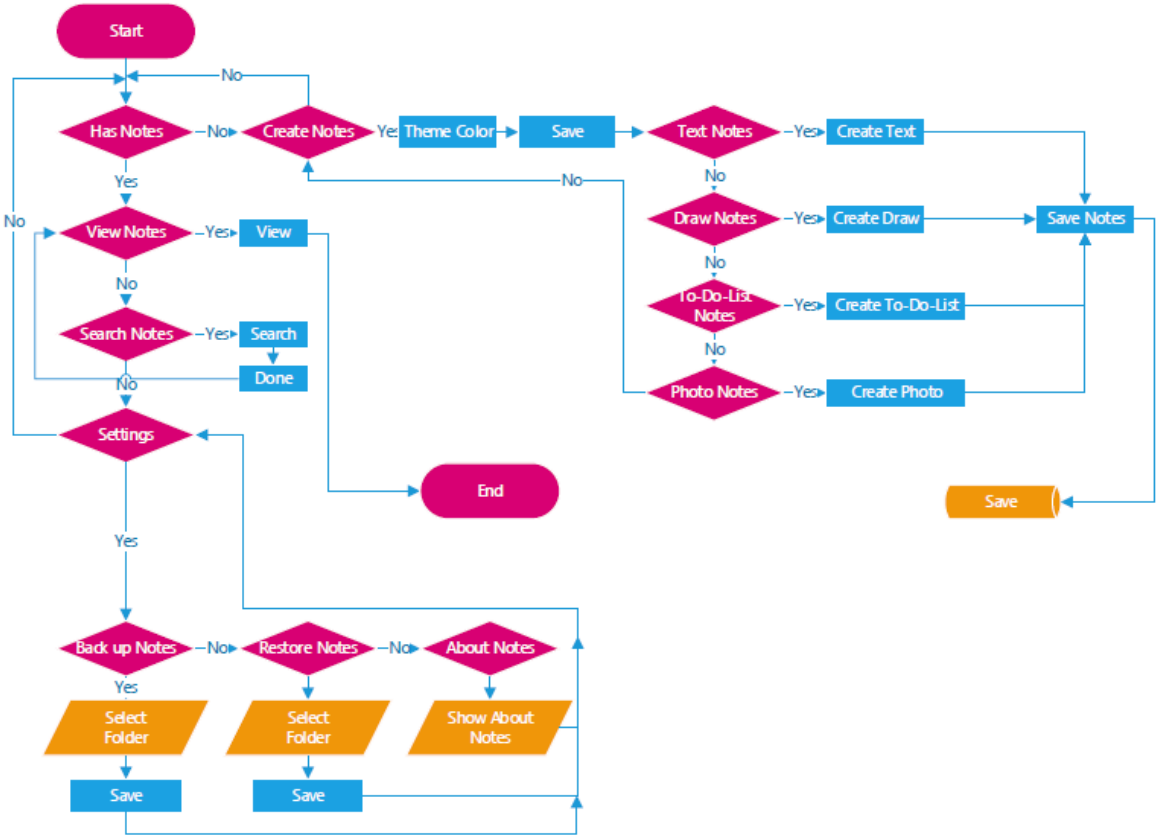
Gannt Chart



Task Name	Duration	Start	Finish
Planning	**9 days**	**Tue 20/2/18**	**Fri 2/3/18**
Review requirements from the previous application	3 days	Tue 20/2/18	Thu 22/2/18
Identify objectives, problem and solutions of project	2 days	Fri 23/2/18	Sat 24/2/18
Preliminary project plan and proposal	4 days	Fri 23/2/18	Wed 28/2/18
Project proposal	6 days	Sat 24/2/18	Fri 2/3/18
Analysis	**17 days**	**Sat 3/3/18**	**Mon 26/3/18**
Gather requirements and define functions based on requirements	5 days	Thu 8/3/18	Wed 14/3/18
Review function specification	4 days	Wed 14/3/18	Mon 19/3/18
Complete functional specefication	6 days	Mon 19/3/18	Mon 26/3/18
Design	**28 days**	**Tue 27/3/18**	**Thu 3/5/18**
Preliminary design	4 days	Tue 27/3/18	Fri 30/3/18
Detail design	8 days	Fri 30/3/18	Tue 10/4/18
Architecture design	6 days	Tue 10/4/18	Tue 17/4/18
Review design	3 days	Wed 18/4/18	Fri 20/4/18
Complete design	11 days	Tue 10/4/18	Tue 24/4/18
Document revision (SRS)	7 days	Wed 25/4/18	Thu 3/5/18
Implementation & Testing	**84 days**	**Wed 12/9/18**	**Mon 7/1/19**
Divide the functions into tasks	3 days	Wed 12/9/18	Fri 14/9/18
Release plan	69 days	Thu 13/9/18	Tue 18/12/18
Implementation, integrate & testing	41 days	Sat 15/9/18	Fri 9/11/18
Sprint 1	42 days	Sat 15/9/18	Sat 10/11/18
Sprint 2	42 days	Sat 15/9/18	Sat 10/11/18
Sprint 3	42 days	Sat 15/9/18	Sat 10/11/18
Release application	2 days	Mon 12/11/18	Tue 13/11/18
Evaluate application	12 days	Thu 20/12/18	Fri 4/1/19
Refactor application	12 days	Fri 21/12/18	Sun 6/1/19
Complete application	0 days		

APPENDIX B

Flow Chart



APPENDIX C

User Acceptance Test

1.0 Testing Report

A User Acceptance Test (UAT) is designed to test the functionalities of Easy-Z Notes. The user will be explained before conducting the UAT by developer about the Easy-Z Notes mobile application with the complexity occurred in combining the separate implementation. The main functionalities that will be conducted for test are Create Notes, View Notes, and Settings. There is a rating in 'Pass/Fail' column where the user needs to rate the function followed by level of functionality. The rate level is provided from (1 to 3) – [1-Low, 2-Medium, 3-High]. Users involved to test Easy-Z Notes will follow the user manual and signed the document as an evidence. The form below shows UAT of Easy-Z Notes.

