**Eat Out Perak: A Malaysian Restaurant Discovery Mobile Application**

by

Herleena binti Mustapha

13986

Dissertation submitted in partial fulfilment of
the requirements for the

Bachelor of Technology (Hons) Business Information Systems

SEPTEMBER 2012

Universiti Teknologi PETRONAS

Bandar Seri Iskandar

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Perak Darul Ridzuan

# CERTIFICATION OF APPROVAL

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Approved by,

_____

(KHAIRUL SHAFEE BIN KALID)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

SEPTEMBER 2012

## CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

_____

(HERLEENA BINTI MUSTAPHA)

# ABSTRACT

This dissertation is written in accordance to the Final Year Project being done in the whole two semesters. The project developed is a mobile application named **Eat Out Perak: A Malaysian Restaurant Discovery Mobile Application.** The application serves the purpose of providing information to locals and tourists about the restaurants available in Perak – its specialty, how to get there as well as the comments from customers. The scope of this project covered local restaurants in few areas of Perak which are specially targeted for visitors and people living in Perak.

This project is using Android as the platform for the mobile application development. The MIT Google App Inventor is the main tool used to develop the application. The five main project activities consist of (1) Planning (2) Analysis (3) Design (4) Implementation and lastly (5) Testing. The results gathered are shown and explained using several diagrams such as the application architecture diagram, window navigation diagram, use case diagram, sequence diagram and etc. It is hoped that Eat Out Perak would be able to give significant convenience to user and can improve at its best in terms of functionality and usability in future.

# ACKNOWLEDGEMENT

Alhamdulillah, praise be to Allah S.W.T, the most gracious and most merciful for giving me the strength and wisdom in completing this project. I would like to reach out my greatest appreciation to my supervisor, Mr. Khairul Shafee Kalid for his understanding and professional ways in guiding, commenting and motivates me in order to complete the development of this project.

I would also like to take this opportunity to express my greatest gratitude and appreciation towards Universiti Teknologi PETRONAS (UTP) especially the coordinator, panel examiners and committees of the Final Year Project course offered by the Computer Information Sciences (CIS) department for their excellent effort in managing this course.

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# TABLE OF CONTENTS

**CERTIFICATION** ..... **i**

**ABSTRACT** ..... **iii**

**ACKNOWLEDGEMENT** ..... **iv**

**TABLE OF CONTENTS** ..... **v**

**LIST OF FIGURES** ..... **vii**

**LIST OF TABLES** ..... **viii**

**CHAPTER 1: INTRODUCTION** ..... **1**

1.0 Chapter Overview ..... 1

1.1 Background of Study ..... 1

1.2 Problem Statement ..... 2

1.3 Objective ..... 2

1.4 Scope of Study ..... 3

**CHAPTER 2: LITERATURE REVIEW** ..... **4**

2.0 Chapter Overview ..... 4

2.1 Malaysian Food and Culture ..... 4

2.2 Relationship between Food and Tourism in Malaysia ..... 5

2.3 Visit Perak Year 2012 ..... 5

2.4 Mobile Applications versus Mobile Website ..... 7

2.4.1 Comparison between Mobile Applications and Mobile Website ..... 7

2.4.2 Advantages of Building a Mobile Application ..... 8

2.5 Advantages & Disadvantages of Developing Android Application ..... 9

2.6 Related Works ..... 10

2.6.1 Restaurant and Food Guides Website and Blog ..... 11

2.6.2 Restaurant and Food Guides Applications ..... 13

**CHAPTER 3: METHODOLOGY** ..... **15**

3.0 Chapter Overview ..... 15

3.1 Mobile Application Project Methodology ..... 19

3.1.1 Planning ..... 20
3.1.2 Analysis ..... 20
3.1.3 Design ..... 20
3.1.4 Implementation ..... 21
3.1.5 Testing ..... 21

3.2 Project Gantt Chart ..... 22
3.3 Tools ..... 23

3.3.1 Software ..... 23
3.3.2 Hardware ..... 24

**CHAPTER 4: RESULTS ..... 25**

4.0 Chapter Overview ..... 25
4.1 Comparative Study ..... 25
4.2 Application Architecture ..... 27
4.3 Windows Navigation Diagram ..... 29
4.4 Use Case Diagram ..... 30
4.5 SWOT Analysis ..... 31
4.6 Interface Design ..... 32
4.7 User Acceptance Test ..... 36

**CONCLUSION AND RECOMMENDATION ..... 38**
**REFERENCES ..... 39**
**APPENDICES ..... 44**

## LIST OF FIGURES

Figure 1.1: Logo of Eat Out Perak ..... 1
Figure 2.1: Perak Food Trail Booklet ..... 6
Figure 2.2: Smartphone Platform Market Share 2011 ..... 10
Figure 2.3: Screenshot of tripadvisor.com.my ..... 11
Figure 2.4: Screenshot of lonelyplanet.com ..... 12
Figure 2.5: Screenshot of the Motormouth from Ipoh Website ..... 13
Figure 2.6: User Ratings on Yelp ..... 15
Figure 2.7: User Ratings on Urbanspoon ..... 16
Figure 2.8: User Ratings on Foodspotting ..... 17
Figure 2.9: User Ratings on MMW Foodie ..... 18
Figure 3.1: Project Activities Diagram ..... 19
Figure 3.2: Fundamentals of the MIT App Inventor for Android ..... 24
Figure 4.1: Application Architecture of Eat Out Perak ..... 27
Figure 4.2: Windows Navigation Diagram ..... 29
Figure 4.3: Use Case Diagram ..... 30
Figure 4.4: Screenshot Splash Screen ..... 32
Figure 4.5: Screenshot Main Screen ..... 32
Figure 4.6: Screenshot of Select Area Screen ..... 33
Figure 4.7: Screenshot of List of EateriesScreen ..... 33
Figure 4.8: Screenshot of View Details Screen ..... 36
Figure 4.9: Screenshot of Add Comment Screen ..... 36
Figure 4.10: Screenshot of Read Comments Screen ..... 36
Figure 4.11: Screenshot of View Map Screen ..... 36
Figure 4.12: Screenshot of Exit Screen ..... 35
Figure 4.13: Screenshot of Drop Feedback/Suggestion Screen ..... 35

## LIST OF TABLES

Table 2.1: Comparison between Mobile Website and Mobile Application .....8
Table 3.1: Project Gantt Chart.....22
Table 4.1: Comparison between Restaurant and Food Guides Websites - Local & International .....26
Table 4.2: Comparison between Food Guide Applications Available in Google Play .....26
Table 4.3: SWOT Analysis .....31

# CHAPTER 1
# INTRODUCTION

## 1.0 Chapter Overview

This chapter is intended to provide a quick introduction to the mobile application project which will cover the background of study, problem statements, objectives and the scope of study.

## 1.1 Background of Study

It is of general need for diners to find a good place to eat nearby when an impromptu plan comes up to meet a friend or to go out for a meal. For someone who is new in the city, he or she might want to discover eating places nearby when touring the city. In all these cases, traditionally people will ask around to find good restaurants. However, this limits one's discoverability and one might not get to know all the options available near them in a split second.

The objective of this project is to develop one of the many types of mobile application which is the restaurant discovery application. This Android-based mobile application serves to give users a fast listing of restaurants available nearby them with the integration of the GPS service from the users' smartphone. This mobile application is named 'Eat Out Perak – A Malaysian Restaurant Discovery App '. **Figure 1.1** shows the logo of Eat Out Perak.

**Figure 1.1: Logo of Eat Out Perak**

Along with the feature mentioned earlier, users can also read restaurant reviews posted by other users as well as getting the driving directions to the desired restaurant. In support with the Visit Perak Year 2012, the application development will begin by covering the restaurants around Perak to promote local delicacies of Perak and to help Perak tourism in promoting local food businesses available there.

## 1.2 Problem Statement

When tourists travel to Perak and perhaps to other states as well in Malaysia, they shall decide to try on the local food and beverages of the particular area they are at. Internet is one of the fastest and easiest ways for one to get directions and good review on the nearby restaurants. Apart from searching in the search engine through web browser, people nowadays are very keen to download apps that could simplify the searching task. There are many food locator app available in the Google Play as well as other platform mobile application store. However, none of it is of Malaysian context. There is still a lack of application that specifically developed for Malaysian users. If it happens to be a foreign food locator app that can be used in Malaysia, it only covers limited places.

