HalalGO Application

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ABSTRACT

Data collection is one of the important components for Halal restaurant and product. Malaysia Islamic Department insufficient of this data as growth of many restaurant and product. As some Muslim who lack of information about this restaurant and product, they confusing which authentic and inauthentic Halal restaurant, hotel and product. Many reports have been made according to counterfeit products. As the rapidly growing use of web and mobile technologies has increased pressure on the demand for convenience to bridge the information gaps in the Halal data collection. Therefore, users tend to follow the trend using these technologies as easier for them to deliver or share the information swiftly. This help Islamic Department to recognize and verify either the restaurant or the product have legit Halal certification. Thus, this win-win situation effectively improve to data collection of Halal restaurant and product across every states.

TABLE OF CONTENTS

DECLARATION I

ACKNOWLEDGEMENTS II

ABSTRACT III

TABLE OF CONTENTS IV

LIST OF TABLES VIII

LIST OF FIGURES X

CHAPTER I 1

INTRODUCTION 1

1.1 Project Background 1

1.2 Problem Statement(s) 2

1.3 Objective 3

1.4 Scope 4

1.5 Project Significance 5

1.6 Expected Output 5

1.7 Conclusion of Chapter I 5

CHAPTER II 6

LITERATURE REVIEW AND PROJECT METHODOLOGY 6

2.1 Introduction 6

2.2 Facts and Findings 7

2.2.1 Domain 7

2.2.2 Existing System 7

2.3 Project Methodology..... 11

2.4 Project Requirements..... 12

2.4.1 Software Requirements..... 13

2.4.2 Hardware Requirements 13

2.5 Project Schedule and Milestones 14

2.6 Conclusion of Chapter II 17

CHAPTER III..... 18

ANALYSIS..... 18

3.1 Introduction..... 18

3.2 Problem Analysis..... 18

3.3 Requirement Analysis..... 21

3.3.1 Data Requirement 21

3.3.2 Functional Requirement 28

3.3.3 Non-functional Requirement 33

3.4 Conclusion of Chapter III..... 34

CHAPTER IV 35

DESIGN..... 35

4.1 Introduction 35

4.2 High-Level Design 35

4.2.1 Structure Chart..... 36

4.2.2 Logical View..... 37

4.2.3 User Interface Design 38
4.2.3.1 Navigation Design..... 38
4.2.3.2 User Interface Design…..... 40
4.2.4 Database Design 52
4.2.4.1 Conceptual and Logical Database Design..... 52
4.3 Detailed Design..... 57
4.3.1 Software Design..... 57
4.3.2 Physical Database Design..... 58
4.4 Conclusion of Chapter IV..... 59
CHAPTER V..... 60
IMPLMENTATION..... 60
5.1 Introduction..... 60
5.2 Software Development Environment Setup..... 61
5.3 Software Configuration Management..... 63
5.3.1 Configuration Management Setup..... 63
5.3.2 Version Control Procedure …….. 65
5.4 Implementation Status..... 66
5.5 Conclusion..... 67
CHAPTER VI..... 68
TESTING..... 68
6.1 Introduction..... 68
6.2 Test Plan..... 69
6.2.1 Test Organization..... 69
6.2.2 Test Environment..... 69
6.2.3 Test Schedule …..... 70

6.3 Test Strategy....70
6.3.1 Class Of Tests ….71
6.4 Test Design....72
6.4.1 Test Description....72
6.4.2 Test Data....75
6.5 Test Result And Analysis....80
6.6 Conclusion....83
CHAPTER VII....84
CONCLUSION....84
7.1 Observation On Weakness and Strength....84
7.2 Proposition For Improvement....86
7.3 Project Contribution....87
7.4 Conclusion....87
REFERENCES....88
APPENDICES....89

LIST OF TABLES

Table 2.1: Gantt Chart 14
Table 2.2: Project milestone PSM 1 15
Table 2.3: Project milestone PSM 2 16
Table 3.1: Table users 22
Table 3.2: Table restaurants 22
Table 3.3: Table hotels 23
Table 3.4: Table products 24
Table 3.5: Table quotes 25
Table 3.6: Table comments 26
Table 3.7: Table restaurantcomments 26
Table 3.8: Table productcomments 27
Table 3.7: Table hotelcomments 27
Table 3.7: Table admin 28
Table 5.1: Hardware configuration 61
Table 5.2: Implementation setup 66
Table 6.0: Test organization 64
Table 6.1: Test schedule 70
Table 6.4: Admin test case 72
Table 6.5: Muslim user test case 73
Table 6.6: Admin test data 75
Table 6.7: Muslim user test data 76
Table 6.8: Admin test result 80
Table 6.9: Muslim user test result 81

LIST OF FIGURES

Figure 2.1: Home feed screen of HalalNavi application 8
Figure 2.2: Variety restaurant screen 9
Figure 2.3: Restaurant with specific detail screen 9
Figure 2.4: HalalTrip nearby screen 10
Figure 2.5: Restaurant detail screen 10
Figure 2.6: Rapid Application Development Model 15
Figure 3.1: Use case diagram of existing system 19
Figure 3.2: Use case diagram of current system 20
Figure 3.3: Main flowchart 29
Figure 3.4: Muslim user flowchart 30
Figure 3.5: Context diagram of HalalGO 31
Figure 3.6: DFD level 1 of HalalGO 32
Figure 4.1: Structure Chart 36
Figure 4.2: Logical view of HalalGO 37
Figure 4.3: Admin navigation of HalalGO 38
Figure 4.4: Muslim user navigation of HalalGO 39
Figure 4.5: Muslim user register input design 40
Figure 4.6: Muslim user login input design 41
Figure 4.7: Add restaurant input design 42
Figure 4.8: Add hotel input design 43
Figure 4.9: Add product input design 44
Figure 4.10: Write review input design 45
Figure 4.11: Edit profile input design 46
Figure 4.12: Home screen 47
Figure 4.13: Explore screen 47
Figure 4.14: Navigate screen 48

Figure 4.15: Profile screen 48
Figure 4.16: View restaurant screen 49
Figure 4.17: View hotel screen 49
Figure 4.18: View product screen 50
Figure 4.19: Search restaurant screen 50
Figure 4.20: Search hotel screen 51
Figure 4.21: Search product screen 51
Figure 4.22: Conceptual database design of HalalGO 52
Figure 4.23: Entity relationship diagram of HalalGO 51
Figure 4.24: DFD context diagram 57
Figure 4.25: Physical database design of HalalGO 58
Figure 5.1: Connection of HalalGO 64
Figure 5.2: Github page 65
Figure 6.0: Test Organization Chart 69

CHAPTER I

INTRODUCTION

1.1 Project Background

Data collection is one of the important components for Halal restaurant, hotel and product. Malaysia Islamic Department insufficient of this data as growth of many restaurant and product. As some Muslim who lack of information about this restaurant, hotel and product, they are confusing which authentic Halal restaurant, hotel and product. Many reports have been made according to counterfeit products. As the rapidly growing use of web and mobile technologies has increased pressure on the demand for convenience to bridge the information gaps in the Halal data collection. Therefore, users tend to follow the trend using these technologies as easier for them to deliver or share the information swiftly. This help Islamic Department to recognize and verify either the new restaurant or the product have legit Halal certification. Thus, this win-win situation effectively improve to data collection of Halal restaurant, hotel and product across every states.

HalalGO is a native mobile application that use Android phone as a client. This application gives us opportunity to access an information from anywhere in the world at any time. HalalGO also help the user especially Muslim traveler to get Halal

information easily and not wasting time to find the information. This application is used to help Muslim user to get information about Halal restaurant, hotel or Halal product information and can ensure the availability and verified of Halal product and restaurant. Muslim user can add those information and will be verified by HalalGO administrator. This application understand that if all Halal information is saved manually, it can causes loss of the data and waste the time to find the data efficiently and systematically.

1.2 Problem Statement(s)

There are several problems occurred when the assessment process for the student. Below are some of the problems:

- All the Halal information are saved manually.
  When all the data are saved manually, it can cause losing data and it can cause wasting time to find the data when it is needed and hard to track the data.

- Muslim traveler are difficult to find Halal product, hotel or restaurant at overseas.
  Commonly, the Muslim traveler, insufficient of this information and does not know where to find the product or restaurant. Besides, this Halal information does not have a medium to collect and standardized.

- The availability and validity of Halal information.
  This is to prevent from confusion of authentic information about Halal product, hotel and restaurant. Next, to solve an issue about hard to find this information.

1.3 Objective

HalalGO intend for the following objectives:

- To improve data collection of Halal product, hotel and restaurant information.
  The application will provide form that can allow Muslim user to enter the new detail of restaurant, hotel or product information and upload related photo. Admin is responsible to verify those information, trace if the information are already exist or unnecessary and admin will cancel the submitted information.
- To help Muslim user to find Halal product, hotel and restaurant.
  The application will provide searching part that can be used by Muslim user to view the Halal product and restaurant information. The user can search by keywords name or location.
- To provide a medium for Muslim user to give or read feedback from other Muslim user on Halal restaurant, hotel or product.
  The application also have a comment and rate section for user to give feedback for every restaurant, hotel or product that exists in the application.

1.4 Scope

In explaining the scope of user, the application modules were described based on category. As mentioned in the problem statement above, the application is help Muslim user to get Halal restaurant, hotel and product information and the user can submit both new information.

- Login Module

  This module is for Muslim user to login into HalalGO application. Before the user access the application, they need to enter email, password, full name and upload user image. This function will allow the Muslim user to go to the homepage.

- Add New Halal Product Information Module

  This module is for Muslim user to submit new Halal product information that does not exist yet in the application. Besides, user can view, comment and rate the product.

- Add New Halal Restaurant Information Module

  This module is for Muslim user to submit new Halal restaurant information that does not exist yet in the application. Besides, user can view, comment and rate the restaurant.

Write Review

- This module allow Muslim user to post recommended restaurant and interesting places reviews. Muslim user can comment and like every posts.

- View Nearby Halal Restaurant Location

  This module allow Muslim user view nearby Halal restaurant on map.

- Add New Halal Hotel Information Module

  This module is for Muslim user to submit new Halal hotel information that does not exist yet in the application. Besides, user can view, comment and rate the hotel.

.

- Approve Submitted Halal Product And Restaurant Information Module
  This module for admin to approve all the Halal product and restaurant information that have been submitted. Admin can verify, add, search, view and update the Halal product and restaurant information.

1.5 Project significance

HalalGO provide the solution for data collection systematically of Halal product, hotel and restaurant information. This application can also avoid from missing of data. Next, this application can help admin to easily approve the new Halal restaurant, hotel and product information as growth of data drastically.

1.6 Expected output

At the end of this project, the application is expected to be able to manage and display infromation that is easy to understand among Muslim user. This application is develop to be more user friendly, easy to use, efficient, progressive and save much cost to implement.

1.7 Conclusion

As a conclusion for this chapter, there are several objectives, scopes and the problem statements that had been identified in order to develop this application. This is the first thing to identify and do some analysis before start develop a application in order to get some ideas or to state the scope so that it will not cause any problems.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

We will elaborate all literature review and discuss about project methodology that have been choose to complete this project. Research and study is needed to prepare this chapter. We use various type references from various trusted to ensure the specification and requirement that required. We also discuss about existing system that related to the project to state the advantages and disadvantages, how it works, and how it can be perform. This project is planned to make sure the project meet the schedule of submission and several technique is used in order to achieve the goals and expected output.

2.2 Facts and Findings

Facts and findings is a process of collection data and information that are based on several techniques such as research and observation. Fact and finding is important in order to proceed to the early stage such as analysis and design phase.

2.2.1 Domain

HalalGO is categorized as native mobile application. In the more detailed, it is the application that uses an Android phone as a client. Native mobile application are the ultimate way to take advantage of today's technology to enhance the delivery of information productivity and efficiency. Native mobile application gives opportunity to access Halal information from anywhere in the world at any time. It also facilitates you to save time and money to improve the interactivity amongst Muslim users. Native mobile application refers to easy to manage and keep the data efficiently. This lead to minimize the time to find the data when it is needed. The aims of this application is:

I. Improve the manual data collection of Halal information.
II. Easy to use, search and get HalalGO information.
III. Help Muslim user to minimize their time to find Halal product and restaurant.

In this project, the application is implemented to manage Halal information efficiently, help Muslim user to view all the Halal product and restaurant.

2.2.2 Existing System

This section will discuss about an existing system and its advantages and disadvantages. This system is web-based information system which user can manage all the required data through this system and these data will commit to online database. There is several systems that looks like to this system. Below are a few examples of the existing system that quiet same to this system.

1. HalalNavi

HalalNavi is one of Halal-based application in the market. HalalNavi is an application to discover and explore Halal places. Besides, this application provide Halal restaurant, dish, attraction, mosque and trip ideas.

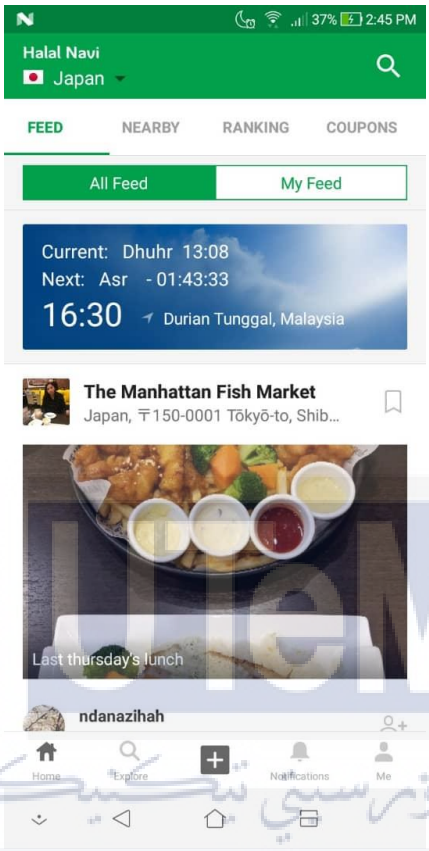

Figure 2.1: Home feed screen of HalalNavi application.

