

TOURISM SPOTS DETECTION MOBILE APPLICATION

BY

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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UNIVERSITI TUNKU ABDUL RAHMAN

Date: 21 April 2022

SUBMISSION OF FINAL YEAR PROJECT /DISSERTATION/THESIS

It is hereby certified that WONG WEI JUN (ID No: 18ACB01858) has completed this final year project entitled "TOURISM SPOTS DETECTION MOBILE APPLICATION" under the supervision of Ts Dr Chan Lee Kwun (Supervisor) from the Department of Information Systems, Faculty of Information and Communication Technology, and Ts Dr Wong Pei Voon (Moderator) from the Department of Digital Economy Technology, Faculty of Information and Communication Technology.

I understand that University will upload softcopy of my final year project in pdf format into UTAR Institutional Repository, which may be made accessible to UTAR community and public.

Yours truly,



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I declare that this report entitled “**TOURISM SPOTS DETECTION MOBILE APPLICATION**” is my own work except as cited in the references. The report has not been accepted for any degree and is not being submitted concurrently in candidature for any degree or other award.



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Lastly, I would like to thank my parents and siblings who have given me a lot of love and support especially in terms of financial support for me to complete the project.

ABSTRACT

The project is to develop a mobile application for the tourism industry in Petaling Jaya, Selangor. It will provide a guidance for the tourists to plan their self or gathering journey. It helps in assisting the tourists to the nearby tourist's spots, restaurant, shopping mall, and transportation to go. The project designed to be a mobile application is due to the convenience of using it during the busy tourist trip. They are just required to have a smart Android mobile device to carry.

The project has covered the module of detecting nearby tourist's spots, planning your budget, scheduling your calendar, travel bucket list and forum. According to the research as shown in the Literature session, there are currently no markets for doing the tourist mobile application on the specified area of Petaling Jaya and there is only an application which is not fully developed. The application is designed and takes the ideas/ resources from various mobile applications to develop a better version of mobile application to let the user have a better experience during their trip around Petaling Jaya.

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LIST OF ABBREVIATIONS

<i>PJ</i>	Petaling Jaya
<i>COVID-19</i>	Coronavirus Disease
<i>MCO</i>	Movement Control Order
<i>etc.</i>	Et cetera
<i>RAD</i>	Rapid Application Development
<i>APK</i>	Android Application Package
<i>GPS</i>	Global Positioning System
<i>CPU</i>	Central Processing Unit
<i>GPU</i>	Graphics Processing Units
<i>RAM</i>	Random-access Memory
<i>API</i>	Application Programming Interface

Chapter 1 Introduction

1.1 Problem Statement and Motivation

In Malaysia, most of the tourism spot are specified to few locations such as Petronas Twin Towers in Kuala Lumpur, Batu Caves in Selangor, Mount Kinabalu in Sabah and etc. [1]. The hidden village will have the lesser attention for the tourism spot which included with Petaling Jaya in Selangor state. Most of the citizens would have a thought that this city is one of the most busy, boring and stressful cities which has directly ignored the beauty of the city. There are actually lots of tourism spots like theme park in Sunway Lagoon, and shopping mall in The Curve, One Utama and etc. [2]. Some of these malls the tourist can even to experience Escape Room, Climbing Gym and etc. [2]. However, there are currently least mobile application on a specified area still not yet being implemented in the market. Furthermore, most of the traveler who willing to travel to the unpopular travel place require time and effort to do research on internet or even to ask the citizens in the village. They do not have a direct platform to seek for their information as it is an unfamiliar place for them to visit. Even the family nearby the PJ state, they might just spend more money to visit to the other town as this state is still an unpopular developed tourism place, yet it may require to spent time to discover by the citizens. The travelers and the citizens may just need to utilize more budget to hire a tourism agency who is expert in the tourism field to discover the hidden city. Also, the current mobile application is generalized to many places in Malaysia which directly missed the hidden places in Malaysia.

Among all of the hidden places in Malaysia, the motivation behind of choosing PJ as the places to develop the proposed system is due to the population in Selangor is the highest in Malaysia [3]. Among the Selangor, the population of PJ is the highest according to [4] as in result most of the citizens who were get along in the city most of the times. The family in the city where do not having a trip would probably demand of a system that can guide them through with lesser time and budget spending. This specialized application to the particular state would probably target to the specialized traveler and PJ citizens.

Beside from the population, there are actually lots of fun fact in the city where the citizens may not realize the presence. Through the proposed application, it can promote the domestic tourism especially in the year of 2020 where the economy of the tourism has plunged into another state. The international tourist number has dropped exaggeratedly as this is due to the current pandemic Covid-19 that has affected the decision of having MCO from the government [5]. This decision has directly affected most of the citizens to travel interstate. To save the tourism industry, it is only allowed to travel within state with cheaper price. As the proposed module implemented, most of the citizens in PJ are able to travel within the state as to improve the economy on the mentioned industry.

1.2 Project Scope

The project is expected to produce a mobile application with more convenience way for the user to track PJ location tourist's spots. The mobile application will be available in the Android platform. Based on the research on the mobile application in the market, there are least of the application being fully implemented with lots of function proposed to the user to experience. It is a tracking system to track the tourist spots of user's current location or search location within PJ area. If the user is not currently located in PJ, it is only able to search for the location as this mobile application is only designed within PJ area. The tourist spots are able to show within the map for PJ area.

1.3 Project Objectives

1. To study and investigate the surrounding tourism spots in PJ area.
2. To design and develop a software prototype of geo scanning for the GPS scan to detect the surrounding tourism spot in PJ area.
3. To propose and develop a mobile application of the tourism for citizens and tourists to look for the destination during the trips with the 5 proposed modules.

The login and registration are generally built using Firebase Authentication. As for the other prototype consists of the following 5 proposed modules are as in the following: -

Module 1: Detect Nearest Tourist's Spots

This is the main module as to detect the nearest tourist spots with the map provided. The map is designed to be bound and specified to only available in PJ area and will locate the user's current location there if the user allowed with the permission request. The user can

select the nearby place such as in the category of shopping mall, tourist's spot, public transport and restaurant as to navigate and show the nearest location to be travelled. The system is able to track and suggesting the nearest location where allowed the user to have more selection during the trip even if it is a planned trip. If the user wishes to clarify with the distance for the nearby location from the current location, the user is allowed to click on the destination. Then, the system will calculate the distance for the user to navigate and draw route for the user reference. As for the tourist promoter, they can add the tourist spot for other user's reference by manually key in the information or by long clicking the destination's info window. The technologies used for this module are generally on Google Map API such as Places API, Maps SDK for Android and Direction API.

Module 2: Plan Your Budget

This module is to help the user to record the total budget throughout the journey. The user has to record down their spending as to help them to control their budget spending. The user can first identify the total budget throughout the trip journey, only then, the user can identify each expense as to record precisely. The system will then calculate the balance left and the total spending from the record provided from the user. To have a better vision on how to spend the money with the limited budget, the system will show a pie chart of the expenses and budget. Each of the spending is also recorded with the details provided by the user as a better reference for future acknowledgement. The database used is Firebase Realtime as to perform CRUD function.

Module 3: Schedule Your Calendar

The module is to let the user to customize the date, time and location to go for the trip around the city. The user is able to plan owns trip with the guidance in each module provided. In this module, the user is able to schedule the timetable as to easier the user for references during their journey in PJ. The user may delete the calendar on the spots if the planned is underestimated. The user can put a stop for resting where it is not always in the travelling mood during the trip in PJ. The database for the module is using SQLite as the local storage in the mobile phone where the user can even plan without internet connection.

Module 4: Travel Bucket list

This module is to collect the bucket list of the user's desired place to travel. The feature is to enable the user to record the places been, wish to go and favourite place. If the user is desired to go for a certain place located in PJ, it is available to tick and record down for future reference. However, the user is also able to tick if the place was visited before. This is to let the user to tick for the achievement bucket list during their travel around PJ. Also, if the place is one of the favourite places, the user is able to tick for future reference as the user may wish to visit again. All of the listed and ticked places can be sort for better reference such as by type of location like shopping mall, tourist spot, restaurant and public transportation. The listed places are taken from the first module of add travel bucket list. The database used is Firebase Realtime as to perform read and update function.

Module 5: Forum

This module is as an innovative idea where other existing mobile application from literature review are not provided with the module of having a forum between the travelers, citizens and any other individuals to communicate and discuss about the queries having when travelling around PJ area. The forum allows user to post or create a question and also allow others to comment on the question and/or continue for the discussion. Not only that, but it also allows for the user to share their experience around PJ area as for a reference for other users. Yet, the forum allows to be updated by the creator only. This is to design for the convenience of the user to spread the joyful moment around PJ. The database used is Firebase Realtime and Firebase Storage as to perform CRUD function.

Module/System	Petaling Jaya - Wiki	Visit A City	TravelSpend	Places Been	Proposed System
Detect Nearest Tourist's Spots	✓				✓
Plan Your Budget			✓		✓
Schedule Your Calendar		✓			✓
Travel Bucket list				✓	✓
Forum					✓

Table 1.3.1: Comparison Module for Existing System and Proposed System

1.4 Impact, significance, and contribution

By having the proposed application, it is able to help out not only for current MCO that benefits to the local citizens to travel around the city without crossing state. Yet, it also able to assist to those visitors who are unfamiliar to the place to travel around without missing out any interesting place. This could benefit the tourism industry in the state that having the highest population. If the tourism spots are prosperous, it may probably increase the employment rate in the city. It definitely a beneficial deal to stable the tourism industry in the city where the population is the highest among another city in Malaysia.

With the proposed system, it is able to detect the nearest tourism spots either from the user's current location or searched location from the user. This is to reduce the time from researching and to avoid for the missing tourism spots that may resulting in regret for the last-time visitor. However, as for the local citizens that may just install the application in the current mobile phone as to assists for any recommended café to visit and plan for a trip with family and friends anytime. The convenience of the proposed system is able to improve the relationship of any family or friend no matter how the life is busy. For the following modules, it is able to customize the trip and budget spending and create forum discussion as to convenience the planning of the user.

1.5 Background Information

Everyone should have a dream since young and according to the statistic stated in [6], there are about 95 percent of people who wish to have a vacation within the next 15 months. There are lots of places on the Earth has not yet been explored by most of the people. The outside world from the hometown has increased the curiosity of the human to explore, yet the invention of the internet has provided a platform to share and see the world virtually. However, travelling by owns is still an adventure and a type of attitude to step out of one's comfort zone to have a personal growth in one's mindset. The differences of physically and virtually to explore the world is similar to the university students who were theoretical study from book and physically apply to the workplace like internship. Travelling around the world helps to educate people to adapt into the

globalization with various nationalities, culture, language, lifestyles and even to expand the opportunities of one's network.

