TRANSPORTATION BOOKING SYSTEM VIA MOBILE COMPUTING

NURUL KHAIRUNISA BINTI MD ISA

BACHELOR OF COMPUTER SCIENCE

(INTERNET COMPUTING)

UNIVERSITI SULTAN ZAINAL ABIDIN

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NURUL KHAIRUNISA BINTI MD ISA

Bachelor of Computer Science (Internet Computing)

Faculty of Informatics and Computing

Universiti Sultan Zainal Abidin, Terengganu, Malaysia

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DECLARATION

I hereby declare that this report is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Sultan Zainal Abidin or other institutions.

_____

Name : .....

Date : .....

CONFIRMATION

This is to confirm that:
The research conducted and the writing of this report was under my supervison.

_____

Name : .....

Date : .....

DEDICATION

First and foremost, praised be to Allah, the Most Gracious and the Most Merciful for blessing me and giving me the oppurtunity to undergo and completed my final year project, Transportation Booking System via Mobile Computing. I also would like to take this oppurtunity to express my heartiest gratitude to my supervisor, Puan Maizan Binti Mat Amin for her teachings, kindness, patience and motivations towards this project. I was proud to be supervised with his guidance and invaluable advices.

Thanks a lot to the Faculty of Informatics for given me a chance to expose and explore myself with this project. I would like to thank my family and all the lectures in Faculty of Informatics for giving me a great chances to complete my final year project. Not to forget to mentioned my friends, Nurul Fatin Shafiqah, Nureen Afiqah, Muhammad Ammar, Wildan and all my friends for teaching, high technical support and good skills. I was very thankful and appreciating for their kindness.

ABSTRACT

It is undeniable that expert system application is gaining popularity. Advancement in computer technology has influence the development in many other fields including environment security. Transportation booking system is a system that helps UniSZA's students for booking a transportation through their own mobile or smartphone.

In tembila, there is difficulties in finding transportation either for outing or rental. The students currently only can contact the driver using call and messaging only. This can cause miscommunication between both parties.

Therefore, this system is needed to ease students book the transportation. For this system, the transportation used are car and van. This system will link students to the driver who provide transportation services.

ABSTRAK

Tidak dapat dinafikan bahawa aplikasi sistem pakar semakin popular. Kemajuan dalam teknologi komputer telah mempengaruhi perkembangan dalam banyak bidang termasuk keselamatan persekitaran. Sistem tempahan pengangkutan adalah sistem yang membantu pelajar UniSZA untuk menempah pengangkutan melalui telefon bimbit atau telefon pintar mereka sendiri.

Dalam tembila, terdapat kesukaran untuk mencari pengangkutan sama ada untuk meluncur atau sewa. Pelajar pada masa ini hanya boleh menghubungi pemandu menggunakan panggilan dan pemesejan sahaja. Ini boleh menyebabkan salah faham dalam komunikasi di antara kedua-dua pihak.

Oleh itu, sistem ini diperlukan untuk memudahkan pelajar menempah pengangkutan. Untuk sistem ini, pengangkutan yang digunakan adalah kereta dan van. Sistem ini akan menghubungkan pelajar dengan pemandu yang menyediakan perkhidmatan pengangkutan.

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LIST OF ABBREVIATIONS / TERMS / SYMBOLS

CD	Context Diagram
DFD	Data Flow Diagram
ERD	Entity Relationship Diagram
FYP	Final year project
SDLC	System Development Life Cycle
MIS	Management Information System
GPS	Global Positioning System

CHAPTER I

INTRODUCTION

1.1 Project Background

The world is trending towards IT based technologies and whole country is not left behind. The nature of transport needs makes it a key player in any viable economy. Owing to the possibilities that IT offers and the need for improved services. Transportation could simply be defined as the movement of people and goods from one location to another.

Transportation booking system is a system that helps UniSZA's students for booking a transportation through their own mobile or smartphone. In tembila, there is difficulties in finding transportation either for outing or rental. The students currently only can contact the driver using call and messaging only.

This can cause miscommunication between both parties. Therefore, this system is needed to ease students book the transportation. For this system, the transportation used are car and van. This system will link students to the driver who provide transportation services.

1.2 Problem Statement

Booking manually by calling or texting is not an ideal way for this day. Therefore, this application are able to ease students to make a booking. It will help by provide an application for students to do their booking automatically and more faster. The problems that the students reported before this are:

i. How to design and implement an application for booking transportation system that can ease students to make booking.
ii. Do this application can helps UniSZA's students for a better transportation booking system.
iii. How to develop an application that can connect between driver and student.

1.3 Objective

Below are few of objective that need to be achieved in developing this application.

i. To analyze the transportation booking system in UniSZA.
ii. To design the application transportation booking system.
iii. To implement the prototype for the testing teh functionality of the application.

1.4 Scope

The scope of this project are mainly focuses on the development of application for students to do their booking.Scope for this application are specifically for driver and students in Besut, Terengganu only.There are three main users for this application which are admin,drivers and students.

Admin

- Admin are responsible for the registration of the driver and student. Admin are able to make any changes by updating,deleteing and retrieve data.

Driver

- Driver will be able to register their service, can login and can approve the booking made by the students.

Students

- Students will be able to login, make a booking by filling the booking information provided by the system.

1.5 Limitation of Work

Every application has it own weaknesses and limitation. Below are listed the limitation of this application:

i. Only available in UniSZA Campus Besut

ii. The driver might be not available so students have to find another way for a transportation.

iii. The payment only can be made by cash.

1.6 Expected Outcomes

The expected outcomes for the Transportation Booking system is all the students are able to make their booking only through student's mobile phone.These results is to achieved the objective for this system which is to implement the application for the students. The results obtained will helps students and driver for a better transportation booking application.