Apart from that, though there are many blogs and websites making reviews on restaurants but users often need to view multiple sites to find their desired choice. This might take a longer time to browse from one site to another plus it is difficult to find just a site that can suggest nearby restaurants and tells everything from the restaurant details, reviews and ratings right to the maps and directions.

## 1.3 Objectives

The objective of this project is to develop a Malaysian restaurant discovery application that can provide information to locals and tourists about the restaurants

available in Perak – its specialty, address, business hours and how to get there as the application provides access to the Google Maps service. Along with the main objective stated earlier, this application also enables user to read and write comments to the restaurant for other users to read. This application is basically designed and developed to ease impromptu diners in deciding where to eat.

## 1.4 Scope of Study

This project focused on several domains of study. Firstly, the database development of the app will cover only to the restaurants situated in Perak since the early stage of this project is in support with the Visit Perak Year 2012 campaign. Next, this project is an Android-based mobile application. This application is targeted for users living in Perak, visitors and to just about everyone as long as they are interested since the database development of this app is mainly created by users when they begin to upload new restaurants discovery and write reviews about it. The app also focused on showing the listing of nearby restaurants generated by the Google Maps API once location is detected or determined by the user.

# CHAPTER 2
# LITERATURE REVIEW

## 2.0 Chapter Overview

This chapter consist of the literature review which defines the key terms, definitions, terminology and explanations on some of the area of study. The first few areas elaborate on the Malaysian Food and Culture, the Relationship between Food and Tourism in Malaysia and the Visit Perak Year 2012 campaign. Next, the explanation is on the Differences between Mobile Website and Mobile Application, the Advantages of Building a Mobile Application and the Advantages and Disadvantages of Building Android Application. Lastly, the literature review will also cover the related works whereby a comparison study is done to write reviews on the Restaurant and Food Guide Websites and Applications found on the internet.

## 2.1 Malaysian Food and Culture

If shopping is the national pastime in Malaysia, then food is the national obsession (Houben & Ann). According to a Teh (2012), only in Malaysia, one can find good food almost everywhere – 24 hours a day, from north to south. This is enough to make many countries go green with envy. Such eating places that opens 24 hours includes the bars and bistros, Mamak stall, Tom Yam stall and the most popular fast food restaurants such as Mc Donald's and KFC. More Malaysians are keeping awake till late just to eat out and enjoy the scrumptious late night supper which has became a top national pastime (WonderfulMalaysia, 2012).

Apart from the food obsession, eating out is also very common in Malaysia. Several reasons and excuses would have found to explain this. Firstly, the biggest part of the population seldom cooks at home due to busy lifestyle. Next, eating out might

sometimes be cheaper than buying ingredients to cook dishes. Another reason is that eating outside has been a part of Malaysian culture of spending time with friends and relatives.

The trend of eating-out can be clearly observed during the football season. As mentioned by (Ali & Abdullah, 2012), many people ranging from teenagers to workers will come in groups to the Mamak stall to chat while watching football match display on big screens. They will definitely order food to eat and may sit for hours depending on the show.

## 2.2 Relationship between Food and Tourism in Malaysia

Food and tourism have a very close relationship and food is a critical tourism resource (Henderson, 2009). A news article by the Borneo Post Online has found to support the statement. "Foreign tourists spend about RM10 billion on Malaysian cultural food annually", said the National hawker deputy chairman, Toh Lai Huat (Borneo Post Online, 2011). He said the amount was out of the total RM56 billion tourists spend annually in the county. This clearly shows how significant Malaysia food is in relation to tourism. Local hawkers are greatly benefited by this amount. It is of highly important that this tourism factor is constantly improved to cater tourists' interest and satisfaction so that they will revisit Malaysia or even provide positive comments to friends and relatives to attract many other tourists to visit Malaysia.

## 2.3 Visit Perak Year 2012

EatOut Perak, as its name suggests, will focused on listing the restaurants located only in Perak. Perak is selected over other states is mainly due to the reason that this year is a Visit Perak Year. This campaign launched by Perak Minister, Datuk Sri Dr. Zambry Abd. Kadir, is aimed to attract tourists to the state. The Perak State Tourism Committee chairman, Datuk Hamidah Osman said that, "A total of 25,029 foreign

tourists visited Perak from January to March, against 19,940 in the same period last year" (Samah & Ngo, 2012). However, this increasing numbers is not much to be proud of since there are also some negative feedbacks heard about the campaign. According to a newspaper article dated March 13, 2012, the promotional exercise for the state's highly anticipated event has been greatly lacking (Dermawan, 2012). This was written due to the concern of many visitors of Perak whereby they have hardly found promotional posters, billboards or buntings which are meant to attract more tourists. New visitors to the state could never have guessed the significance of this year to Perak. To top it off, another newspaper article dated on July 9, 2012, had written a complaint from the tourist that the tourism promotion campaign is unaware off especially on promoting the various food Perak has to offer (Ngo, More publicity needed for Visit Perak Year 2012, 2012). Although the state government had published and printed 50,000 copies of the "Perak Food Trail" booklet, that doesn't help much since the booklet is only available at the Tourism Information Centres and impromptu diners would not have it in hand while deciding on where to eat (Ngo, State govt to print more booklets, 2012). Many tourists still need to rely on word-of-mouth when it comes to looking for places to eat. **Figure 2.1** shows the "Perak Food Trail" booklet published by the Perak state government to promote Perak local food to visitors of Perak.

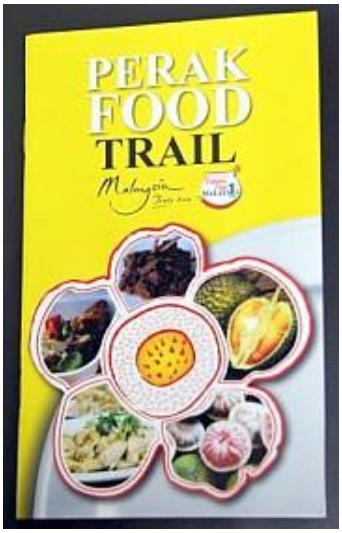


**Figure 2.1: Perak Food Trail Booklet**

## 2.4 Mobile Application versus Mobile Website

This section explains the differences in terms of definition and features between the mobile application and mobile website and also the advantages of building a mobile application.

### 2.4.1 Comparison between Mobile Application and Mobile Website

According to the Wikipedia, a **mobile application (or mobile app)** is a software application designed to run on smartphones, tablet computers and other mobile devices (Wikipedia, 2012). Another article explains that mobile applications are actual applications that are downloaded and installed on your mobile device, rather than being rendered within a browser (Summerfield). Mobile apps can be found plenty through various application distribution platforms such as the Apple App Store, Google Play, Windows Phone Store and Blackberry App World. Some apps are free, while others have a price. The app may pull content and data from the Internet, in similar fashion to a website, or it may download the content so that it can be accessed without an Internet connection.

On the other hand, a **mobile website** refers to the use of browser-based internet services, from a handheld mobile device, such as a smartphone or tablet computer connected to a mobile network or other wireless network (Wikipedia, 2012). The obvious characteristic that distinguishes a mobile website from a standard website is the fact that it is designed for the smaller handheld display and touch-screen interface. As stated in the article by Human Service Solutions website, like any other website, mobile websites can display text content, data, images and video. Furthermore, they can also access mobile-specific features such as click-to-call (to dial a phone number) or location-based mapping (Summerfield).

**Table 2.1** explains more on the differences between the features of the mobile website and the mobile application (Matthew, 2012).

| Mobile Website | Mobile Application |
|---|---|
| Can be accessed through browsing at the mobile phone web browser. | Can be accessed after the application has been installed by launching the application. |
| Uses static, navigational user interface. | Uses interactive user interface. |
| Requires connection to the internet. | Available offline. |
| Limited features. | Can make use of the phone features like location services, camera, etc. |
| The speed depends on the internet service provider. | Very fast. |
| The development cost is reasonable. | The development cost is very expensive. |
| Not available in the App Store. | Available in the App Store. |

**Table 2.1: Comparison between Mobile Website and Mobile Application**

### 2.4.2 Advantages of Building a Mobile Application

Based on the article from mobileapploader.com, there are several advantages of building a mobile application. The advantages are as follows:-

- Available offline; Some application does not require internet connection at all while others may require internet connection to access some features such as the location service or social media.
- Build loyalty; When you create a mobile application that has value for users, they are more likely to bookmark it and return to it over and over.
- Solve the problem of getting stuck in spam folders; Users sometimes experience this when browsing through mobile website.

