

**BUS BOOKING SYSTEM
(BBS)**

SITI NOR ATIQA H BINTI MAT ZIN

**Bachelor of Computer Science (Computer
Systems & Networking) with Honors**

UNIVERSITI MALAYSIA PAHANG

UNIVERSITI MALAYSIA PAHANG

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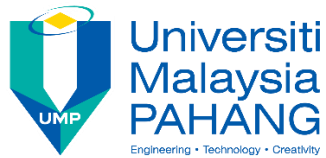
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Date : 3 May 2018

BUS BOOKING SYSTEM (BBS)

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Thesis submitted in fulfillment of the requirements
for the award of the degree of
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ABSTRAK

Sistem Tempahan Bas (BBS) adalah aplikasi berasaskan web yang dibangunkan untuk memperbaiki sistem yang sedia ada yang digunakan oleh penumpang bas untuk menempah bas. Perkembangan sistem ini adalah untuk membantu penumpang bas menempah bas dalam talian dan juga membantu pentadbir menyimpan maklumat tempahan dalam pangkalan data. Sistem yang dicadangkan membantu mengatasi masalah tempahan bas manual yang menyusahkan dan memerlukan lebih banyak masa dan tenaga. Projek ini memberi tumpuan kepada penumpang bas di UMP Gambang yang meliputi pelajar dari pelbagai fakulti, kursus, tahun pengajian dan destinasi mereka. Sistem ini ditulis menggunakan bahasa pengaturcaraan HTML, CSS, PHP dan JavaScript. Pembangunan aplikasi pesat (RAD) adalah metodologi yang digunakan dalam pembangunan aplikasi ini. RAD terdiri daripada empat fasa perancangan keperluan, reka bentuk pengguna, pembinaan, dan pemotongan / peralihan. Semua fasa ini adalah garis panduan dalam membangunkan sistem ini. Selepas pembangunan sistem, pengguna akan diberikan ujian penerimaan pengguna (UAT) untuk memastikan setiap fungsi dalam sistem ini berfungsi dengan baik. Kelebihan sistem ini ialah BBS menggantikan versi tempahan bas buku sebelumnya dengan membolehkan pengguna membuat tempahan bas dalam talian yang boleh dibuat di mana sahaja dan bila-bila masa. Dengan menggunakan BBS, pengurusan proses tempahan akan lebih teratur kerana semua maklumat dan data akan dimasukkan ke dalam sistem dan disimpan dalam pangkalan data. Akhir sekali, galakan interaksi manusia-komputer. Daripada interaksi manusia ke manusia, tempahan dalam talian (BBS) akan menggalakkan pengguna berinteraksi dengan komputer.

ABSTRACT

The Bus Booking System (BBS) is a web-based application that is developed to improve the existing systems which is used by bus passengers to book the bus. The development of this system is to help bus passengers to book the bus online and also help the administrator to store the booking information in the database. The proposed system helps to overcome the problems of manual bus booking that are inconvenient and required more time and energy. This project focuses on bus passengers at UMP Gambang which covers students from different faculty, course, year of study and their destinations. This system is written using HTML, CSS, PHP and JavaScript programming language. Rapid application development (RAD) is a methodology used in development of this application. The RAD consists of four phases of requirements planning, user design, construction, and cutover/transition. All these phases are guidelines in developing this system. After development of the system, user will be given user acceptance test (UAT) to ensure every functions in this system work properly. The advantages of this system is that BBS replaced the previous version of manual bus booking by enabling users to make online bus booking that can be made anywhere and anytime. By using BBS, the management of the booking process will be more organised as all the information and data will be inserted into the system and stored in the database. Last but not least, encouragement of human-computer interaction. Rather than human-to-human interaction, the online booking (BBS) will encourage users to interact with computers.

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LIST OF ABBREVIATIONS

BBS	Bus Booking System
RAD	Rapid Application Development
SAffAD	Student Affairs & Alumni Department
UMP	Universiti Malaysia Pahang

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Basically, Universiti Malaysia Pahang (UMP) bus service is important for UMP students who need to conduct any activities regarding academic or non-academic outside the campus areas. Definitely, there consists a lot of benefits to use UMP bus service includes the price of the bus booking is much cheaper than outside buses. Besides, save time from having to make a survey of the most affordable and comfortable buses outside the campus. Furthermore, using the UMP bus service is more safe because it is trustable rather than having to deal with people outside that you do not even know their background.

Considering that matter, bus booking system is introduced. The best version of bus booking is through a well-developed system rather than manually booking. UMP bus service is one of the services that needed to use the booking system. Student tend to book the UMP bus whenever they have any activities or programs that required them to be outside of the campus. Furthermore, UMP bus is meant for UMP students whether for academic or co-curriculum. However, currently the students need to manually book the bus by fill in the booking form, send it to the person in charge for the bus booking management, and waiting for the approval which are required a lot of work to do and inefficient. This method of booking is barely efficient as the booking status might not be known by the students whether it is already accepted or otherwise. Other than that, staff has to save all the booking information and documents manually which require time and effort. Concerning these matters, this project proposes a Web-Based Bus Booking System. The system enable students to do the online booking. Students no longer have to waste their time going to the UMP bus booking department to book the bus. Every

students that want to book the bus should consider to use this website to make sure they do a smart choice, journey plan, promote ease of operation, and save their time. This website will be convenient to be used by people which have the access to any types of devices. Utilizing this website, students can remain in peace, ease, avoiding delays instead of having to book the bus and wait for the booking confirmation manually.