CHAPTER II

INTRODUCTION

This chapter continue with the studies and reserach of transportation booking system system using mobile computing.. By using mobile computing,transportation booking system can helps UniSZA's students for booking a transportation through their own mobile or smartphone. In tembila, there is difficulties in finding transportation either for outing or rental. The students currently only can contact the driver using call and messaging only

2.2 Management Information System

Management Information Systems (MIS) is the study of people, technology, and organizations. A (MIS) can computerized database of financial information organized and programmed in such a way that it produces regular reports on operations for every level of management in a company. It is usually also possible to obtain special reports from the system easily. The main purpose of the MIS is to give managers feedback about their own performance; top management can monitor the company as a whole.

2.3 Mobile Computing

The most familiar aspect of mobile computing technology is the hand phone. About two decades ago, a hand phone was bulky and was only used for voice communication. It was merely an extension of the fixed line telephony that allowed users to keep in touch with colleagues. Now the hand phone is not only used for voice communication, it is also used to send text and multimedia messages. Future mobile devices will not only enable Internet access, but will also support high-speed data services..Mobile computing is a device that allow people to access data and any information in anytime and anywhere.It also can be called as a human-computer interaction.Mobile computing can be connectivity,social engagement and personalization at the same time..Platform use are exclusively for android user which

is as Android Based. This application will be develop using Web Based (HTML,PHP) and using Cordova to embedded it to the mobile phone as a platform in order to design interface and database also required for this application. Database will play their role once user make a selection on this application. All the data will keep safely in terms of security and privacy.

2.3.1 Technique Used

Technique used for this application is by using rule-based.Rule based is a technique that can store and manipulate knowledge in order to interpret information in useful way. Rule-based for this application will be applied in the login session for user to insert their username and password.If they are first time use this application,user needs to register first their details to be submitted in database.Advantages for using this technique are in term of its speed. Results of output can be obtained in a shortest time. Besides,rule-based technique is one of the accuracy and less error rate technique. Therefore,it will reducing the risk in term of accuracy.This technique will be applied for login and sign up section.

2.4 Application and system for transportation booking system

There are few system and application that already exist for transportation booking system. However , most of it is web based platform rather than mobile application. This is some of the existing application that are similar to this system.

2.4.1 Existing Application (GRAB)

There are certain application already exist for transportation booking such as GrabCar. GrabCar is your preferred app-based car with driver service, powered by the Grab mobile application to complement Grab's current service offerings by fulfilling unmet demand during peak hours. It is differ from my proposed system in terms of its navigation. GrabCar provided GPS for the destination.

Figure 2.1 : Interface of GrabCar application.

2.4.2 Existing System (Uber)

Uber is a technology platform. The Uber app connects driver-partners and riders. As a driver-partner, you use your own vehicle or a fleet partner's vehicle to pick up riders and drive them to preferred destinations in your city. You're paid a fare for each completed trip. Uber is quite similar with GrabCar app.

Figure 2.2 : Interface of Uber application.

2.4.3 Existing System (Lyft)

Lyft launched the original concept of rideshare in 2012. So what is a *rideshare*? The idea behind lyft and other rideshare companies is to provide a more technically advanced, cheaper alternative to taxi services, as well as make the ride more personal by enabling you to know who it is you will be trusting to drive you from point A to point B. The pink mustache or grill-stache was the original branding for lyft cars so that riders would be able to identify the car when it arrives to pick them up. The grill-stache has since been retired and replaced by a smaller, glow in the dark, pink dash-stache. What makes lyft different from other rideshares is that lyft provides detailed profile information on the driver and encourages you to make a social connection with them before, during, and even after your trip across town.

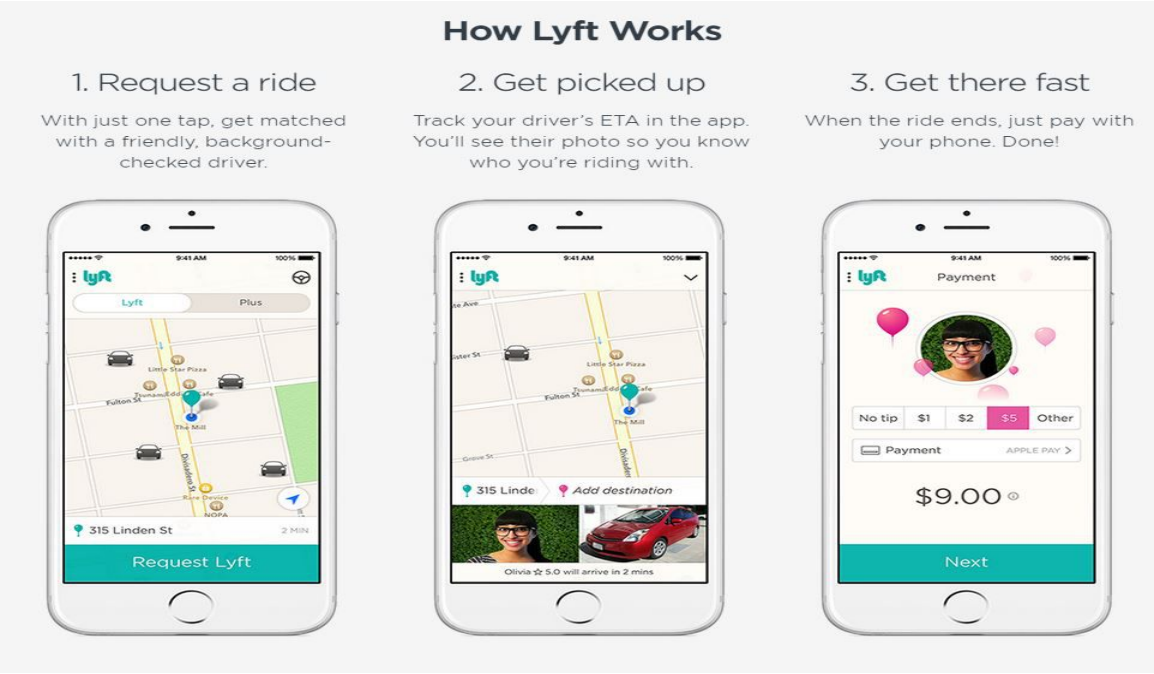

Figure 2.3 : Interface of Lyft application.