Figure 2.1 above is HalalNavi application provide home feed about Muslim user review and promote. HalalNavi also have interesting features like ranking and coupons.

Figure 2.2: Variety restaurants screen.

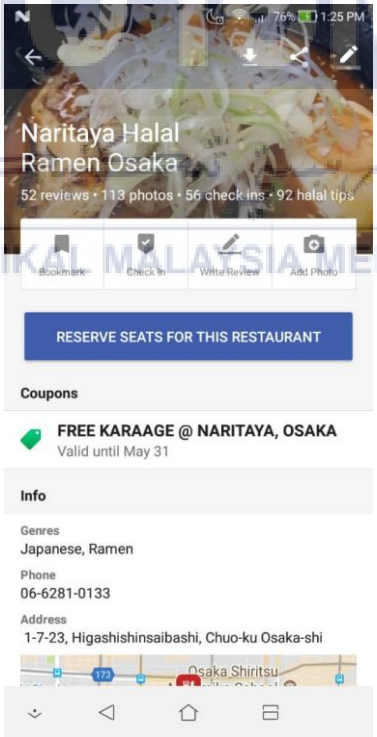

Figure 2.3 Restaurant with specific detail screen

2. HalalTrip

HalalNavi is an application is about tracking salah, finding nearby Halal food, Halal restaurants, food reviews & video guides. Based on Figure 2.5 shows the interface of HalalTrip nearby Halal restaurant that have nearby attraction, mosque and restaurant.

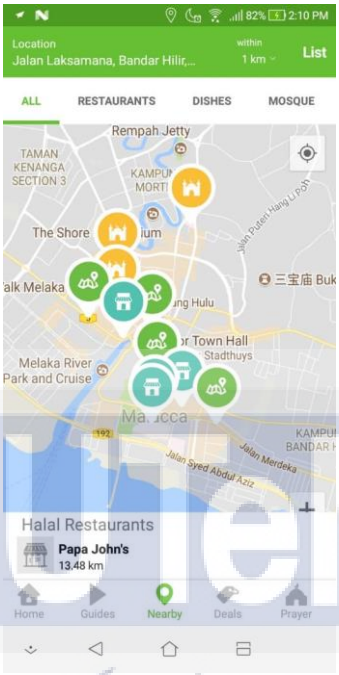

Figure 2.4: HalalTrip Nearby Screen

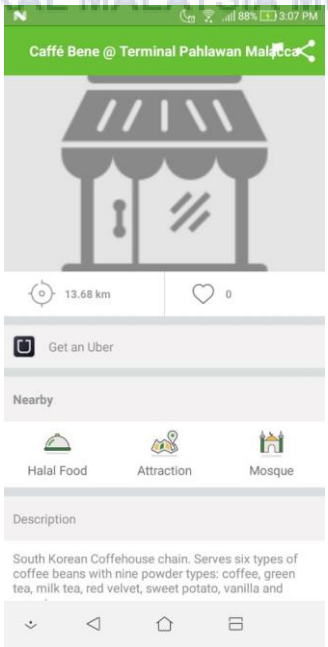

Figure 2.5: Restaurant Detail Screen

2.3 Project Methodology

A methodology is a formalized approach to implementing the system or project. The methodology that have been used to develop the project is Rapid Application Development (RAD). This methodology often used by software developer to implement their project when they only given a short time for the project. In this methodology, the functional modules are developed in parallel as prototypes and it will make the completion time of the project will be faster. The methodology is consist of a few phases such as:

i. Requirements Planning Phase

Users and the analysts of the develop team for the project will need to identify the objective of the application or system. The requirement for this project will be defined and documented in order to get the clear list of requirement. The requirement is important to achieve the goal for every develop project.

ii. Prototyping

The develop team for the project will develop the prototype for the project. The users will test the prototype and respond to the actual working prototypes. This will help the analysts refine designed modules based on user responses.

iii. Testing

All the units will be tested for any failure, bugs and faults. The new version for the system or project will be released and test by the users of the system.

iv. Cutover

As the system are built and tested, the new system will be introduced and ready to be used.

Advantages of Rapid Application Development (RAD)

- RAD will participate the customer to give their own feedback which will help the improvement of the project.
- The methodology helps customers to get a quick review for the project.
- The time needed for complete the project will be much faster because RAD help to speed up the application development.

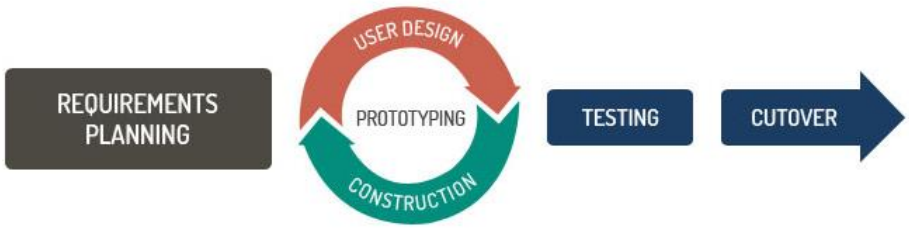

Figure 2.6: Rapid Application Development Model

2.4 Project Requirements

This section will be discussed and described the software that are necessary to develop the project. Software requirement such as below will be using to develop the project. This tools is important in system architecture design and programming.

2.4.1 Software Requirement

This section identifies the tools such as software items that are necessary to perform the application development activities.

- Visual Studio Code

  Visual Studio Code is an open source code editor is used for writing codes.

- Node Package Manager

  Node Package Manager is a package manager for JavaScript.

- Microsoft Word

  Use to produce project report and other documentation.

- Microsoft Visio 2010

  Use to draw ERD diagram and other analysis diagram.

2.4.2 Hardware Requirement

- Personal laptop

  Develop system and produce report.

2.5 Project Schedule and Milestones

Project schedule and milestones is part of project management, which relates to the use of schedules such as Gantt charts to plan and subsequently report progress within the project environment.

Activities / **Week**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Proposal Submission															
Proposal Amendment															
Proposal Review and Chapter 1 (Introduction)															
Chapter 1 and Chapter 2 (Literature Review)															
Chapter 2 and Chapter 3 (Project Methodology)															
Chapter 3 and Chapter 4 (Algorithm Design)															
Progress Report 1 Presentation															
Mid-Semester Break															
Implementation															
Testing															
Final Year Project 1 Report															
Final Year Project 1 Presentation															

Table 2.1: Gantt Chart

Project Activity PSM1	**Duration(days)**	**Date Completed**	**Expected Outcome**
Discussion of title and proposal	15	1/1/2018-3/1/2018	Submit proposal on 20/1/2018
Writing on Chapter 1 Introduction	10	22/2/2018-3/3/2018	Submit Chapter 1
Writing on Chapter 2 Literature Review	10	4/3/2018-14/3/2018	Submit Chapter 2
Writing on Chapter 3 Methodology	10	15/3/2018-25/3/2018	Submit Chapter 3
Analysis	8	25/3/2018-2/4/2018	
Design	5	2/4/2018-7/4/2018	
Mid-Semester Break		9/4/2018-17/4/2018	
Implementation	28	18/4/2018-16/5/2018	
Testing	7	17/5/2018-24/5/2018	
Writing of FYP 1 Report	7	25/5/2018-31/5/2018	
FYP 1 Presentation	1	24/5/2018	

Table 2.2 Project Milestone PSM 1

Project Activity PSM2	Duration(days)	Date Completed	Expected
Chapter 4 progress presentation	20	3/9/2018-28/9/2018	Submit Chapter 4 progress
Chapter 5 progress presentation	10	1/10/2018-12/10/2018	Submit Chapter 5 progress
Chapter 6 progress presentation	10	15/10/2018-2/11/2018	Submit Chapter 6 progress
Mid Semester break	5	5/11/2018-9/11/2018	
Chapter 7 progress presentation	10	12/11/2018-23/11/2018	Submit Chapter 7 progress
Project Demo / PSM 2 Report	5	26/12/2018-30/12/2018	Project demo
Project Demo / PSM 2 Draft Report	5	3/12/2018-7/12/2018	Project demo 2
Final Presentation & Project Demo	1	10/12/2018-14/12/2018	Final Presentation in 10/12/2018
Correction draft report	5	17/12/2018-21/12/2018	Complete PSM2 Draft Report
Submission final complete report / updated PSM 2 report	5	27/12/2018-9/1/2019	Submit final report

Table 2.3 Project Milestone PSM 2

2.6 Conclusion

In conclusion, this chapter has discussed about a few existing system, project methodology and project requirements that will be used in this project. The next chapter will explained about the project requirement analysis.

CHAPTER III

ANALYSIS

3.1 Introduction

This chapter discusses about the analysis that has been carried out for the project. Analysis phase is very important in this project because it gather all the use requirements that use to develop the system. In this chapter, problem analysis of the existing system will be discussed.

3.2 Problem Analysis

As some Muslim who lack of information about Halal restaurant, product & Muslim friendly, it is hard to determine which is verified Halal. Many reports have been made according to fake products.

Besides, Muslim also having difficulties to find Halal restaurant and Muslim friendly Hotel. The difficulties is exist when Muslim need to ask the owner of restaurant directly for verify Halal status. This will waste the time of Muslim to find Halal restaurant and hotel especially at overseas.

3.2.1 Analysis of Current System

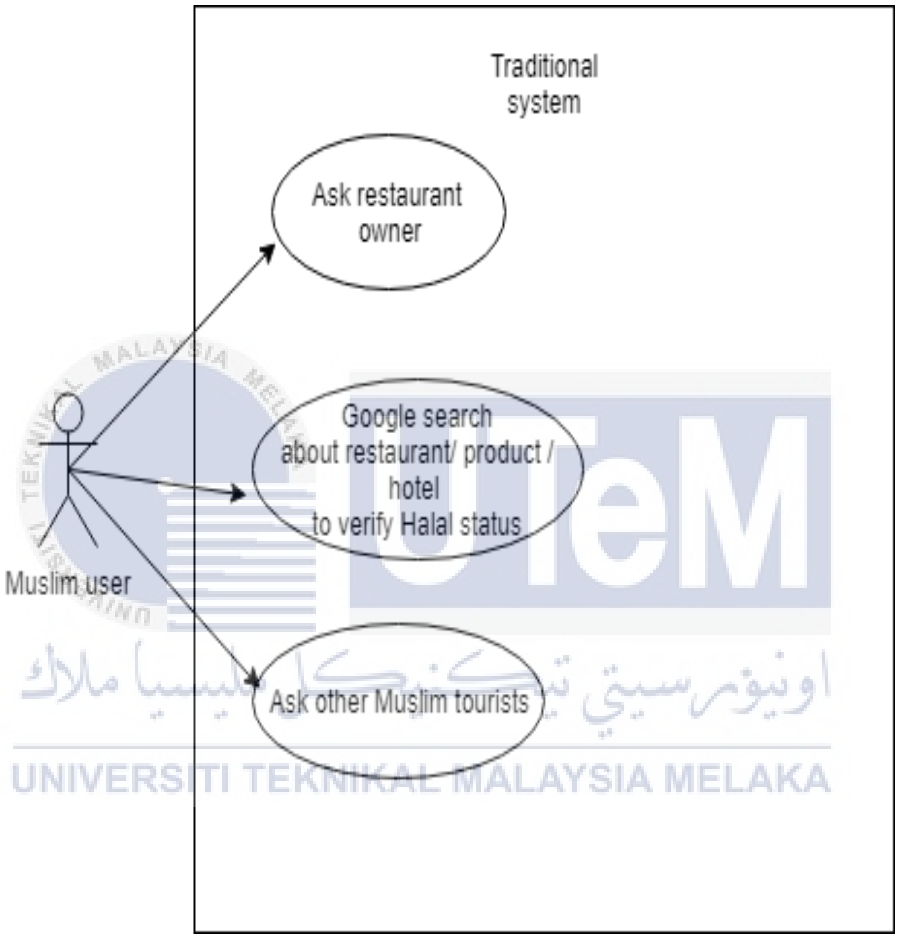

Figure 3.1: Use Case Diagram of Existing System

Figure 3.1 illustrates current traditional approach system that being used by Muslim user. They have three options to verify Halal status. First, ask the restaurant owner but this could be complicated when Muslim user at oversea because have language constraints between Muslim user and locals. Next, Muslim user can Google search about restaurant, product or hotel. But, the problem is, almost every website not up-to-date the data of related to Halal status. Besides, Muslim user can ask other Muslim tourists that have experience about Halal places.

Problem Statement

- The difficulty to find Halal restaurant, product and Muslim friendly hotel.
- Untrusted resources of info about Halal information.
- The data about Halal restaurant, product and hotel not up-to-date.
- Language constraints when at overseas.

Conclusion

The current way to find Halal information is difficult. It will waste Muslim user time to find and verify about Halal status. It is also troublesome for user when they do not trust the validity of Halal status. This system is aiming to help Muslim user have all-in-one information and have review about the Halal places and product.