- Faster to access; It takes a second to launch a Mobile App. It can take up to several minutes for a Mobile Web site to load in an area with bad reception.
- Always visible on your phone's home screen; Users not have to search again to web browser.
- Appear in the Application Stores

## 2.5 Advantages & Disadvantages of Developing Android Application

Android is chosen as the platform to be used because of numerous advantages it provides compared to other mobile operating system. The biggest advantage of Android is that it is an open platform (open source) which means any developers can design just any type of application for free and has the opportunity to make it available in the Google Play. Besides that, user with Android-based devices can simply download and install free mobile applications to be used anytime anywhere. Currently, there are over than 700,000 apps in the Google Play (Womack, 2012).

According to an article in a website, the author wrote that open sourced software is known to be more secure. This is because many programmers can access to the source code to look for holes and problems to the apps and they will be quickly alerted and solved (Neel, 2012). Apart from that, creativity for the open source app development is heavily encouraged since many developers will compete to build better ones with such reference. Another advantage of android that attracts many users is the multitasking ability it serves. It can run various applications at once (Neel, 2012). For instance, users can run a Facebook app while listening to the music or open an incoming message.

Despite all the advantages that Android might bring to the user, the system also has shortcomings. One of the drawbacks of using Android platform is that it requires continuous internet connection (Neel, 2012). Continuous internet connection relates

to the price to pay to the internet service provider (ISP). However, there are several ISP which provides many data plans according to fees and charges that user can choose from. Apart from that, another drawback would be the advertisement displayed at the app screen. Some may be unnecessary and annoys users. This is somewhat to compensate the free service given to users by the Android developers.

All in all, Android advantages still outnumbers its disadvantages thus making it the most preferable mobile operating system among the customers. This is proven by the 2011 statistic on smartphone platform market share where Android has the highest market share with 46.9% whereby iPhone has 28.7% (Alexander, 2012). **Figure 2.2** illustrates the statement mentioned.

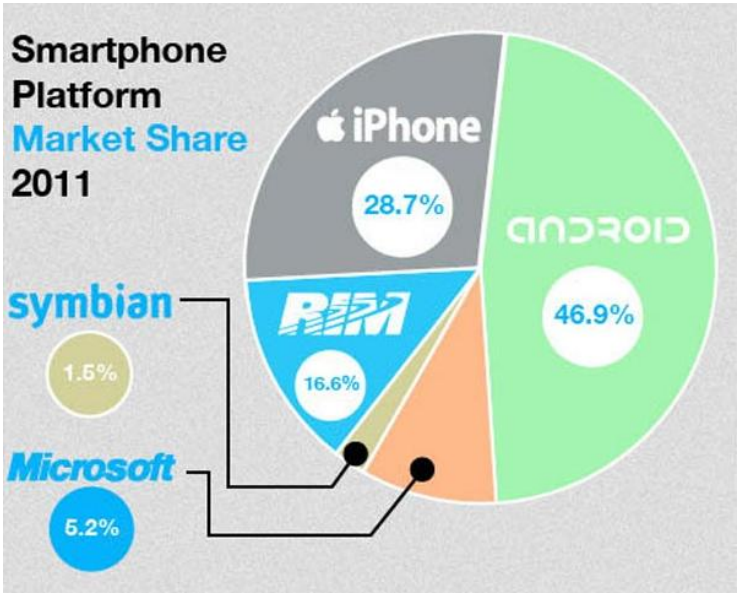


**Figure 2.2: Smartphone Platform Market Share 2011**

## 2.6 Related Works

This section discuss on the Restaurants and Food Guides available on the internet via websites and also the applications that can be downloaded and installed to

smartphones. The guides may or may not be helpful to users depending on the features it offers which the comparison study is provided in this section.

### 2.6.1 Restaurants and Food Guides Website and Blog

Apart from relying on the word-of-mouth recommendations from friends and relatives, there are many restaurants and food guides available in the internet via the websites and blogs in search of good food. International travel guide websites like TripAdisor and Lonely Planet also does provides such food guides in Malaysia. Unfortunately, the information is very much limited which covers only the main cities and towns such as Kuala Lumpur, Shah Alam, Johor Bahru and few others. Information for restaurants in around Perak is hardly to be found. If any, it will only cover places in the main city, Ipoh. Not only that, TripAdvisor and Lonely Planet websites share the same similarity which is both sites act more like a travel directory which packed every information into one site. Too much information provided may not be necessary for those who only want to know about food.

**Figure 2.3** and **Figure 2.4** shows the screenshot of the two most popular travel guides, the TripAdvisor and Lonely Planet.

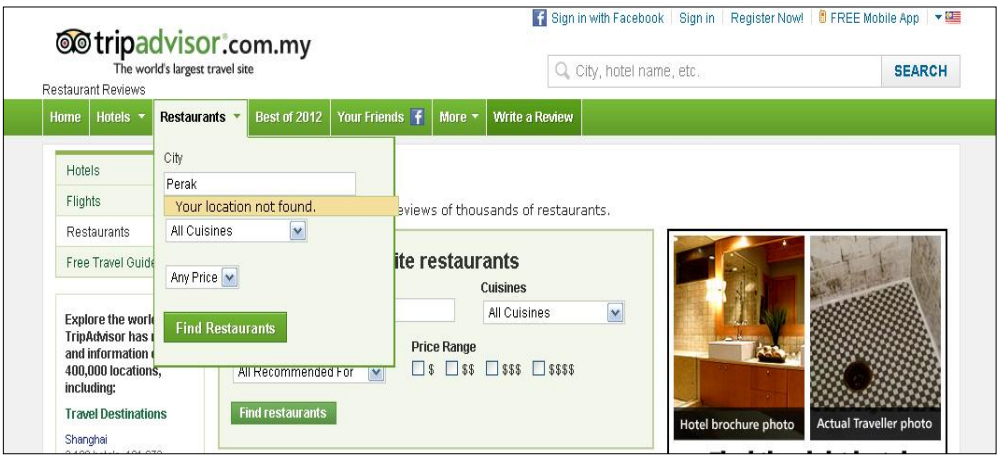


**Figure 2.3: Screenshot of tripadvisor.com.my**

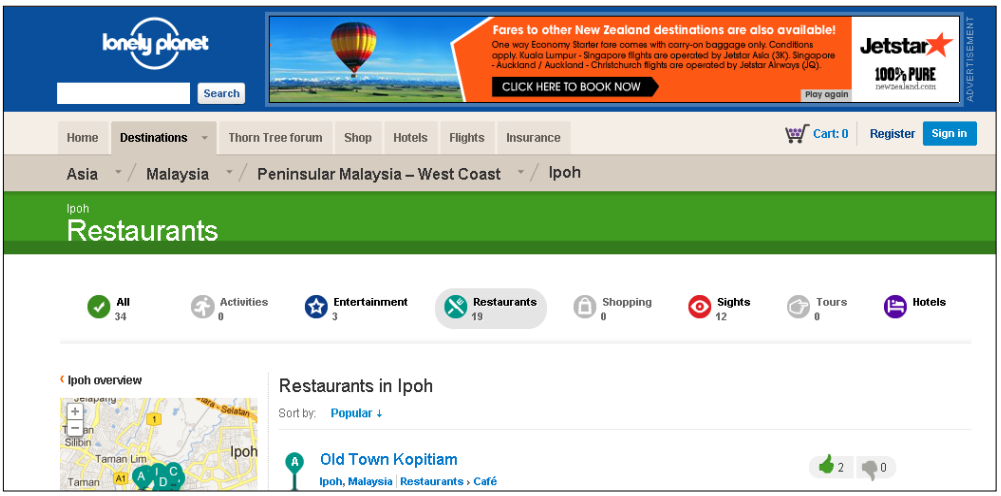


**Figure 2.4: Screenshot of lonelyplanet.com**

Makan Mana, Dine Malaysia and Motormouth from Ipoh on the other hand, are the few websites that focus on Malaysian food. Makan Mana is one of the popular Malaysian food review website found in the internet. However, it only features restaurants in Kuala Lumpur, Selangor, Melaka and Johor. It has not covers Perak yet. Motormouth from Ipoh is one of a good food guide website which specializes in Perak delicacies. It comprises both the muslims and non-muslims food. However, the muslims food covered is pretty much limited. The site is actually a personal preference food blog which therefore the list of food spots depends on the background of the blog owner. Since the owner happened to be a Chinese, non-muslims restaurants' suggestions are hardly to be found. It is different from TripAdvisor where user can write their review as well and form a repository food review website by others to others.