2.5 Research of studies

A few review on existing research paper were made. The research paper on transportation booking system mainly focus on the technique of the system. The table below include descriptions of the method used in the article.

Table2.1 : Description on methods used in Transportation Booking System.

AUTHOR	YEAR	TITLE	SUMMARIZATION	WAY OF IMPLEMENTED
D DAS and T NGOBENI	2015	Influence of Smart Mobile Travel Apps EnableTaxis on Local Urban Road TransportationSystems in Developing Countries	Local transportation in cities of developing countries has been a challenges. However, in recent times emergence of 'Smart Mobile Travel App' enabled taxi operations offered by service operators such as UBER, OLA, Meru, etc., are gradually becoming important parts of the local.	Rule Based
Saurabh Sinha,Kedar Dive, Akansha Meshram,Rutuja Nawghare,Pallavi Bind & Sarika Bongade	2016	Goods Transportation Application	Goods Transportation Application is going to play an important role in transportation.Transportation Systems is an active area of research and development in government, academic and industrial sectors.	• Parse Cloud Database • Global Positioni System (GPS)

Islah Mohammad Musleh2 , Saleh Mohammad Shafiq3	2017	Car4U Transportation Service - Modern Technology Based Alternative Ride Solution for Passengers to Travel Across Malaysia	This conceptual solution can give benefits and provides new opportunities for people in Malaysia by making it possible for everyone to travel across. Car4U many value propositions for customer such as ideal driving, cheap price, on time arriving, “drive and drop your car” and donation for poor people.	Rule Based

2.6 Summary

To be conclude, literature review gave the details and some research of the related studies. Using mobile computing is also one of an effective way for donors out there to donate instead of using system .Despite that, it is also a nowadays trend that everyone is using mobile in their daily live. So, this will not become a problem for user to use the mobile and admin no need to prepare user’s manual to guide them on how to use. Because people nowadays are already in IT generation.

CHAPTER III

INTRODUCTION

The research methodogy is essential to ensure the research objectives can be achieved. There are a variety of methodologies that can be implemented to assist in the development of the system. Selection of methodology to be used should be compatible with the system which is being developed. The methodology can be divided into two which are Research methodology and System Methodology. Transportation Booking System via Mobile Computing will be carried out using a model of Water Fall methodology prototype.

3.2 System Development Life Cycle (SDLC)

A system development life cycle is composed of a number of clearly defined and distinct work phases which are used by system engineers and developers to plan for design,buld,test and deliver information system. With an SDLC Model, developers will have a clear idea on what should be or should not be built. Since they are already have an idea on the problems that should be answered, a detailed plan could be created following a certain SDLC model. The advantage of having SDLC is to minimize the time taken to develop a system. Without an SDLC model to follow, develpers can have a freee hand of developing software.

3.2.1 Water Fall Software Development

Water Fall Model used by a system analyst to develop an information system,including requirements, validation,training and user. Each phase should be completed and repeated in parallel with the system requirements and the needs of users of the system. Therefore, the planning work should be addressed to ensure the planned work well enough without repeating the same process. In water fall, the tasks are divided to few phases to deliver specific features for a release.

Water Fall phases includes:

1. Requirement and Analysis
2. System Design
3. Implementation
4. Testing
5. Deployment
6. Maintenance

Water Fall Model phases shown in Figure3.1.

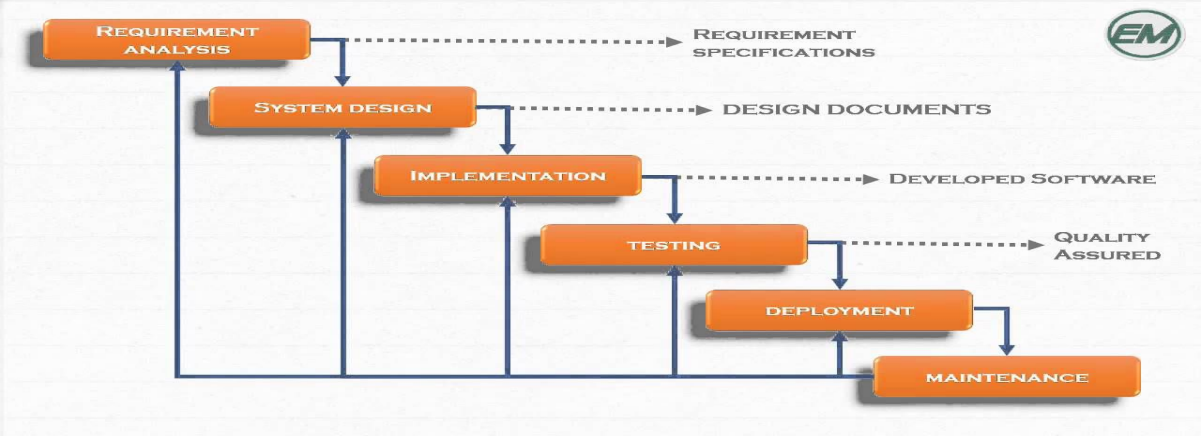

Figure 3.1 : Water Fall Model phases.

3.2.1.1 Requirement and Analysis Phase

This phase is to encompass the task that go into determining the needs or condition to meet for a new or altered product and also identify the stakeholeder of the software development. This phase important to identify the high-level scope, initial requirement stack and identify an architectural vision. Analyse user needs and determine the core functionality including creating a detailed of the necessary functional and non-functional requirement.

In this phase, collecting and gathering all the infromation regarding this project,such as research paper , article or journal on management information system and the method proposed are needed.