1.2 Problem Statement

The problems that occur with the current method of booking is that firstly, students have to make a booking manually. At first, students have to download the form and fill in all the information needed. Then they need to submit the form to the SAffAD to get the approval. This kind of method is totally inefficient and waste time when it can be done online and anywhere as long as you have devices and internet access. For those that always busy and on-the-go person, they might not have the time to go to the SAffAD. And for those that do not have transportation, it is quite tiresome having to walk to the SAffAD.

Secondly, SAffAD staff has to store the booking information manually. In order to keep the booking information, staff has to keep all the booking documents or save the booking information in the computer manually. This will require effort and time.

Lastly, students are unable to check the availability of the bus. Basically, students do not have the ability to check the availability of the bus whether it is full booked or otherwise. The bus availability status remains unknown until further notice from SAffAD.

Concerning these matters, this project proposed a BBS which addresses the stated issues. The highlighted issues is summarized in Table 1.1.

Table 1.1 : Summary of Problem Statement

NO	PROBLEM	DESCRIPTION	EFFECT
1	Students have to make a booking manually.	First, students have to download the form and fill in all the information needed. Then they need to submit the form to the SAffAD.	Inefficient and waste time when it can be done online.
2	SAffAD staff has to store the booking information manually.	In order to keep the booking information, staff has to keep all the booking documents or save the booking information in the computer manually.	Require effort and time.
3	Students are unable to check the availability of the bus.	Basically, students do not have the ability to check the availability of the bus whether it is available or not.	The bus availability status remains unknown until further notice from SAffAD.

1.3 Objectives

The objectives of this project are :

- i. To design a web based bus booking system for UMP Bus students.
- ii. To develop a web based bus booking system that can store the booking information in the database.
- iii. To evaluate the effectiveness of the developed web based system by conducting User Acceptance Test.

1.4 Scope

The scope of the project is to create and develop a website for Bus Booking System. The other related scopes for this project are also important in order to make sure the system runs smoothly. It can be describe as follow :

- i. The project focuses on bus passengers at UMP Gombang which covers students from different faculty, course, year of study and their destinations.
- ii. The identified users of this application are Admin (SAffAD) that will control and manage the system, and the UMP students that will use the system and its features.
- iii. The system can only be used by students that have internet access in their laptop or mobile phone.
- iv. The project was written in HTML, CSS, PHP and JavaScript using the Notepad++ editor tool.
- v. The PhpMyAdmin is used to manage the database of the BBS.

1.5 Significance

The benefits of developing this application are :

- i. The system is beneficial to the students as it will help the students to make a bus booking online which make life easier.
- ii. The staff can easily store the booking information and document in the database and computer.
- iii. The bus availability checking is another efficient function to make it possible for students to know if the bus is available or not.

1.6 Thesis Organization

This thesis contains five chapters. Each chapter consists of different information about the project-based. In Chapter 1, introduction to the project background with a problem statement, objectives, research questions, significance, scope are described. Chapter 2 contain of research and literature review regarding the project. Other than that, it also consists of the comparison between this project and the existing project/system. Chapter 3 includes the project analysis, design, methodology are presented and supported by graphical representation and diagram. Next, in Chapter 4 it will discuss on the system design phase, result and discussion. Lastly, in Chapter 5 will be the summary of the project based on data that have been observed.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review on the existing works regarding the Bus Booking System (BBS). Novice researchers tend to approach the literature review as nothing more than a collection summaries of papers or an elaborated annotated bibliography of multiple research manuscripts (Levy & Ellis, 2006). The literature review consists of three parts. The first part is about the description of the three existing systems that currently used by the students for the bus booking. The second part is the explanation of some of the development tools that are suitable to be adapted into the project development. The last part is the comparison between the three existing systems and development tools based on system types, functionality, advantages, disadvantages, and user-friendly features.

2.2 Existing System

The existing system can help developer to identify the advantages and disadvantages of the current system that can be improved for a better new system. There are three existing systems that are currently used by the bus passengers that will be described. These systems are related to the Bus Booking.

2.2.1 UMP Manual Bus Booking

UMP Manual Bus Booking is an existing way to make a bus booking in UMP. The first thing that you need to do for booking the bus is by downloading the booking form at SAffAD website or you can get it from SAffAD. Then, you have to fill in all the required information in the form. After that, you can submit the form to the person in

charge at the SAffAD. Your booking request will be process within several days to be approved. You can get the contact number from the SAffAD in order to keep in touch with them regarding the booking status whether it is accepted or rejected. The good sides of this manual kind of method is that you do not really need the internet connection to make the bus booking plus you can directly ask the person in charge at the SAffAD if you have any unclear thoughts regarding the booking. Unfortunately, this manual kind of method is so inefficient for long term use. Furthermore, it required students time and energy as they need to do few steps to booking the bus. Figure 2.1 & 2.2 show the details of UMP Manual Bus Booking.