3.2.2 Analysis of Proposed System

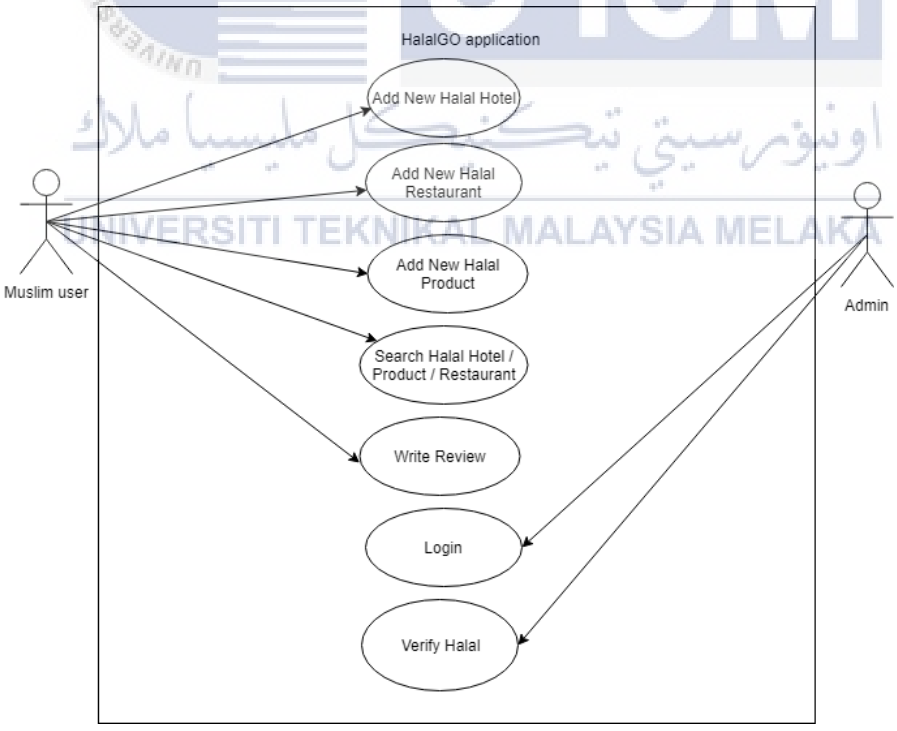

Figure 3.2: Use Case Diagram of Current Diagram

The proposed system mainly focuses on add new Halal product, restaurant and hotel is shown in Figure 3.2 Muslim user can add new Halal information to enrich the Halal data. For add new Halal product, Muslim user requires Halal product details, the data will send database to process. For add new Halal restaurant or hotel, they require Halal restaurant details or hotel details. User can also add current location of Halal restaurant or hotel. Next, Muslim user can rate and comment to existing Halal product, restaurant or even hotel in the application. Muslim user also can write simple review about places they went.

This system is support by administrator for completeness of system. Administration module is responsible to verify Halal status. Latest approved Halal restaurant, product or hotel will appear in their list.

3.3 Requirement analysis

This section lists out data dictionary, functional requirement and non-functional requirement of HalalGO application.

3.3.1 Data Requirement

The system data input and output is stored. Below describes the structure of data being stored in the database (Firebase NOSQL).

3.3.1.1 Data Dictionary

Table 3.1: Table users

Attribute	Data type	PK / FK	Note	Sample value	Unique
uid	varchar(100)	PK	User id	BxApNQeToT	Yes
fullname	Varchar(20)		User full name	Mohd Zulhilmi	
email	Varchar(100)		User email	xxx@gmail.com	Yes
userimage	Varchar(100)		User image	http://www.link.jpg	
location	Varchar(100)		User location	Melaka, MY	
caption	Varchar(100)		User caption	“Carpe Diem”	

Table 3.2: Table restaurants

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	varchar(100)	PK	Restaurant id	BxApNQeToT	Yes
restaurantname	Varchar(100)		Restaurant name	Restoran Haji Embong	
restaurantaddress	Varchar(100)		Restaurant address	A24 Jalan Permaisuri	
restaurantstate	Varchar(100)		Restaurant state	Melaka	
restaurantcountry	Varchar(20)		Restaurant country	Malaysia	
restaurantcuisine	Varchar(100)		Restaurant cuisine	[Spicy, Malaysia]	
restaurantmeal	Varchar(100)		Restaurant meal	[Breakfast,Lunch]	

Attribute	Data type	PK / FK	Note	Sample value	Unique
restaurantdescription	text		Restaurant description	Restoran ini di buka 24 jam	
restaurantnumber	Integer(12)		Restaurant number	092482832	
restaurantpostby	Varchar(100)	FK	User id	BxApNQeToT	
restaurantstatus	Varchar(100)		Restaurant status	False	
restaurantsubmittime	Varchar(20)		Restaurant submit time	1543482094793	
restaurantimages	Varchar(100)		Restaurant images	[link,link,link]	
latitude	Varchar(100)		Restaurant latitude	2.3133796	
longitude	Varchar(100)		Restaurant longitude	102.2821482	
bookmarks	Varchar(100)		Restaurant bookmarks (User Id)	[BxApNQeToT,…]	
ratings	Varchar(100)		Restaurant ratings (User Id)	[BxApNQeToT,…]	
bookmarkCount	Varchar(100)		Total restaurant bookmark	10	
commentCount	Varchar(100)		Total restaurant comment	10	
ratingCount	Varchar(100)		Total restaurant rating	10	

Table 3.3: Table hotels

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	Varchar(100)	PK	Hotel Id	BxApNQeToT	Yes
hotelname	Varchar(100)		Hotel name	Hotel Sri Merah	
hoteladdress	Varchar(100)		Hotel address	Lot 10 Jalan	

				Permaisuri	
hotelstate	Varchar(100)		Hotel state	Johor	
hotelcountry	Varchar(100)		Hotel country	Melaka	
hotelnumber	Varchar(100)		Hotel number	0198080981	
hoteldescription	Varchar(100)		Hotel description	This hotel completed with basic accessories.	
hotelpostby	Varchar(100)	FK	User id	BxApNQeToT	
hotelimages	Varchar(100)		Hotel images	[link.jpg, link…]	
hotelfacilities	Varchar(100)		Hotel facilities	[Events, Doorman..]	
hotelstatus	Varchar(100)		Hotel status	true	
latitude	Varchar(100)		Hotel latitude	2.3133796	
longitude	Varchar(100)		Hotel longitude	102.2821482	
bookmarks	Varchar(100)		Hotel bookmarks (User id)	[BxApNQeToT,…]	
ratings	Varchar(100)		Hotel ratings (User id)	[BxApNQeToT,…]	
bookmarkcount	Varchar(100)		Hotel bookmark count	10	
ratingcount	Varchar(100)		Hotel rating count	10	

Table 3.4: Table products

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	Varchar(100)	PK	Product id	BxApNQeToT	Yes
productname	Varchar(100)		Product name	Tongkat Ali Energy Drink	
productaddress	Varchar(100)		Product address	Lot 10 Jalan Permaisuri	
productcategory	Varchar(100)		Product category	Grain Product	
productsupplier	Varchar(100)		Product supplier	Power Root	
productdescription	Varchar(100)		Product description	This product have mixed ingredients.	

Attribute	Data type	PK / FK	Note	Sample value	Unique
productstatus	Varchar(100)		Product status	false	
productsubmittime	Varchar(100)		Product submit time	1543475268912	
bookmarks	Varchar(100)		Product bookmarks (User id)	BxApNQeToT	
ratings	Varchar(100)		Product ratings (User id)	BxApNQeToT	
ratingCount	Varchar(100)		Product rating count	12	
bookmarkCount	Varchar(100)		Product bookmark count	12	
productimages	Varchar(100)		Product images	[link.jpg, link…]	

Table 3.5: Table quotes (Review)

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	Varchar(100)	PK	Id	-LSrHb3I5Lt9	Yes
userId	Varchar(100)	FK	User id	FzWsCsJMSS	Yes
text	Varchar(100)		User image review	Makan makan di restoran ini.	
image	Varchar(100)		Image review	www.link.jpeg	
time	Varchar(100)		Review submit time	1543894626380	
commentCount	Varchar(100)		Total comment count	10	
loveCount	Varchar(100)		Total love count	10	
posted	Varchar(100)		User details	{email:..,fullname:..}	

Table 3.6: Table comments (Review comments)

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	Varchar(100)	PK	Comment id	-LSrHb3I5Lt9	Yes
userId	Varchar(100)	FK	User id	FzWsCsJMSS	Yes
comment	Varchar(100)		User comment	Nice place.	
commenttime	Varchar(100)		User comment time	1543261854042	
posted	Varchar(100)		User detail	{email:..,fullname:..}	

Table 3.7: Table restaurantcomments

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	Varchar(100)	PK	Restaurant comment id	-LSTiRYbeO	Yes
comment	Varchar(100)		User comment	Nice restaurant.	
commenttime	Varchar(100)		User comment time	1543482487049	
restaurantId	Varchar(100)	FK	Restaurant id	-LSTiXyBJ	
userId	Varchar(100)	FK	User Id	bXapnQEToT	
posted	Varchar(100)		User detail	{email:..,fullname:..}	

Table 3.8: Table productcomments

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	Varchar(100)	PK	Product comment id	-LSTiRYbeO	Yes
comment	Varchar(100)		User comment	Authentic product.	
commenttime	Varchar(100)		User comment time	1543482487049	
productId	Varchar(100)	FK	Product id	-LSTiXyBJ	
userId	Varchar(100)	FK	User Id	bXapnQEToT	
posted	Varchar(100)		User detail	{email:..,fullname:..}	

Table 3.9: Table hotelcomments

Attribute	Data type	PK / FK	Note	Sample value	Unique
id	Varchar(100)	PK	Hotel comment id	-LSTiRYbeO	Yes
comment	Varchar(100)		User comment	Nice hotel.	
commenttime	Varchar(100)		User comment time	1543482487049	
hotelId	Varchar(100)	FK	Hotel id	-LSTiXyBJ	
userId	Varchar(100)	FK	User Id	bXapnQEToT	
posted	Varchar(100)		User detail	{email:..,fullname:..}	

Table 3.10: Table admin

Attribute	Data type	PK / FK	Note	Sample value	Unique
uid	varchar(100)	PK	Admin id	BxApNQeToT	Yes
fullname	Varchar(20)		Admin full name	Mohd Zulhilmi	
email	Varchar(100)		Admin email	admin@gmail.com	Yes

3.3.2 Functional Requirement

Functional requirements are statement of services that are needed in the system. For example, the ability for the system to react with the real situation. This section will describe about the functional requirements of HalalGO application. The functional requirement for this project will be defined by flowchart. Flowcharts are used to analyze, design, document or manage a process or program in various fields. Figure below will show the process for the HalalGO application.

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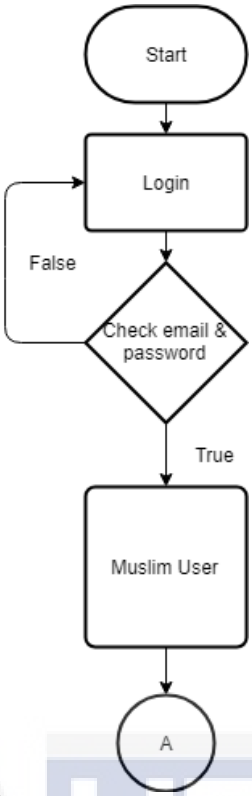

Figure 3.3: Main Flowchart

The diagram above shows the main flowchart for the application. The flowchart shows that the application starts when the user login to the application by using email and password.

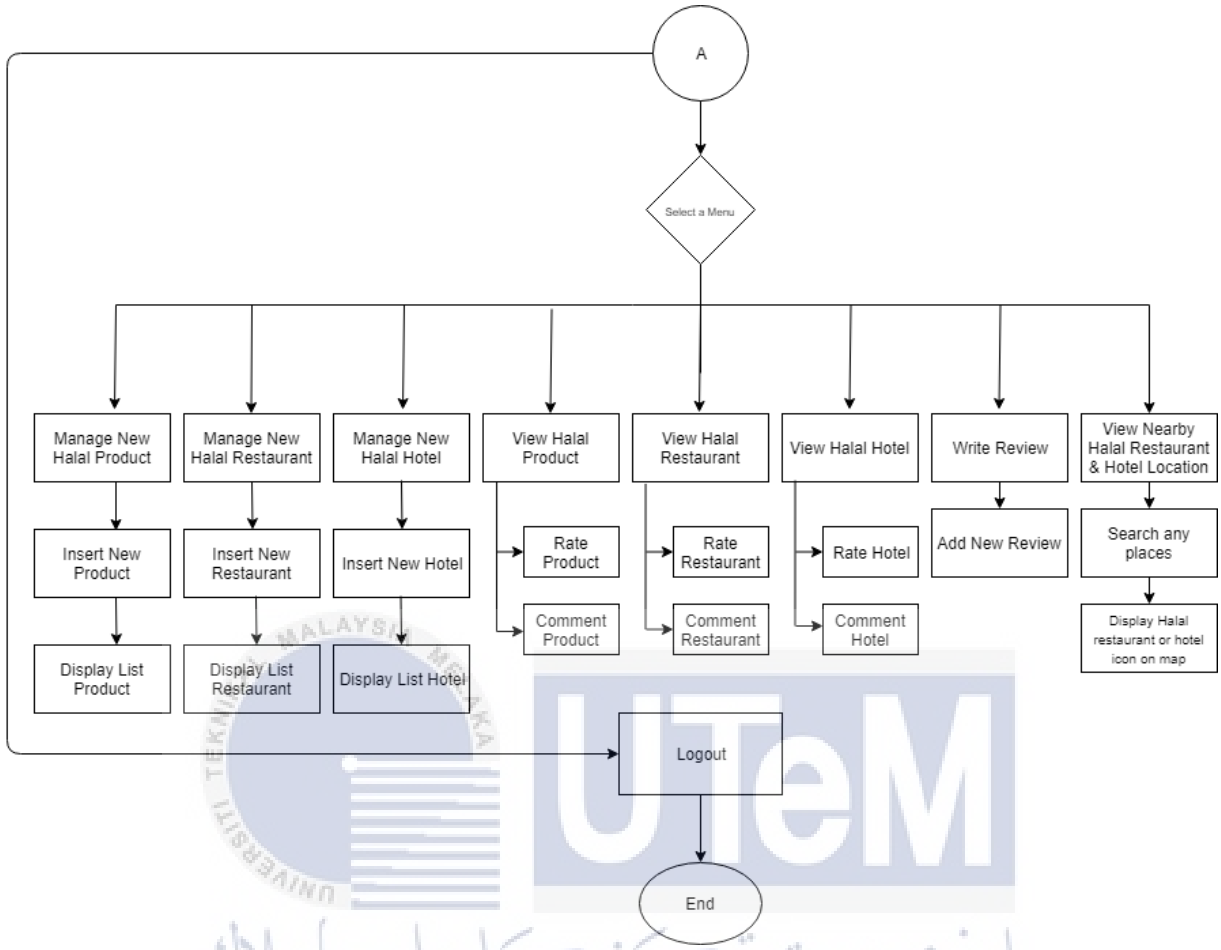

Figure 3.4: Muslim User Flowchart

The diagram above shows the flowchart for Muslim user. Admin have eight main function in the system. Firstly, Muslim user can manage new Halal product, manage new Halal hotel information and manage new Halal restaurant information. Next, user can view Halal product information, view Halal hotel information and view Halal restaurant information. User also can write review and view nearby Halal restaurant and Hotel location.