3.2.1.2 System Design Phase

Design is where the technical of the system i created by. Designing the technical architecture is b choosing hardware and software that will be best suit the system and future needs. All inputs, processing and outputs of each within the application will be documented.

3.2.1.3 Implementation Phase

System implemntation phase involved the detailed design specification for the system development, testing and installation of the new system.

3.2.1.4 Testing Phase

System testing phase is concern about using testing the new system. During this phase the system is being tested and the new application is installed for user to use it. As time goes by, thing change and a specific part of a program might need to repair.

3.2.1.5 Deployment of The System Phase

The system is deployed at the user side, after it has undergone through testing. After the deployment of the system, routine maintenance work is carried out. Once the system has been deployed, in case the user asks for any changes or enhancements, then the entire process is restarted.

3.2.1.6 Maintenance Phase

Software maintenance in software engineering is the modification of a software product after delivery to correct faults, to improve performance or to adapt the product to modified environment.

3.2.2 Justification Selection of Methodology

This methodology is selected because it involves the development of the system and appropriate with the Transportation Booking System via Mobile Computing. This methodology is also practical and not too hard to be implemented. With this Water Fall Model methodology, I have a clear documentation of development, structure and coding.

3.3 Framework and Design

Framework and designs of Transportation Booking System via Mobile Computing is presented in a more understandable way via diagrams and icon.

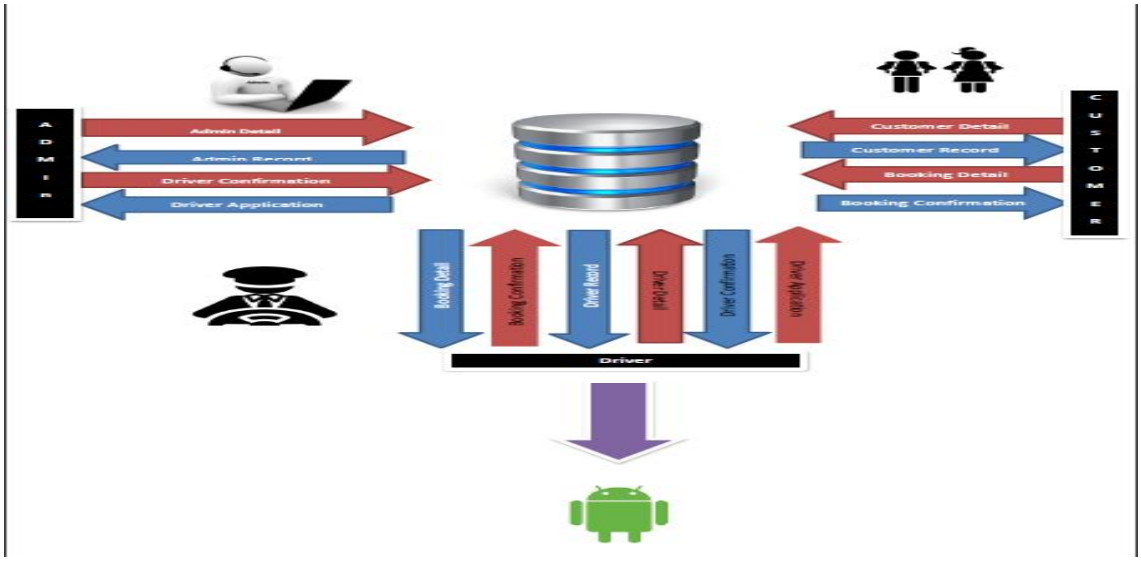

Figure 3.2 : Framework Design for Transportation Booking System

3.4 Design

3.4.1 Context Diagram

Figure 3.3 shows the Context Diagram for Transportation Booking System. Since Transportation Booking System involve three entity which are Admin, Driver and Student, the context diagram will explain much about the flow between those three entity and what are they are capable of to do with their own authorization.

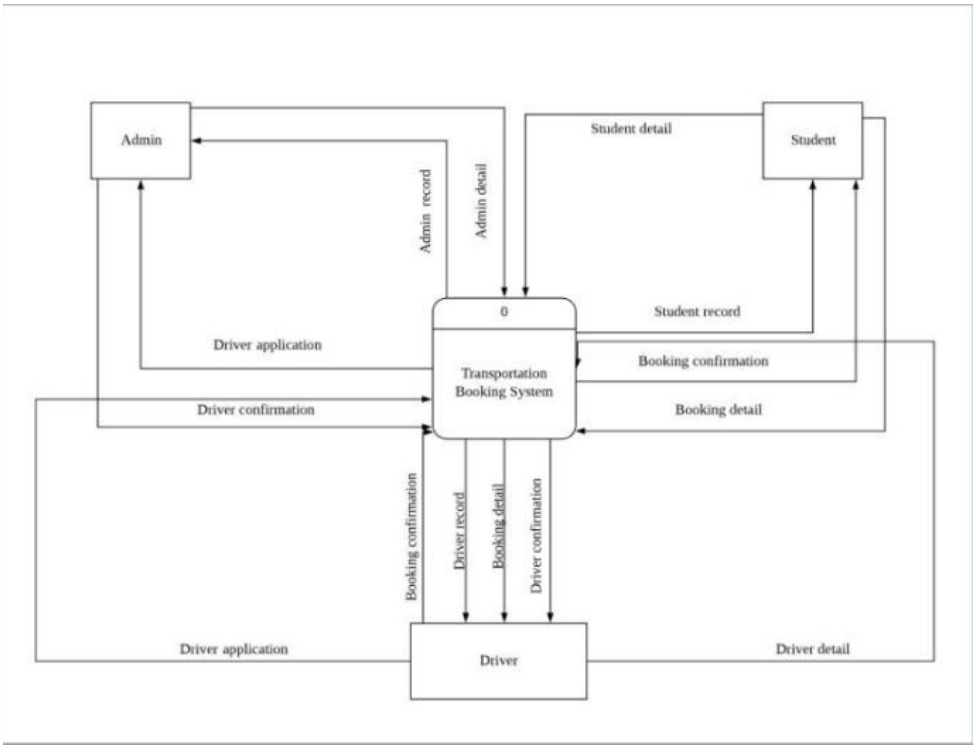

Figure 3.3 : Context Diagram for Transportation Booking System

3.4.2 Data Flow Diagram (Level 0)

Figure 3.4 shows an in-depth processes flow of the system based on Context Diagram that had just being explained before. This is where details functionality will be stretch out for better understand what the systems do.