BORANG PERMOHONAN KENDERAAN

PEMOHON DIKEHENDAKI MEMBACA SYARAT-SYARAT AM PERMOHONAN DENGAN TELITI SEBELUM MENGEMUKAKAN PERMOHONAN

- 1) Permohonan adalah terbuka kepada semua **PELAJAR & STAF** Universiti Malaysia Pahang bagi tujuan rasmi/program Universiti. Pemohon dikehendaki mengisi borang tempahan kenderaan yang disediakan. Permohonan yang tidak lengkap dan tidak mematuhi syarat-syarat tidak akan diluluskan.
- 2) Permohonan **MESTI** dilampirkan dengan **Surat Kelulusan Aktiviti / Surat Program, senarai nama & id penumpang** dan tentatif program.
- 3) Borang hendaklah dikemukakan 7 hari sebelum tarikh penggunaan bagi perjalanan dalam negeri Pahang manakala 14 hari bagi perjalanan luar negeri Pahang. **BORANG YANG LEWAT DITERIMA TIDAK AKAN DILAYAN.** Keutamaan akan diberikan kepada penggunaan kenderaan atas urusan rasmi dan mengikut kepentingan keperluan.
- 4) Permohonan pelajar disyaratkan mempunyai sekurang-kurangnya seorang Pengiring yang terdiri daripada wakil UMP kecuali bagi perjalanan yang jaraknya sekitar 30 km dari UMP.
- 5) Semua permohonan hendaklah disokong oleh **Dekan / Ketua Jabatan / Penasihat / Pegawai** terlibat dan mendapat kelulusan daripada TNC HEPA..
- 6) Pembatalan dan perubahan masa terhadap permohonan kenderaan yang ditempah hendaklah diberitahu selewat-lewatnya 48 jam sebelum masa penggunaan. Pihak Unit Pengurusan Kenderaan berkuasa memberikan kenderaan yang difikirkan sesuai mengikut tempahan.
- 7) Pengguna tidak dibenarkan membuat perjalanan ke tempat lain selain daripada yang tercatat di dalam borang permohonan penggunaan kenderaan.
- 8) Tempahan akan terbatal dengan sendirinya sekiranya pengguna tidak berada di tempat yang ditetapkan selepas 15 minit dari masa yang telah ditetapkan. Kos yang timbul akibat pembatalan tersebut akan dituntut dari pemohon.

Figure 2.1 : UMP Manual Bus Booking Form

**BORANG TEMPAHAN KENDERAAN UNIVERSITI MALAYSIA PAHANG
(UNTUK KEGUNAAN PROGRAM / AKTIVITI RASMI SAHAJA)**

TEMPAHAN

- 1) Jenis Kenderaan : _____
- 2) Tarikh Bertolak : _____ 3) Masa Bertolak : _____
- 4) Tarikh Pulang : _____ 5) Masa Pulang : _____
- (Silu nyatakan tempat/alamat dituju jika melintai / destinasi- destinasi tempahan) :*
- 6) Dari Tempat : _____
- 7) Alamat Dituju : _____
(Silu nyatakan alamat yang lengkap. Lampirkan surat / aturcara / surat/ program atau yang berkaitan)
- 8) Tujuan & Nama Program : _____
- 9) Jenis Aktiviti : Akademik / Ko-Kurikulum *
- 10) Bilangan Penumpang : _____
- 11) Nama Penumpang & KP/No. Matriks : _____
(Silu nyatakan bilangan penumpang melebihi seorang. Tempa temaklah kepada semua jenis kenderaan)
- 12) Adakah Penginapan atau Makan/Minum disediakan kepada Pemandu : _____
- Penginapan: _____ Disediakan/ Tidak Disediakan *
- Makan/Minum : _____ Disediakan/ Tidak Disediakan *

SAYA MENGAKU SEGALA KETERANGAN DI ATAS ADALAH BENAR BELAKA. SAYA JUGA FAHAM DAN AKAN MEMATUHI SYARAT-SYARAT DAN PERATURAN-PERATURAN MENGGUNAKAN KENDERAAN SEPERTI YANG TERCATAT DALAM SYARAT-SYARAT AM PENGGUNAAN KENDERAAN RASMI UNIVERSITI

Tandatangan Pemohon : _____

Nama Pemohon : _____ No. Telefon Utk.DitHubungi : _____

Fakulti/Jabatan : _____ No. ID : _____

*** KETUA PELAJAR (NAMA DAN NO.TEL) : _____

<p>Disokong Oleh :</p> <p>_____</p> <p>(T/Tangan dan Cop Rasmi Dekan / Ketua Jabatan / Penasihat / Pegawai terlibat)</p>	<p>Disokong dan Disahkan Oleh :</p> <p>_____</p> <p>(T/Tangan dan Cop Rasmi TNC (JHEPA) / Wakil Kuasa</p>
--	---

** Potong yang mana tidak berkenaan*

UNTUK KELULUSAN

Pemohonan kenderaan diluluskan / tidak diluluskan*

(T/Tangan : Peg. Pengangkutan/ Wakil Kuasa (JPPH)

Catatan :

Figure 2.2 : UMP Manual Bus Booking Form

2.2.2 City Express

City Express is a website that basically just displayed the information about the company history like when they are established, what services they offered, their specialty and other values that will attract people to use their services. Other than that, you can also view the information about the bus that they offered such as tour bus and express bus. The details include the trip, the coach types (first class, business class and normal), and the function of the buses. It also has a promotion section but unluckily it

does not really help you to check the promotion that they offered. Apart from that, the website displayed the address, email, fax, and contact number of their company. Besides, they also displayed the contact number of the bus counter of their branches in Malaysia and Singapore. You have to contact them in order to make a booking. Figure 2.3, 2.4 & 2.5 show the main features of City Express.