3.3.2.1 Data Flow Diagram (DFD)

3.3.2.1.1 Level 0 – The task of each role in HalalGO

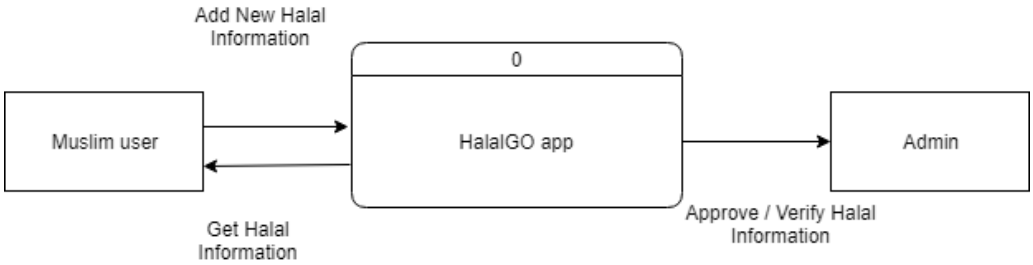

Figure 3.5: Context diagram of HalalGO

HalalGO application is designed for user to get Halal information on their hand. Muslim user can add new Halal information if it does not exist yet in the application. Next, admin will approve or verify Halal status of submitted information. Muslim user can get Halal information by search by name or location or search at map.

3.3.2.1.2 Level 1 – The process in HalalGO

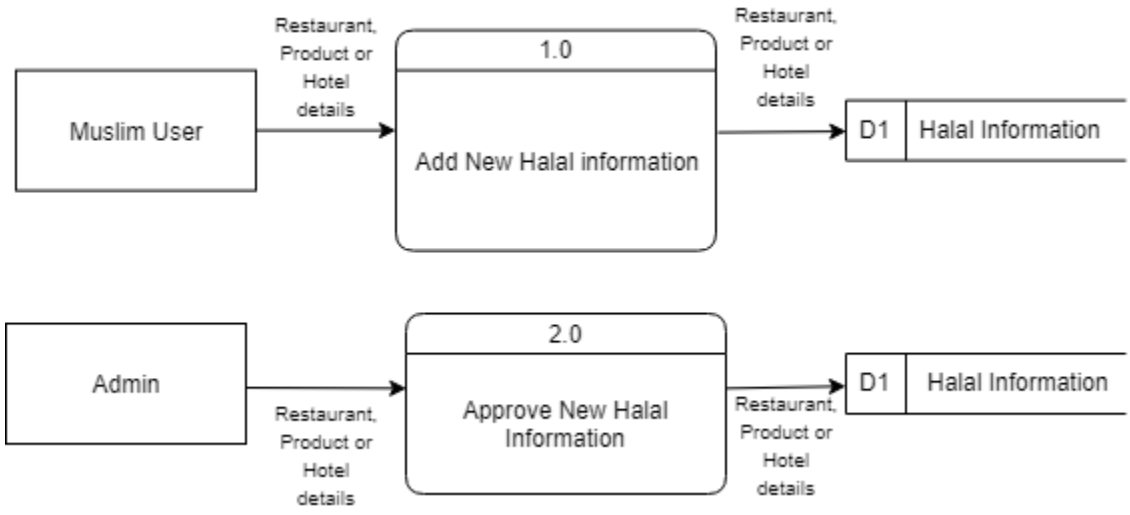

Figure 3.6: DFD Level 1 of HalalGO

Based on figure 3.6. Muslim user will add new halal information. Then, the data will be inserted into Halal information table. For admin, they can approve new halal information that have been submitted by the Muslim user.

3.3.3 Non-functional Requirement

Non-functional requirement is the aspect that specifies criteria that have been used in order to evaluate or judge the operation of a system. Non-functional is an important aspect after functional requirement.

Requirement	Description
Usability	The system shall be able to display the error message upon unexpected inputs.
Security	The access permission is for valid user only. User should login with valid user email and password in order to access the system.
Integrity	The data that are stored in the system should be 100% consistent and valid

3.4 Conclusion

This analysis phase of development is to concern based on the understanding of the requirements, concept and operation that are related to the system. Use case is use to illustrate the functional requirement. Moreover, the functional requirement and non-functional requirement is list clearly in the tables. The next chapter is discussing about design of the system

CHAPTER IV

DESIGN

4.1 Introduction

In this chapter, we will discuss about the system design for the proposed system. This topic will be includes the high level design and the detailed design. High level design consists of system architecture, user interface design and database design.

4.2 High-Level Design

High level design gives the overall system design in term of functional requirement and database design. Database design will show by entity relationship diagram (ERD) and flowchart and structure diagram are used to describe every detailed function and the flow of the data through the system and the process performed by the system.

4.2.1 Structure Chart

Structure Chart is a diagram which shows the breakdown of a system to its lowest manageable levels. The structure chart is used in structured programming in order to arrange program modules into a tree. Each module is represented by a box, which contains the module's name.

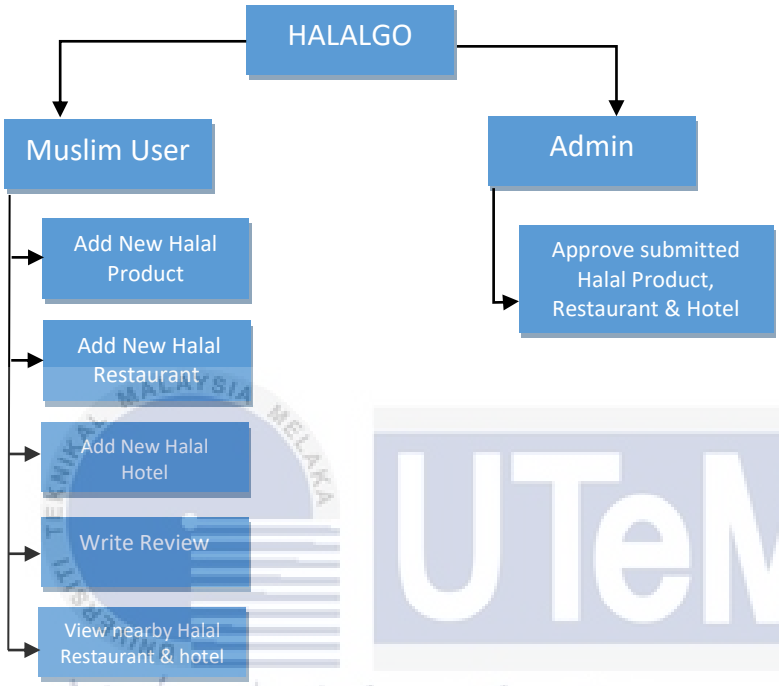

Figure 4.1: Structure Chart

The figure above shows the structure chart for system. It shows the system have 2 user. Muslim user can add new Halal product information, hotel information and restaurant information. Also, user can write review about any related Muslim friendly places. Next, Admin can approve submitted Halal product, restaurant and hotel.

4.2.2 Logical View

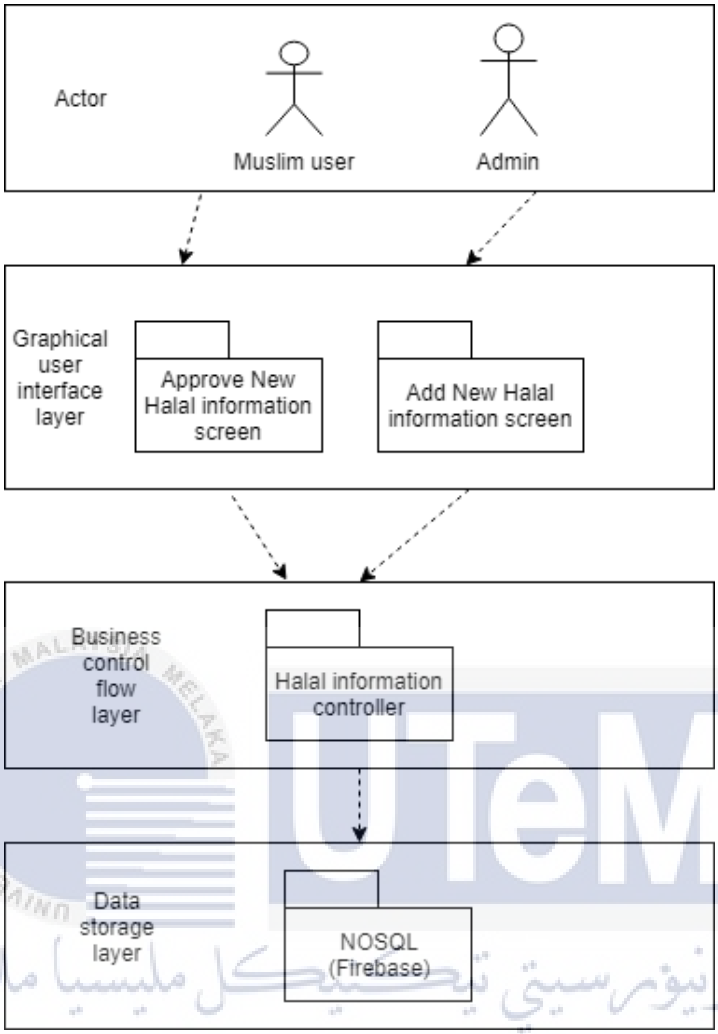

Figure 4.2: Logical View of HalaGO

Alternative HalalGO application is built for two different users which are Muslim user and admin. Admin be able to approve new Halal information. For Muslim user, they need to choose between add new Halal restaurant, hotel or product and will be redirect to their own screen. Every Halal information data will be pass into Halal information controller and then will be store in Firebase database in JSON format.

4.2.3 User Interface Design

HalalGO has two different modules which is Admin and Muslim user. All two role need to pass the system authentication before they can proceed to role activities.

4.2.3.1 Navigation Design

4.2.3.1.1 Admin navigation design

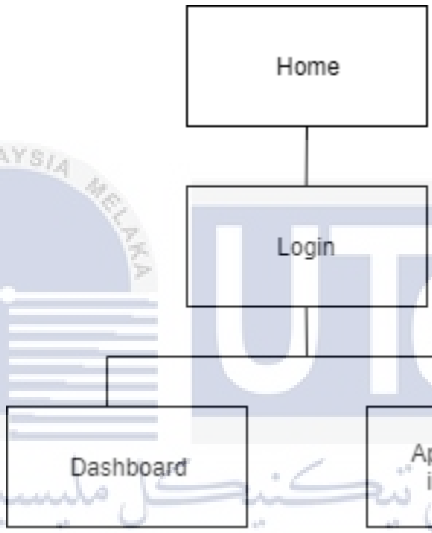

Figure 4.3: Admin navigation design in HalalGO

Based on admin Figure 4.3. We can see for admin role, they just can approve Halal information, to make sure non-authentic Halal data inside the database. Admin also have dashboard to view analytics of Halal data.

4.2.3.1.2 Muslim user navigation design

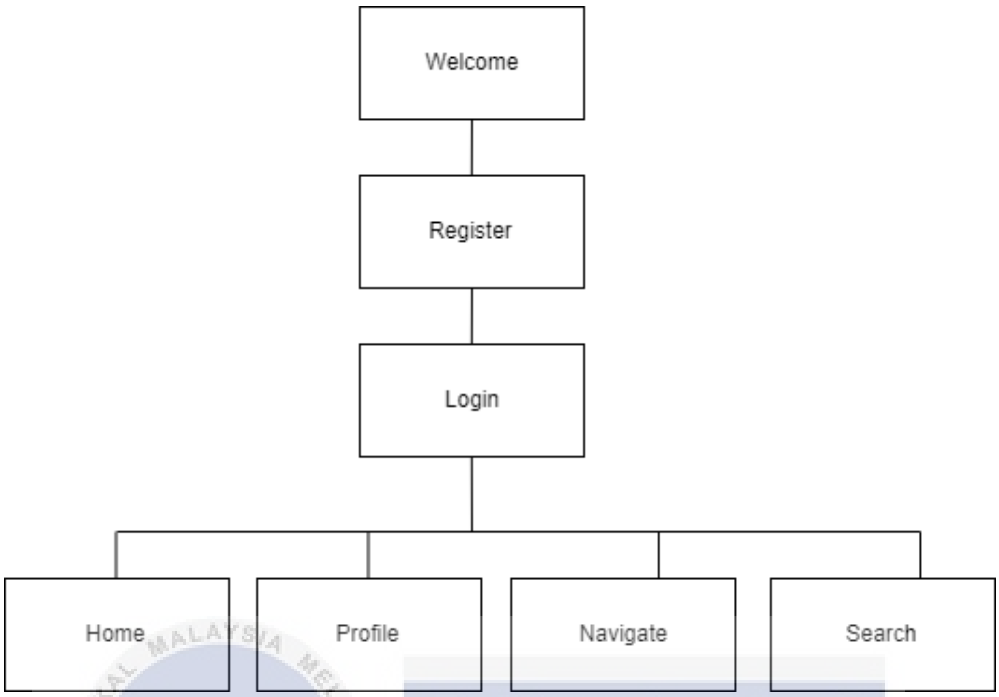

Figure 4.4: Muslim user navigation design in HalalGO

Based on Figure 4.4. Muslim user need to login first before access the content of application or register instead. Muslim user can go to Home screen for view all review of registered user. They also can view their own profile and posted review history. Besides, Muslim user can locate any Halal restaurant and hotel at Navigate screen. They can search specific restaurant and hotel by name or location at the Search screen.