ID	**Event**	**Test Data**	**Expected Result**	**ıal Result**	**Pass/Fail (with rating)** [1-Low, 2-Medium, 3-High]	**mment**
EZ-0001	**Create Folder (Button)**	Dialog Box of color theme selection pop up.	Dialog Box of color theme selection pop up appear.			
EZ-0001-01	**Color Theme**	The choices of color theme appear.	The choices of color themes appear in accordingly			

			in the dialog box.			
EZ-0001-01-01	Title	Insert title	Title inserted			
EZ-0001-02-01	Choose color (red)	Tick on color theme (red)	The color theme (red) can be ticked.			
EZ-0001-02-02	Choose color (pink)	Tick on color theme (pink)	The color theme (pink) can be ticked.			
EZ-0001-02-03	Choose color (purple)	Tick on color theme (purple)	The color theme (purple) can be ticked.			
EZ-0001-02-04	Choose color (blue)	Tick on color theme (blue)	The color theme (blue) can be ticked.			
EZ-0001-02-05	Choose color (turqoise)	Tick on color theme (turqoise)	The color theme (turquoise) can be ticked.			
EZ-0001-02-06	Choose color (dark turqoise)	Tick on color theme (dark turqoise)	The color theme (dark turquoise) can be ticked.			

EZ-0001-02-07	Choose color (green)	Tick on color theme (green)	The color theme (green) can be ticked.			
EZ-0001-02-08	Choose color (yellow)	Tick on color theme (yellow)	The color theme (yellow) can be ticked.			
EZ-0001-02-09	Choose color (orange)	Tick on color theme (orange)	The color theme (orange) can be ticked.			
EZ-0001-03-01	CREATE Button	Folder created	The folder can be created.			
EZ-0001-03-02	CANCEL Button	Create folder cancel	Cancel from creating a folder.			
EZ-0002	**Open Note Folder created**	Open folder to create any type of notes.	Folder can be opened to view or create new types of notes.			
EZ-0003	**Create Notes**	Floating Action Button fade out the types of	Type of notes are fade out when selecting the			

		notes button	floating action button.			
EZ-0003-01	**Create text notes**	Text Notes user interface.	Text Notes user interface successfully appeared.			
EZ-0003-01-01	Insert Title	Insert title	Title inserted			
EZ-0003-01-02	Bold font style	Type notes in bold font style.	Notes created in bold font style.			
EZ-0003-01-03	Italic font style	Type notes in italic font style.	Notes created in italic font style.			
EZ-0003-01-04	Underline font style	Type notes in underline font style.	Notes created in underline font style.			
EZ-0003-01-05	Insert note	Types any notes.	Notes successfully inserted.			
EZ-0003-02	Back Button	Save the text notes.	Text notes saved			
EZ-0004-01	**Create draw notes**	Draw Notes user interface.	Draw Notes user interface successfully appeared.			

EZ-0004-01-01	Insert Title	Insert title	Title inserted			
EZ-0004-01-02	Pencil	Draw using pencil.	Notes drew.			
EZ-0004-01-03	Eraser	Erase the drawing notes.	Drawing notes are erased.			
EZ-0004-01-04	Start drawing	Both pencil and eraser are used to draw notes.	Draw notes successful.			
EZ-0004-02	Back Button	Save the draw notes.	Draw notes saved			
EZ-0005-01	**Create photo notes**	Photo Notes user interface.	Photo Notes user interface successfully appeared.			
EZ-0005-01-01	Insert Title	Insert title	Title inserted			
EZ-0005-01-02	Bold font style	Type notes in bold font style.	Notes created in bold font style.			

EZ-0005-01-03	Italic font style	Type notes in italic font style.	Notes created in italic font style.			
EZ-0005-01-04	Underline font style	Type notes in underline font style.	Notes created in underline font style.			
EZ-0005-01-05	Insert note	Types any notes.	Notes successfully inserted.			
EZ-0005-02-01	TAKE PICTURE Button	Take picture using phone camera.	Camera phone can take a picture.			
EZ-0005-02-01-01	Picture appear in ImageView	Picture captured appear in ImageView	ImageView consists of picture captured.			
EZ-0005-02-02	RECORD VIDEO Button	Take video using phone video recording.	Phone video recording can take a video.			
EZ-0005-02-02-01	Video appears in VideoView	Video recorded appear in VideoView	VideoView consists of video recorded.			
EZ-0005-02-03	SELECT FROM	Choose image from	Image can be selected from			

	GALLERY Button	phone gallery.	phone gallery.			
EZ-0005-02-03-01	Selected image appears in ImageView	Selected image appeared in ImageView	ImageView consists of selected image.			
EZ-0005-03	Back Button	Save the draw notes.	Draw notes saved			
EZ-0006-01	**Create to-do-list notes**	To-Do-List Notes user interface.	To-Do-List Notes user interface successfully appeared.			
EZ-0006-01-01	Floating Action Button (Add)	Insert/Edit a task dialog box pop up.	Insert/Edit a task dialog box pop up on its user interface.			
EZ-0006-02	**Insert/Edit a task**					
EZ-0006-02-01	Enter Title	Insert title	Title inserted			

EZ-0006-02-02	Insert Note	Types any notes.	Notes successfully inserted.			
EZ-0006-03	**SELECT DATE Button**	Calendar pop up.	Calendar user interface appear.			
EZ-0006-03-01	Select date	Date selection	Date select successfully			
EZ-0006-03-02	Select OK Button	The selection date has been made.	The date has been selected.			
EZ-0006-03-03	Select CANCEL Button	The selection date has been cancelling.	The date has been selected.			
EZ-0006-04	**SELECT TIME Button**	Clock with hour and minutes pop up.	Selection of Time Button user interface appear.			
EZ-0006-04-01	Select time (Hour)	Hour of time can be selected	Select time (Hour)			
EZ-0006-04-02	Select time (Minutes)	Minutes of time can be selected	Select time (Minutes)			
EZ-0006-04-03	Select OK Button	The selection time has been made.	The time has been selected.			

EZ-0006-04-04	Select CANCEL Button	The selection time has been cancelling.	The time has been selected.			
EZ-0006-05	**SELECT GPS Button**	Nearby location user interface appeared.	Nearby location user interface appeared in list view and map view.			
EZ-0006-05-01	List View Result Searching Nearby Location	Nearby location appeared in list view.	Clearly seen the nearby location appear in list view.			
EZ-0006-05-01-01	Select Each List View Result Searching Nearby Location	Show details of location (address, type of place)	The details of place are shown in map view.			
EZ-0006-05-01-02	Save the selected Each List View Result Searching Nearby Location	Save the location detected.	Location detected have being saved and appeared in Insert/Edit a task.			