**Figure 2.5** on the following page shows the screenshot of the website, the Motormouth from Ipoh.

**Figure 2.5: Screenshot of the Motormouth from Ipoh Website**

### 2.6.2 Restaurants and Food Guides Applications

Several developers have released restaurant locator apps that can take advantage of the location services in the Android based smartphone. Diners can get food ideas and also the directions to find local restaurants. A visit to the Google Play will reveal many search results when searching for the word 'restaurant'. Top 4 applications available in the Google Play market such as Yelp, Urbanspoon, Foodspotting and MMW Foodie are further discussed and reviewed starting on the following page.

- **Review on Yelp**

Yelp was founded in 2004 to help people find great local businesses like dentists, hair stylists and mechanics. It started off on a website and now available in mobile application across all platforms – iPhone, Android, Blackberry and more. Users often use Yelp to search for places to eat, shop, drink, relax and play then read reviews

from the active community of locals in the know. Despite of the useful services Yelp brings to its users, one of the major drawbacks is that Yelp only covers several countries excluding Malaysia.

Features of Yelp are as follows:

- Search for businesses nearby
- Tap quick links to find nearby bars, restaurants, cafes and more
- Narrow your searches by food, distance, price, and what's open now
- Browse reviews to read what's great (and not so great) in the city
- Find great Deals offered by local businesses
- Add Quick Tips, photos, and draft reviews on favorite businesses
- Check-in and share on Facebook and Twitter
- Look up addresses and phone numbers for thousands of businesses, then call or map them from your phone

According to the User Reviews found in the Google Play, Yelp overall rating is 4.4 out of 5 from the 69, 076 users. Based on Figure **Figure 2.6** (next page), 87% of the users rate Yelp as good which consists of 4 and 5 stars rating. A user commented that Yelp is indispensable whereby she relies on Yelp for everything and finds it the most useful application ever. Another 10% of the users rate Yelp as satisfactory which consists of 3 and 4 stars rating. Users commented that the application does what they need however, they can't post reviews from the mobile application itself but have to go on desktop version to write reviews. Lastly, 3% of the users rate it as poor due to having the application to update every 12 hours which they find it annoying.

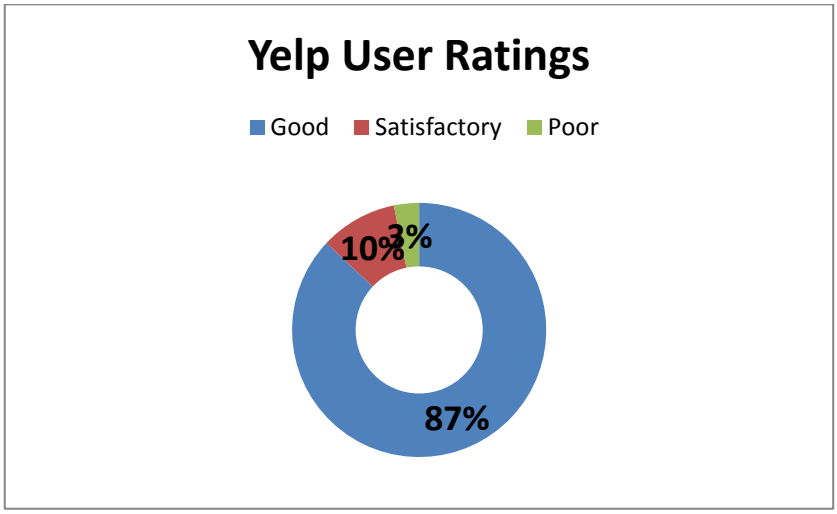


**Figure 2.6: User Ratings on Yelp**

- **Review on Urbanspoon**

Urbanspoon is an application developed to focus on restaurant recommendations. Users can shake their phone and Urbanspoon will suggests restaurants nearby them. However, this application is not available for Malaysian user. It covers the United States, Canada and most major cities in the United Kingdom and Australia.

According to the User Reviews found in the Google Play, Urbanspoon overall rating is 4.1 out of 5 from the 12, 275 users. Based on **Figure 2.7**, 80% of the users rate Urbanspoon as Good. Most of them enjoy the "shake" function whereby they can try their luck and see what restaurants are nearby for them to experience. Another 15% of the users rate the application as satisfactory. They find that the application is very useful. However, many of them have problems in uploading pictures straight from their phone and need to do it through website. Lastly, 5% from the users rate the application as poor since they are very disappointed on the workability of this application running in Android platform as compared to in iOS version. It turns out that Urbanspoon for Android have few bugs and always crash.

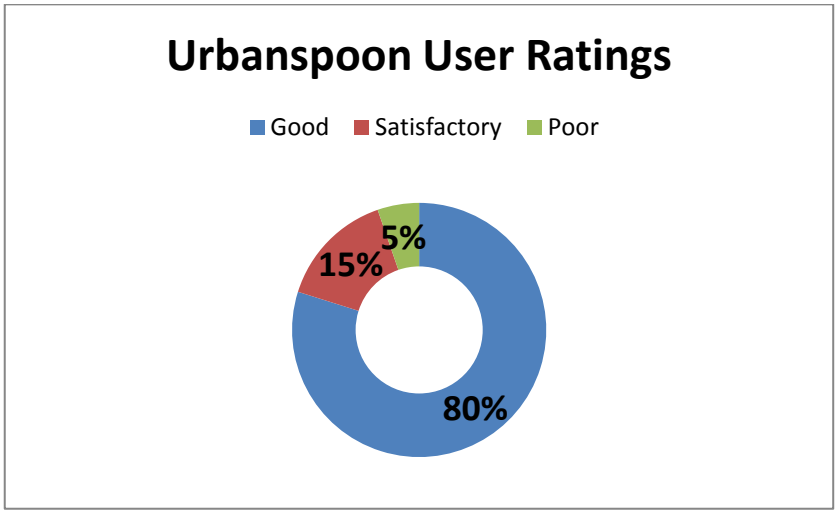


**Figure 2.7: User Ratings on Urbanspoon**

- **Review on Foodspotting**

Foodspotting started in 2009 which the application is developed to act as a visual guide to good food and where to find it. Apart from reviewing restaurants, Foodspotting also focuses on recommending specific dishes.

Features of Foodspotting are as follows:

- Discover nearby dishes and see what's good at any restaurant.
- The visual guide makes finding food easy and attractive.
- It keeps track of the dishes users have tried and enable users to vote.
- Bookmark dishes users love and hide the ones they don't.
- Can connect with various social networks.

According to the User Reviews found in the Google Play, Foodspotting overall rating is 4.0 out of 5 from the 6, 022 users. Based on **Figure 2.8** (next page), 75% of the users rate Foodspotting as Good. Many of them commented that they love the

great layouts and the ease of use. All of them agree that Foodspotting gives them great ideas on what to eat and let them discover many new cuisines. Another 16% from the users rate it as satisfactory since some of them experience few problems on the location and GPS feature. Lastly, 9% of the users rate Foodspotting as poor. These users commented that the dishes recommended are common and not interesting. They also said that too much junk food is being recommended.