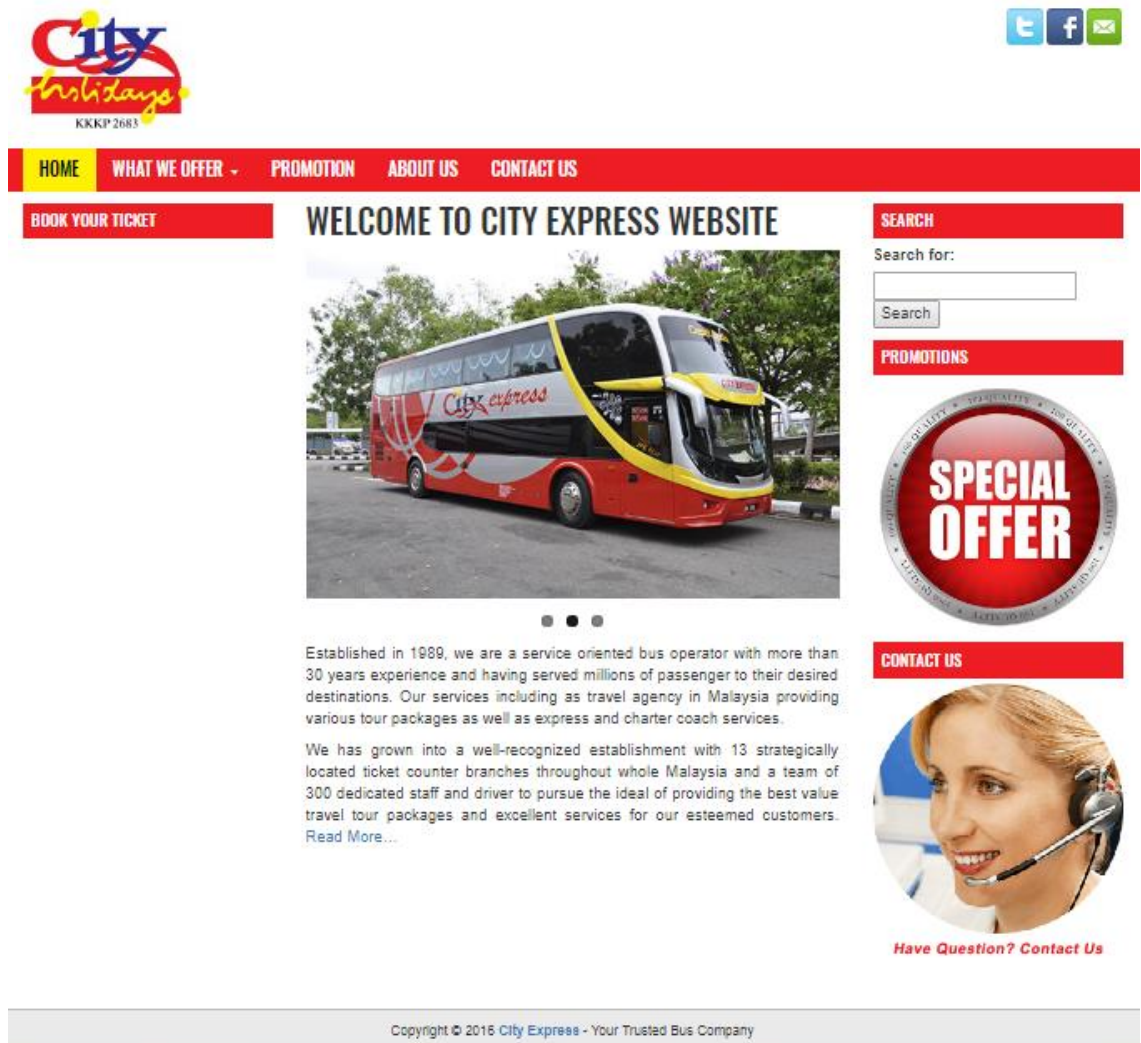


Figure 2.3 : Main Features of City Express

HOME
WHAT WE OFFER ▾
PROMOTION
ABOUT US
CONTACT US

BOOK YOU

PUBLIC TRANSPORT (BAS EXPRESS)

TOUR SECTOR (BAS PERSIARAN)

C TRANSPORT (BAS EXPRESS)

Daily scheduled coach express services cover all major cities and towns in peninsular Malaysia as well as Hatyai, Thailand in the north and Singapore in the south.

- We provide coach services for individual travelers, backpackers and commuters of Singapore to various destination in West Malaysia, and vice versa during the specific time that we had specially scheduled for our passengers at their convenience.
- Currently only our company provides frequent trips, scheduled from Larkin Terminal Johor Bahru to Puduraya Terminal Kuala Lumpur start from daily 6am to 1am. Around 20 trips per-day.
- Our commitment to ensure the best services to our customer to has prompted us to operate our bus trips and ticketing offices throughout the year, including rest and public holidays.
- Currently we have the different coach types are as follows :
 First Class / SVIP Class – 40 seats Double Deck, 3 seats in a single row air – con coach. It's equipped with a big 29 inches LCD TV in front on upstairs, a 19 inches in the middle, for downstairs have 2 set of 19 inches LCD TV where passengers can choose the latest movies and music.

Business class/ VIP Class– luxurious 31 seats, 3 seats in a single row air-con coach.

Normal: – 38 seats or 44 seats, 4 seats in a single row air-con coach. This coach is for inter – city travel in Malaysia.