4.2.3.2 User Interface Design

4.2.3.2.1 Muslim User Registration Input Design

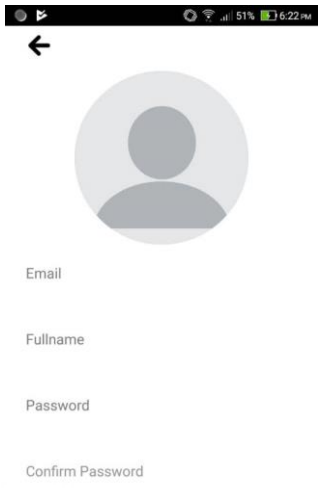

Figure 4.5: Muslim user register input design

The register screen requires email and password in order to access the application. Muslim user need to input their email and password. The information of email and password will be retrieve from database after the user clicks the Register button. Error message will be appear if the user already exists.

4.2.3.2.2 Muslim User Login Input Design

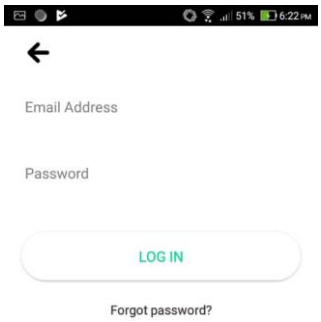

Figure 4.6: Muslim user login input design

In this screen, user need to fill the email and password that already registered. User will automatically navigate to home screen if the login success.

4.2.3.2.3 Add Restaurant Input Design

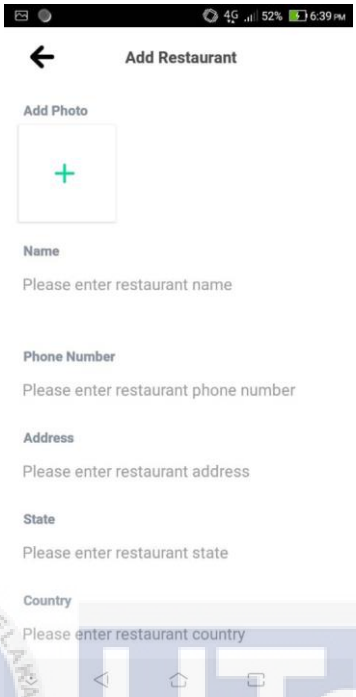

Figure 4.7: Add restaurant input design

Based on Figure 4.7, this screen can be launch when user click the button restaurant at the bottom of the explore screen. User can add new Halal restaurant by upload related images and fill all the information in the form.

4.2.3.2.4 Add Hotel Input Design

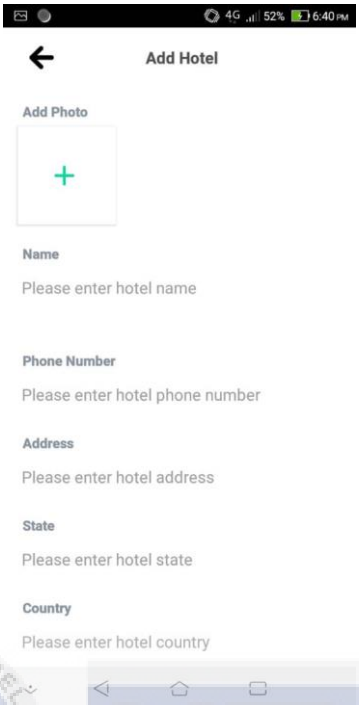

Figure 4.8: Add hotel input design

Based on Figure 4.8. this screen can be launch when user click the button hotel at the bottom of the explore screen. User can add new Muslim friendly hotel by upload related images and fill all the information in the form.

4.2.3.2.5 Add Product Input Design

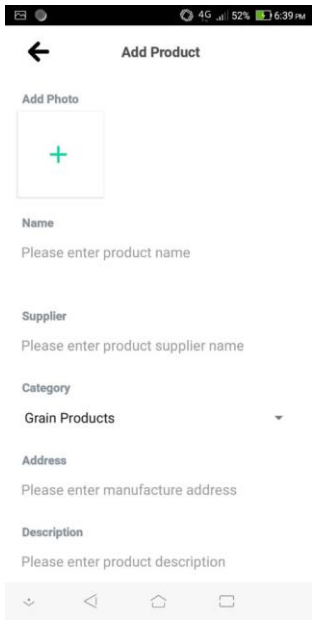

Figure 4.9: Add product input design

Based on Figure 4.9. this screen can be launch when user click the button product at the bottom of the explore screen. User can add new Halal product by upload related images and fill all the information in the form.

.

4.2.3.2.6 Write Review Input Design

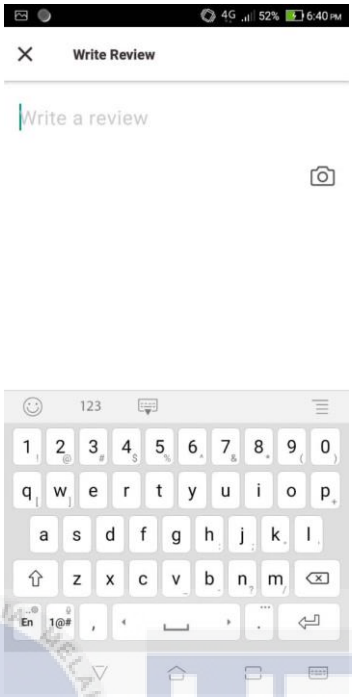

Figure 4.10: Write review input design

Based on Figure 4.10. this screen can be launch when user click the button that has pencil icon at the top of the home screen. User can write review about anything related to Halal.

4.2.3.2.7 Edit Profile Input Design

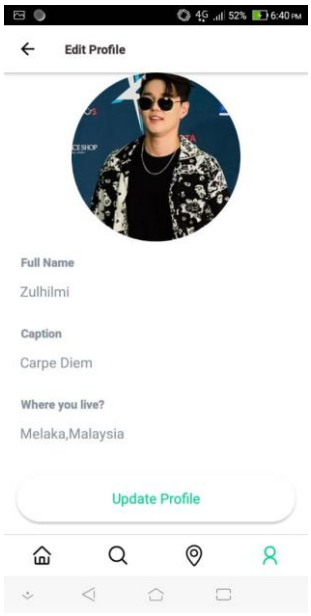

Figure 4.11: Edit profile input design

Based on Figure 4.11. this screen can be launch when user click gear icon button at profile screen. User can edit their profile by changing the photo, name, caption or location.

4.2.3.3 Output Design

4.2.3.3.1 Home screen output design

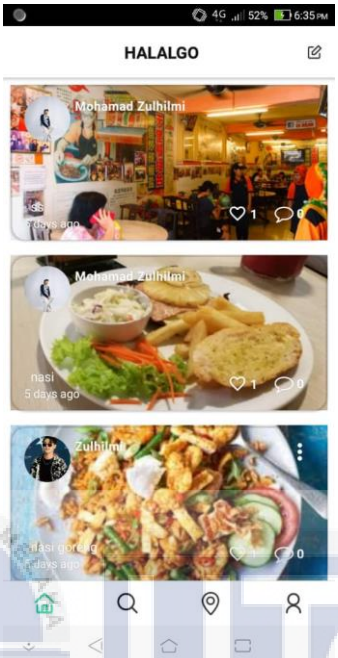

Figure 4.12: Home screen

4.2.3.3.2 Explore screen output design

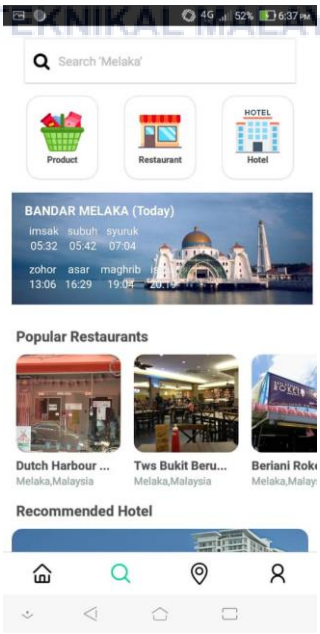

Figure 4.13: Explore screen

4.2.3.3.3 Navigate screen output design

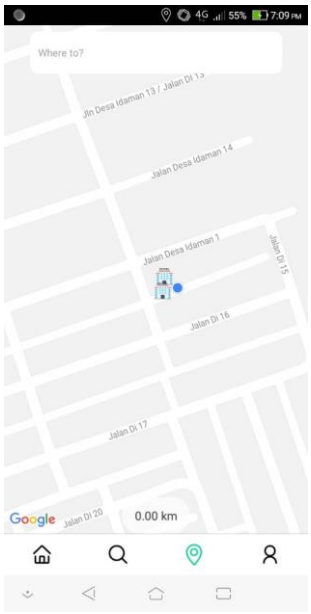

Figure 4.14: Navigate screen

4.2.3.3.4 Profile screen output design

Figure 4.15: Profile screen

4.2.3.3.5 View restaurant screen output design

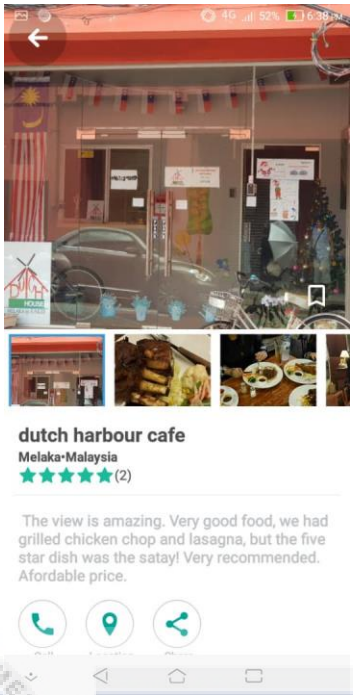

Figure 4.16: View restaurant screen

4.2.3.3.6 View hotel screen output design

Figure 4.17: View hotel screen

4.2.3.3.5 View product screen output design

Figure 4.18: View product screen

4.2.3.3.6 Search restaurant screen output design

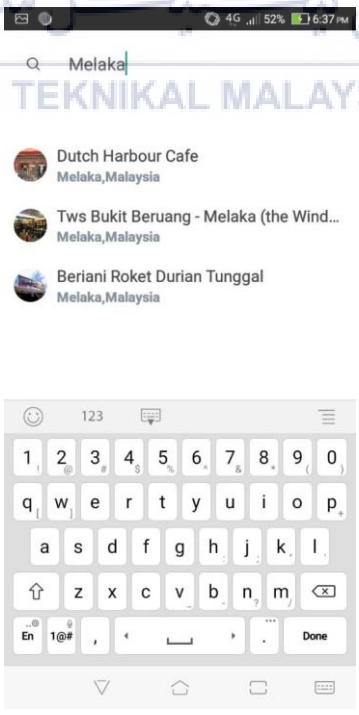

Figure 4.19: Search restaurant screen

4.2.3.3.5 Search hotel screen output design

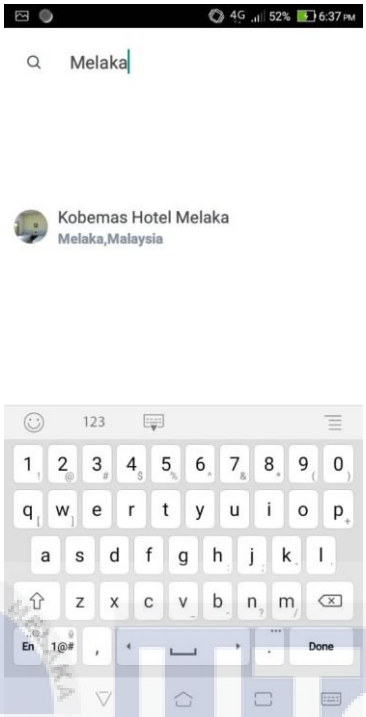

Figure 4.20: Search hotel screen

4.2.3.3.6 Search product screen output design

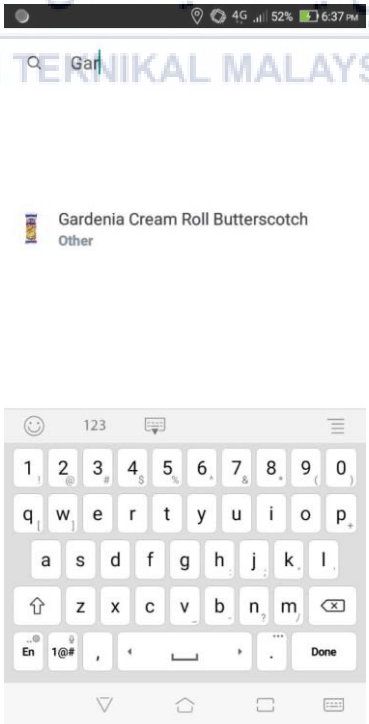

Figure 4.21: Search product screen

4.2.4 Database Design

This section contains conceptual and logical database design of HalalGO application. Database use to store HalalGO application data is Firebase.