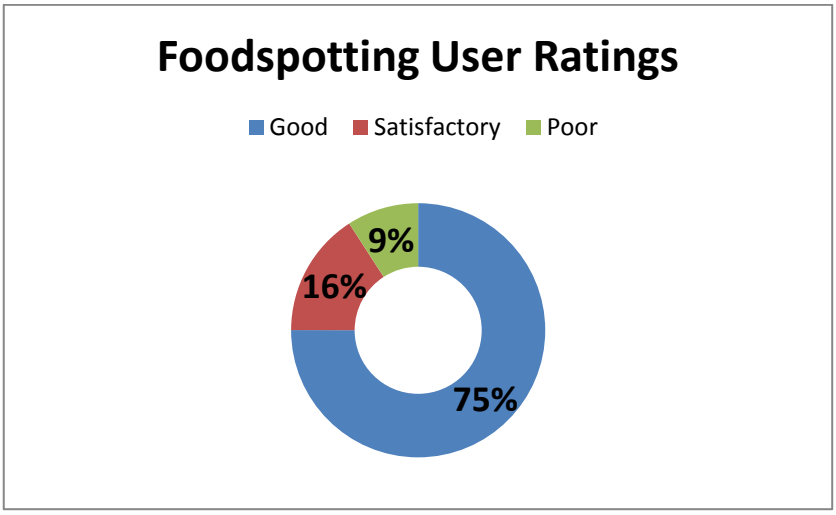


**Figure 2.8: User Ratings on Foodspotting**

- **Review on MMW Foodie**

MMW Foodie is a mobile application developed from the famous website, Malaysia Most Wanted Food. MMW Foodie which started on 2011 is a restaurant review and social application food specializes for Malaysian users. It nurtures a social network for passionate diners to share food reviews, photos and videos.

Features on MMW Foodie are as follows:

- Users can find a specific restaurant or dish.

- Users can browse by cuisine or location, find directions and use top 10 losting to find favourite places.
- Users can share reviews, photos and create personalized food guide.

According to the User Review found in Google Play, MMW Foodie overall rating is 3.7 out of 5 from the 7 users. Although there are nearly 5,000 installs, the user ratings are very small in number. Based on **Figure 2.9**, 71% of the users rate MMW Foodie as good while another 29% rates it as poor. In this case, none has rate satisfactory. Only one review found in the User Reviews on Google Play. The user mentioned that the application does not work on certain version of the Android OS.

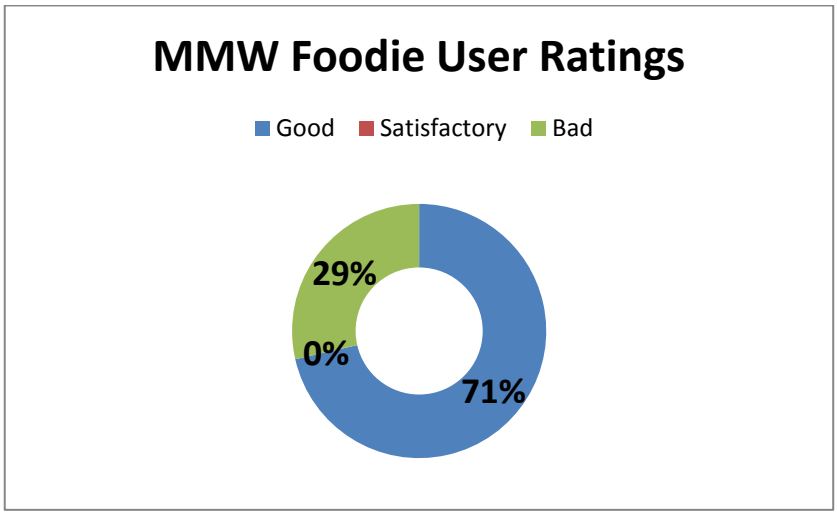


**Figure 2.9: User Ratings on MMW Foodie**

# CHAPTER 3
# METHODOLOGY

## 3.0 Chapter Overview

This chapter will explain on the project methodology and project flow from start to finish. It describes every step involve in the project life cycle so that path is clearer and that the tasks can be completed within the time allocated.

## 3.1 Mobile Application Project Methodology

The project consists of five main activities, which are (1) Planning (2) Analysis (3) Design (4) Implementation and lastly (5) Testing. The following section elaborates more on each phase of the project details.

**Figure 3.1** shows the project activities for the development methodology of Eat Out Perak application.

**Figure 3.1: Project Activities Diagram**

### 3.1.1 Planning

During planning phase, the concept and value of the project is determined and identified. The idea was discussed thoroughly with the project supervisor to present the important outlines for the development process. A Gantt chart is constructed for easy tracking of the process flow to avoid missing datelines.

### 3.1.2 Analysis

Information gathering and analysis is carried out to gain as much understanding about the whole application. By searching for related apps in the Google Play, it is really beneficial to conduct such comparison study to find a good reference that could be use as a benchmark for the development process. Applications like Yelp, Foodspotting, Urbanspoon and MMW Foodie are the examples of the top downloaded restaurant finder apps found in Google Play. Apart from that, the information gathering activity also involved the most crucial part in which the search for the best software to be used in this application development. There are many open source Android development tools to choose from in the internet ranging from beginner level to the professionals. MIT App Inventor for Android is chosen since it is the best tool for beginner who does not have any basic knowledge on developing Android application.

### 3.1.3 Design

The first step in the design phase is to design the interfaces for the whole application in order to obtain a full view towards the system and amend it accordingly to clearly meet the stated objectives. Also, during this stage, the proposed application's name was identified which is called "**Eat Out Perak: A Malaysian Restaurant Discovery App"**. The application logo is also designed to represent the application. The development of the application is explained using modules. The illustration of

the EatOut Perak application architecture is shown to explain the framework of the application as well as to show how the app works. The application architecture, diagrams and interfaces are described on the Result Section starting on Page 25.

### 3.1.4 Implementation

For the development process, App Inventor for Android Blocks Editor is used to work with the interfaces designed to make it interactive and functional. Several weeks are taken to understand and finally able to use the code blocks. Many tutorials from the Youtube are found to be helpful in learning how to use the block editor. Example of the code blocks can be found on the Appendices. Database service by App Inventor known as the TinyDB is used to store and retrieve certain information used in the application.

### 3.1.5 Testing

After the development process, a user acceptance testing is done to a number of users to gain their feedbacks on the application. Participants are required to perform list of actions using the application and record the result (pass/fail). Their reviews and comments are very much important for the final improvement of the application as well as for the future recommendations.

### 3.2 Project Gantt Chart

| Task | Task/ Week | Duration day(s) | SEPT | | OCT | | | | NOV | | | | DEC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | *W1* | *W2* | *W3* | *W4* | *W5* | *W6* | *W7* | *W8* | *W9* | *W10* | *W11* | *W12* | *W13* | *W14* |
| **Planning** | Project Initiation | 1 | | | | | | | MID SEMESTER BREAK | | | | | | | |
| | Information Gathering | ~30 | | | | | | | | | | | | | | |
| | Defining Problem Statements, Objectives and Scope of Study | ~20 | | | | | | | | | | | | | | |
| **Analysis** | Writing Literature Review | ~20 | | | | | | | | | | | | | | |
| | Writing Research Methodology | ~20 | | | | | | | | | | | | | | |
| | Organize Project Activities | ~20 | | | | | | | | | | | | | | |
| **Design** | Design Application Architecture, Diagrams and Interfaces | ~60 | | | | | | | | | | | | | | |
| **Implementation** | Develop Functionality of the Interfaces | ~60 | | | | | | | | | | | | | | |
| **User Testing** | Perform UAT | ~14 | | | | | | | | | | | | | | |

**Table 3.1: Project Gantt Chart**

## 3.3 Tools

There are several tools used in the development of this project. The tools will be divided into software and hardware as follows:

### 3.3.1 Software – Setting up the development environment

**MIT App Inventor for Android** (Beta Version developed by Google Inc but now maintained by Massachusetts Institute of Technology) is the main tool used in developing this project. App Inventor is an experimental program that enables users to create mobile services and applications which allow them to engage the mobile space as developers regardless of their computer programming knowledge (MIT, 2012). The illustration on **Figure 3.2** shows the fundamentals of the MIT App Inventor for Android.

- The fundamental includes:
    - App Inventor Designer, where you can select the components for your application;
    - App Inventor Blocks Editor, where you assemble program blocks that specify how the components should behave;
    - Android Emulator, software that runs on your computer and behaves just like the phone

- Additional services used are as follows:
    - Google Maps service, to allow the application to access with the Google Maps.
    - TinyWebDB, a service by App Inventor that allows one to store data persistently in a database on the web.