- We pay attention on reliability, as our company has reputation of leaving and arriving on scheduled time so, to our customers; they have peace of mind knowing the bus they are traveling in is punctual.
- We always provide quality, safety, comfort and reliability service to our customer. Our skillful, friendly drivers and staff are ready to serve you better whether they are on the road or from any of our offices. Our aim is to provide total satisfaction to our clients observing Safeness & Comfort.
- In the very near future, we shall launch our online ticketing service, enabling customer to purchase bus tickets via internet, any time at the leisure of your home, office or anywhere in the world.
- Our loyal customer membership, a privileged group enjoying discounted ticket rates and other promoted item or services from time to time.
- The routes of express bus are in and around the area such as:

SEARCH


Search for:

Search

PROMOTIONS



CONTACT US



Have Question? Contact Us

Figure 2.4 : Main Features of City Express



Figure 2.5 : Main Features of City Express

2.2.3 Bus Best

This website is used to get as much as possible the information about the bus before you start to make a booking. This website is better compared to City Express website as it provides you more information that you will be needed. But still, some functions was not showing the result properly and make users pretty confuse to use it. For example, for Contact option when you click it will show unrelated information and also not show clearly how to contact them. But the contact info is at the bottom of the page. User has to scroll down until the bottom of the page to get the contact information.

It can be considered as not user-friendly. Basically, all the information about the booking, services and others are displayed at Home page. It was too much information in one page and not fit to the screen that require user to keep on scrolling down to get another information. The part that I want to highlight is, this website is not really providing the booking system for it user. But you can send a booking request in the system and they will inform you via your phone number or email regarding the request. Figure 2.6, 2.7 & 2.8 show the main features of Bus Best.