In this Tourism Spots Detection Mobile Application, it is able to assist most of the adventurer or traveler to have a self-explore to the world which is full of mysterious. This is not only to design to the tourist but the family member that are living nearby can just experience a short getaway in precious moment with the loved ones. It allows one's to have own travel's timing and pace during the vacation with own, friends or family without the guidance from the travel agencies which has lots of restriction and more expensive. Furthermore, it will be the precious moment and memory with own, family and friends. With the implementation of the mobile application, it has easy and less burden the traveler to adventure around the cities. They can track the tourism spots without the efforts of researching in Google. The user can customize own tour around the cities. This application is designed to the particular traveling spots which is on the Petaling Jaya, Selangor in Malaysia. In this state, it seems to be one of the busy cities as most of the tourist would not discover this state as one of their tourist spots. As to support one of the important sources in Malaysia, tourism application in the specification of the unpopular state is proposed to be developed.

Chapter 2 Literature Review

The current mobile application system development is now currently specified to PJ area only found in one application which is ‘Petaling Jaya - Wiki’. However, in the application, it only provided with simple functionality that will be discussed on below section. For the other literature review, it is focused on globe location of mobile application which included with ‘Visit A City’. For the sub-module, it is reviewing and getting the ideas from the current mobile application of ‘TravelSpend’ and ‘Places Been’. People tend to travel with a guide but not a mess when monitoring multiple application at the same time. With the implementation of the proposed system, the user may be more convenience using multiple modules/features in a single application. It is an innovative way to implement multiple features from different application provided in the literature review into a single mobile application. This would ease the user while travelling to anywhere around PJ.

2.1 Review on Similar Application/ Critical Remarks on Previous Works

2.1.1 Petaling Jaya – Wiki [7]

There are lots of button navigation are not fully developed and most of the function are redirected to another interface. For the functioning button which included are ‘Attraction’ which navigating the user to another interface that displayed few photos with the respective description. User is just needed to swipe through the photo and look into the displayed image and description. For the ‘Flight’, ‘Radio’ and ‘Social Media’ are redirecting to the other existing application in the market refers to (Figure 2.1.1.1). The button of ‘AROUND ME?’ are needed to be in the area of Petaling Jaya. The feature on the top part is share, leave feedback, scanner and some other not functioning features. The scanner is not able to redirect to the link after scanning but in return it provided with the link. For feedback feature are redirecting the user to the Play Store and share feature is to share the link for other user to download the application through Whatsapp, WeChat, Instagram and etc. Some of the navigation from clicking the button are even not related to the button name such as radio that link to the family mart and flight that are not only for

CHAPTER 2 LITERATURE REVIEW

flight booking but having the link to hotel booking as well. From this, the project proposed would like to implement a better version of mobile application for the PJ area.

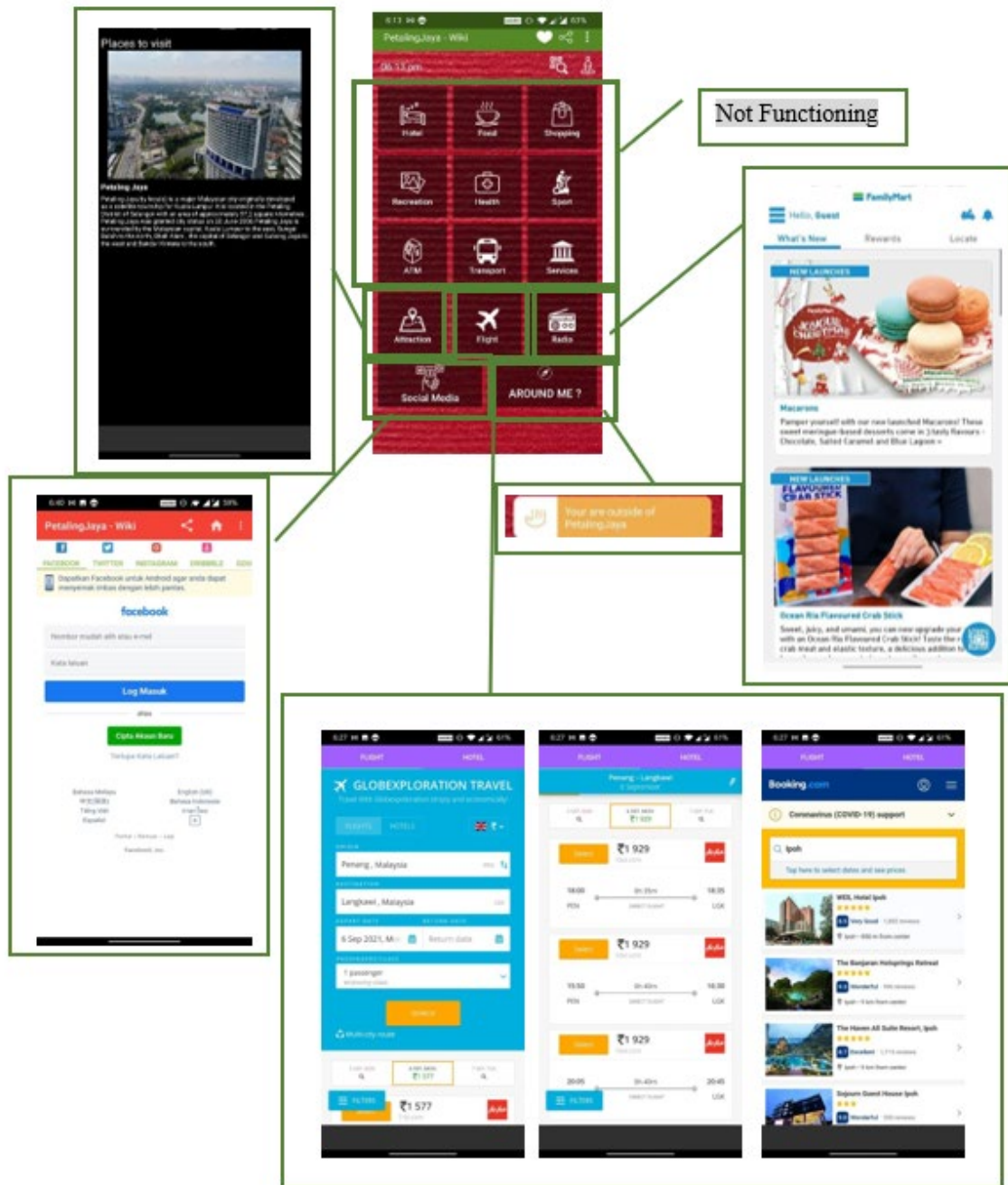


Figure 2.1.1: Petaling Jaya – Wiki Mobile Application [7]

2.1.2 Visit A City [8]

Visit A City Mobile Application existed in the market is provided the module of My Plans that is interesting in developing for a tourism application refers to (Figure 2.1.2.1). Most of the tourism application are not providing the function for the user to plan for their trip, yet it does provide in this application with a nice interface. After the user has added the sights through searching to find attractions, points of interest and etc., the My Plans Module will automate the schedule for the user. However, the user is just needed to update the duration or day or even to manage the days manually refers to (Figure 2.1.2.2). It has also specified the transport with time to travel to destination from the previous station automatically. Each of the activity is able to swap the order manually by the user for their desire time schedule.

The module however is lacking the function of reminder, the user has to always open up the application for reference. Also, under each of the plan, the user does not know which time is free and available for resting time. All of the time are packed and scheduled together. It does not provide the features of self-planning but adjusting by swapping the order of the activity. Through the application, it provided some ideas of doing the sub-module of 'Plan Your Schedule' and the advancement version from this reviewed application. By referring to (Figure 2.1.2.3), the navigation from the current place to the destination is needed to connect to the other application. For the proposed system, it would like to improve as advanced version of the navigation system plugged in the application itself without the help from other mobile application.

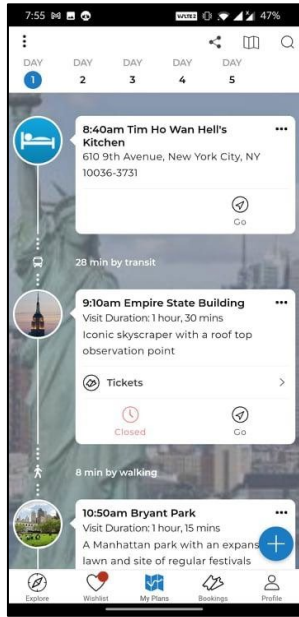


Figure 2.1.2.1: My Plans Module (After adding the Sights) [8]

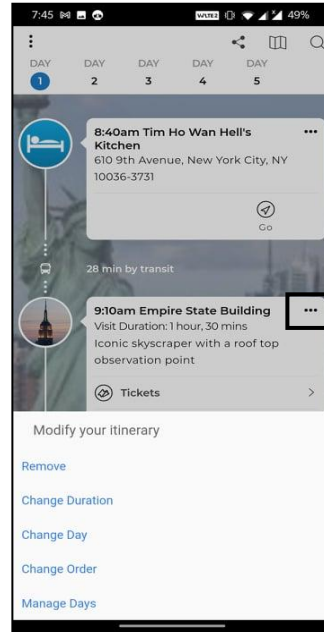


Figure 2.1.2.2: Modification made for the particular activity [8]

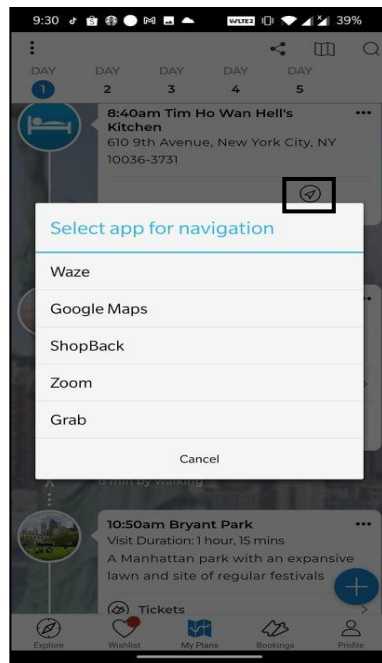


Figure 2.1.2.3: App for navigation for the particular activity [8]

2.1.3 TravelSpend [9]

In the TravelSpend mobile application, it provided the features of calculating the expenses spend from the user. In this application, it helps the user to identify how much does the user spend and what does the user spend with the limited budget throughout the whole trip. The user will first insert the trip budget, trip name, currency and date, and update the expenses throughout the trip refers to (Figure 2.1.3.1). When inserting each expense spend, the system will locate the current location of the user and the date of the user filled in the information. The system will also collect for the basic information like type, description and price. It is able to distribute the expenses into few days and able to alter the payment method of cash and credit card. It is also provided the checkbox of 'Refund' for user to update the expenses refers to (Figure 2.1.3.2). In addition, it provided the statistics navigation for user to identify the percentage of each type of expenses the user spend refers to (Figure 2.1.3.3). On top of the navigation bar, it does provide the calculation of total expenses spend, the budget left, daily average and daily average left. Also, each of the expenses are recorded in the Expenses navigation bar refers to (Figure 2.1.3.4). It also provided the same features naming as daily metrics in the navigation bar of Statistics and each of the box is able to tap for explanation respectively. It is also allowed to adjust the budget refers to (Figure 2.1.3.5). For the Map navigation bar, it brings the user to look into a map where the expenses spending in the respective places with respective logo refers to (Figure 2.1.3.6).