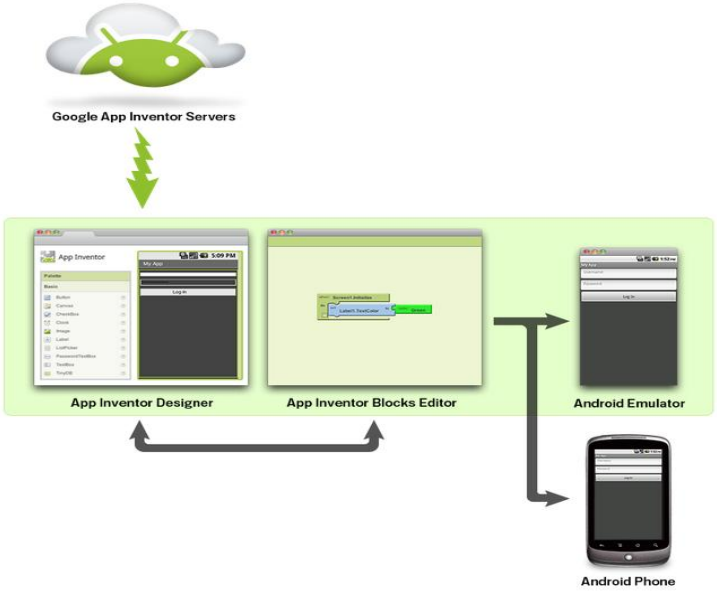


**Figure 3.2: Fundamentals of the MIT App Inventor for Android**

### 3.3.2 Hardware

The hardware used in the development of Eat Out Perak application is as follows:

- **Acer Aspire 4530 Laptop**

  *Processor: AMD Turion X2*

  *RAM: 2 GB of DDR2*

  *Hard Disk Drive: 320 GB*

- **HTC Flyer Tablet**

  *CPU Speed: 1.5GHz*

  *Storage: 32 GB (internal storage); 1 GB RAM*

  *Platform: Android 3.0 with HTC Sense*

# CHAPTER 4
# RESULTS

## 4.0 Chapter Overview

This chapter will show the results from the methodology part of the project which focuses more on the design phase of the development.

## 4.1 Comparative Study

**Table 4.1** shows the result of the comparison study between the restaurant and food guide websites available both international and local.

| | **International Websites** | | **Local Websites** | | |
|---|---|---|---|---|---|
| | *Trip Advisor* | *Lonely Planet* | *Makan Mana* | *Dine Malaysia* | *Motormouth from Ipoh* |
| Focus | Complete travel guide directory not only focus on food. | Complete travel guide directory not only focus on food. | Focus on food guide for main cities and towns in Malaysia. | Focus on food guide for main cities and towns in Malaysia. | Focus on food guide for people around Perak. |
| User Review and Ratings | User may add comment and photos. | User can only add comment to the post. | N/A | User can only add comment to the post. | User can only add comment to the post. |
| Restaurant Rankings | Provided. | Provided. | Not provided. | Not provided. | Not provided. |
| Driving | Provided | Not | Not | Not | Not |

| | | | | | |
|---|---|---|---|---|---|
| Directions | | provided. | provided. | provided . | provided. |
| Maps | Provided. | Provided . | Link to map provided. | Not provided . | Link to map provided. |

**Table 4.1: Comparison between Restaurant and Food Guides Websites - Local & International**

On the other hand, **Table 4.2** shows the comparison between the four types of mobile applications found in Google Play which are related to the project topic. From the four applications, only one of them is found to be local and specialized for Malaysian users. Yelp, Urbanspoon and Foodspotting are being used overseas and not cover much of Malaysian food. They work best and cover areas in the European countries like the United Kingdom, Canada, France and Germany. Malaysian users might end up getting nothing from their search. The MMW Foodie is an application developed by local Malaysian referring to their famous Food Guide website, The Malaysian Most Wanted Food.

| | **Restaurants and Food Guides Applications** | | | |
|---|---|---|---|---|
| | **Yelp** | **Urbanspoon** | **Foodspotting** | **MMW Foodie** |
| Areas | Do not cover places in Malaysia. | Do not cover places in Malaysia. | Cover limited places in Malaysia. | Cover eateries around Malaysia. |
| User Review and Ratings | User may add review and photos. | User may add review and photos. | User may add review and photos. | User may add review only. |
| Restaurant Rankings | Provided. | Provided. | Not provided. | Not provided. |

| | | | | |
|---|---|---|---|---|
| Maps | Provided. | Provided. | Provided. | Provided. |

**Table 4.2: Comparison between Food Guide Applications Available in Google Play**

## 4.2 Application Architecture

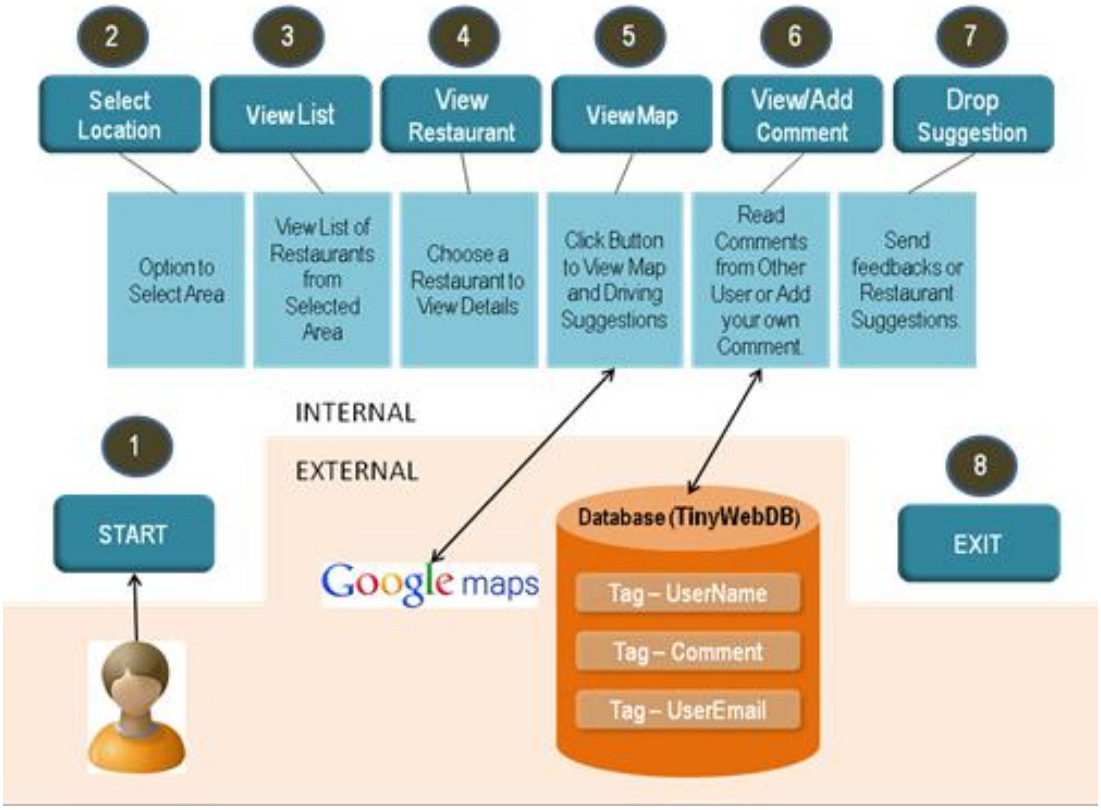


**Figure 4.1: Application Architecture of Eat Out Perak**

The system architecture of Eat Out Perak is divided into two which are the internal part and the external part as in **Figure 4.1**. The internal part deals with the modules developed inside the system whereby the external part consists of the user and the external services being used such as the TinyWebDB and the Google Maps services. Internal modules are as follows:

1. Start – The application starts when the splash screen appears after user launches the application.
2. Select Location – User navigates to the Select Location screen where user is required to select their area of choice.
3. View List – A list of restaurants is shown according to user's area selection.
4. View Restaurant – Screen showing detailed information of the restaurant is shown when user has selected a restaurant from the list.
5. View Map – User can click on the 'View Map' button to access the Google Maps and get driving directions.
6. View/Add Comment – By clicking the 'Comment' button, user can add comment to the restaurant or read comments from other users.
7. Drop Suggestion – User can fill in the text boxes shown at screen to send feedbacks about the application or suggest a restaurant to be added to the database.
8. Exit – Closes the application.