There are six process involve in Transportation Booking System which are Student Profile,Driver Profile,Registration,Approval,Booking and Report. There are four data store involve which are administrator,student,driver and booking.

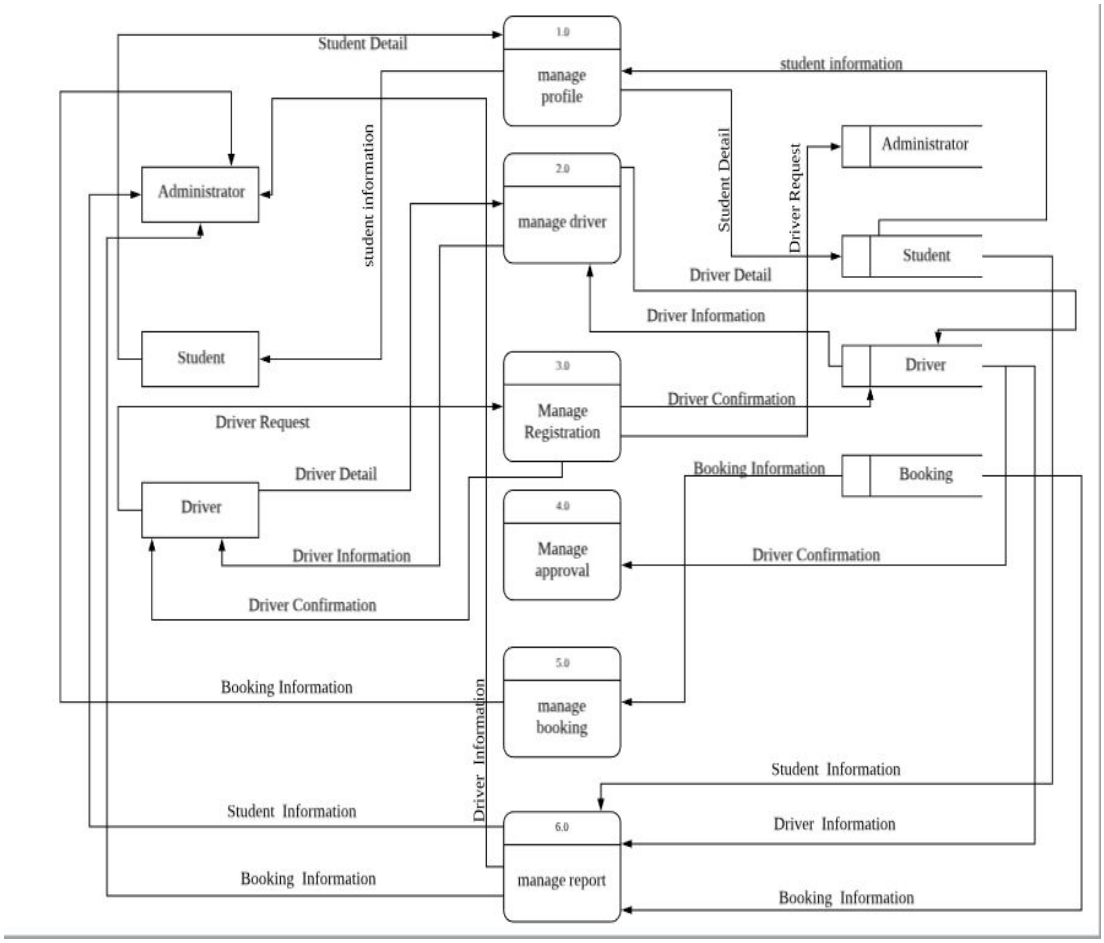

Figure 3.4 : Data Flow Diagram for Transportation Booking System.