The critical review on the mobile application is there are too many features that needed to go for premium user where it required the user to pay for the service. For instance, the features of adding image on each expense, adding income, looking for detail result of the expenses, adding new category for the expenses and grouping the expenses by payment method using the pie chart. This application only useful to record every expense in the application and does not provide any sub-module which able to attract more user to download as this module only focus on travel accounting. This may result the user to download multiple application during their trip.

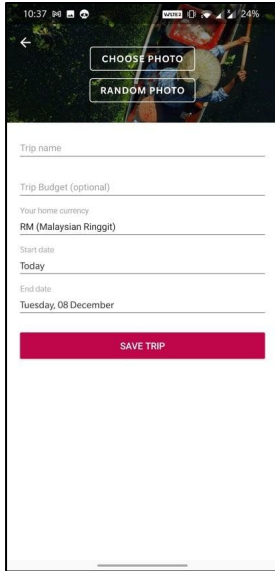


Figure 2.1.3.1: Collect Information of the Trip [9]

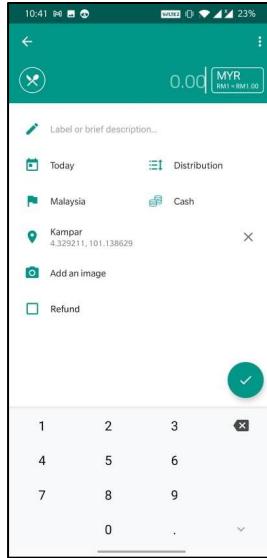


Figure 2.1.3.2: Collect Expenses Information [9]

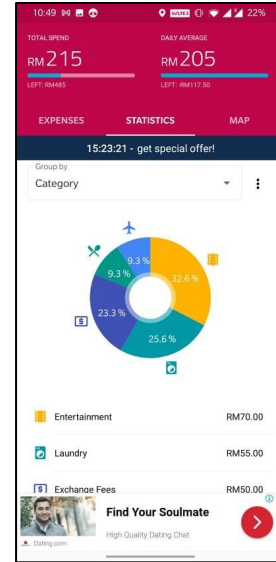


Figure 2.1.3.3: Pie Chart of each type of expense [9]

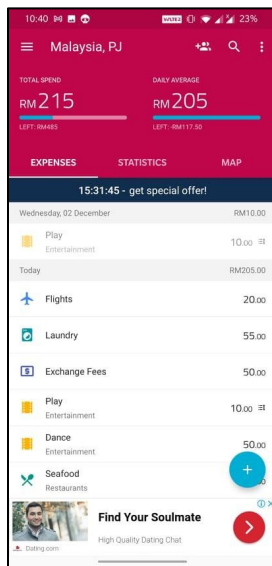


Figure 2.1.3.4: Expenses Navigation bar [9]

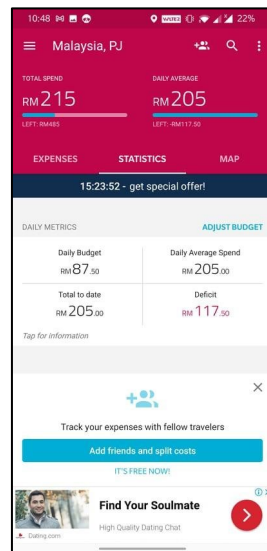


Figure 2.1.3.5: Daily Metrics of Trip [9]

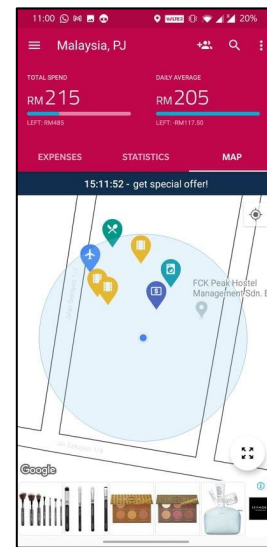


Figure 2.1.3.6: Map of the expenses spend place [9]

2.1.4 Places Been [10]

The Places Been mobile application is the application to record the places been before, wishes to go and favorite places for cities been refers to (Figure 2.1.4.1) and airport been referred to (Figure 2.1.4.2). It is similar to a trip goal application. The places the user went before, the user is just needed to remark down, and the system will color out the places for respective country’s flag color in the Flag Map page refers to (Figure 2.1.4.3). After updated the places as mentioned above, the user can review My Places page to look into the customized travelling page. From this, they may be able to see where the user haven been travel before. Each of the images on top are similar to a button function that will be in colored once it has been clicked by the user. Each of it is representing different categories refers to (Figure 2.1.4.4).

The design for this mobile application is simple, yet not much functionality been implemented. The functionality is just to record and review the places been. Also, the flag map from (Figure 2.1.4.3) are not fully utilized the phone size but only using the interface of 1/3. In the proposed system, it will include with this idea on the sub-module as for user to not only reviewing the target to travel to the place, but also other module provided with a nicer interface. This is to let traveler to not download multiple application at the same time during travelling but only an application to support multiple features.

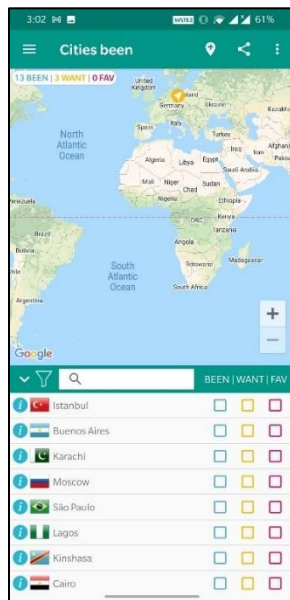


Figure 2.1.4.1: Cities been page [10]

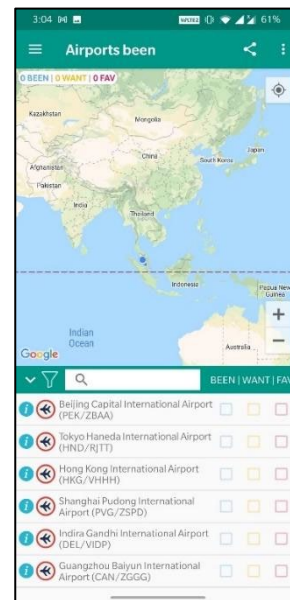


Figure 2.1.4.2: Airports been page [10]



Figure 2.1.4.3: Flag Map page [10]

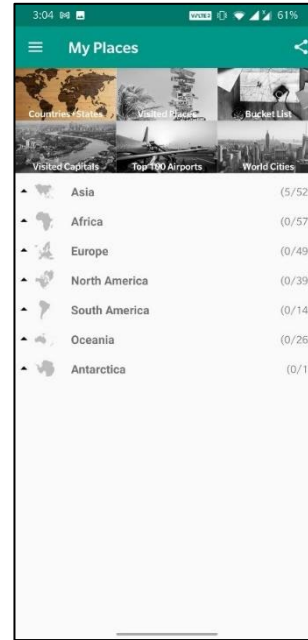


Figure 2.1.4.4: My Places Page [10]

Chapter 3 System Methodology and System Design

3.1 Design Specifications

3.1.1 Methodologies and General Work Procedures

The proposed methods or technologies involved is Phased Development which is under the category of Rapid Application Development (RAD). In this RAD methodology, the system is broken into several versions sequentially [11]. The following versions are started after the previous version implemented, yet the analysis phase is identifying the overall system concept [11]. With RAD methodologies implemented, each of the modules can be done in each version and available for a little loop back. Each version/module can be tested by a supervisor and after completing one module it can continue for the next module. With the guidance and testing from the supervisor, the project is able to look into each of the module's step by step. This could allow in few aspects such as completing a reliable but complex system, helping in schedule visibility and few user requirements are able to alter to improve a better version of the system [11].

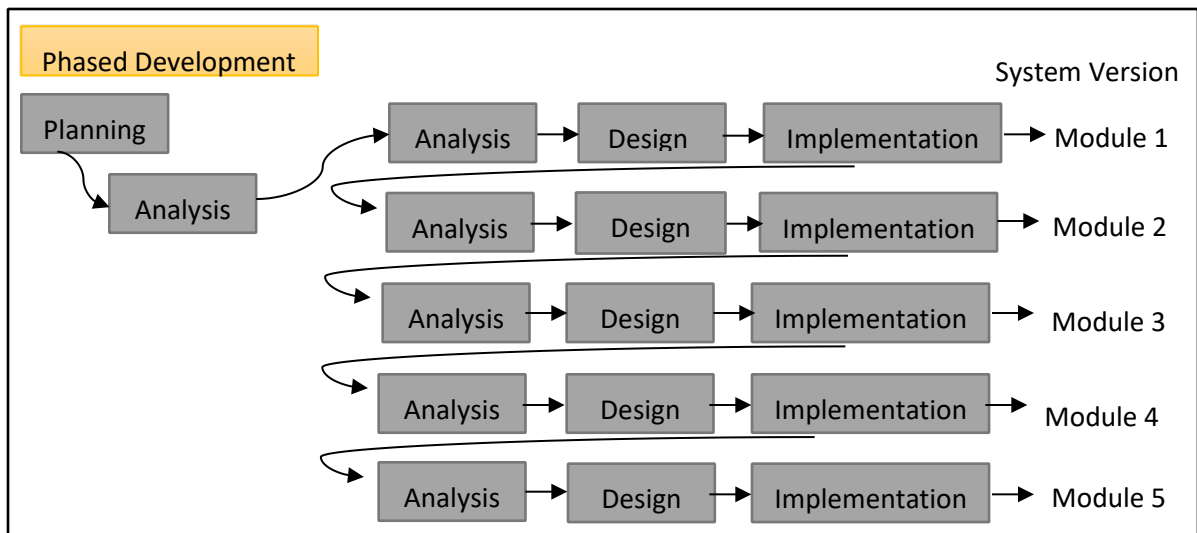


Figure 3.1.1: Phased development of each module

3.1.2 User Requirements

Users are required to have an Android device/emulator to run the proposed application.