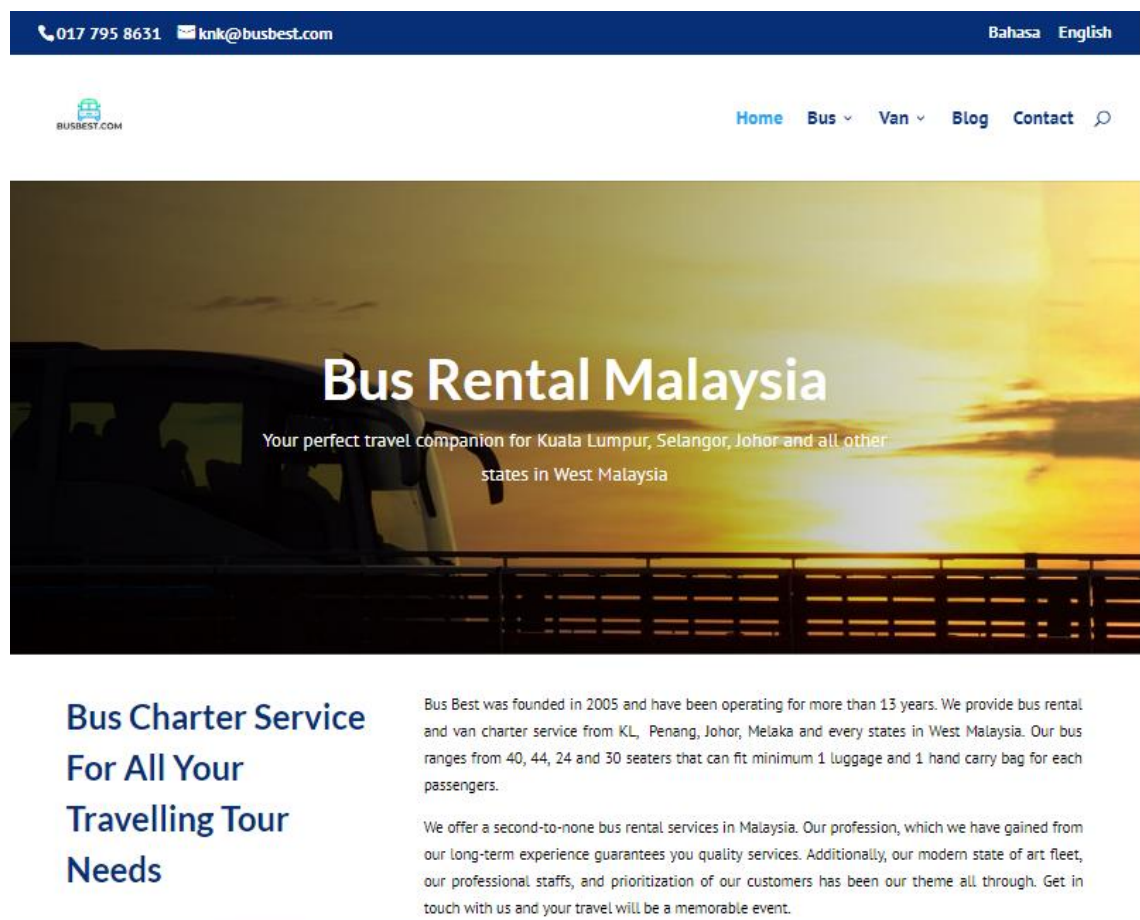


Figure 2.6 : Main Features of Bus Best

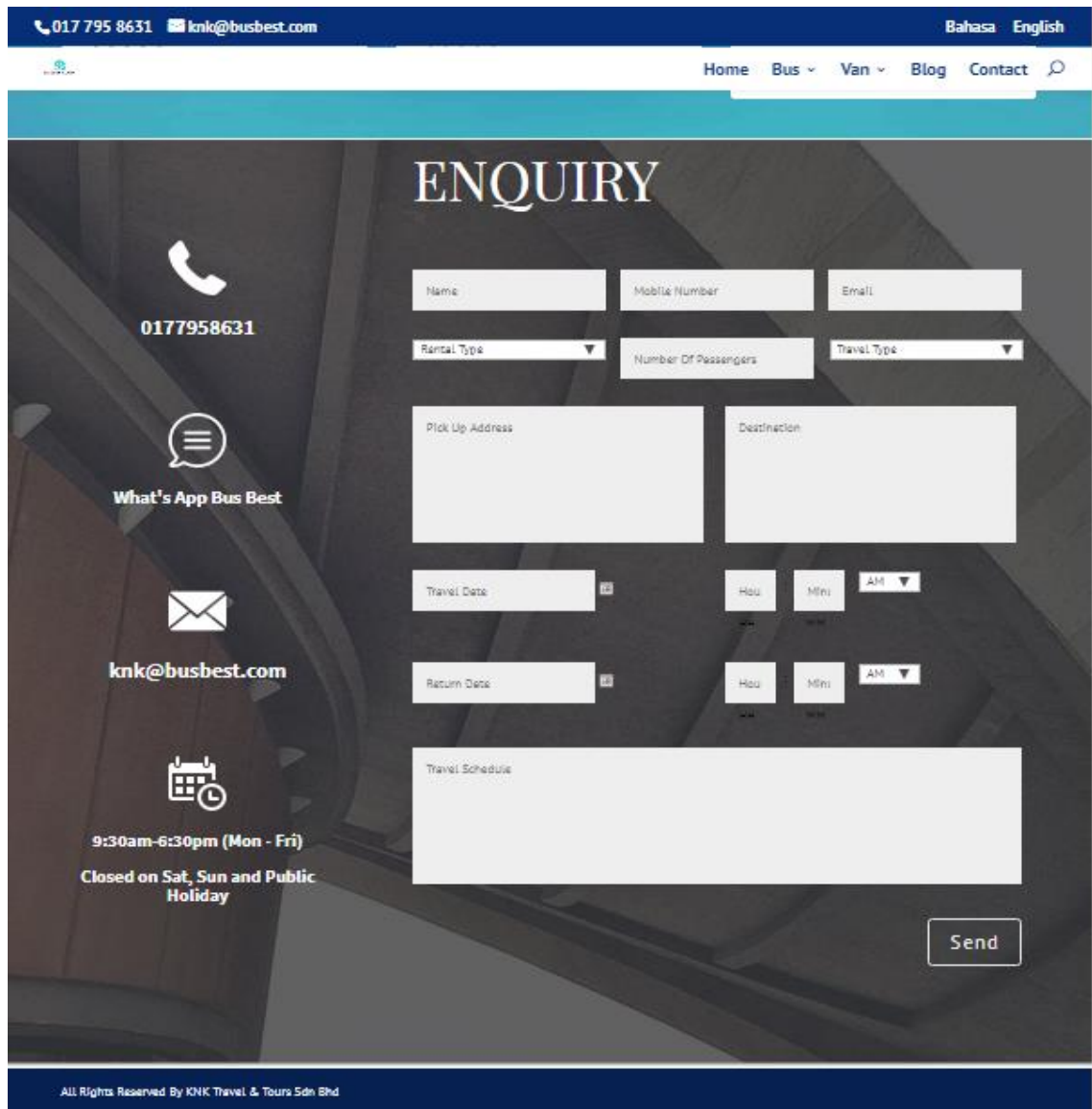


Figure 2.7 : Main Features of Bus Best

017 795 8631 | lnk@busbest.com Bahasa English

Home Bus Van Blog Contact

Reputable Bus Company With More Than 13 Years Experience In Kuala Lumpur

Bus Rental Van Rental

When it comes to the best charter services respective of the bus and van, we are the leading provider in the market because we have 13 years of experience, member of Malaysian Association of Travel and Tour Agents, and we are Licensed and Authorized from Tourism Malaysia, and as well as certified from the Malaysian Ministry of Finance.

Why Choose Us?

- Operational Since 2005
- Member of MATTA
- Licensed and Authorized
- Certified by MOP

ENQUIRY

0177958631

What's App Bus Best

lnk@busbest.com

Name Mobile Number Email

Rental Type Number Of Passengers Travel Type

Pick Up Address Destination

Travel Date

Return Date

Figure 2.8 : Main Features of Bus Best

2.2.4 Comparison Between Three Existing Systems

There are three existing systems that related to the bus booking such as UMP Manual Bus Booking, City Express and Bus Best. Basically, these three systems provided a booking option to the user as well as providing the information about trip, type of bus, services, and price.

UMP Bus Booking Manual is a way for students to book a UMP bus. The main functions of this manual kind of booking are to make it able for students to book the bus, the SAffAD provides the booking form at their website and also at the department itself. Other than that SAffAD also responsible to give the approval of the booking application. Next, the advantages of this manual way includes that you do not really need the internet connection to make a bus booking. So it is not a problem for those who might not have internet access at their places. Plus, it is suitable for those who do not really into online booking. Other than that, you can directly talk face-to-face with the person in charge for the bus booking. This will give you a chance to ask anything that you are curious about regarding the bus booking. The disadvantages of this way are it is really inefficient for long term use as all the processes are manually done. It might cause human error in dealing with the booking itself. Besides, it is time and energy consuming for the students as they need to do a lot of things such as download the form, fill in form manually, and have to submit it at the SAffAD.