3.4.3 Data Flow Diagram (Level 1)

3.4.3.1 Manage Profile

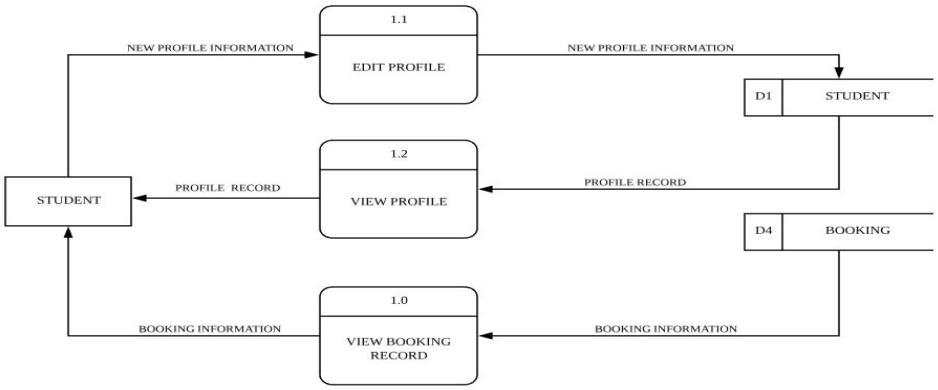

Figure 3.5 : DFD Level 1 for Manage Profile process

3.4.3.2 Manage Driver

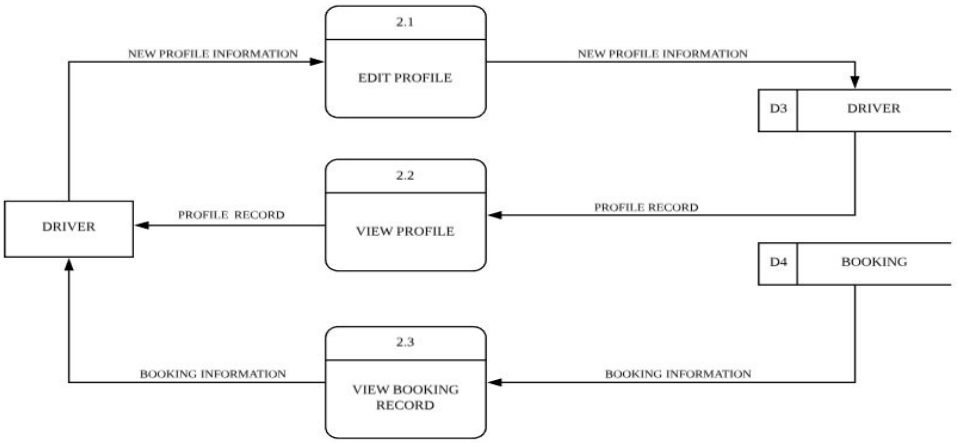

Figure 3.6 : DFD Level 1 for Manage Driver process

3.4.3.2 Manage Registration

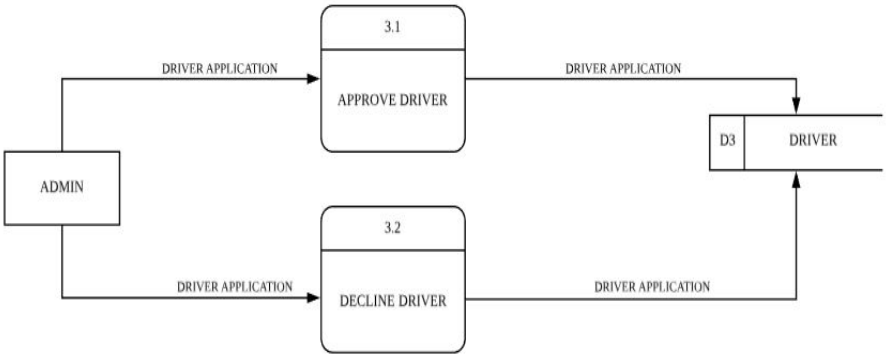

Figure 3.7 : DFD Level 1 for Manage Registration process

3.4.3.2 Manage Registration

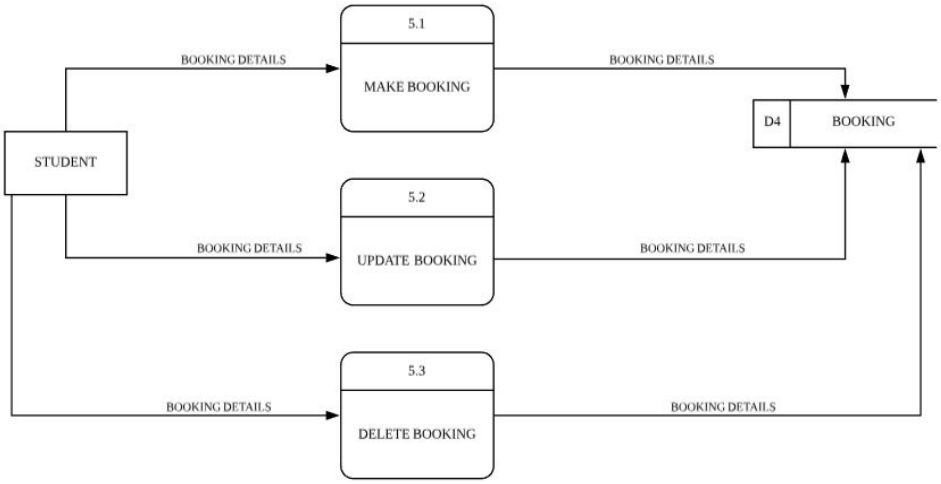

Figure 3.8 : DFD Level 1 for Manage Booking process

3.4.3.2 Manage Report

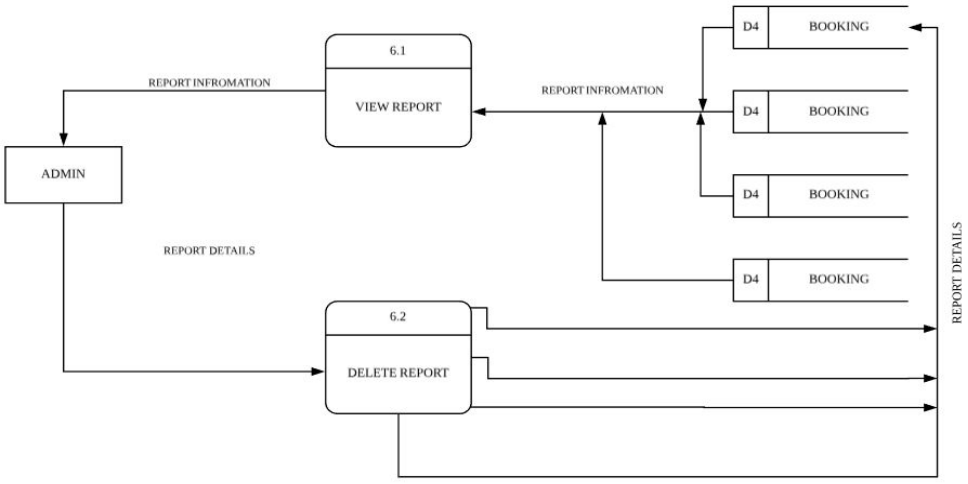

Figure 3.9 : DFD Level 1 for Manage Report process

3.5 Conceptual Design

3.5.1 Figure 3.5 shows the entity and attribute one to another. All tables are normalized to a satisfactory level as shown above. There are three entity consist of Admin,Driver and Student.