3.2 System Design

3.2.1 Use Case Diagram

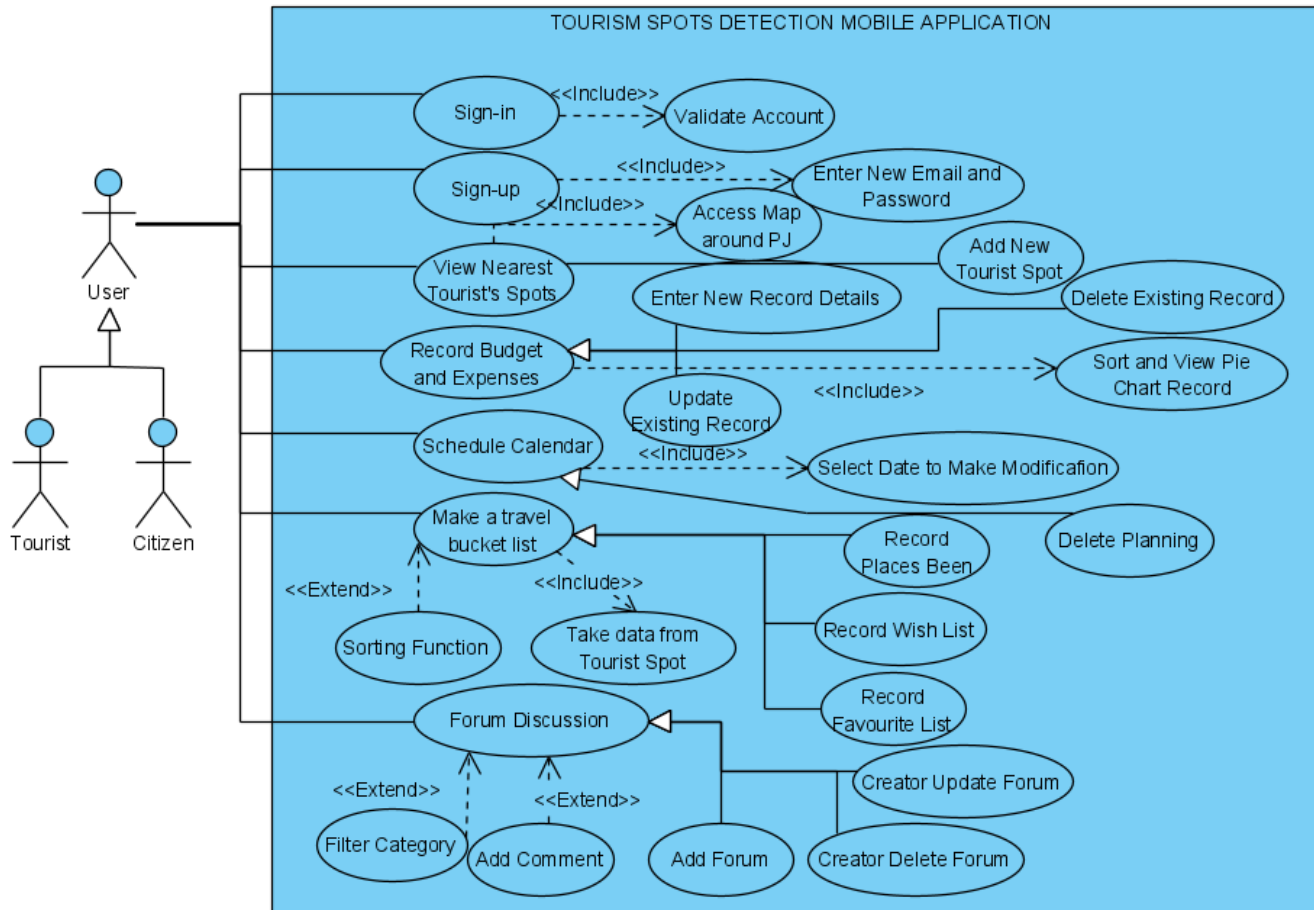


Figure 3.2.1: Use Case Diagram

From Figure 3.2.1, the use case above consists of an actor, User which is generalized from Tourist and Citizen. The actor is able to perform any customization of the trip around PJ by the registration of a user's account. The user may access the map provided to view the nearest tourist's spots and add new discovered tourist spots. The user can perform budgeting such as recording budget or expenses by entering new details or modifying the existing record by update or delete. Also, the calendar may help in making plans for the PJ's trip by selecting the date to make necessary modifications. Also, the user may be used to make a travel bucket list such as recording and/or sorting the places been, wish list and favourite list around PJ through the record from adding new tourist spot from first module. At last, the user can perform forum discussion. The forum is sorted into category and can be commented by another user once the creator has created. The creator can make any modification.

3.2.2 Activity Diagram

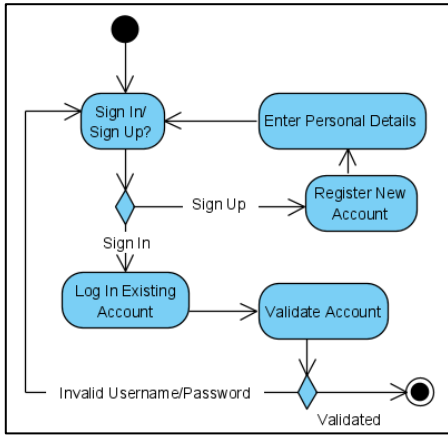


Figure 3.2.2.1: Activity Diagram (User Authentication)

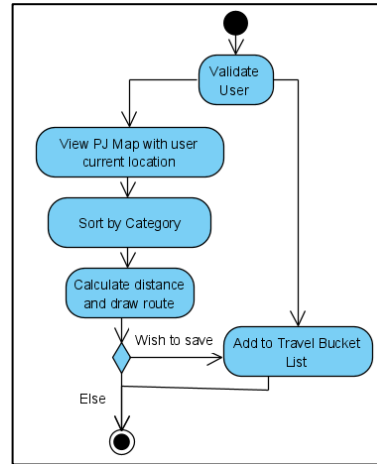


Figure 3.2.2.2: Activity Diagram (Module 1)

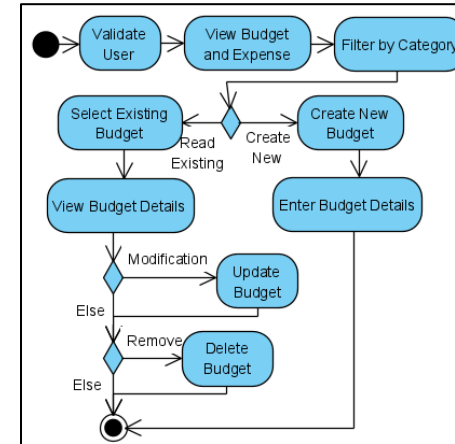


Figure 3.2.2.3: Activity Diagram (Module 2)

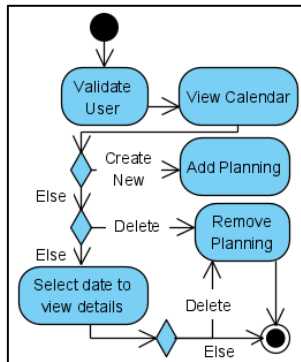


Figure 3.2.2.4: Activity Diagram (Module 3)

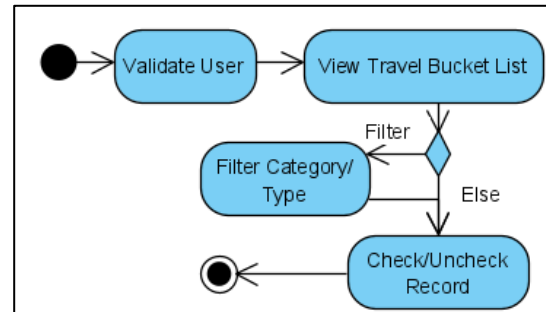


Figure 3.2.2.5: Activity Diagram (Module 4)

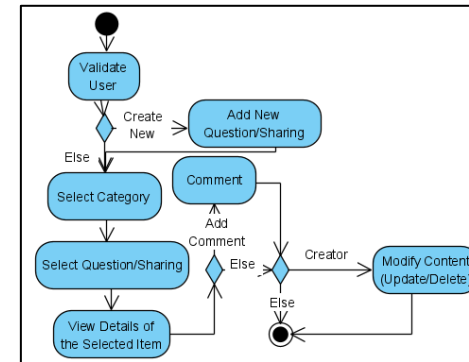


Figure 3.2.2.6: Activity Diagram (Module 5)

From figure 3.2.2.1, it is referring to the registration and login process for the particular user. The user is first able to choose either to sign in or sign up. If the user does not have an account, the user can perform registration for a new account by entering their personal details. Then, the user is able to perform login by validating an account with the firebase authentication.

From figure 3.2.2.2, it refers to the process when running in Module 1 (Detect Nearest Tourist's Spot). The process is started from validating the user account. Then, the user is able to view the current location by accessing the map around PJ. The user can filter by category in order to find the nearby desired location. The user can select the nearby places in order to view the route and distance calculated by the distance. If the place is attracted and the user wish to save for future reference, the user may add to bucket list.

From figure 3.2.2.3, it refers to the process for Module 2 (Plan Your Budget). After validating the user, the user will first view the summary budget information that was made previously such as Total Budget, Total Expenses and the Budget left after deducted from expenses through written form and pie chart provided. The pie chart can be sorted in budget or expenses category. The user may look into the detailed information of the particular record by selecting it. The user may perform further modification like update or delete the record. Else, the user could create a new budget by providing the detailed information of the budget.

From figure 3.2.2.4, it refers to the process of own planning using the calendar format (Module 3: Schedule Your Calendar). The user will have an overall viewing of the planning in the calendar. The user can perform add new planning or delete the planning

by selecting the date or the list of record provided. Also, by selecting the date, the user can view for the certain date activity.

From Figure 3.2.2.5, it refers to the Travel Bucket List Module (Module 4: Travel Bucket List). The user can perform filter by category such as places been, wish list and my favourite place or by type of tourist spot such as food, tourist spot, shopping mall, transport and homestay. The user can perform check and uncheck to the checkbox given as to record the preference.

From figure 3.2.2.6, which is the last module (Module 5: Forum), it is used when the user wishes to ask a question or share their experience. The user can perform create new question or sharing by entering the details with photo. If the user wishes to find any sharing or answering to the queries, the user can view by first selecting the category such as Café/Restaurant, Tourist Spot, shopping malls, Public Transport and Homestay. Then, the user can select with the title of the creator created to view in detail. The user is then able to comment under the page. The privilege of the creator is able to perform edit or delete.