City Express is a website that is basically provides you the information about the bus itself besides make a booking. The information that you can view includes the types of buses that it offered, the promotion, the trip information, and the coach types (first class, business class, normal). This can provide you some ideas of what kind of bus you want to book for your trip. Next, the advantage of this website is that they provide all the contact number of the bus counter within their branches in Malaysia and Singapore. Thus, you can easily get the contact number based on your area to make a booking. The disadvantage of this website is that it is inefficient to use because it does not really provide useful functions for its user. Apart from that, eventhough it looks like an online booking website, but it requires user to book the bus manually by contacting them which can result in poor reputation and usable of the website itself. Lastly, it is not a user-friendly website because it lacks of many aspects of a good website.

Bus Best is a website that is basically provides you the information about the bus itself besides make a booking. User can view the destination with some information about it which will give ideas to them in choosing their trip. Also, this website include the function that enable user to send a booking request. The Bust Best will inform them via email or phone number if the request is available or not. Next, the advantage of this website is that user can view the booking price that enable them to make the calculation to ensure the price is within their budget and choose the most affordable bus that meets their needs. The disadvantage of this website is that it is inefficient to use because it does not really provide useful functions for its user. Apart from that, eventhough it looks like an online booking website, but it requires user to book the bus manually by contacting them which can result in poor reputation and usable of the website itself. Lastly, it is not a user-friendly website because it lacks of many aspects of a good website. The comparison of these three existing systems briefly shown in the Table 2.1.

Table 2.1 : Comparison Between Three Existing Systems and BBS.

Systems Features	UMP Bus Booking Manual	City Express	Bus Best	BBS
Type	Manual	Web-based	Web-based	Web-based
Functionality	<ul style="list-style-type: none"> -Book the bus. -Provide booking form. -Give approval to booking. 	<ul style="list-style-type: none"> -Book the bus. -View type of bus with information. -View promotion. 	<ul style="list-style-type: none"> -Book the bus. -View destinations with details. -Send the booking request. 	<ul style="list-style-type: none"> -Book the bus. -Store the booking information in the database. -Check the bus availability.
Advantages	<ul style="list-style-type: none"> -No need internet connection. -Suitable for those who do not know to book online. -Can speak directly to the person in charge. 	<ul style="list-style-type: none"> -Have all contact number of the bus counter in their branches. 	<ul style="list-style-type: none"> -Can view the bus booking price based on the trip and number of passenger. 	<ul style="list-style-type: none"> -Can make an online booking. -Can store the data in the database. -Save time and energy.
Disadvantages	<ul style="list-style-type: none"> -Inefficient. -Time and energy consuming. 	<ul style="list-style-type: none"> -Inefficient. -Have to book manually by sending email or contact them. 	<ul style="list-style-type: none"> -Inefficient. -Have to book manually by sending email and contact them. 	-No
User-Friendly	No	No	No	Yes

2.3 Code Editor Tools

Code Editor tools are the important part in the system development because it determines the quality of the system that will be develop. Before developing the system, the developer has to ensure to the suitability and effectiveness of tools that can be use. There are some editor tools which are suitable to be adapted into the system.

2.3.1 Notepad++

Notepad++ is the text and code editor that is used with Microsoft Windows. It enables tabbed editing which means user can write and edit multiple project files in a single window. Notepad++ is distributed as free software. At first the project was hosted on SourceForge.net, from where it has been downloaded over 28 million times, and twice won the SourceForge Community Choice Award for Best Developer Tool (Initial & Windows, 2018). This tool is used to write source code of website implementation in HTML, CSS, JavaScript, PHP and many more. It allows user to edit code, debug, and others to make sure you can focus on developing a high quality website.

2.3.2 Sublime Text

Sublime Text is a proprietary cross-platform source code editor with a Python application programming interface (API) (Skinner, 2013). Basically, this editor supports multiple programming languages and markup languages that will be easier for user as they will not tied to use one language only with this code editor but they will get multiple choices of language to be choose. Other than that, functions can be added by users with plugins, typically community-built and maintained under free-software licenses. Some of its features are Goto Anything which you can quickly navigate files, symbols, or line. Besides, simultaneous editing allows you to make same interactive changes to multiple selected areas at the same time. Last but not least, Sublime Text is built from custom components, providing for unmatched responsiveness. From a powerful, custom cross-platform UI toolkit, to an unmatched syntax highlighting engine, Sublime Text sets the bar for performance.

2.3.3 Brackets

Brackets is a modern, open source code editor that understands the web implementation. It is primarily focused on web development. It is created by Adobe Systems and is currently maintained in GitHub by Adobe and other open-sourced developers. The main thing of Brackets is its live HTML, CSS, and JavaScript editing function. With focused visual tools and preprocessor support, Brackets is a modern text editor that makes it easy to design in the browser. It's crafted from the ground up for web designers and front-end developers. Besides, it is lightweight, yet powerful editor that will provide visual tools into the editor that will get you the proper help without getting in your way of development process. The update introduced new features such as custom shortcut key combinations and more accurate JavaScript hinting. Brackets has a major focus on development in JavaScript, CSS and HTML. With release of version 1.0 Adobe announced a feature that extracts design information from a PSD file for convenience of coding in CSS (Creative & Systems, 2016).