EZ-0006-05-02	Map View Result Searching Nearby Location	Nearby location appeared with markers.	Nearby location appeared with markers.			
EZ-0006-05-02-01	Select marker in Map View Result Searching Nearby Location	To show the details of the location detected.	The details of the location detected are shown like address and the type of location.			
EZ-0006-05-02-02	Save the selected marker in Map View Result Searching Nearby Location	By clicking the Save Button.	The saved location appeared on Insert/Edit a task user interface.			
EZ-0006-05-03	Filter Places	The nearby locations detected based on the Filter Places.	The nearby locations are shown based on the Filter Places.			
EZ-0006-	APPLY Button	Confirm the Filter Places.	Filter Places successful.			

05-03-01						
EZ-0006-05-03-02	CANCEL Button	Back to the nearby locations list and map view.	Cancel the Filter Places.			
EZ-0007	**View Notes**					
EZ-0007-01	View notes	View notes	View notes successfully			
EZ-0007-02	Search notes	Search notes	Notes is searched.			
EZ-0008	**Settings**					
EZ-0008-01	Backup notes	Backup notes by selecting a folder to back up the notes.	Dialog box consists of folders to backup.			
EZ-0008-01-01	New Folder Button	Create new folder for backup the notes.	Dialog box of created a new folder appear.			

EZ-0008-01-01-01	Insert a New Folder	Name a folder to backup the notes.	The folder name is inserted.			
EZ-0008-01-01-02	Create a New Folder (Button)	New folder for backup function is created.	New backup folderis created.			
EZ-0008-01-01-03	Cancel a New Folder (Button)	Back to the list of backup folder.	Cancel to create a new folder.			
EZ-0008-01-02	Select Folder	List of folder appears in dialog box.	Select the backup folder.			
EZ-0008-01-02-01	Choose Select Folder (Button)	Confirm in selecting the folder.	Backup folder have been selected.			
EZ-0008-01-02-01-01	OK Button (Dialog Box)	Confirm to backup the notes.	Notes backup.			
EZ-0008-01-02-02	Cancel Select Folder (Button)	Cancel to select folder button	Back to Settings			

EZ-0009	Restore notes	Restore notes by selecting a folder to back up the notes.	Successfully restored.			
EZ-0009-01	Select Folder to restore notes	Snackbar pop up a message.	Backup data were successfully restored			
EZ-0009-02	Cancel to restore notes	Restore notes cancel.	Back to Settings.			
EZ-00010	About notes	The notes description.	About notes pop up.			
EZ-00010-01	OK Button (Dialog Box)	Dialog bos of About disappear.	Back to Settings			
EZ-00011	Exit Applicati on	Application exit	Exit the application			

2.0 System Testing Approval

	Name	Date
Verified by:		
Developer		
Approved by:		
User		

APPENDIX D

User Manual

1.0 General Information

1.6 System Overview

Easy-Z Notes is an Android mobile application that was developed for user ages around 11 years old and above to easily making handy notes and focus more on GP function. It is used for user to find the location faster by typing the word that easily for GPS to come out with result of location. The location detected will be save in the notes app and can be used later to find the location. This will reduce wasting time. Location that already saved will be directly use for searching in GPS apps. The development of application used Android Studio. This application will no use internet connection, thus it will make the Easy-Z Notes user friendly.

1.7 Organization of the manual

This user manual consists of three chapters. The chapters are following below: -

- Chapter 1: General information that shows some information about Easy-Z Notes and user manual.
- Chapter 2: Application summary provides the system configuration, user access levels and continence and
- Chapter 3: Get started that enclose with the guideline on accessing Easy-Z Notes based on its features.

1.8 System Summary

With Easy-Z Notes apps, user will be in ease to detect the nearby location if user need to go to a location urgently, otherwise user can save the location for review later. Easy-Z Notes mobile application is still can be in upgrading with more features to make it interesting and user friendly. Thus, Easy-Z Notes will become more useful for user with various exceptional features.

Easy-Z Notes mobile application is developed for Android user. The exceptional feature that have been implemented is GPS function. The GPS function is available in To-Do-List Notes. It detects the nearby location for user to save if necessary for user to review the location later.

1.9 System Configuration

Easy-Z Notes is adaptable in all Android mobile phone. It is an online mobile application that can be accessed with internet connection. After done in installing the application from Google Play Store on device, Easy-Z Notes can be immediately used.

1.10 User Access Levels

The target user of Easy-Z Notes based on some criteria which are: -

Table 1.1: User access levels

Criteria	Requirement
Education Level	Primary School and above
Skill required	No
User intention	Notes management

1.11 Contingencies and alternate modes of operation

- In the case of SQLite stops its operation, Easy-Z Notes is not able to be accessed well because the data cannot be retrieved in database.
- In the case of SD card is malfunction, the back-up and restore functions for Easy-Z Notes mobile application will cannot be accessed to get the storage data.

1.12 Get Started

1.13 View Notes

View Notes shows the notes that user already created with some folder on the interface like stated in Figure 3.3. There are setting, search, and add function. Setting symbol has three shape of rectangle that was arranged horizontally at the top left of user interface. It consists the user needs such as backup, restore, and about of application descriptions. Search button can be selected for user to search the notes that they want to view by inserting the necessary words. Add function is used for user to create a new folder.

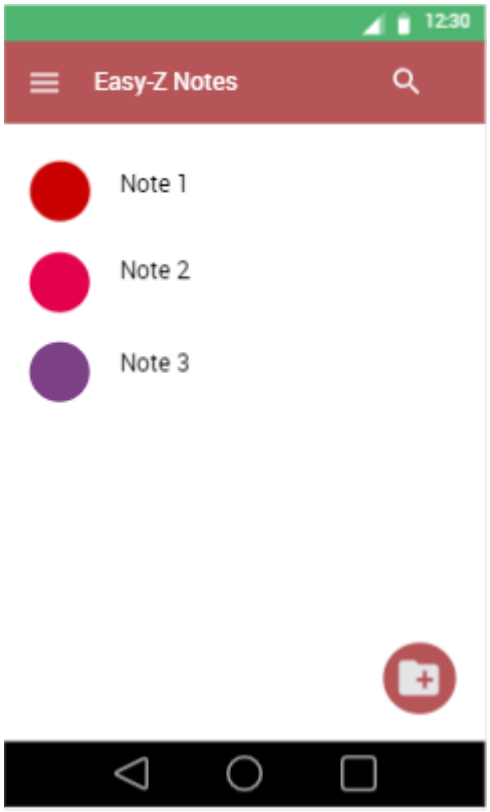


Figure 3.3: View Notes user interface

1.14 Search Notes

Figure 3.4 below shows a search function where it is used for user to make quick action in searching their notes without scrolling and checking the notes one by one. The searching result will appear at View Notes (Figure 3.3).