3.2.3 Class Diagram (**Please Zoom in for better view**)

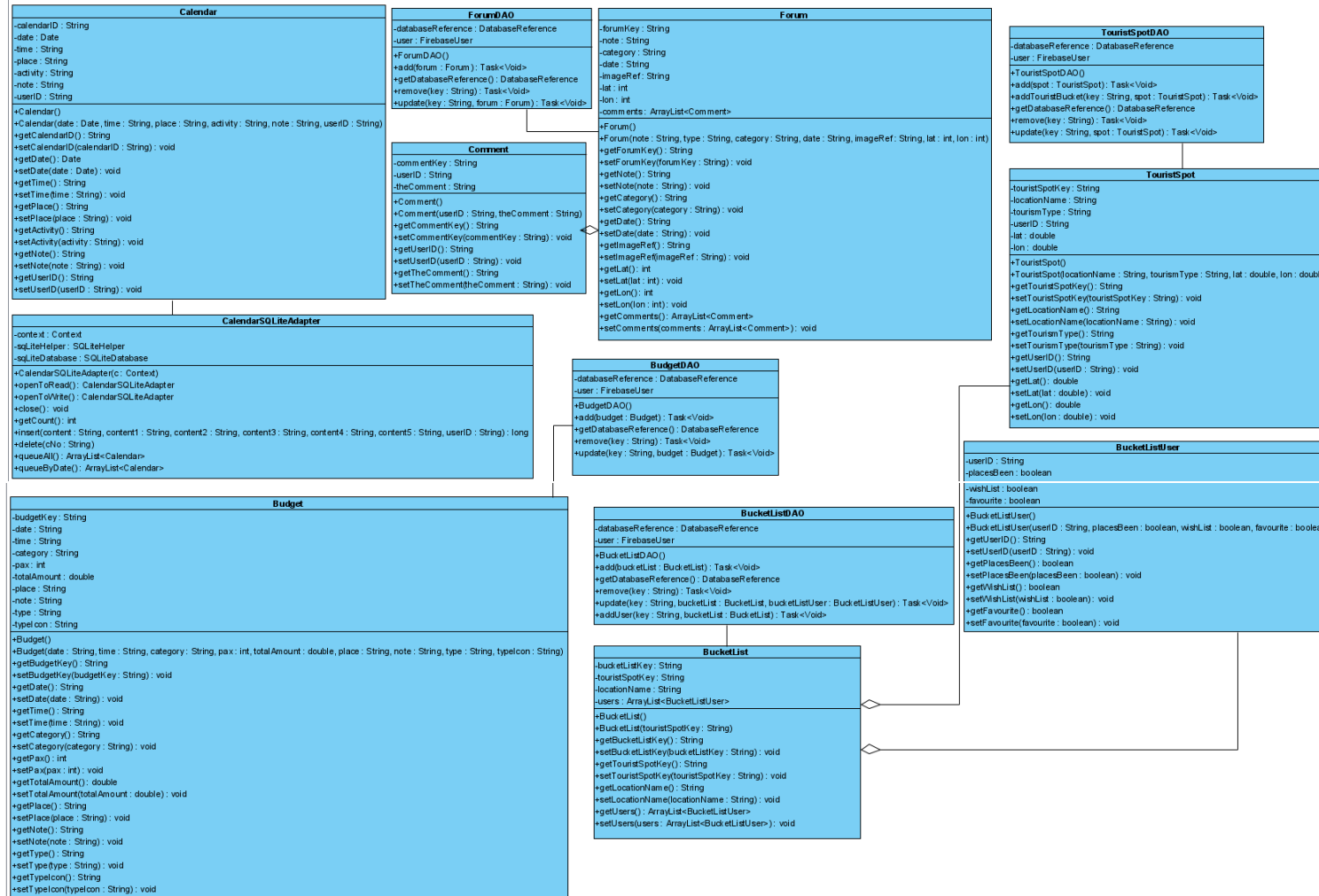


Figure 3.2.3: Class Diagram

The data entity for Module 3: Schedule Your Calendar is stored in SQLite, local device storage, and yet for other is using Firebase. For Module 1: Detect Nearby Tourist Spots is to store the necessary data field and connected to Firebase using TouristSpotDAO as to perform CRUD function. The fourth module: Travel Bucket List is connected because the new data is added when the tourist spot data is added. Thus, BucketListDAO perform add function when tourist spot is added. It is only able to update independently. For module 2: Plan Your Budget, Budget as the model class and BudgetDAO as the role to access Firebase to perform CRUD function. For the fifth module: Forum, has Forum as the model class and ForumDAO as the Firebase accessor while for the comment class has aggregation relationship with Forum where one forum can have multiple comments.

3.3 Implementation Issues and Challenges

The difficult module to be implemented is the main module, Module 1. It is developed to detect nearby tourist spots from the user's location. It is needed to use Google API to detect and locate the user's current location. WIFI condition should be good as it may need to cooperate with Google Cloud which is taking data from the API to track the location. The API should also need to maintain and apply for further usage. Also, to get the exact location of the user, it needs a strong internet connection/ mobile network and GPS in the device to get more accurate reading.

3.4 Timeline (**Please Zoom in for better view**)

3.4.1 FYP1 Schedule – Long Semester

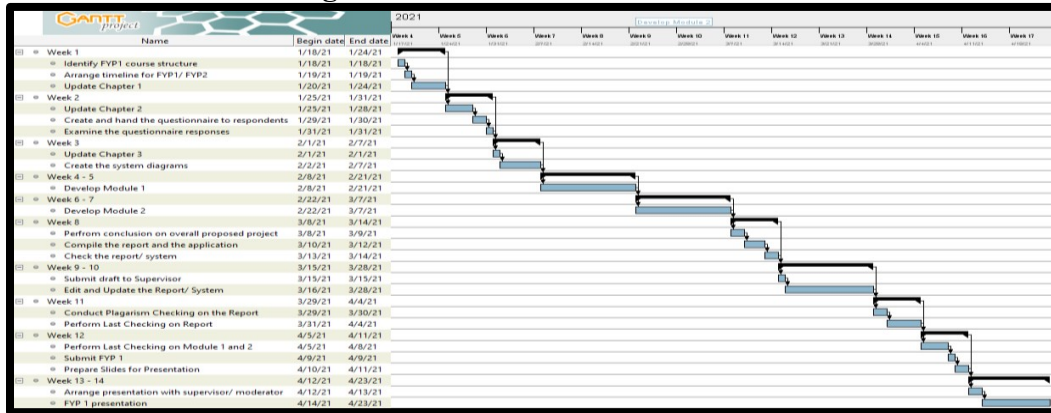


Figure 3.4.1: Schedule of the Project during FYP1

3.4.2 FYP2 Schedule – Long Semester

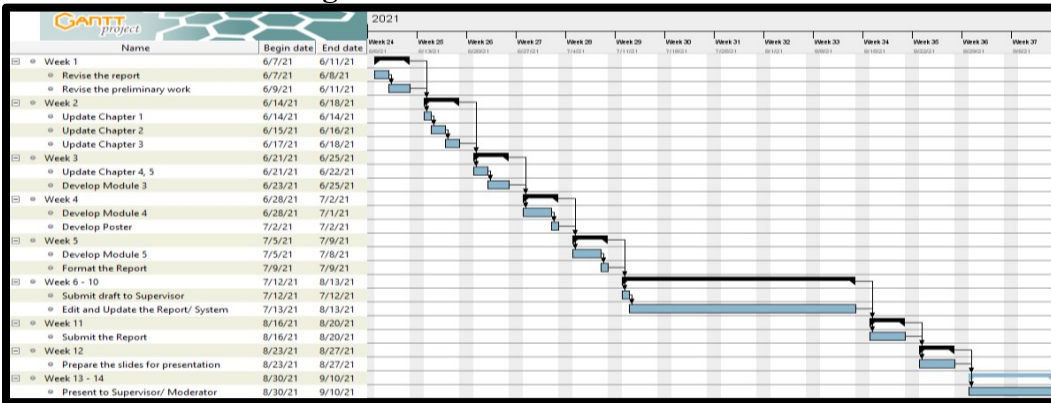


Figure 3.4.2: Schedule of the Project during FYP2

CHAPTER 4 SYSTEM IMPLEMENTATION

4.1 Hardware Setup

1. Personal Computer/ Laptop: An interface to program the proposed mobile application.

Operating System	Window 10 Home Single Language
CPU	Intel® Core™ i5-8250U
GPU	NVIDIA GeForce 920MX
RAM	8GB

Table 4.1.1: Personal Computer/ Laptop

2. Smart Device with Android Operating System: An interface for testing and installing the proposed mobile application.

Operating System	Android 10
CPU	Snapdragon™ 855
GPU	Adreno 640
RAM	8GB

Table 4.1.2: Smart Device

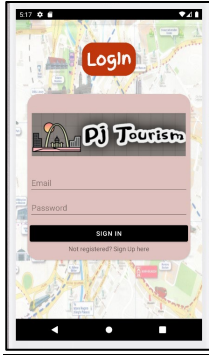
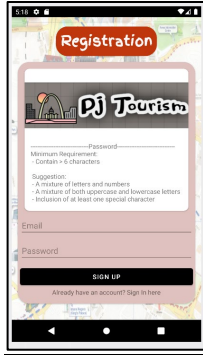
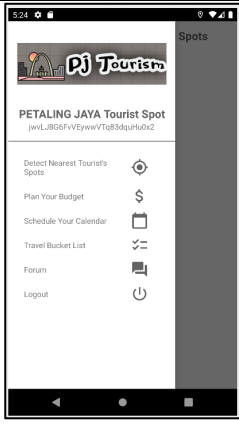
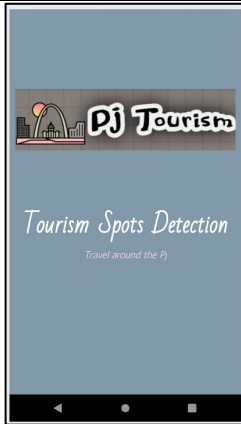
4.2 Software Setup

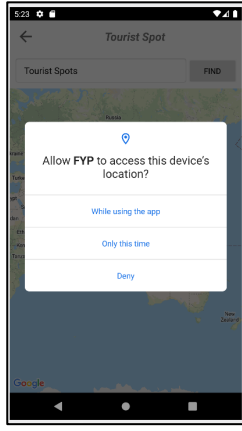
Software	Explanation
Android Studio	It is used for supporting Android APK where it helps for debugging the code. It supports the programming language that used to program the proposed modules in the system which are included with XML and Java. It provides server-side scripting, open source, developing the system and great performance to the system developer.
Google Cloud Platform 1. Direction API 2. Maps SDK for Android 3. Places API	All the API is used for Module 1: Detect Nearby Tourist Spots. It is used to include the map and the given services in the proposed application. It helps in handling the accessing to the server of Google Maps. 1. Direction API: Used to draw route from point A (user current location) to point B (user preferred place to go). 2. Maps SDK for Android: Used to display map, access user current location and etc.

	3. Places API: Used to detect nearby spot with category sort.
Firestore and SQLite	It is used for storing the database. They are mainly used for adding, accessing, processing, and storing the data into or from the database. Firestore is used for accessing the server online while SQLite is used for storing the database in the local devices of the user.

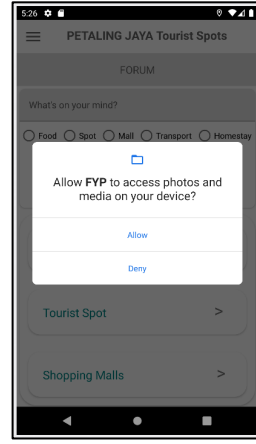
Table 4.2: Software

4.3 System Operation

User Log in and Registration	
	
Users may log in to the existing account that validated with the firebase authentication.	Users may register a new account and store the new registration information in the firebase authentication.
Drawer and Permission	
	
The navigation drawer is allowed for the user to navigate to the desired features/module.	The application is open with splash screen.