External components consist of the followings:

1. User – The application will cater two types of users which are the application user and the administrator. The application user is the one who use the application to search for restaurants whereby the administrator is the one who manages the application.
2. Google Maps service – This service by Google allows the application to access the Google Maps services and libraries to show direction to the restaurants.
3. TinyWebDB – Another service by App Inventor that allows one to store data persistently in a database on the web. This database service is used to store and retrieve restaurant reviews and comments by other users. The data is stored on the web instead of a particular phone. Therefore, TinyWebDB can be used to facilitate communication between phones and applications. The tags act as a variable to store the user name, user comment and user email.

## 4.3 Windows Navigation Diagram

**Figure 4.2** is the windows navigation diagram of Eat Out Perak application which shows the user navigation from screen to screen.

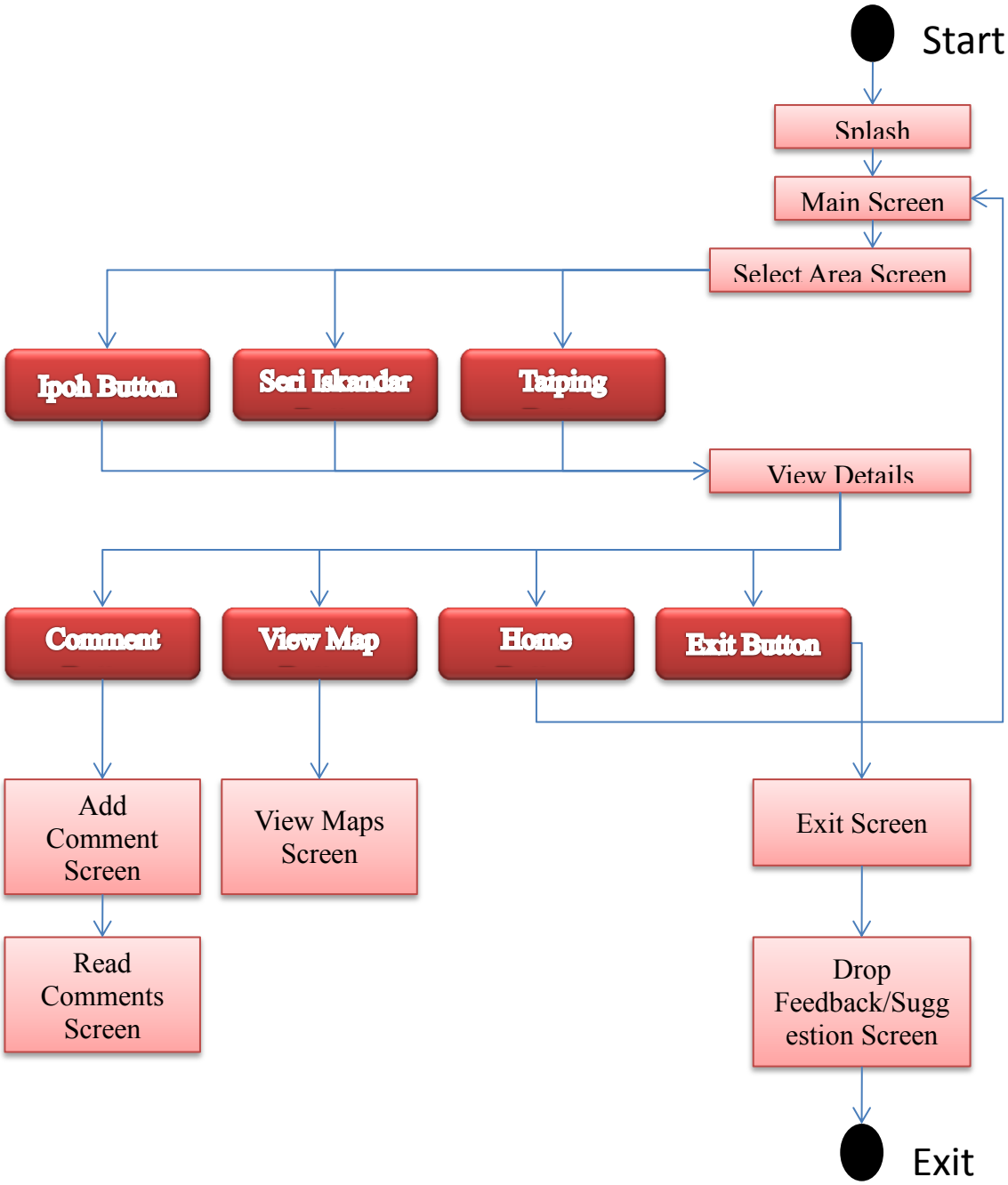


**Figure 4.2: Windows Navigation Diagram**

## 4.4 Use Case Diagram

Eat Out Perak application will cater two kinds of users which are the application user and the administrator.

**Actor: Application User**

Role: Uses the application to search for local restaurants available in Perak

Activity: Navigates between screens to search for desired information trough the modules provided as per diagram below

**Actor: Administrator**

Role: Manage and maintain the application

Activity: Edit and improves the modules in the application to increase the efficiency of the application as well as to provide users with best service

**Figure 4.3** shows the Use Case Diagram of Eat Out Perak application.

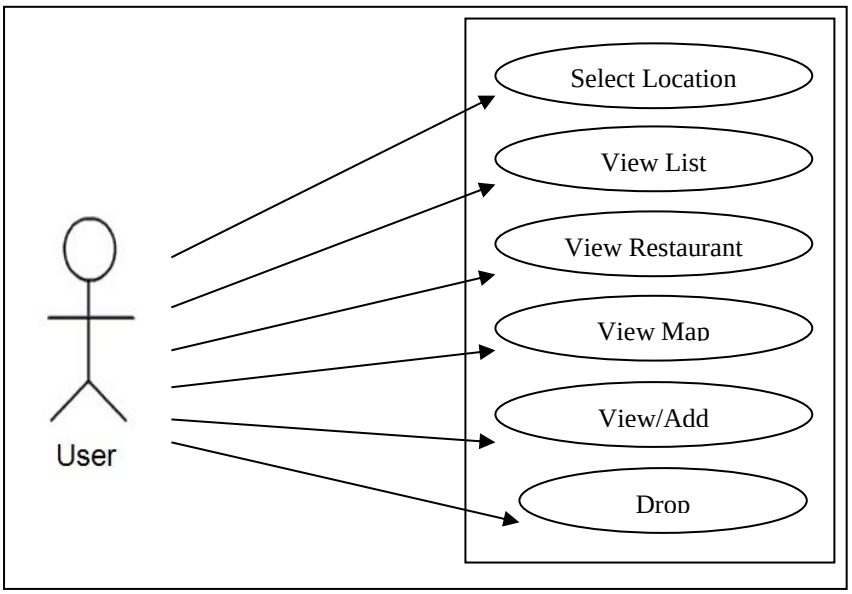


**Figure 4.3 Use Case Diagram**

## 4.5 SWOT Analysis

**Table 4.3** shows the SWOT analysis of the Eat Out Perak application which covers the strength, weakness, opportunity and threat.

| **Strength (S)** | **Weaknesses (W)** |
|---|---|
| ▪ Focuses only on local delicacies available in Perak. Therefore, it is helpful to Perak visitors as well as those living in Perak. | ▪ User cannot add a new restaurant directly to the database. User is required to drop suggestion by email instead. |
| **Opportunity (O)** | **Threat (T)** |
| ▪ Significant and relevant in support with the Visit Perak Year 2012. | ▪ The growing numbers of more advance Android application in the same line. |

**Table 4.3: SWOT Analysis**

## 4.6 Interface Designs

The following **Figure 4.4** and **Figure 4.5** show the Splash Screen and Main Screen of Eat Out Perak. The Splash Screen is designed to promote the Visit Perak Year 2012 campaign. Visit Perak song is also played upon the launching of the application. The Main Screen is where the logo of the application is shown.