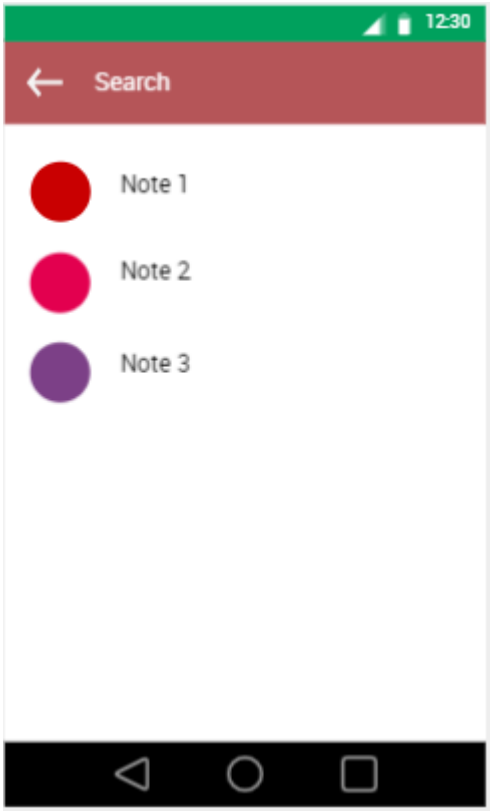


Figure 3.4: Search Notes user interface.

1.15 Color Theme

Theme color can be a main role for any notes that user want to create because it will make the notes become attractive. Figure 3.5 below shows the color theme pop up in a dialog box where the user needs to choose the theme color first before creating the notes. There are some choices of color themes in a stack arrangement. The pop up appears when the user selects an add folder icon at the right bottom on Figure 3.3, which is the View Notes user interface.

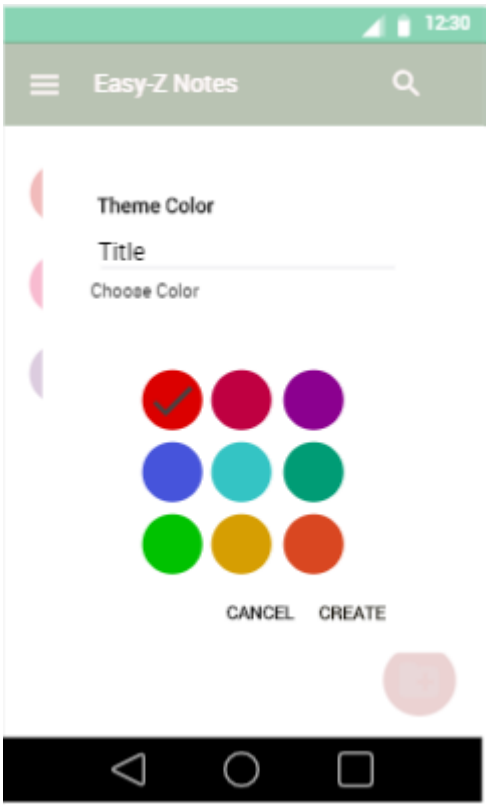


Figure 3.5: Color Theme user interface

1.16 Type of Notes

After creating a folder, user can select the folder created to make the notes by choosing any type of notes that preferred. There is also an add function in the type of notes user interface. It provides user with four type of notes which are draw, text, photo, and to-do-list. The type of notes user interface can be referred to Figure 3.6. The interface is in red color theme because the folder that have being created, choose the Red color theme by selecting one of the color in a stack of color themes.

Figure 3.6: Type of Notes user interface.

1.17 Draw Notes

Figure 3.7 below shows draw note user interface. It consists a space for drawing and two icons for pencil and eraser. The pencil can be used by user to make drawing line, while the eraser symbol uses to erase the unnecessary drawing. The back and delete icon also can be seen in the interface. Their functions are same with other which are to save and delete the notes.

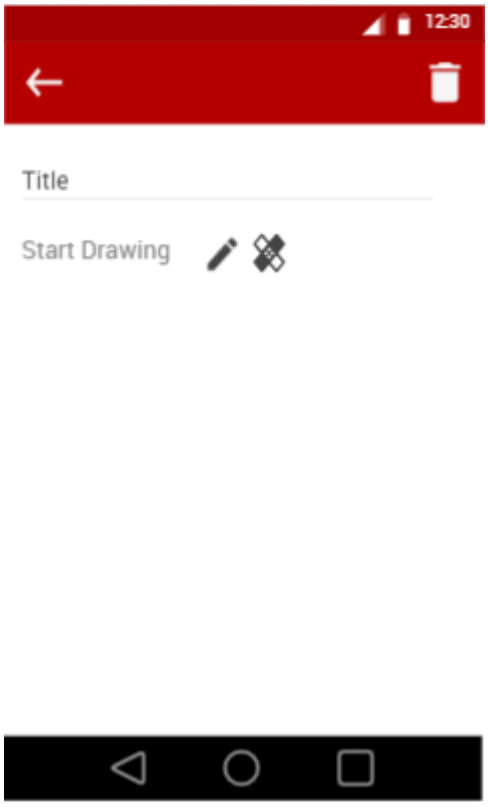


Figure 3.7: Draw Notes user interface.

1.18 Text Notes

Figure 3.8 shows the text note user interface where the user can create the note like the usual text in paragraph. There is a title on the above interface where the user can input the title name for the note. Delete icon appears the most at the right top on the user interfaces. It uses to delete the notes that user do not need. The specialty for the notes is where the user can choose the font style to create the notes below. The font styles that have being provide are bold, italic, and underline. User can select the style of font before starting to write any notes if needed. The back icon is used for user to reverse the interface and when the user selects the back icon, the notes will be automatically being saved. The user has no worry when the back icon is not selected on purposely because it has being implemented with automatic saving notes function.

Figure 3.8: Text Note user interface.

1.19 Photo Notes

The same features from text note have being applied in photo notes for font styles like bold, italic, and underline. Figure 3.9 below shows Photo Notes user interface. There will be a space for note taking and picture uploading where the user can select an image from the phone gallery or using phone camera for taking picture and recording a video. All the type of notes can be edited and deleted. The image that have being uploaded or taken from camera will appear at the below of note taking. There are three button of function which consists of Camera, Video, and Gallery.