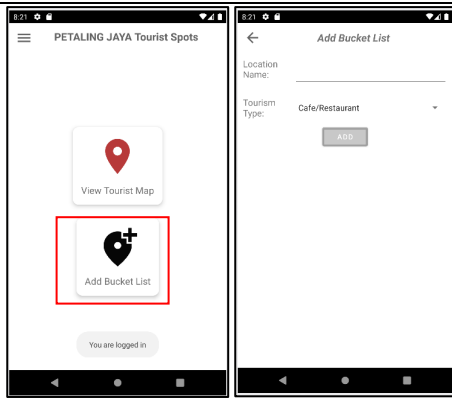


Module 1: Users are needed to allow the device's GPS before utilizing the features in accessing Google Map API.

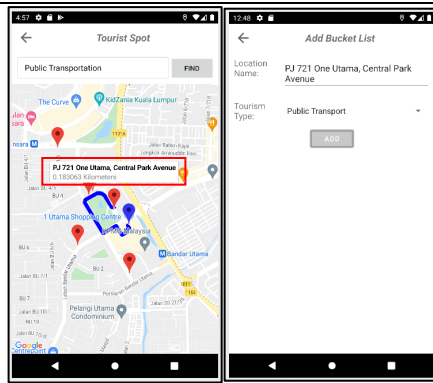


Module 5: Users are needed to allow the permission of accessing device photo and media as to upload photo.

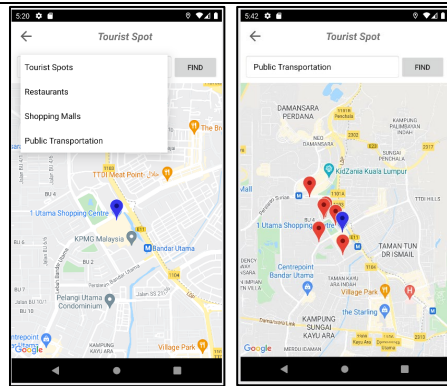
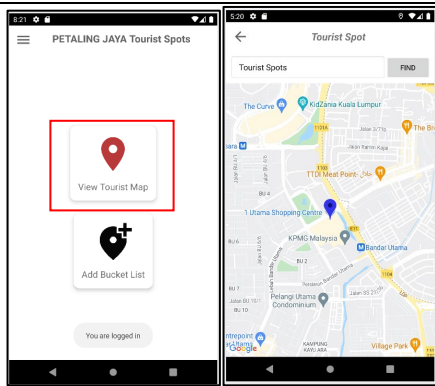
Module 1: Detect Nearest Tourist's Spots



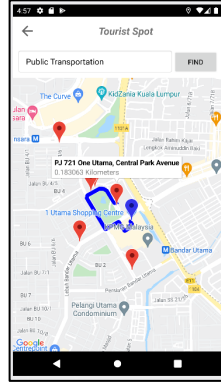
Users can add a new bucket list manually.



Users can add new travel bucket list by long click the info window. The details information is shown.

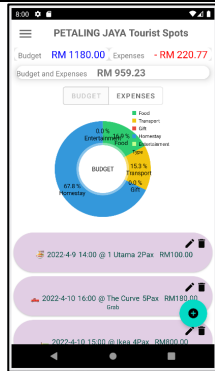


User can access to current location once the permission is allowed.

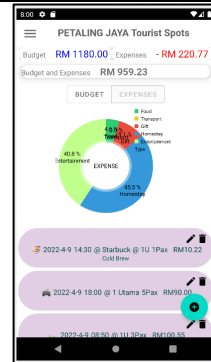


Users can choose for the desired category's detection around Petaling Jaya with radius 1000. For instance, in the second image, the public transport category is chosen, the marker for the nearby location is coloured in red. As to identify the route and distance, the user can click the destination as shown in the third screenshot above.

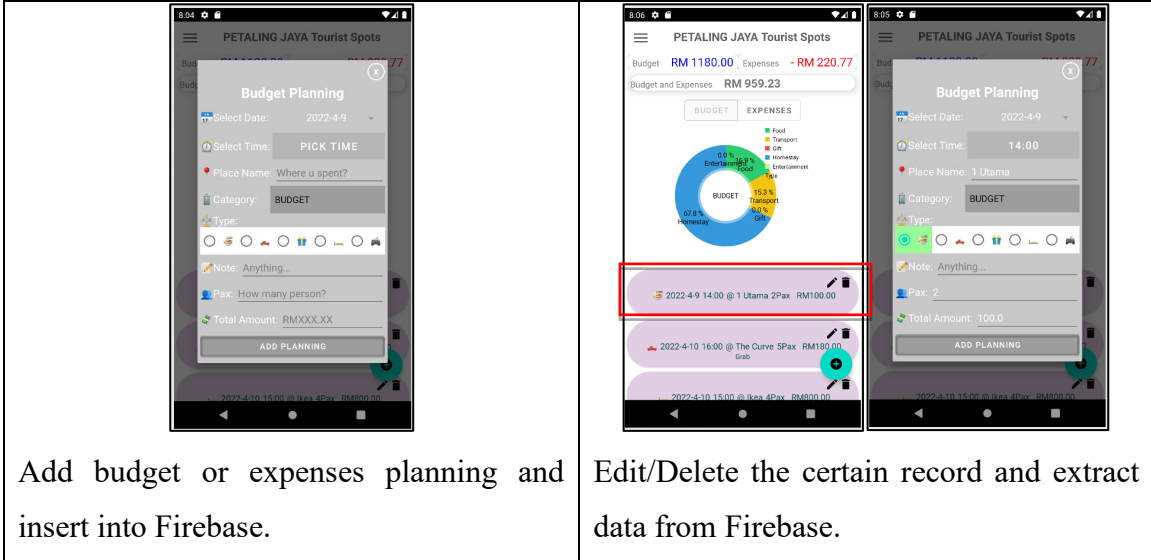
Module 2: Plan Your Budget



Sort Category by Budget for Pie Chart and details per record.



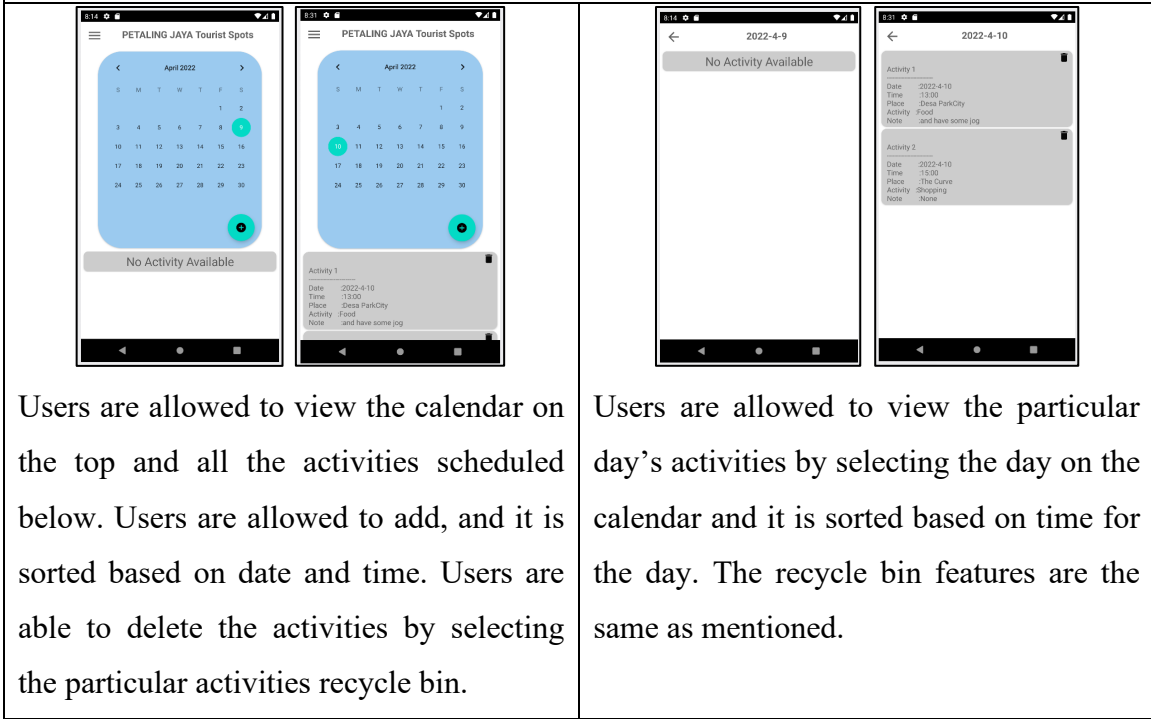
Sort Category by Expenses for Pie Chart and details per record.



Add budget or expenses planning and insert into Firebase.

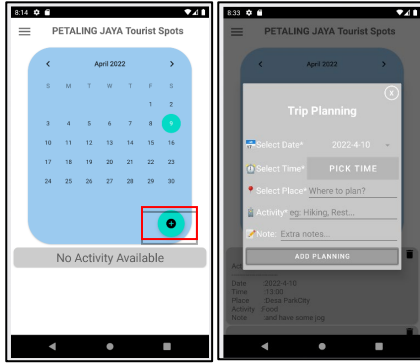
Edit/Delete the certain record and extract data from Firebase.

Module 3: Schedule Your Calendar

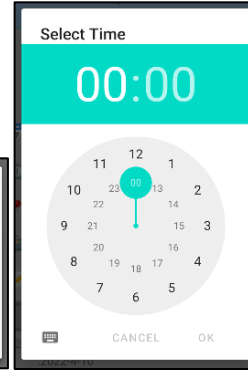
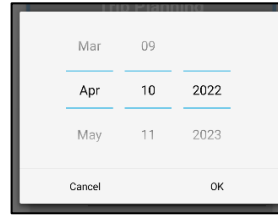


Users are allowed to view the calendar on the top and all the activities scheduled below. Users are allowed to add, and it is sorted based on date and time. Users are able to delete the activities by selecting the particular activities recycle bin.

Users are allowed to view the particular day's activities by selecting the day on the calendar and it is sorted based on time for the day. The recycle bin features are the same as mentioned.

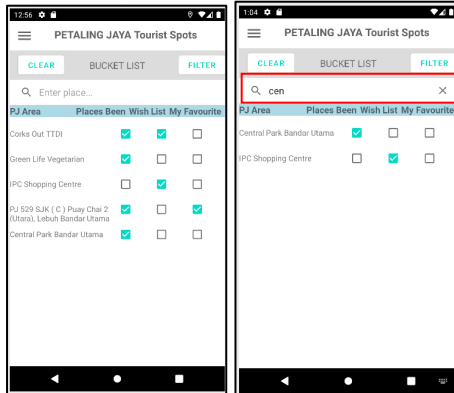


Users are allowed to add the trip planning by inserting the required information. After it is added, the information will store to SQLite and display as shown in the previous screenshots.