4.2.4.1 Conceptual Database

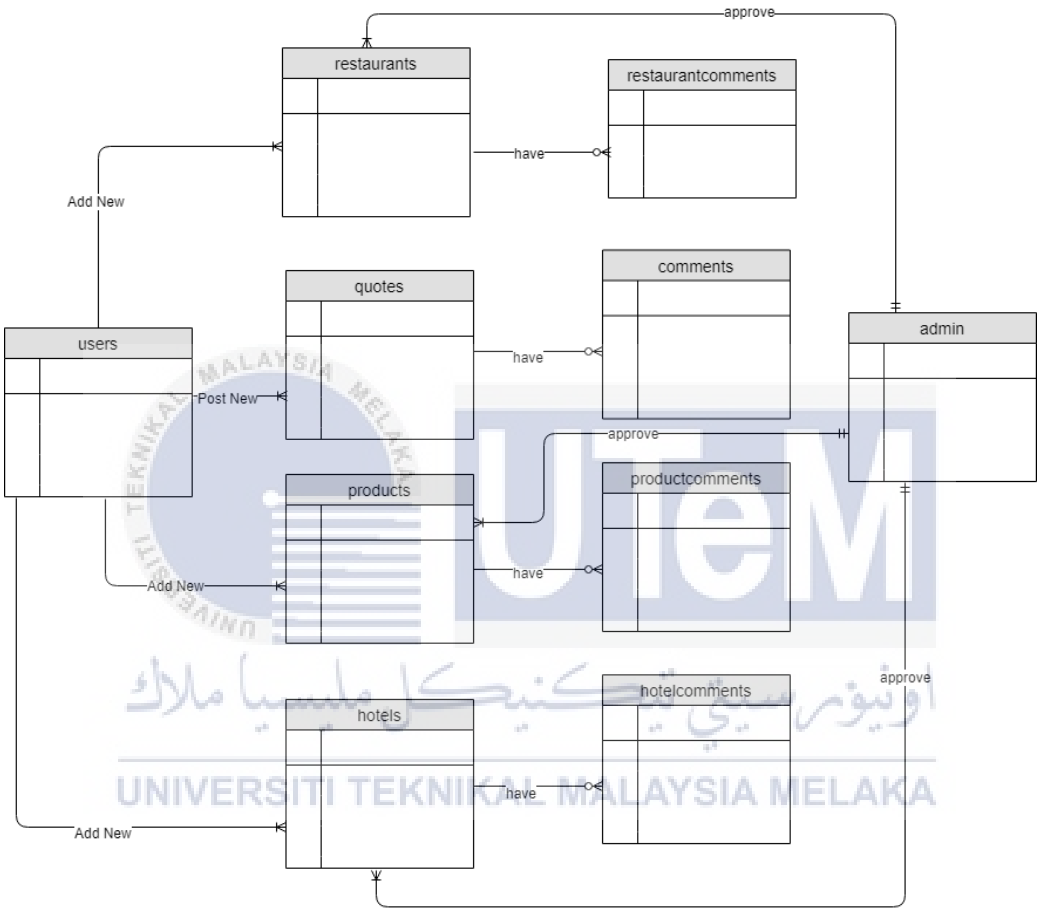

Figure 4.22: Conceptual Database Design of HalalGO

The database design of HalalGO application consists of ten entities. Which are users, restaurants, quotes, products, hotels, restaurantcomments, comments, productcomments, hotelcomments, and admin.

Description of each entity:

Users entity is used to store the detail of registered Muslim user. After they register, the data will store in this table.

Quotes entity is used to store the detail of posted review.

Restaurants entity is used to store the detail of restaurant data.

Hotels entity is used to store the detail of hotel data.

Products entity is used to store the detail of product data.

Comments entity is used to store the comment of review data.

RestaurantComments entity is used to store the comment of restaurant data.

HotelComments entity is used to store the comment of hotel data.

ProductComments entity is used to store the comment of product data.

Admin entity is used to store the detail of the admin.

4.2.4.2 Logical Database Design

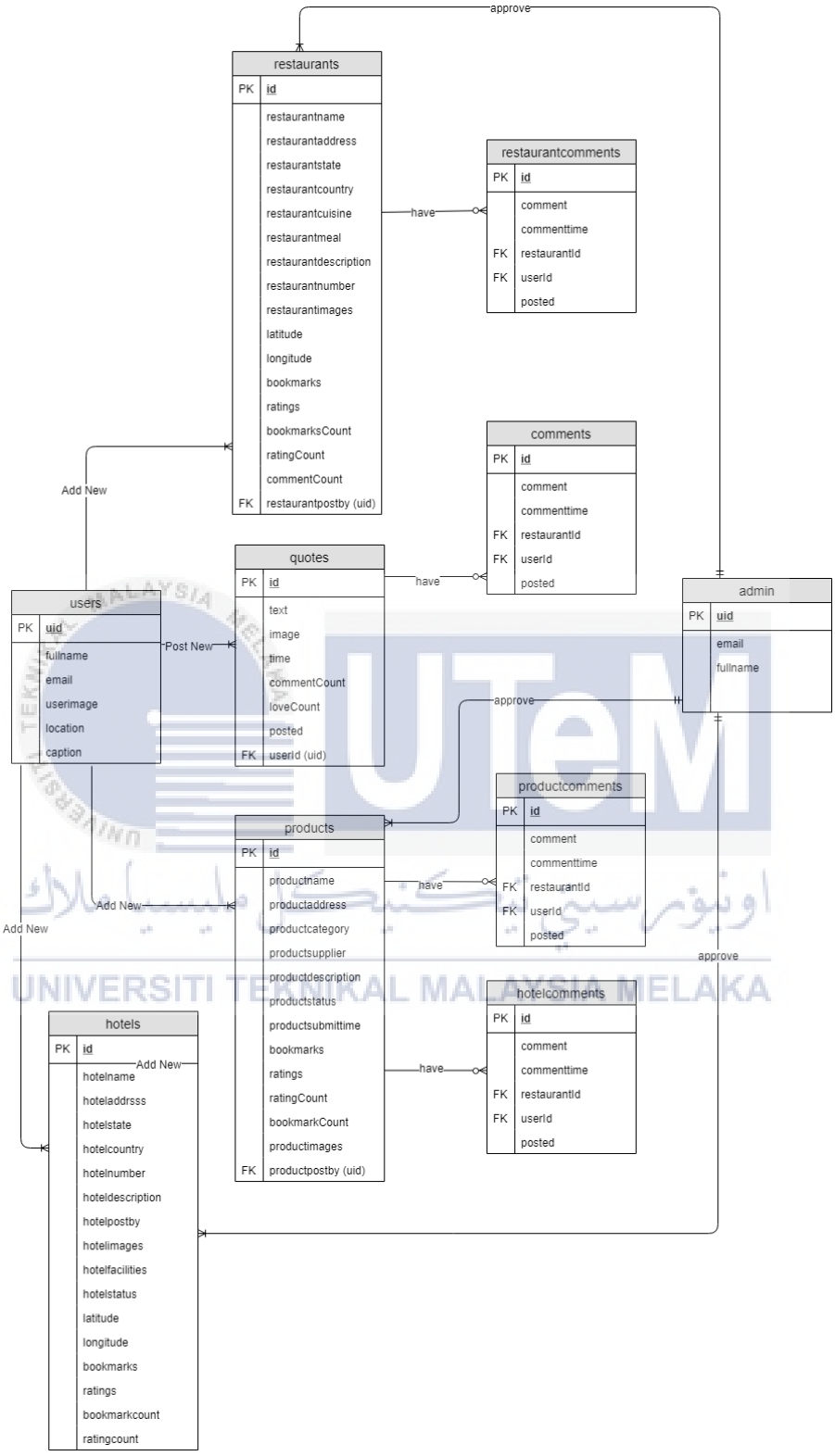

Figure 4.23: Entity Relationship Diagram of HalalGO

Based on Figure 4.24, the Entity Relationship Diagram for HalalGO application can be explained as below:

- The **users table** contains uid, fullname, email, userimage, location and caption attributes.

  This table is used to store Muslim user details which is will be used for authentication.

- The **quotes table** contains id, text, image, time, commentCount, loveCount, posted and userId.

  This table is used to store review about any related Muslim friendly places by upload an image and caption.

- The **restaurants table** contains id, restaurantname, restaurantaddress, restaurantstate, restaurantcountry, restaurantcuisine, restaurantmeal, restaurantdescription, restaurantnumber, restaurantpostby, restaurantstatus, restaurantsubmittime, restaurantimages, latitude, longitude, bookmarks, ratings, bookmarkCount, commentCount and ratingCount.

  This table is used to store restaurant details which is easier for other user to get specific details of the Halal restaurant.

- The **products table** contains id, productname, productaddress, productcategory, productsupplier, productdescription, productstatus, productsubmittime, bookmarks, ratings, ratingCount, bookmarkCount and productimages.

  This table is used to store product details which is easier for other user to get specific details of the Halal product.

- The **hotels table** contains id, text, image, time, commentCount, loveCount, posted and userId.

  This table is used to store restaurant details which is easier for other user to get specific details of the Muslim friendly hotel.

- The **comments table** contains id, userId, comment, commenttime, and posted.

  This table is used to store review comment that user already made.

- The **restaurantcomments table** contains id, text, image, time, commentCount, loveCount, posted and userId.

  This table is used to store restaurant comment that user already made.

- The **productcomments table** contains id, text, image, time, commentCount, loveCount, posted and userId.

  This table is used to store product comment that user already made.

- The **hotelcomments table** contains id, text, image, time, commentCount, loveCount, posted and userId.

  This table is used to store hotel comment that user already made.

- The **admin table** contains uid, fullname and email.

  This table is used to store admin detail.

4.3 Detailed Design

This section will describe the design of system in detail with software design and Physical database design. Software design is explains with Data Flow Diagram (DFD).

4.3.1 Software Design (DFD)

This section is discussed about the context diagram and data flow diagram. Data flow diagram is known as one of graphical diagram that are used to represent the flow of data through an information system. The diagram usually is used to create and show the overview of the system, which can be used to elaborate more later.

Figure 4.24: DFD Context Diagram

4.3.2 Physical Database Design

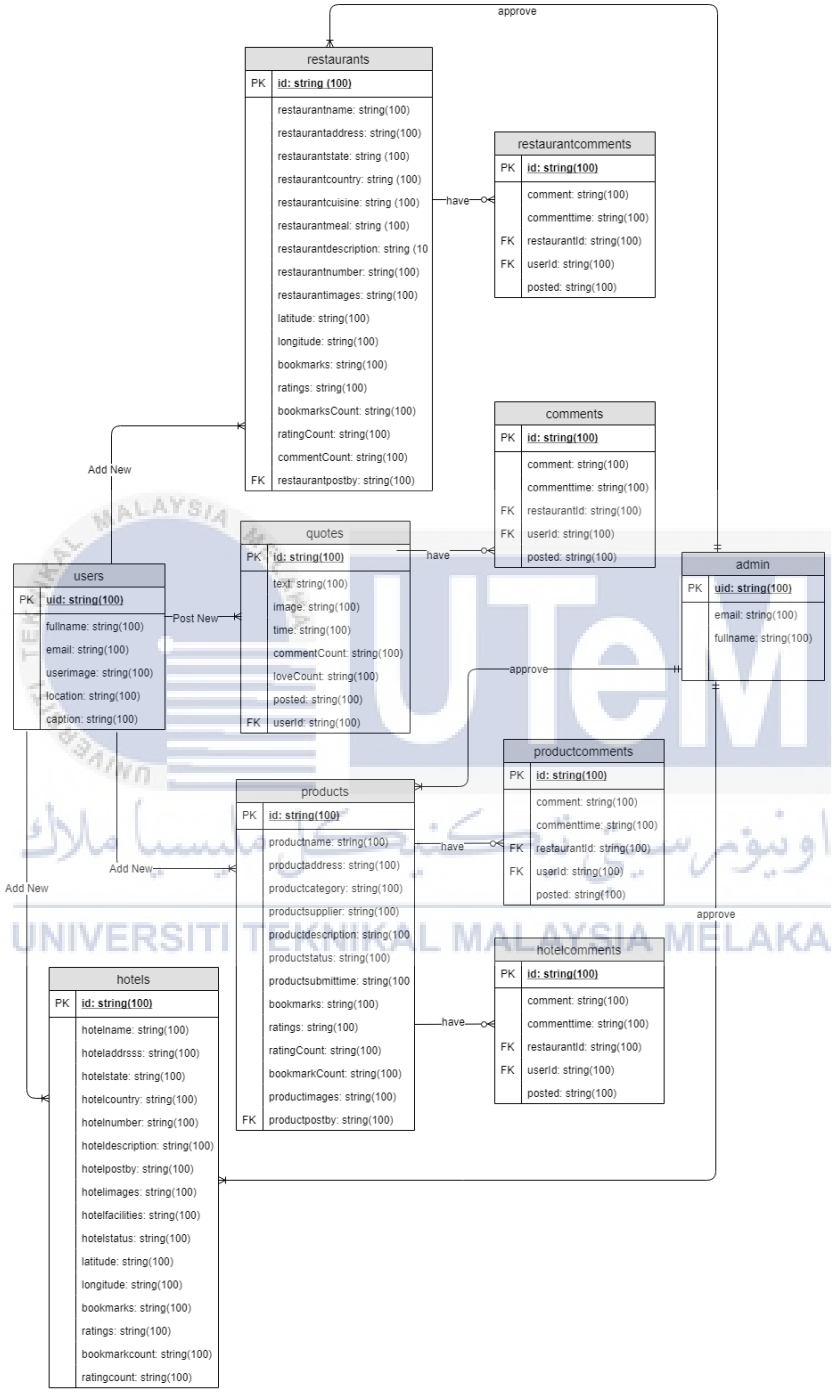

Figure 4.25: Physical Database Design of HalalGO

Physical Database Design of HalalGO is shown in figure 4.25. data type of each entity is listed above. All datatype is store as string because JSON treats data as text as it is lightweight data interchange format.

4.4 Conclusion

This chapter describes system design of HalalGO application. Component diagram, deployment diagram, logical diagram, entity relationship diagram and data flow diagram are artefacts in design phase of waterfall model. The next stage will be implementation of system. The next chapter will discuss software development environment setup, configuration management and implementation status.