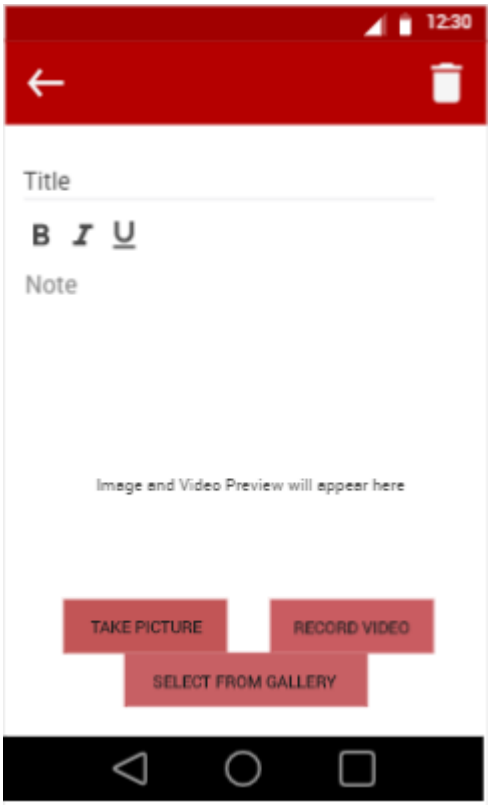


Figure 3.9: Photo Notes user interface.

1.20 To-Do-List Notes

As shown in Figure 3.10, to-do-list notes used the list view that will make it easier to add notes one by one. This type of note is suitable for user which needs to do some list and refer the notes later. Besides, the features will add up with GPS function where the users can easily search the list of nearby location that have being tracked by GPS and the detected location can be saved for user to refer later. The location detected is based on the filter places that have being selected by user in GPS function. Delete button is provided automatically when user already key in the notes needed. Figure 3.10 consists the list view of notes that have been created. It also consists of a back, setting and add icon. There is some information that have been set up by user which are reminder, and the saved location.

Figure 3.10: To-Do-List Notes user interface.

1.21 Insert/Edit To-Do-List Notes

Add icon in Figure 3.8 is used to create a new list of notes. Figure 3.11 below shows a dialog box for inserting or editing a task for to-do-list notes function. By entering a title in a Enter title space provided, the user already can make a list of notes that the user wants. The list can be written in a space below a title entering. The interface consists of some buttons which are Select Date, Select Time, and Select Location and two selection either the user wants to continue creating the notes, or cancel on creating the notes. It also has back icon and setting icon.

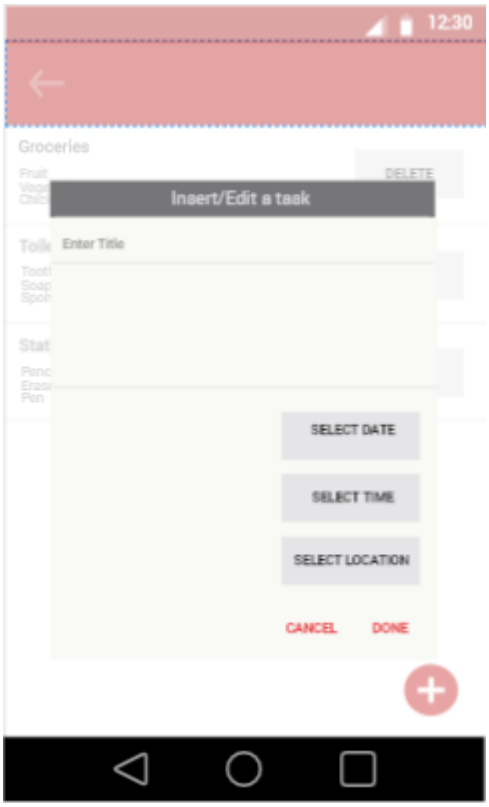


Figure 3.11: Insert/Edit To-Do-List Notes user interface.

1.22 Select Date

Date selection is appeared when user select the Select Date Button in Figure 3.11 above. Date is used for user to make a reminder. User interface of Date Selection can be referred to Figure 3.12 below. Click on OK selection if user want to continue the date selection, otherwise click Cancel selection.

Figure 3.12: Select Date user interface.

1.23 Date Selection

After creating the date reminder, the selection will appear on TextView in Insert/Edit To-Do-List Notes user interface. Then, user will proceed with the other button selection. Figure 3.13 below shows the date selection user interface.

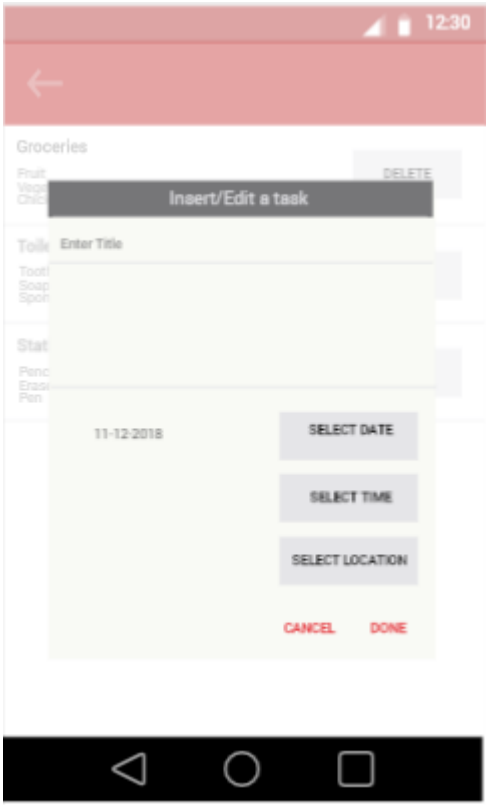


Figure 3.13: Date selection user interface.

1.24 Select Time

Reminder need to be set up by choosing the date and time. Thus, the user can select the time in hour and minute based on the user needs. The time chosen will be shown on the top of select time dialog box. After done with the time selection, select OK to continue with other function, but if user do not want to proceed with the reminder, user can select CANCEL. Figure 3.14 below shows the Select Time user interface.