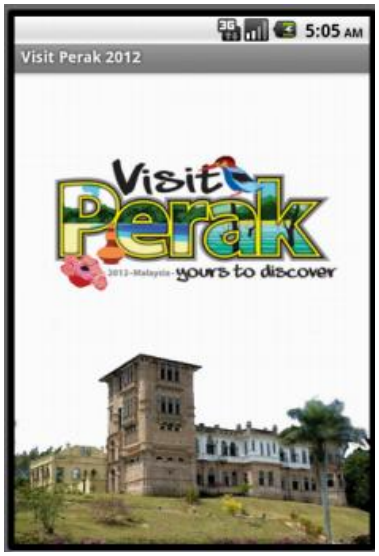


**Figure 4.4: Screenshot Splash Screen**

**Figure 4.5: Screenshot Main Screen**

**Figure 4.6** and **Figure 4.7** (next page) shows the Select Area Screen and List of Eateries Screen. For a start, only three locations are provided by this application. The Select Area Screen shows three areas which are Ipoh, Seri Iskandar and Taiping for user to select. After selecting the area, next screen is showing the list of eateries chosen by the user. The list shows the name of the restaurant, restaurant image and also a 'View Details' button to bring user to another screen which provides more detail information.

**Figure 4.6: Screenshot of Select Area Screen**

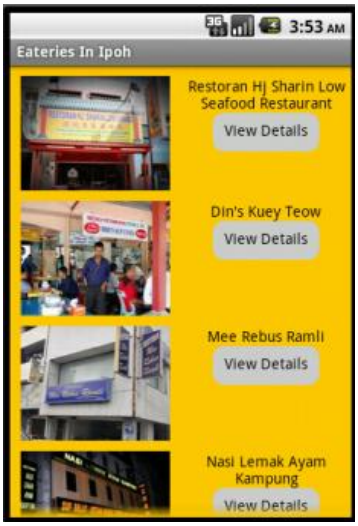


**Figure 4.7: Screenshot of List of Eateries Screen**

**Figure 4.8** (next page) shows the View Details Screen. It provides information such as restaurant's specialty, business hours and address of the restaurant. The screen consists of 4 buttons – Comment, View Map, Home and Exit. **Figure 4.9** (next page) shows the Add Comment Screen which appears after the user has touched on the 'Comment' button from the View Details Screen. Add Comment Screen consists of 3 buttons – Save, New and 'Read All Comments'. The screen also consists of 2 text box fields which enable user input. User can fill in their email and comment to be added into the database.

**Figure 4.8: Screenshot of View Details Screen**

**Figure 4.9: Screenshot of Add Comment Screen**

**Figure 4.10** shows the Read Comments Screen. It appears after user touch on the 'Real All Comments' button. The screen displays all comments given by users. On the other hand, **Figure 4.11** shows the interface once the application acces the Google Maps service when user touch the 'View Map' button from **Figure 4.8**.

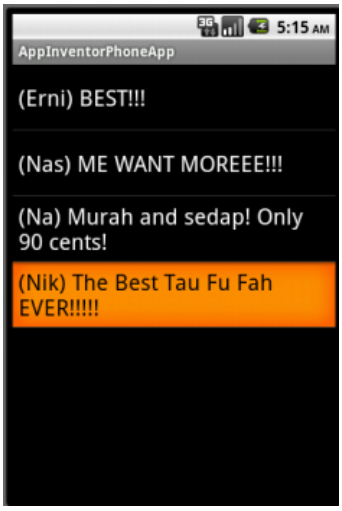


**Figure 4.10: Screenshot of Read Comments Screen**

**Figure 4.11: Screenshot of View Map Screen**

**Figure 4.12** is the Exit Screen. User can touch the 'Send Feedback' image to navigate to the following screen as in **Figure 4.13**. Otherwise, user can touch the 'Thank You' image to exit the application. **Figure 4.13** shows the Drop Feedback/Suggestion Screen. This screen consists of 2 text box fields for user input and a 'Submit' button. User can fill in their email and feedback and the data is sent directly to developer's email.

**Figure 4.12: Screenshot of Exit Screen**

**Figure 4.13: Screenshot of Drop Feedback/Suggestion Screen**

## 4.7 User Acceptance Test

The User Acceptance Test is conducted to test the functionality of the application to find glitch and errors that developer might be overlooked. A number of 10 participants are involved in this test and their feedbacks are recorded. Participants are given a form containing list of actions that they need to perform using the application, Eat Out Perak.

**Table 4.4** (next page) shows the results gained from the User Acceptance Test.

| Action/Event | Expected Result | No. Of Participant | | Note |
|---|---|---|---|---|
| | | Pass | Fail | |
| **Application Launched** | • Sound plays.<br>• Splash screen appears. | 10 | 0 | - |
| **Splash Screen Touched** | • Main screen appears. | 10 | 0 | - |
| **Main screen Touched** | • 'Select Area' screen appears. | 6 | 4 | User need to touch several times to succeed. |
| **Selected Area Button Touched** | • 'List of Eateries' in selected area appears. | 8 | 2 | User need to touch accurately to succeed. |
| **'View Details' Button Touched** | • Screen showing details of selected restaurant appears. | 10 | 0 | - |
| **'Comment' Button Touched** | • 'Add/Read Comment' screen appears.<br>• 'Data Reloaded' notification appears. | 10 | 0 | - |
| **'Save' Button Touched** | • 'Data Saved' notification appears. | 10 | 0 | Blank data also is saved. |
| **'New' Button Touched** | • Input entered is erased. | 10 | 0 | - |
| **'Read Comments' Button Touched** | • 'Read All Comments' screen appears. | 10 | 0 | Blank data also appears in the list. |
| **'View Map' Button Touched** | • The application will access Google Maps API. | 2 | 8 | Success depends on internet connection. |
| **Home Button Touched** | • The application will return to the 'Select Area' screen. | 10 | 0 | - |
| **Exit Button Touched** | • The application will load a 'Thank You' screen with a 'Send Feedback' button. | 10 | 0 | |

| | | | | |
|---|---|---|---|---|
| **'Send Feedback' Button Touched** | • The application will prompt user to complete action by using either Gmail or default Mail to send feedbacks. | 10 | 0 | |
| **'Thank You' Button Touched** | • The application closes. | 10 | 0 | - |

**Table 1.4: Results from the User Acceptance Test**

From the results, it can be concluded that most of the functions in the application are working properly. Some technical glitch occurred due to the sensitivity of the touch screen device where users need to touch several times to in order to perform certain action such as when selecting the 'Select Area' button. Apart from that, the button needs to be touched precisely to avoid getting the wrong output. An observant participant had pointed out another glitch in the Add Comment function whereby he tested the 'Save' button with a blank data and it works just fine and the blank data appears when showing all comments. He suggested that this problem should be tackled by using error handling function to avoid users saving blank data.

# CONCLUSION AND RECOMMENDATION

EatOut Perak can be a very helpful application to overcome the difficulties of searching for good restaurants around Perak for visitors as well as the state citizens. EatOut Perak can locate user's location and recommend nearby eateries with user reviews and ratings. This is can really help impromptu diners to make a better decision when eating out. Apart from that, this convenient app will also show maps and driving directions to assist user in finding the restaurants. For food enthusiasts and explorer, they can also help to expand EatOut Perak database by adding new restaurant reviews, ratings and photos to the app. It is hoped that Eat Out Perak would be able to give significant convenience to user and can improve at its best in terms of functionality and usability in future.

Despite having the capability to suggest and provide the list of popular local food spots in Perak, Eat Out Perak is hoped to provide a better platform for the user, not only to be used within the Perak areas but covers Malaysia as a whole. The application should be convenient where users are able to search for popular food spots in all states in Malaysia which at the same time become a medium to help the entrepreneurs in Malaysia to promote their local specialties as well. Besides that, to make the application to become more interactive, the application could as well adopt the features of other food based application such as users are able to upload pictures on the food spots they had visited to be shared with other users. They could as well share their review on the social network such as the Facebook, Twitter, Tumblr and etc.

The application could as well be better if it is able to provide recommendation of nearby food spots to the user by locating the user's where about which would further provide them with flexibility in searching for the desired food spots.

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