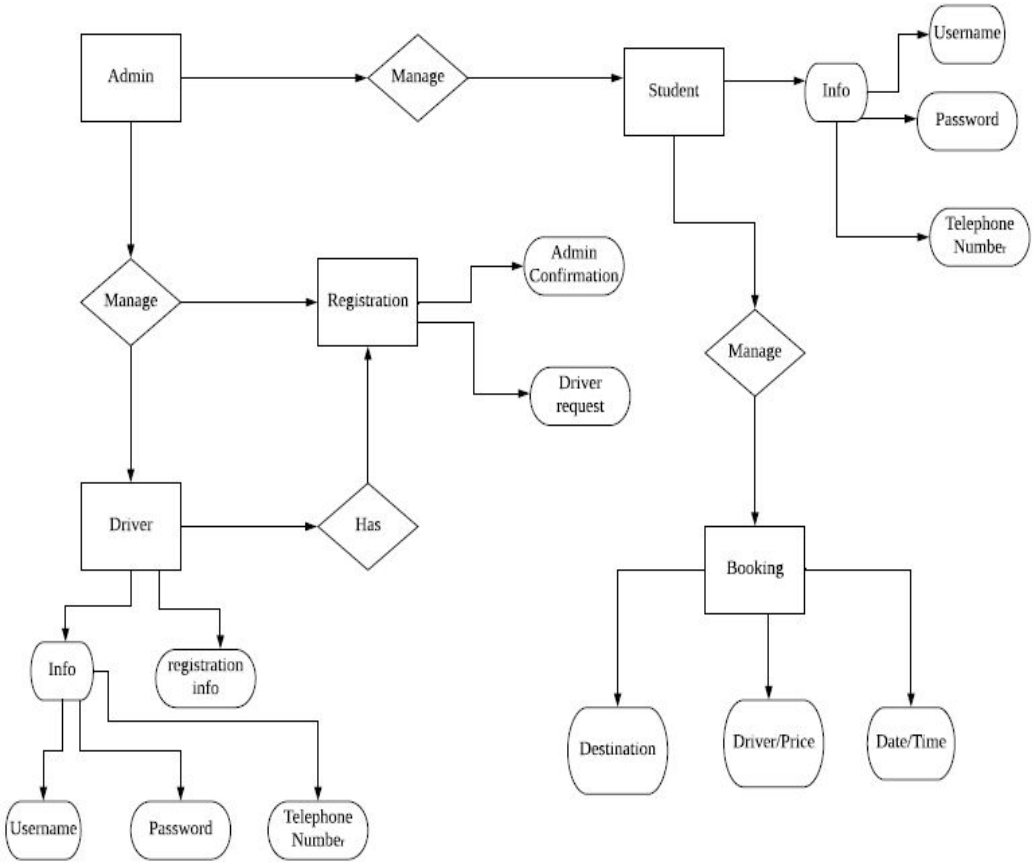

Figure 3.5 : Entity Relationship Diagram for Transportation Booking System

3.6 Data Dictionary

A database is a collection of information that is organized so that it can be easily be access, manage and update. Each attribute displayed in the ERD will be describe in this section.

3.6.1 Table admin

Table 3.1 shows the attributes in Table admin.

Table 3.1 : Details of admin's table in Transportation Booking System.

Column	Types	Null	Default	Links to
Username	Varchar (50)	No	None	
Password	Varchar (50)	No	None	

3.6.2 Table customer

Table 3.2 shows the attributes in Table customer

Table 3.2.1 : Details of customer's registration table in Transportation Booking System.

Column	Types	Null	Default	Links to
Name	Varchar (50)	No	None	
Last Name	Varchar (50)	No	None	
Email	Varchar (50)	No	None	
Phone No	Varchar (50)	No	None	
Password	Varchar (50)	No	None	

Table 3.2.2 : Details of customer's booking form table in Transportation Booking System.

Column	Types	Null	Default	Links to
Departure Date/Time	Varchar (50)	No	None	
Return Date/Time	Varchar (50)	No	None	
Pick Up Address	Varchar (50)	No	None	
Destination Address	Varchar (50)	No	None	
Journey Type	Varchar (50)	No	None	

3.6.3 Table driver

Table 3.3 shows the attributes in Table driver.

Table 3.3.1: Details of driver's registration table in Transportation Booking System.

Column	Types	Null	Default	Links to
Name	Varchar (50)	No	None	
Last Name	Varchar (50)	No	None	
Email	Varchar (50)	No	None	
Phone No	Varchar (50)	No	None	
Password	Varchar (50)	No	None	
Vehicle No	Varchar (50)	No	None	
Vehicle Type	Varchar (50)	No	None	
Upload License				

Table 3.3.2 : Details of driver's booking record table in Transportation Booking System.

Column	Types	Null	Default	Links to
Customer Name	Varchar (50)	No	None	
Email	Varchar (50)	No	None	
Customer Phone No	Varchar (50)	No	None	
Departure Date/Time	Varchar (50)	No	None	
Return Date/Time	Varchar (50)	No	None	
Pick Up Address	Varchar (50)	No	None	
Destination Address	Varchar (50)	No	None	
Journey Type	Varchar (50)	No	None	

3.7 Summary

In this chapter, the explaination is all about how the system is designed which includes Context Diagram, Data Flow Diagram and Entity Relationship Diagram. Each activity in this chapter plays an important role. This method was chosen because it encourage straight forward results.

CHAPTER IV

INTRODUCTION

This chapter will discuss about the implementation of the Transportation Booking System via Mobile Computing. Above all this system have three different interfaces, for Administrator , Driver and Student.

4.2 Graphical User Interface Module

This integration module describe the function and process stated in DFD in chapter 3.

4.2.1 Main page

Screenshots 4.1 shows the main page of Transportatin Booking System via Mobile Computing. This main page consists of information about the system and provided button for driver and student to proceed using this system. The main page only elaborate a brief explaination about the system.