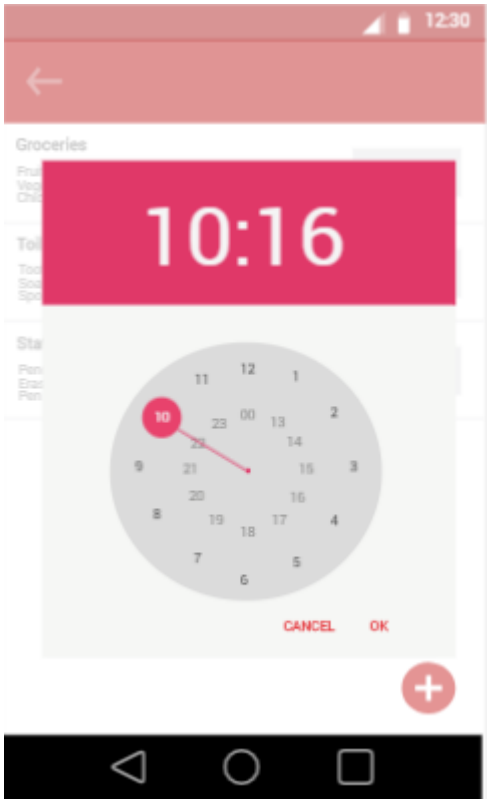


Figure 3.14: Select Time user interface.

1.25 Time Selection

Same application that have being implemented in date selection user interface. The time selection will appear on the TextView in Insert/Edit To-Do-List Notes user interface. Then, Select Location button can be selected to find the nearby location. Time selection user interface can be referred to Figure 3.15 below.

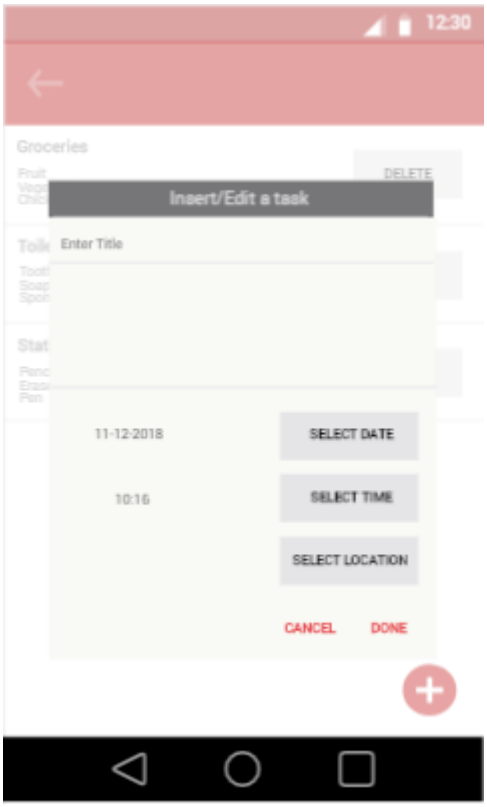


Figure 3.15: Time selection user interface.

1.26 Nearby Location List View

After clicking a SELECT LOCATION Button, the user will be brought to nearby location detection in list view as shown in Figure 3.16, but there is a map icon for user to view the nearby places in map view that can be seen in marker icon. There will be the full address for the nearby location, distance from current location, saved button, back icon, map view icon, and filter places icon at the top right of Nearby Location user interface. Save button is used for user to save the nearby location and the saved location will appear on the TextView in Insert/Edit To-Do-List Notes user interface like the date and time selection as mentioned above.

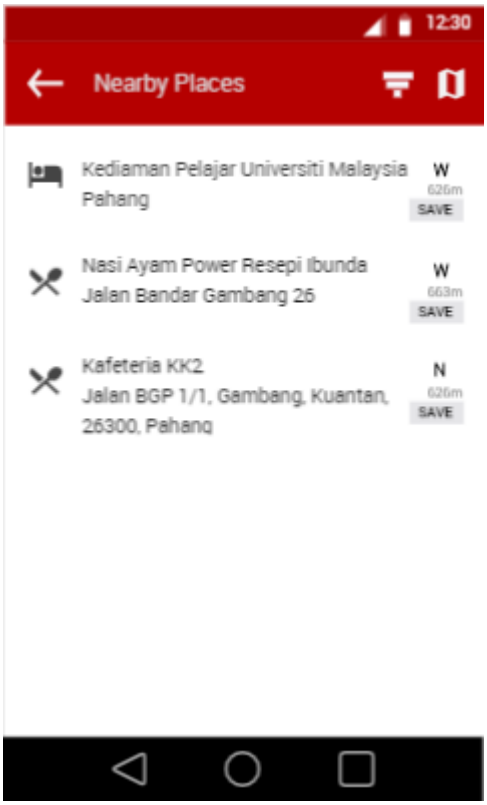


Figure 3.16: Nearby Location List View user interface.

1.27 Nearby Location Selection

Figure 3.17 below shows the nearby location selection user interface. It will be shown after user select the location in the list view. After selecting the location in the list view, the application will go to map view to show more detail about the location selected. The information that are provided is the location address, and the type of the location.

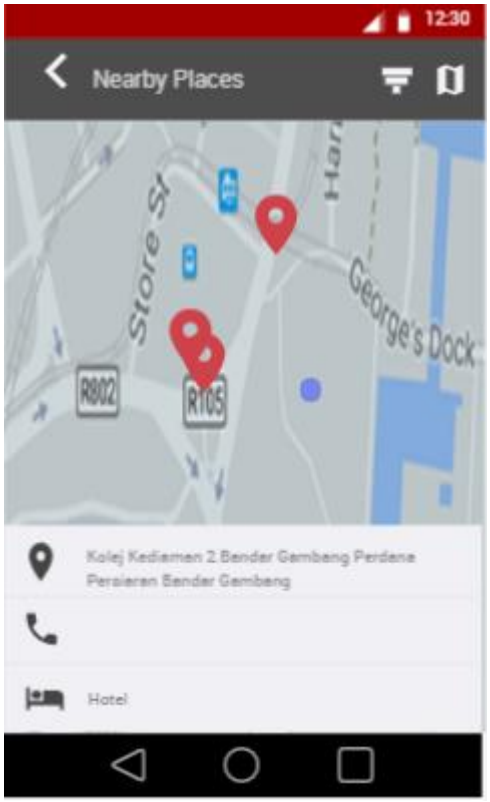


Figure 3.17: Nearby Location Selection user interface.

1.28 Nearby Location Map View

User can view the nearby location detection in map to be seen more clearly because the map shows the current location too. Thus, the user can clearly see the location from current place. The map view will appear after user selecting the map icon on the Nearby Location List View which is positioned at the top right of user interface. The Nearby Location Map View user interface can be referred to Figure 3.18 below.

Figure 3.18: Nearby Location Map View user interface.