CHAPTER V

IMPLEMENTATION

5.1 Introduction

This chapter will discuss about implementation of HalalGO application. HalalGO has been developed using React Native and Firebase. This chapter also will discuss about setup of the application and hardware that required for this application.

5.2 Software Development Environment Setup

The minimum system requirements of the hardware configuration are tabulated in the following table**.**

Item	Requirement	Minimum configuration
Android 7.0 phone or higher	Processor	Octa-core or higher
	Memory	32GB
	RAM	6GB

Table 5.1: Hardware Configuration

The software used to set up application development environment is described as below:

1. Visual Studio Code

Visual Studio Code is used to develop the HalalGO application. Visual Code is an open-source source code editor that is originally created by Microsoft. The tools provided by the Microsoft that have syntax highlighting, intelligent code completion, snippet and support for debugging. Visual Studio Code can supports JavaScript and JAVA at same time. This software is commonly use in hard-coded application design which more suitable for this application development because it provides gr

eat tools with standard features as well as more sophisticated features such as real-time syntax checking and code introspection for generating code hints to assist the user to write codes and reduced syntax error and misspelling.

2. Node JS

Node JS is an open source server environment built on Google's Chrome JavaScript Engine (V8 Engine). Node JS v10.12.0 contains several packages that configured automatically once installed. Node JS provides a rich library of various JavaScript modules which simplifies the development of the application. Node JS have important features that make as first choice of developer namely asynchronous and event driven, very fast, single threaded but highly scalable and no buffering. Node JS is a good runtime environment for developing server-side and networking applications. Node JS are written in JavaScript, can be run in various platform like OS X, Microsoft Windows, and Linux.

3. Firebase

Firebase is a real-time database that suitable for mobile and web application development platform. Firebase is an all-encompassing product that has everything I needed to develop the application such as storage, authorization, and real-time database. Firebase also provides an API that allows developers to store and sync data across multiple client. Firebase is a schema less database in which the data stored in JSON format. It is optimized for offline use due to the persistence of local data on the device and automatically synchronizes from SDK.

5.3 Software Configuration Management

This section will explains the configuration environment setup and version control procedures.

5.3.1 Configuration Management Setup

The configuration environment of HalalGO application requires Node JS server as an online server that allow application request data from the server. The following diagram will explain the Connection of HalalGO application and Firebase database.

Connection of Android Application & Firebase Database

HalalGO is native application that can be accessible by Android 7.0 or above phone that required internet connection.

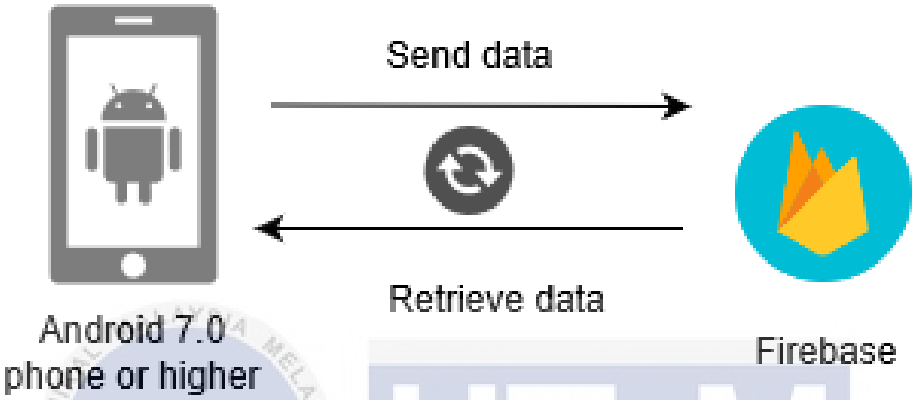

Figure 5.1: Connection of HalalGO

The diagram above shows connection between Android phone and Firebase database for purpose to make a testing to the system, based on how it works on the phone. All data store in Firebase and phone will retrieve and send data in JSON format. Besides, the data is real-time handle by Firebase SDK installed in the application.

5.3.2 Version Control Procedure

Every version of HalalGO application is control and store in GITHUB. GITHUB is a version control for any software development. HalalGO is store in “HalalGO” repository, for every change on source codes; the project will be committing in the repository. This commit is the complete version of this development process. All code is store in GITHUB for version control and backup of the project.

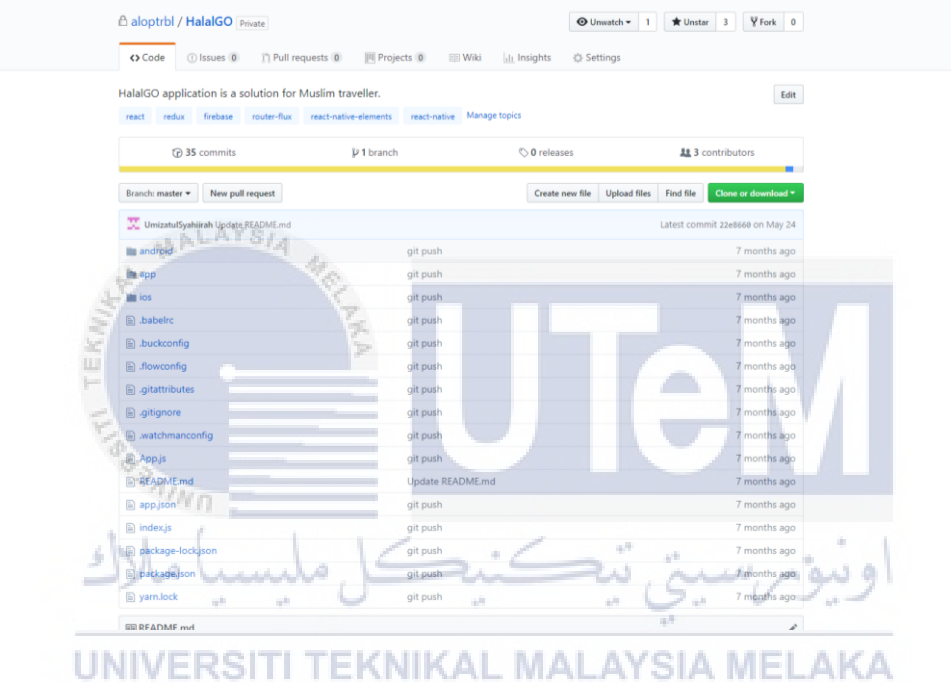

Figure 5.2: Github page

5.4 Implementation Status

Module Name	Description	Complete Duration	Date Completed	GITHUB commit ID
Muslim user Profile	Muslim user profile management	1 month	30 / 9 / 2018	User profile updated
Login & Register	Login & register finish first and follow up by Forget Password	1 month	30 / 9 / 2018	Login/Register updated.
Write Review	User can write review related to any Muslim friendly places.	2 weeks	18 / 10 / 2018	Write review updated
View Nearby Halal Restaurant Register and Hotel Location	User can view nearby Halal restaurant and Hotel on map in the application.	3 weeks	20 / 11 / 2018	View nearby updated

Add new Halal product, Manage new Halal restaurant, Manage new Halal hotel	User can submit about Halal restaurant, hotel and product.	1 month	29 / 11/ 2018	Add New Halal Information
View Halal restaurant, hotel & product	User can view Halal restaurant, hotel and product	2 month	20 / 12 / 2018	View Halal Information

Table 5.2 Implementation setup

5.5 Conclusion

This chapter explains the implementation process and tools to develop HalalGO application. Connection among user and Firebase database in the process of HalalGO development is illustrates in details with the aids of diagram. The next chapter will proceed to system testing to develop test plan for testing process.

CHAPTER VI

TESTING

6.1 Introduction

This section will discuss about the system testing. The detail includes test plan, test strategy, test design as well as the test result and test analysis. The main activities that are involved in testing phase are the targeted user. They will be the tester for this system as their role in this system. The testing is divided into several parts, which are unit testing, integration testing, functional testing, system testing, acceptance testing and regression testing. The strategy used in this testing is white-box and black-box testing and top-down testing. *(Refer section 6.3 for the more detail about testing strategy and the information of test requirements.)*

6.2 Test Plan

This section introduces the test organization of personal involved in HalalGO application. Test environment and test schedule is explained in details below.

6.2.1 Test Organization

According to figure 6, Mohamad Zulhilmi, which is the developer of this application, he play as a test manager of HalalGO application. He plays an important role to guide the testing process and evaluate the test result. This project is tested by Faizal Ayub, which is the users that don't have programming background she responsible to design test plan, execute testing process and record the test result.

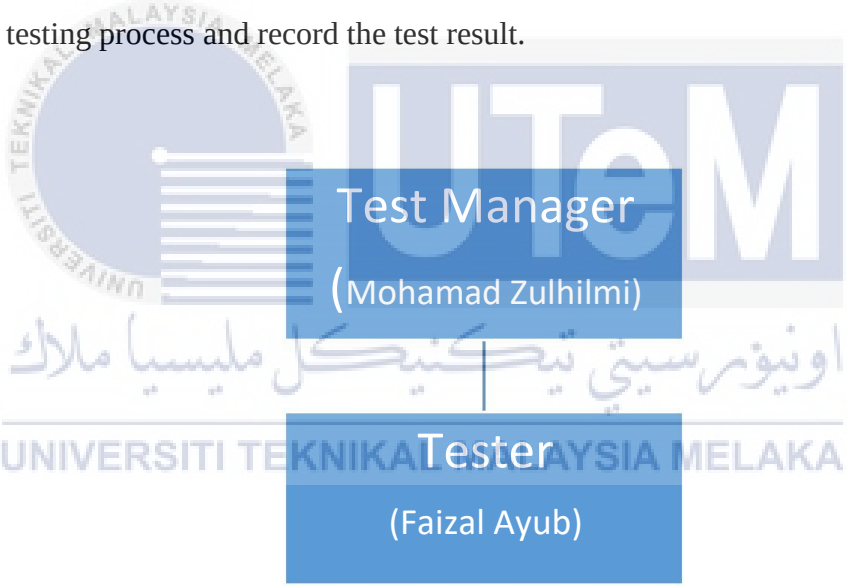

Figure 6.0: Test Organization Chart

6.2.2 Test Environment

Testing process is carried out in office to make sure that the process is guided under test manager. The personal computer hardware specification is equipped with at least 8GB RAM, Core i5 processor, Windows 10.

6.2.3 Test Schedule

The following table describes each task and the duration to complete the task. There are 6 part of test.

Test Case	Schedule	Duration
A_1.1 – S_7.1	15th November 2018	1 day

Table 6.1: Test schedule

6.3 Test Strategy

Based on the test schedule in section 6.2, this system will perform on six part of test. Each part required testing strategy, whether it is suitable for using white-box or black box testing.

White-box testing is a test that takes into account the internal behavior of a system or component. This test is also known as structural testing or glass-box testing. Three part of test will use this strategy which is unit testing, integration testing and regression testing. While black-box testing is a testing that focused on the outputs, generates in response to selected inputs and execution condition. Black-box test also known as functional testing. The user, which does not have programming background, is chosen to be the tester of this system. They need to enter correct data and examine the output response from the system. They need to sure the result is what they want.

Other than that, top-down testing is used in the integration level. The software developer is responsible in this testing. The highest level of the system (user interface) will be the first and followed by the internal mechanism.

6.3.1 Classes of tests

Functionality test is performed in the testing process of HalalGO system. Functionality test is to verify that the software application functionalities are working correctly according to the design specification. During functionality test, check the application function, menu function, user input and installation in the devices. All of the functionality relevant test cases are explained in section 6.4.

Security test is categories as non-functional testing which is performed in HalalGO application. It is a type of testing to determine the software application protects data and make sure functionality as predetermined. Security testing consider as software testing that's perform to check the application is secure condition. It checks and confirms if the application is accessible to attack, if hacker tries to hack or login to the system without any authentication.

6.4 Test Design

Test design will discuss the test case of each module in test description. Test data is prepared with positive data and negative data to obtain more accurate result and actual result is recorded

6.4.1 Test Description

6.4.1.1 Test Cases for Admin

Module	Test Case ID	Description	Expected result
Login	A_1.1	To validate that the admin login with correct email and password.	The functions of approve new Halal information can be access after logged in.
	A_1.3	To validate that the user login with incorrect email or password or both.	An error message "invalid login, please try again" popped up
Approve New Halal Restaurant, Hotel, & Product	A_2.1	To validate admin can view pending new Halal restaurant, hotel and product list.	The new Halal restaurant, hotel and product showed correctly.
	A_2.2	To validate admin can reject inauthentic information.	The rejected information not appear in the list.
	A_2.3	To validate admin can approve authentic information.	The approved information appear in the list.

Table 6.4: Admin Test Cases

6.4.1.2 Test Cases for Muslim user

Module	Test Case ID	Description	Expected result
Login	S_1.1	To validate the Muslim user can login with correct email and password.	user will redirect to the correct interface for Muslim user.
	S_1.2	To validate Muslim user login with empty field of email or password or both.	The error message "Please fill in the empty field" popped up.
	S_1.3	To validate Muslim user login with incorrect email or password or both.	The login error message "invalid login, please try again" popped up.
Register	S_2.1	To validate that the Muslim user register with non-empty text input	User will redirect to the review screen or home screen page automatically.
	S_2.2	To validate that the user register with empty fields.	An error message popped up, which said "This field is required".
	S_2.3	To validate wrong confirm password	The error message "Please entered same password" popped up

Add new Halal Restaurant	S 3.1	To validate with an empty photo upload field.	"Please upload restaurant photo" error popout.
	S 3.2	To validate with one empty field.	"Please fill the field" error popout.
	S 3.3	To validate all empty field.	"Please fill all field" error popout.
Add new Halal Hotel	S 4.1	To validate with an empty photo upload field.	"Please upload hotel photo" error popout.
	S 4.2	To validate with one empty field.	"Please fill the field" error popout.
	S 4.3	To validate all empty field.	"Please fill all field" error popout.
Add new Halal Product	S 5.1	To validate with an empty photo upload field.	"Please upload product photo" error popout.
	S 5.2	To validate with one empty field.	"Please fill the field" error popout.
	S 5.3	To validate all empty field.	"Please fill all field" error popout.
Write Review	S 6.1	To validate with an empty photo upload field.	"Please upload review photo" error popout.
	S 6.2	To validate with empty caption field.	Send button will be disabled.
Update Profile	S 7.1	To validate with an empty fields.	"Please fill all empty fields.