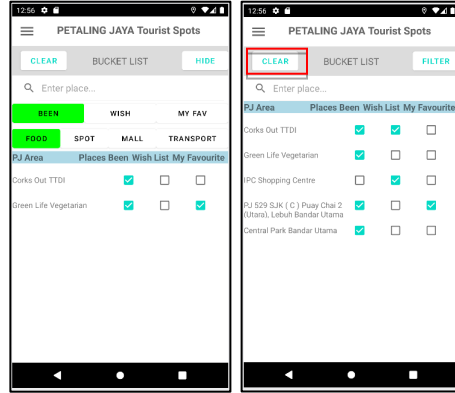


The screenshots shown are date picker and time picker.

Module 4: Travel Bucket List

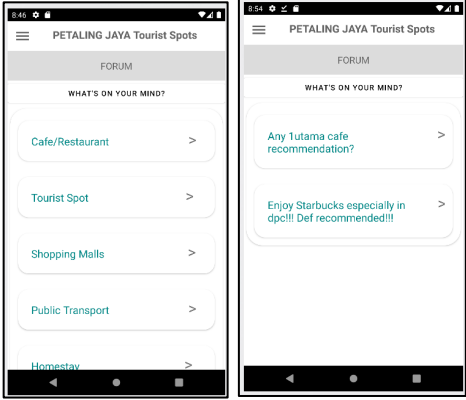
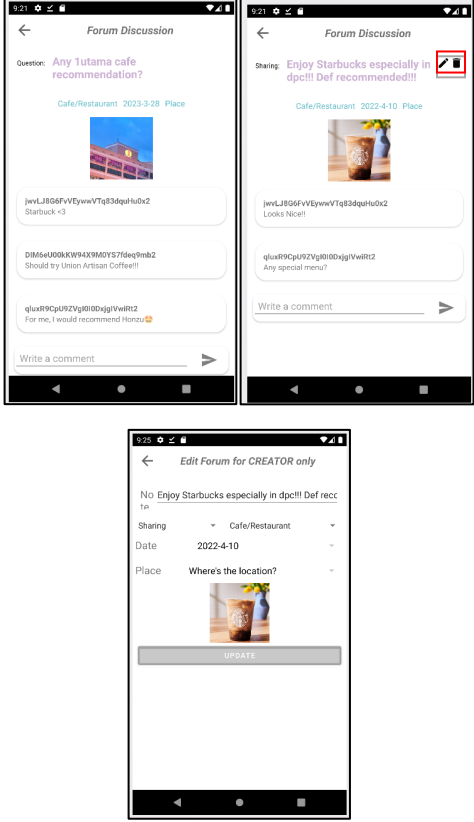
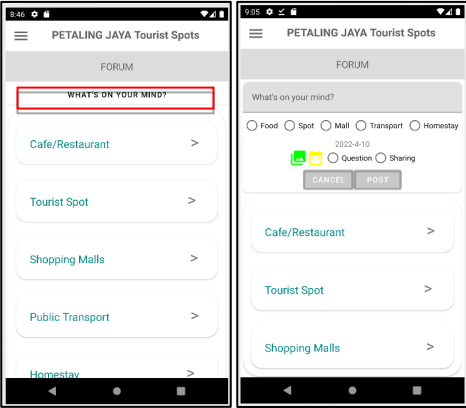
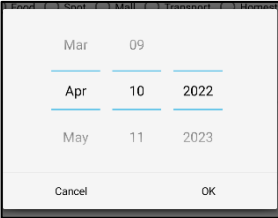


Users can view all of the bucket list places and checked or unchecked based on own preference. Also, the users can search for desired location name.



Users can sort by preferences such as places been, wish list and my favorite place, and sort by type of places like food, tourist spot, shopping mall, transport and homestay. The clear button is used to clear all filtration.

Module 5: Forum

 <p>As to navigate to the forum, the users have to first select the type of place and second select the title shared by the creator as to view the forum in detail.</p>	 <p>This is the detail view for a particular forum. The different between both of the screenshots are the creator can have the privilege to edit and delete. The third screenshot is describing the edit feature for creator used.</p>
 <p>The user can perform add new forum for</p>	

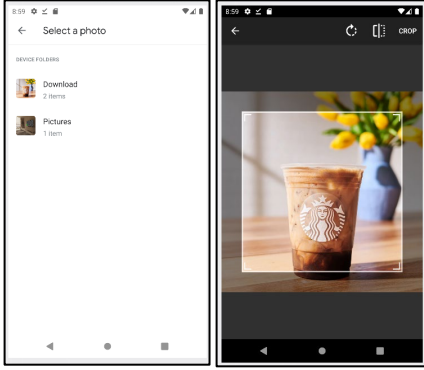
<p>others to discuss within the community.</p>	 <p>These are the date picker and access photo from device with crop function.</p>
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Table 4.3: System Operation

CHAPTER 5 SYSTEM EVALUATION AND DISCUSSION

5.1 System Testing

The system testing used is white box testing. It is mainly focused on the testing of the input and output of the software application. The code and the flow of design is known by the tester where CRUD function is performed under which database, which table and which record.

5.2 Testing Setup and Result

No	Test Case	Assumption	Input	Output	Result
Login and Registration					
1	User Register	-	1.Fill in the email with email format. 2.Fill in the password with 6 characters.	- The user registration email and the encrypted password is stored using Firebase Authentication. - The user direct login to the system.	Pass
2	User Login	-	1.Fill in the correct email. 2.Fill in the correct password.	- The email and password are validated from Firebase Authentication. - The user does not need to log in again until the user logout from the system.	Pass
3	User Logout	-	Click logout.	- The user is log out from the application. - The user requires to log in/ register for an account to further use the	Pass

				application.	
Module 1: Detect Nearest Tourist Spots					
4	Location Permission Checking	Assumption: First access 1.Click View Tourist Map. 2.Permission request from the system:	While using the app	- Allow to access device location. - Device location is shown in the map with blue marker.	Pass
			Only this time	- Allow to access device location. - Device location is shown in the map with blue marker.	Pass
			Deny	Not able to access device location.	Pass
5	User Nearby Location sort by Category	1.Sort by the category of: 2.Click find button	Tourist Spot	Nearby location within radius 1000 is detected and shown with red marker.	Pass
			Restaurant		Pass
			Shopping Mall		Pass
			Public Transport		Pass
6	Calculate distance and draw route	Proceed from test case 5.	Click the destination (Red marker).	- Destination name is shown with the distance from device location. - Route is drawn with blue line.	Pass
7	Add New Bucket List	Proceed from test case 5.	1.Long click the info window of the destination. 2.Click Add Button.	1. - Proceed to Add Bucket List page. - The detail of the destination is displayed. 2. The information is inserted into Firebase Realtime and stored under the table "BucketList".	Pass
		Proceed to the page, Add Bucket List from the main page.	1.Fill in the details. 2.Click Add Button.	The information is inserted into Firebase Realtime and stored under the table "BucketList".	Pass
Module 2: Plan Your Budget					

8	View Record	Previous record existed	Sort by the category of budget or expenses.	-Total budget, total expenses and remaining budget is calculated. -Pie chart and details per record is sorted accordingly.	Pass
9	Add new record	Budget	1.Click “+” Button	- Data is inserted into Firebase Realtime under Budget table - Data is shown, updated on the page and sorted under the category respectively.	Pass
		Expenses	2.Pop up page is shown and fill in the details 3.Select the correct category (budget/expense) 4.Click Add Planning button		Pass
10	Update record		1.Select a record and click the edit icon button. 2.Pop up page is shown with the details of the record. 3.Update the specific details 4.Click Add Planning button	- The particular record is updated from Firebase Realtime under Budget table - Data is updated on the page.	Pass
11	Delete record		Select a record and click the delete icon button.	- The particular record is deleted from Firebase Realtime under Budget table - Data is deleted on the page.	Pass
Module 3: Schedule Your Calendar					
12	Add New Schedule		1.Click “+” Button 2.Pop up page is shown and fill in the details 3.Click Add Planning button	- Data is inserted into SQLite, local device storage - Data is added on the page	Pass
13	Delete Schedule		Select a record and click the delete icon button.	- Data is deleted from SQLite, local device storage	Pass

				- Data is added on the page	
14	View Schedule	Record existed	View all: Below calendar section, scroll the data to view all planning	- Data from the page is extracted from SQLite based on userID. - Data is sorted based on date and time.	Pass
			View by day: Click the date from calendar.	- Data from the page is extracted from SQLite based on userID and date. - Data is sorted based on time for the particular date.	Pass
Module 4: Travel Bucket List					
15	Sort view	Record existed and added from First Module	Sort by Category: 1. Click the Filter button to unhide the filter choice 2. Select and click the category (Places Been, Wish List and My Favorite Place)	-The selected filter is shown in green. -The location is sorted based on the filtration of category and/or location type.	Pass
			Sort by Location Type: 1. Click the Filter button to unhide the filter choice 2. Select and click the location type (Food, Spot, Mall, Transport, Homestay)		Pass
16	Clear sort	Proceed from test case 15.	Click clear button	-None of the filter is in selected and shown in green -All of the data is shown without filtration	Pass
17	Check	The record	Select a record and	The record is	Pass

	Location	under the category is uncheck previously	choose a category to check under the checkbox	updated in the Firebase Realtime under BucketList table	
18	Uncheck Location	The record under the category is check previously	Select a record and choose a category to uncheck under the checkbox	The record is updated in the Firebase Realtime under BucketList table	Pass
Module 5: Forum					
19	Files and Media Permission Checking	Assumption: First access 1.Pick image from local device 2.Permission request from the system:	Allow	Allow to access photo and media from local device	Pass
			Deny	Deny to access photo and media from local device	Pass
20	Add new forum	Proceed from test case 19	1. Click “What’s on your mind?” 2. Fill in the details 3. Pick image from local device and crop the image. 4. Click Post Button.	The data is inserted into Firebase Realtime under Forum table	Pass
21	View Forum in detail	Record existed	1. Select the location type 2. Select the Forum title	-The data details are extracted from Firebase Realtime under Forum table. -The data details and comment from other users is shown. -The edit/delete icon is shown if the user is the forum’s creator.	Pass
22	Add comment	Proceed from test case 21	1. Fill in the comment 2. Click send icon	-The record is inserted into Firebase Realtime under Comment table. -The new comment is shown with userID.	Pass

23	Creator update Forum	<ul style="list-style-type: none"> - Proceed from test case 21 - Login user is creator of the forum 	<ol style="list-style-type: none"> 1. Click the edit icon. 2. The detail of the forum is shown in a new page. 3. Update the detail. 4. Click Update button. 	<ul style="list-style-type: none"> - The record is updated from Firebase Realtime under Forum table. - The data details are updated in the page. 	Pass
24	Creator delete Forum	<ul style="list-style-type: none"> - Proceed from test case 21 - Login user is creator of the forum 	Click the delete icon	The record is deleted from Firebase Realtime under Forum table.	Pass

Table 5.2: White box Testing

CHAPTER 6 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The deliverable of this project is for developing an application with handheld device which suits to the user like tourist/citizens around PJ. The main purpose is to detect the nearby tourist spots of the user to have a better trip experience but not just going to the famous tourist spots. There are still have hidden places which many of the tourists may just no need to waste the time on researching. Travelling is a relax activity and now, even with an application helps, the user would just plan own's customized trip with worriless. The other module like calendar, budget and travel bucket list would help in recording own's preferences with some features helped. This would less burden the user in writing down the needs and wants in a notebook that may make the references from Google. Yet, for the last module, would have help user to discuss any precious things that connected among the traveler around PJ. As for the database connection, the module is currently storing the information in SQLite and Firebase for Realtime, Storage and Authentication features.