1.29 Filter Places

There are some places that have being provided for user to filter based on the user needs. After selecting the places in the dialog box, user can continue to the nearby location detection based on the places that they have being filtered by selecting APPLY Button. Otherwise, user can select CANCEL Button to cancel the filter places and continuing with the list view or map view nearby location detection. Figure 3.19 below shows Filter Places user interface.

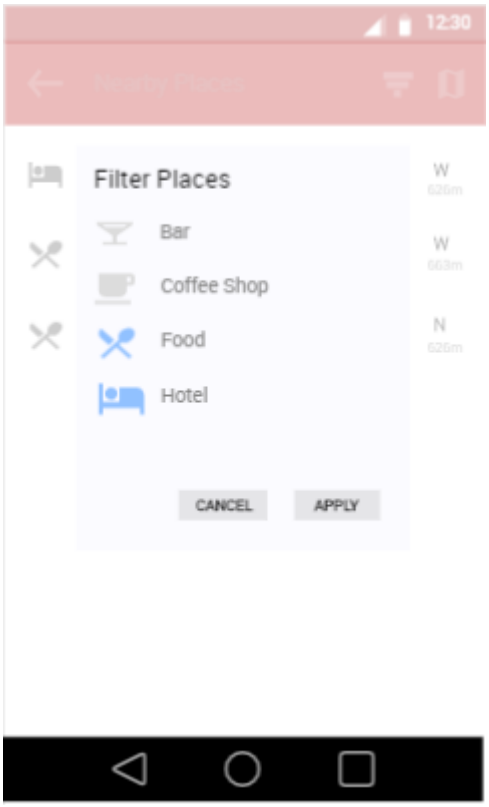


Figure 3.19: Filter Places user interface.

1.30 Sort by

The list view notes can be sorting by selecting the Sort by function at the top right of Sort by user interface as stated in Figure 3.20 below.

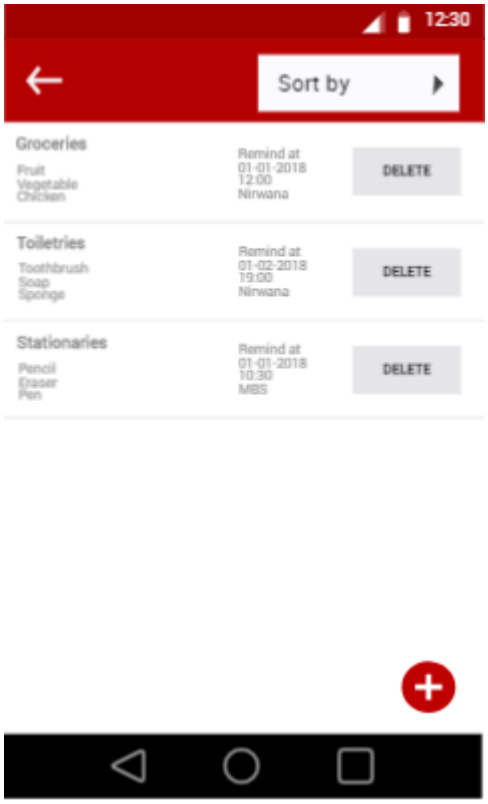


Figure 3.20: Sort by user interface.

1.31 Sorting Notes

After selecting the Sort by function, the type of sorting will appear accordingly in dialog box. The choices of the sorting selection are title, created, and accessed. Sorting notes user interface can be referred to Figure 3.21 below.

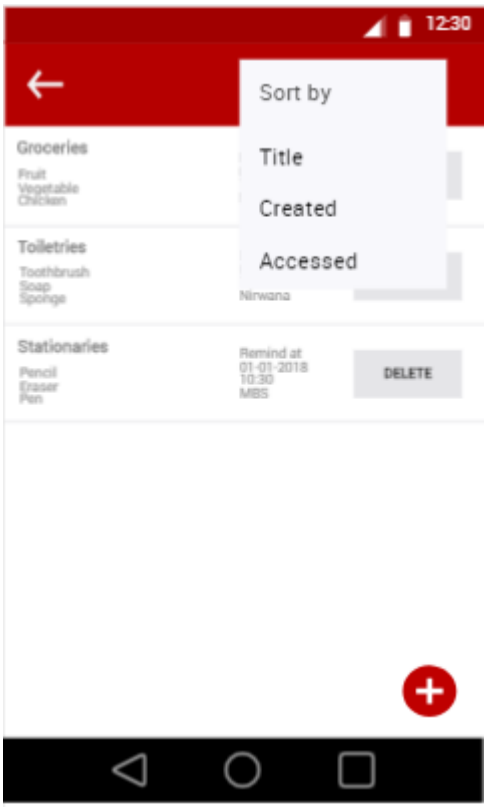


Figure 3.21: Sorting Notes user interface.

1.32 Settings

Figure 3.22 shows the setting functions. This settings user interface will appear after user clicks the settings symbol button on the top left corner on user interface. It contains back up, restore, and about function.

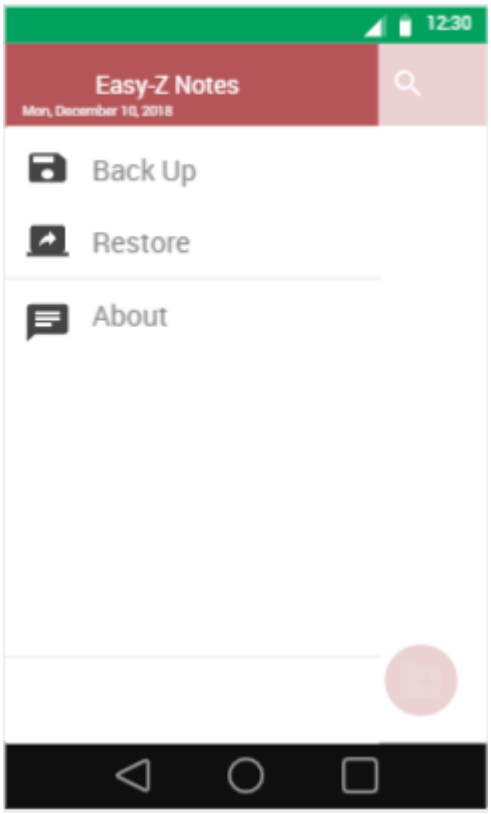


Figure 3.22: Settings user interface.