Table 6.5: Muslim User Test Cases

6.4.2 Test Data

The test data is the real life or synthetic data. This section discuss the way of system behaves when there is no test data or invalid input test data. The test data used in this project is shown below for each test case:

Test Data for Admin Test Cases

Test Case ID	Pre-condition	Test Data	Step/Flow
A_1.1	Launch HalalGO webapp	Email: admin@admin.com Password: admin1234	1. Click “Login” on the menu tab. 2. Enter the given email and password 3. Click “Login” button.
A_1.2		No input for email field and password field	
A_1.3		Email: admin@admin.com Password: 1234	
		Email: admin@gmail.com Password: admin1234	
		Email: test@test.com Password: test123	
A_2.1	logged in as admin	No input	1. Check if the data in the system show, same with in the database.
A_2.2		No input	1. Click “reject” button One of the row of restaurant, hotel or product.
A_2.3		No input	1. Click “approve” button one of the row of restaurant, hotel or product.

Table 6.6: Admin Test Data

Test Data for Muslim User Test Cases

Test Case ID	Pre-condition	Test Data	Step/Flow
S_1.1	Launch HalalGO application	Email: alopttt@gmail.com Password: alopjengka	1. Click “Login” on the menu tab. 2. Enter the given email and password 3. Click “Login” button
S_1.2		No input for email field and password field	
S_1.3		Email: alopttt@gmail.com Password: 1234	
		Email: test@gmail.com, Password: hanif1234	
		Username: test@gmail.com Password: test1234	

S_2.1	Launch HalalGO application	Photo: jpeg/png/jpg format FullName : Zulhilmi Azaha Email : alopttt@gmail.com Password : alopjengka	1. Click “Sign up with email” On the welcome screen. 2. Pick a user photo. 3. Complete the form 4. Click “Sign Up” button
S_2.2		No input	
S_2.3		Password : alopjengka Retype password : alop1234	
S_3.1	Logged in as Muslim user	Photo: jpeg/png/jpg format Name: Restoran Sri Maju Phone Number: 0940024341 Address: No 9, Jalan Kenari State: Melaka Country: Malaysia Cuisine: African, American Meal: Breakfast, Lunch Description: Nice & Best. Add Location: selected	1. Click “Restaurant” at the bottom of explore screen. 2. Fill the form. 3. Click “Add” button.
S_3.2		Photo: jpeg/png/jpg format Name: - Phone Number: 0940024341 Address: No 9, Jalan Kenari State: Melaka Country: Malaysia Cuisine: African, American Meal: Breakfast, Lunch Description: Nice & Best. Add Location: selected	
S_3.3		Photo: - Name: - Phone Number: - Address: -	

		State:- Country:- Cuisine:- Meal: - Description: - Add Location:-	
S_4.1	Logged in as Muslim user	Photo: jpeg/png/jpg format Name: Hotel Ros Merah Phone Number: 0940024341 Address: No 19, Jalan Bunga State: Melaka Country: Malaysia Facilities: Bike, TV Description: Good services. Add Location: selected	1. Click “Hotel” at the bottom of explore screen. 2. Fill the form. 3. Click “Add” button.
S_4.2		Photo: jpeg/png/jpg format Name: - Phone Number: 0940024341 Address: No 9, Jalan Kenari State: Melaka Country: Malaysia Facilities: Bike, TV Description: Good services. Add Location: selected	
S_4.3		Photo: - Name: - Phone Number: - Address: - State:- Country:- Facilities:- Description: - Add Location:-	
S_5.1	Logged in As Muslim user	Photo: jpeg/png/jpg format Name: 100 Plus Supplier: F&N Sdn Bhd Category: Others Address: 214 Pandan,SG Description: Expire: 2/10/19	1. Click “Product” at the bottom of explore screen. 2. Fill the form. 3. Click “Add” button

S_6.1	Logged in as Muslim user	Photo: jpeg/png/jpg format Caption: Nice place.	1. Click pencil icon at top of home screen. 2. Pick a photo. 3. Write a caption. 4. Click send button.
S_6.2		Photo: jpeg/png/jpg format Caption: -	
S_7.1	Logged in As Muslim user	Photo: jpeg/png/jpg format Name: - Location: - Caption: -	1. Click gear icon at profile screen. 2. Fill all the form. 3. Click update profile button.

Table 6.7: Muslim User Test Data

6.5 Test Results and Analysis

From the test description in section 6.4, the following table shows the actual result for each test case.

Test Result for Admin Test Cases

Test Case ID	Actual Result	Success (S) / Fail (F)
A_1.1	Successful login to admin page.	S
A_1.2	The message of "Please fill in the required information" is prompted.	S
A_1.3	The message of "invalid Login, please try again" Is prompted.	S
A_2.1	The list of pending new Halal restaurant, hotel and product.	S
A_2.2	Halal information not appear at list.	S
A_2.3	Halal information appear at list	S

Table 6.8: Admin Test Result

Summary for Admin Test Cases

Based on the result of the admin test cases, all test result is successfully tested. The application function just work correctly without any bug or bad performance.

Test Result for Muslim User Test Cases

Test Case ID	Actual Result	Success (S) / Fail (F)
S_1.1	Will redirect user to home screen after successful login.	S
S_1.2	"This field is required" alert is prompted	S
S_1.3	"Invalid login, please try again " alert is prompted	S
S_2.1	Will redirect user to home screen after successful signup.	S
S_2.2	"This field is required" message is prompted	S
S_2.3	"Please enter the same password" alert is prompted	S
S_3.1	"Please upload restaurant photo" alert is prompted	S
S_3.2	"Please fill the field" error is prompted.	S
S_3.3	"Please fill all field" alert is prompted.	S
S_4.1	"Please upload hotel photo" alert is prompted.	S

S_4.2	"Please fill the field" alert message prompted to user.	S
S_4.3	"Please fill all field" alert message prompted to user.	S
S_5.1	"Please upload product photo" alert is prompted.	S
S_5.2	"Please fill the field" alert message prompted to user.	
S_5.3	"Please fill all field" alert message prompted to user.	S
S_6.1	"Please upload review photo" alert is prompted.	S
S_6.2	Send button disabled".	S
S_7.1	"Please fill caption field" alert message prompted to user.	S

Table 6.9: Muslim User Test Result

Summary for Muslim Test Cases

Based on the result of the Muslim user test cases, there are no errors or bug along the testing. All the function run perfectly and accurate based on the system module.

6.6 Conclusion

This chapter conclude that the testing of this application is the most important stage before deploy to the real user. The record of test cases and the test result will use as a references for future maintenance and enhancement. The next chapter will conclude this project by determining the weakness and the strength of HalalGO application, suggesting the improvement of the system.

CHAPTER VII

CONCLUSION

7.1 Observation on Weakness and Strengths

From the observation during the testing phase of HalalGO application, there are few strength and weakness which brings the sources of differences toward competitors.

Strength

In term of strength, it can be recognize as the benefits towards the Muslim user perceptions and creates value between each other during the process of using the application. Strength of HalalGO also can be one of the attractiveness among the Muslim tourists at overseas.

One of the strength of HalalGO is the Muslim user can search any authentic information about Halal restaurant, product or even Muslim friendly hotel. So, the user can be more confident about Halal information they get.

Besides, this application gives benefits amongst Muslim tourist at overseas because they have language constraint between them and locals. With HalalGO application, they can easily get information by access the application in their smartphone.

Furthermore, HalalGO has the best features to make it easy to use and reduce time consuming. One of them is view real-time user location, restaurant and hotel. This application also can recommend any nearby restaurant and hotel.

Weaknesses

One of the problems faced is during the testing phase, when image is more than 1MB, it take more than 1 minutes to upload. Besides, there are some bugs when user logout, the detail of their profile return null values.

In addition, during image selected from the album gallery in the review screen, some images will return an error.

Furthermore, this system is not written in IOS platform so there is lack of multiple platforms which HalalGO performs. As we known, IOS platform are mostly used by the people because it's stability.

7.2 Propositions for Improvement

Based on the identification of weakness of HalalGO, suggestion of improvement to help in solving the problem faced and increases the functionality and efficiency of HalalGO application.

From the problem of image upload, HalalGO need suitable image compression technique or algorithm to speed up image uploading to the server. By the help of open source package such as NPM, I can choose suitable image compression package to reduce the size of the image.

For the image selected from the album gallery in the review screen error, this problem will need to re-implement and re-code as well.

In term of features, HalalGO application is trying to introduce IOS platform application to user. In term of emailing and notifying could be considered next ideas for HalalGO.

Finally, HalalGO need improve availability amongst other platform such Web based.

7.3 Project Contribution

HalalGO application target is to provide authentic Halal information of restaurant, hotel and product. It has potential to contribute the validity of data with Jabatan Agama Islam Malaysia (JAKIM). In addition, can be a job alternative platform to earn more pocket money.

7.4 Conclusion

In short, project objectives stated at the beginning can be achieved. As local people have a platform to search and view of Halal restaurant, product and Muslim friendly hotel through HalalGO application. Additionally, user can view rating and comment review about the information in the HalalGO. Finally, this application has been developed with an attractive user interface and easy to understand for new users.

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APPENDICES

1. Function of register Muslim user.

```
//Register the user using email and password
export function register(data) {
    return (dispatch) => {
        return new Promise((resolve, reject) => {
            const {email, password, fullname, userimage} = data;
            auth.createUserWithEmailAndPassword(email, password)
        .then((resp)=>{
            const uid = resp.user.uid;
            let user = {fullname, uid: uid,  email}
                    const userRef = database.ref().child('users');
                    userRef.child(user.uid).update({...user}).then(()=>{
                        dispatch({type: t.LOGGED_IN, user});
                        resolve({user})
                    })

            const sessionId = new Date().getTime();
                    let image = data.userimage;
                    const uids = resp.user.uid;
                    const imageRef =  storage
                    .ref('users')
                    .child(`${sessionId}`);

                   imageRef
                   .putFile(image, { contentType : 'image/jpeg' })
                  .then(function (blob) {
                    data.userimage = blob.downloadURL;
                    let userimage = data.userimage;
                    let user = {fullname, uid: uids,  email,userimage}
                    const userRef = database.ref().child('users');
                    userRef.child(user.uid).update({...user}).then(()=>{
                    dispatch({type: t.LOGGED_IN, user})
                    resolve({user})
                     })


                })

            })

            })
            .catch((error) => reject(error));

    };
}
```

2. Function of add new Halal restuarant.

```
//Add Restaurant Function
export function addRestaurant(quote, callback) {
    const newQuoteRef = database.ref().child('restaurants').push();
    const newQuoteKey = newQuoteRef.key;

    quote.id = newQuoteKey;
    // Write the new quote data simultaneously in the quotes list and the user's quotes list.
    let updates = {};
    updates['/restaurants/' + newQuoteKey] = quote;
    Object.keys(quote.restaurantimages).forEach(function(key) {
    const sessionId = new Date().getTime();
    let image = quote.restaurantimages[key].node.image.uri.toString();
    const imageRef =  storage
    .ref('restaurants')
    .child(`${sessionId + quote.restaurantimages[key].node.image.uri.toString()}`);
            // create Blob from file path

            // upload image using Firebase SDK
      imageRef
      .putFile(image, { contentType : 'image/jpeg' })
    .then((blob) => {

        quote.restaurantimages[key] = blob.downloadURL;
        database.ref().update({...updates})
        .then(() => callback(true, quote, null))
        .catch((error) => callback(false, null, error));



    })
     });
}
```

3. Function of check availability of Halal restaurant name.

```
//function check availablibilty Restaurant Name
export function checkName(name,callback) {
    database.ref('restaurants').orderByChild('restaurantname').equalTo(name).once('value')
    .then(function(snapshot){
    const exists = (snapshot.val() !== null);
    user = snapshot.val()
    if (exists)  callback(true,true,null);
    if (!exists)  callback(true,false,null);
    })
    .catch(error => callback(false,null, error));
    //start listening for new data
}
```

4. Function of waktu solat api.

```
componentDidMount() {
    this.props.getHotels((error) => alert(error.message))
    this.props.getRestaurants((error) => alert(error.message))
    this.props.getPopularRestaurants((error) => alert(error.message))
    this.props.getProducts((error) => alert(error.message))
    this.watchID = navigator.geolocation.getCurrentPosition((position) => {
        let region = {
            lat: position.coords.latitude,
            lng: position.coords.longitude,
        }
        this.setState({
          latitude: position.coords.latitude,
          longitude: position.coords.longitude,
          error: null,
        });

        var NY = region;
        Geocoder.geocodePosition(NY).then(res => {
          this.props.getRestaurantsCountry(res[0].adminArea, (error) => alert(error.message))
            this.setState({
              location: res[0].adminArea,
            });
            fetch(`https://waktu-solat-api.herokuapp.com/api/v1/prayer_times.json?negeri=${res[0].adminArea}`)
            .then((response) => response.json())
            .then((responseJson) => {
              this.setState({
                isLoading: false,
                dataSource: responseJson.data.zon,
              }, function(){

              });
            })
            .catch((error) =>{
              console.error(error);
            });
        })
        .catch(err => console.log(err))
      this.onRegionChange(region, position.coords.accuracy);

    },
    (error) => this.setState({ error: error.message }),
    { enableHighAccuracy: false, timeout: 20000, maximumAge: 20000 },
    )
}
```