6.2 Future Work

The project is currently focused on Android mobile application and may try to develop with iOS operating system since there are more and more users are using iOS mobile devices. With the implementation, most of the mobile device users are able to track the nearby tourist spots around PJ with just simple and easy manipulation. Furthermore, it can be developed in web applications or websites as the features would not be limited in just a small device. Thus, it is recommended to be built under native development such as Flutter, React Native and etc.

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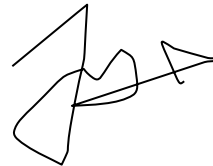
(Project II)

Trimester, Year: Y3S3	Study week no.: Week 3
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.] Implement Room Database in Module 2: Plan your Budget Revise Chapter 1</p>
<p>2. WORK TO BE DONE Complete Module 2: Plan your Budget Complete Chapter 1</p>
<p>3. PROBLEMS ENCOUNTERED Project File Issue, Unable to compile.</p>
<p>4. SELF EVALUATION OF THE PROGRESS 35% of the Project Implementation 10% of the Documentation</p>



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Student's signature

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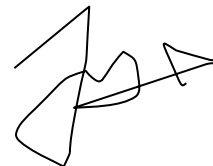
(Project II)

Trimester, Year: Y3S3	Study week no.: Week 4
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE [Please write the details of the work done in the last fortnight.] RoomDB was not implemented, but used Firebase instead. Complete Module 2: Plan your Budget Completed Chapter 1
2. WORK TO BE DONE Complete Module 4: Travel Bucket List Complete Chapter 2
3. PROBLEMS ENCOUNTERED Overall fine. Just the Google map API sometimes working but sometimes not.
4. SELF EVALUATION OF THE PROGRESS 45% of the Project Implementation 10% of the Documentation



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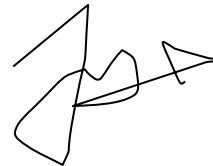
(Project II)

Trimester, Year: Y3S3	Study week no.: Week 5
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE [Please write the details of the work done in the last fortnight.] Completed Module 4: Travel Bucket List
2. WORK TO BE DONE Complete Module 5: Forum Complete Chapter 2
3. PROBLEMS ENCOUNTERED None.
4. SELF EVALUATION OF THE PROGRESS 65% of the Project Implementation 10% of the Documentation



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FINAL YEAR PROJECT WEEKLY REPORT

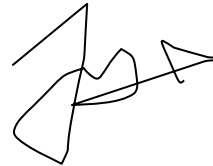
(Project II)

Trimester, Year: Y3S3	Study week no.: Week 6
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE [Please write the details of the work done in the last fortnight.] Completed Chapter 2 30% of Module 5: Forum
2. WORK TO BE DONE Complete Module 5: Forum
3. PROBLEMS ENCOUNTERED None.
4. SELF EVALUATION OF THE PROGRESS 75% of the Project Implementation 15% of the Documentation



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FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: Week 7
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.] 50% of Module 5: Forum</p>
<p>2. WORK TO BE DONE Complete Module 5</p>
<p>3. PROBLEMS ENCOUNTERED None.</p>
<p>4. SELF EVALUATION OF THE PROGRESS 75% of the Project Implementation 15% of the Documentation</p>

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FINAL YEAR PROJECT WEEKLY REPORT

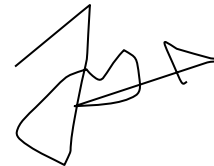
(Project II)

Trimester, Year: Y3S3	Study week no.: Week 8
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE [Please write the details of the work done in the last fortnight.] 20% of Chapter 3 60% of Module 5: Forum
2. WORK TO BE DONE Complete Module 5 Complete Chapter 3
3. PROBLEMS ENCOUNTERED None.
4. SELF EVALUATION OF THE PROGRESS 75% of the Project Implementation 15% of the Documentation



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FINAL YEAR PROJECT WEEKLY REPORT *(Project II)*

Trimester, Year: Y3S3	Study week no.: Week 9
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE [Please write the details of the work done in the last fortnight.] 30% of Chapter 3 70% of Module 5: Forum
2. WORK TO BE DONE Complete Module 5 Complete Chapter 2
3. PROBLEMS ENCOUNTERED None.
4. SELF EVALUATION OF THE PROGRESS 75% of the Project Implementation 15% of the Documentation

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FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: Week 10
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE

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

Done Chapter 3 and Chapter 6

Done Module 5: Forum

2. WORK TO BE DONE

Complete Module 1

Complete Chapter 4

3. PROBLEMS ENCOUNTERED

Location Picker has some issue when connect with Google API.

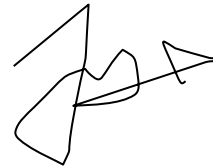
4. SELF EVALUATION OF THE PROGRESS

80% of the Project Implementation

50% of the Documentation



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FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: Week 11
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE [Please write the details of the work done in the last fortnight.] Done Chapter 4 Done Module 1: Detect Nearby Tourism Spot (Add Marker)
2. WORK TO BE DONE Complete Problems Encountered (Location Picker) Complete Chapter 5
3. PROBLEMS ENCOUNTERED Location Picker has some issue when connect with Google API.
4. SELF EVALUATION OF THE PROGRESS 90% of the Project Implementation 80% of the Documentation



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FINAL YEAR PROJECT WEEKLY REPORT

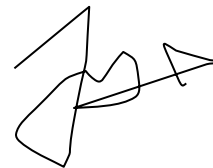
(Project II)

Trimester, Year: Y3S3	Study week no.: Week 12
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

1. WORK DONE [Please write the details of the work done in the last fortnight.] Done Chapter 5 Done problems encountered fixing.
2. WORK TO BE DONE Complete Project Implementation Checking Complete Report Checking
3. PROBLEMS ENCOUNTERED None.
4. SELF EVALUATION OF THE PROGRESS 99% of the Project Implementation 99% of the Documentation



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FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: Week 13
Student Name & ID: Wong Wei Jun 18ACB01858	
Supervisor: Ts Dr Chan Lee Kwun	
Project Title: TOURISM SPOTS DETECTION MOBILE APPLICATION	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.] Done Report Checking with Turnitin Checking Done Project Implementation Checking</p>
<p>2. WORK TO BE DONE Prepare to submit. Prepare presentation slides and recording.</p>
<p>3. PROBLEMS ENCOUNTERED None.</p>
<p>4. SELF EVALUATION OF THE PROGRESS 100% of the Project Implementation 100% of the Documentation</p>

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Student's signature

POSTER



TOURISM SPOTS DETECTION MOBILE APPLICATION

By Wong Wei Jun

ABSTRACT

The project is to develop a mobile application regarding to tourism industry in Petaling Jaya, Selangor.

Module 1: Detect nearby tourist's spots

Module 2: Plan your budget

Module 3: Schedule your calendar

Module 4: Travel bucket list

Module 5: Food, café, and transportation around Petaling Jaya

OBJECTIVES

1. To study and investigate the surrounding tourism spots in PJ area.
2. To design and develop a software prototype of geo scanning for the GPS scan to detect the surrounding tourism spot in PJ area.
3. To propose and develop a mobile application of the tourism for citizens and tourists to look for the destination during the trips with the 5 proposed modules.

PROJECT BACKGROUND

- ✧ Assist most of the adventurer or traveler to have a self-explore to the world which is full of mysterious.
- ✧ The family member that are living nearby can just experience a short getaway in precious moment with the loved ones.
- ✧ It allows one's to have own travel's timing and pace during the vacation with own, friends or family.
- ✧ Track the tourism spots without the efforts of researching in Google.
- ✧ Customize own tour around the cities.
- ✧ Particular traveling spots on the Petaling Jaya, Selangor in Malaysia.

PROBLEMS

1. Most of the tourism spot are specified to few locations.
2. The hidden village will have the lesser attention.
3. The most busy, boring and stressful cities.
4. Least mobile application on a specified area.
5. Travel to the unpopular travel place require time and effort to do research.
6. Do not have a direct platform to seek for their information.

CONCLUSION

The deliverable of this project is for developing an application with handheld device which suits to the user like tourist/citizens around PJ. The main purpose is to detect the nearby tourist spots of the user to have a better trip experience but not just going to the famous tourist spots. There are still have hidden places which many of the tourists may just no need to waste the time on researching. The other module like calendar, budget and travel bucket list would help in recording own's preferences with some features helped. This would less burden the user in writing down the needs and wants in a notebook that may make the references from Google.

mysterious



PLAGIARISM CHECK RESULT

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Tourism Spot Detection Mobile Application By Wei Jun Wong

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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

Full Name(s) of Candidate(s)	Wong Wei Jun
ID Number(s)	18ACB01858
Programme / Course	Bachelor Of Information Systems (Honours) Information Systems Engineering
Title of Final Year Project	Tourism Spots Detection Mobile Application

Similarity	Supervisor's Comments (Compulsory if parameters of originality exceed the limits approved by UTAR)
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Note Supervisor/Candidate(s) is/are required to provide softcopy of full set of the originality report to Faculty/Institute

Based on the above results, I hereby declare that I am satisfied with the originality of the Final Year Project Report submitted by my student(s) as named above.

Signature of Supervisor

Signature of Co-Supervisor

Name: Ts Dr Chan Lee Kwun

Name: _____

Date: 21 April 2022

Date: _____



UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF INFORMATION & COMMUNICATION TECHNOLOGY (KAMPAR CAMPUS)

CHECKLIST FOR FYP2 THESIS SUBMISSION

Student Id	18ACB01858
Student Name	Wong Wei Jun
Supervisor Name	Ts Dr Chan Lee Kwun

TICK (✓)	DOCUMENT ITEMS
	Your report must include all the items below. Put a tick on the left column after you have checked your report with respect to the corresponding item.
	Front Plastic Cover (for hardcopy)
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✓	List of Figures (if applicable)
✓	List of Tables (if applicable)
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✓	All references in bibliography are cited in the thesis, especially in the chapter of literature review
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✓	I agree 5 marks will be deducted due to incorrect format, declare wrongly the ticked of these items, and/or any dispute happening for these items in this report.

*Include this form (checklist) in the thesis (Bind together as the last page)

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

(Signature of Student)

Date: 21 April 2022