1.33 Backup Data

The Backup Data user interface can be referred to Figure 3.23 below for user after selecting a Backup function in Settings menu. Select a folder that user wants to backup data. After selecting a folder, select Choose button to continue backup data. If user want to cancel the backup notes function, the user can select Cancel Button. New folder can be created by selecting new folder icon at the right bottom of user interface.

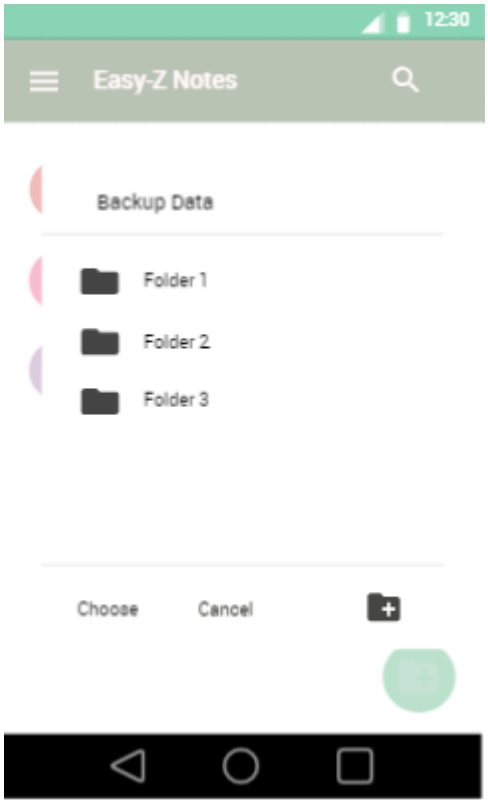


Figure 3.23: Backup Data user interface of Easy-Z Notes.

1.34 New Folder for Backup Data

Figure 3.24 below shows New Folder user interface. Name a folder in the New Folder then select Create to continue in backup data. Cancel selection is used when user do not want to continue in creating new folder for backup function.

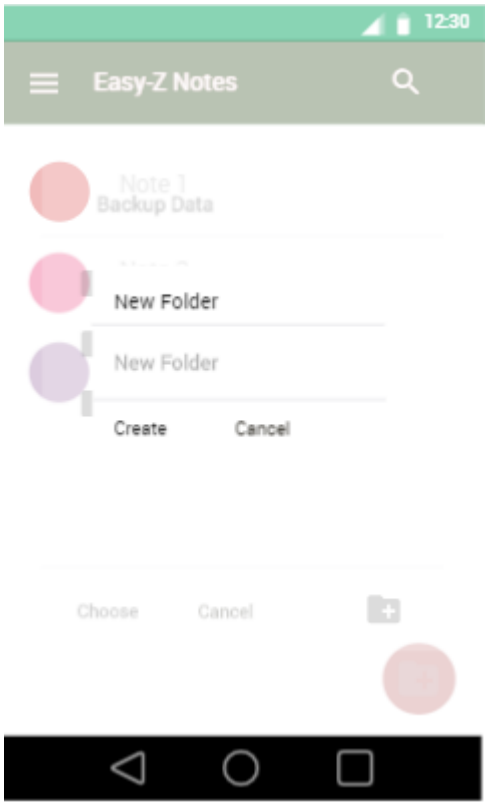


Figure 3.24: New Folder for Backup Data user interface of Easy-Z Notes.

1.35 Restore Data

The Restore Data user interface can be referred to Figure 3.25 below. Select a folder that user wants to restore data. After selecting a folder, the data will be automatically restored, and system will pop up a snackbar of restore message at the bottom of interface. Select Cancel for cancelation of restore data.

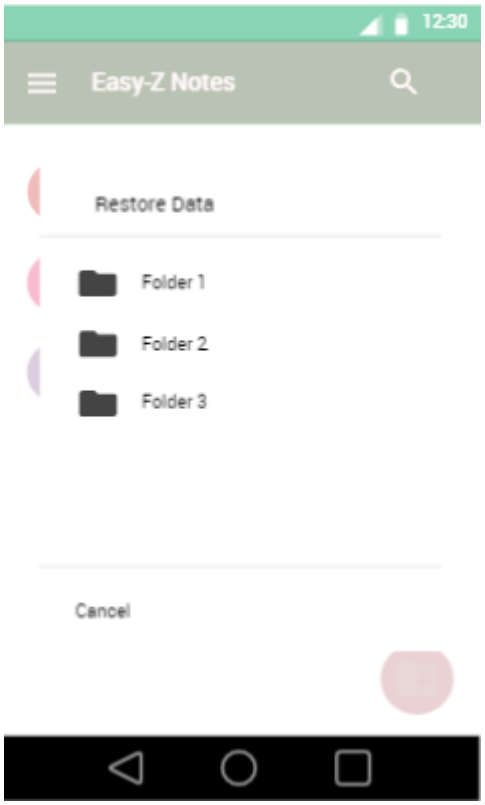


Figure 3.25: Restore Data user interface of Easy-Z Notes.

1.36 About

About user interface will appear as pop up after selecting About on Settings user interface as stated in Figure 3.11. About pop up a message on Easy-Z Notes description as stated in Figure 3.26 below. Select OK button to continue the Easy-Z Notes mobile application.

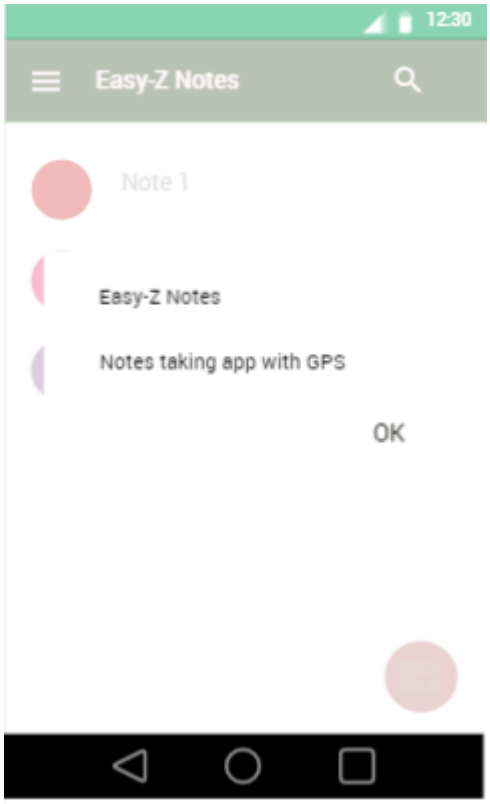


Figure 3.26: About user interface of Easy-Z Notes.