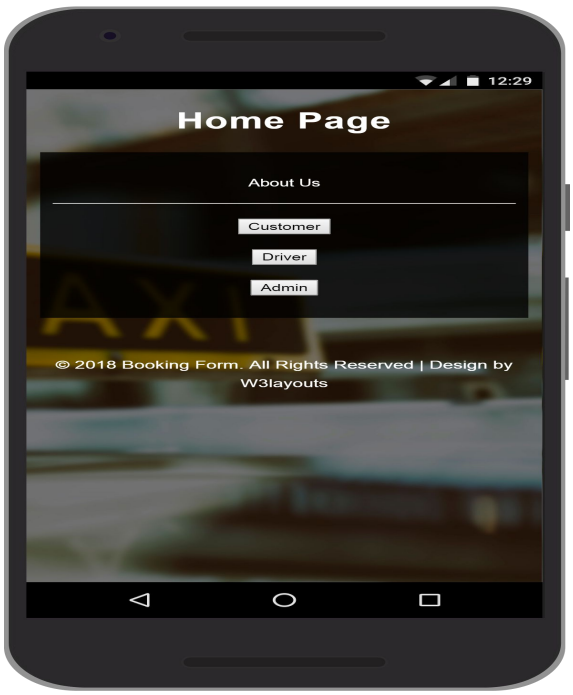

Figure 4.1 : Main Page of Transportation Booking System via Mobile Computing

4.2.2 Register Page for Student

This register page is for a student to sign up for their first time use this system. The screenshot 4.2 shows an interface that included name, last name, user name email, phone no and password informatuon of the student.

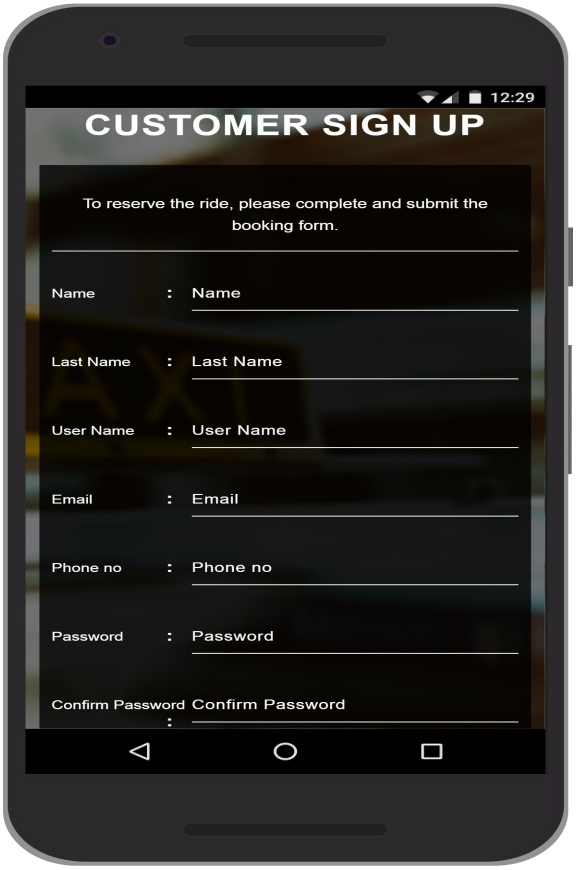

Figure 4.2 : Student's Registration Page

4.2.3 Booking Form for Student

This booking form is where student can book their transportation by filling the details needed. It contain of departure date/time, return date/time, pick up address, destination address and journey type information. Sreenshot 4.3 shows the interface for student's booking form.

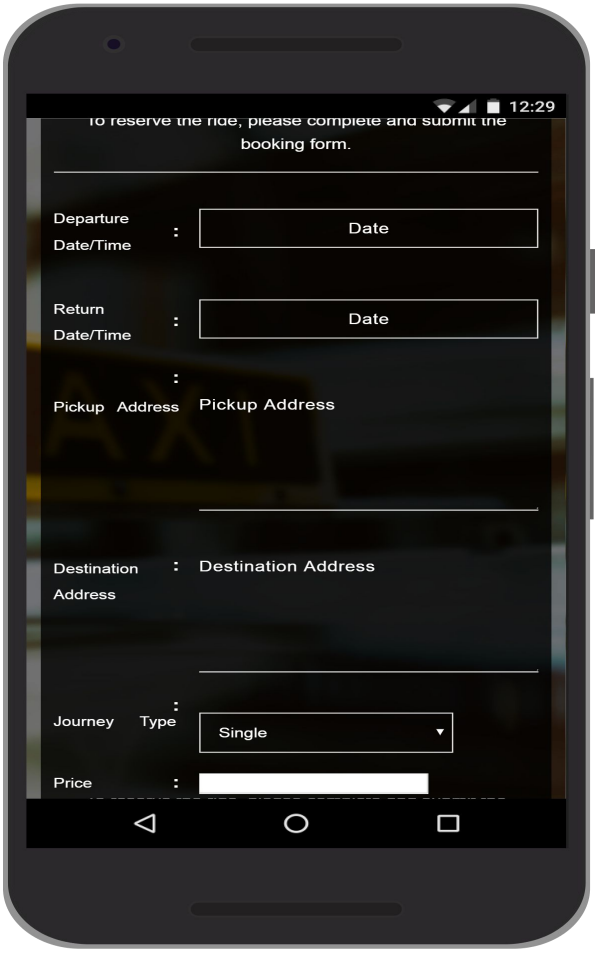

Figure 4.3 : Student's Booking Form

4.3 Summary

This chapter briefly discuss about the implementation of interface,coding and testing. For my final year project 1. I finished my prototype in the form of interface. I managed to do the interface for student. My final year project implementation and output will be proceed to the next phase which is the coding and testing process.

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