2.3.4 Comparison Between Three Code Editor Tools

There are many code editor tools that can be use in website development. Some of the tools that can be compared such as Notepad++, Sublime Text, and Brackets. Basically, these three tools are a code editor that enables developer to write, edit and debug source codes.

Notepad++ is a code editor which is running in Microsoft Windows environment. The main function is allow user to write, edit, and debug source code in tabbed editing for website development purpose. Next, the advantages of this tool includes fast and lightweight which will give the best user experience and do not consume large space in your hardware. Other than that, fast startup. User will not get annoyed waiting for the tools to launch. Besides it provide syntax for all language that is used and as well as tabbed UI. The disadvantages of this tool is that it is an old-school design. They are mostly on the surface and far away from the slick UI of other code editors built with JavaScript and CSS. Last but not least, the lack of plugin management which can result in poor reputation and usable of the tool itself.

Sublime Text is compatible with most operating system such as OS X, Windows, and Linux. The main function is allow user to write, edit, and debug source code with multiple programming languages and markup languages support. Next, the advantages of this tool includes super fast and lightweight. Means that it provide great user-experience and do not consume large space in your hardware. It also such a great code editor based on vote from developers themselves. The best part is it is unlimited trial. The disadvantages of this tool are lack of updates and weak default set of features. These will result in poor reputation and usable of the tool itself.

Brackets is compatible with most operating system such as Mac X, Windows, and Linux. The main function is allow user to write, edit, and debug live HTML, CSS, and JavaScript editing function. Next, the advantages of this tool includes beautiful UI and open source. This will make user more attract to use the tool. Besides, it provide live preview. Means that user will get a real-time connection to the browser and make changes to CSS and HTML and instantly will see those changes on screen. Plus the tool integrates with Photoshop. The disadvantages of this tool are lack of full-screen support and no auto-completion which can result in poor reputation and usable of the tool itself. The comparison of these three tools briefly shown in the Table 2.2.

Figure 2.2 : Comparison Between Three Tools

Tools Name	Notepad++	Sublime Text	Brackets
Compatibility	Microsoft Windows.	OS X, Windows, Linux.	Mac OS, Windows, Linux.
Functionality	Allow user to write, edit, and debug source code in tabbed editing.	Allow user to write, edit, and debug source code with multiple programming languages and markup languages support.	Allow user to write, edit, and debug live HTML, CSS, and JavaScript editing function.
Advantages	<ul style="list-style-type: none"> ➤ Fast and lightweight. ➤ Fast startup. ➤ Syntax for all language that is used. ➤ Tabbed UI. 	<ul style="list-style-type: none"> ➤ Super fast. ➤ Lightweight. ➤ Great code editor. ➤ Unlimited trial. 	<ul style="list-style-type: none"> ➤ Beautiful UI. ➤ Open source. ➤ Live preview. ➤ Integration with Photoshop.
Disadvantages	<ul style="list-style-type: none"> ➤ Old-school design. ➤ Lack of plugin management. 	<ul style="list-style-type: none"> ➤ Lack of updates. ➤ Weak default set of features. 	<ul style="list-style-type: none"> ➤ Lack of full-screen support. ➤ No auto-completion.

CHAPTER 3

METHODOLOGY

3.1 Introduction

A powerful software development methodology is required in order to make sure the system can be developed within the cost and due date. There are several types of software methodology that indeed has its own pros and cons. In this chapter, some methods used to develop the BBS including the requirements of the system and how it was implemented into the system are discussed.

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Typically, it encompasses concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques (Further, 2018). This project used Rapid Application Development (RAD) into the development of the system as it convenience with the system requirements.

3.2 Methodology

Research has been conducted on the some types of methodology. In general, RAD approaches to software development put less emphasis on planning and more emphasis on an adaptive process (James & Rad, 2019). Rapid Application Development (RAD) is the best choice and chosen for this project. This is due to the development of website that is a complex work, as it is normally occurred problems such as high page load times, confusing contents, poor design and others. RAD platform able to provide simplicity, quick delivery, and effectiveness to the website problems. This methodology is the best way to develop a website as several elements are processed simultaneously, so it is much

easier to make changes to the system itself. Rather than in a waterfall development, developers need to take a back step if there were any changes need to be make. Other than that, the functions are divided into several parts as if they were mini projects. Each parts undergoes a separate testing phase and they are finally combined together to create the final system. As a result, this can increase the delivery time with lesser bugs so that we can give something for user to see and give their feedback.

3.2.1 Advantages and Disadvantages of Rapid Application Development (RAD)

Every methodology have its own advantages and disadvantages. Some of Rapid Application Development (RAD) advantages and disadvantages have been identified and shown in table 3.1.

Table 3.1 : Advantages and Disadvantages of Rapid Application Development

Advantages	Disadvantages
Quick development time.	Strong team performance is needed for business requirements identification.
Enable user to see the result earlier and give feedback.	Not applicable to low cost project as high cost is needed for modeling and automated code generation.
Integration from the beginning solves a lot of integration issues.	High dependencies on modelling.
Easy to make changes.	Advanced-skills developers and designers are needed to use RAD approach.

3.2.2 Phases in Rapid Application Development

The phases involved in the Rapid Application Development (RAD) consists of 4 phases which are requirements planning, user design, construction, and cutover/transition. Figure 3.1 shows the Rapid Application Development (RAD) and Figure 3.2 shows the Work Breakdown Structure in Rapid Application Development (RAD).

Rapid Application Development

- RAD Phases and Activities

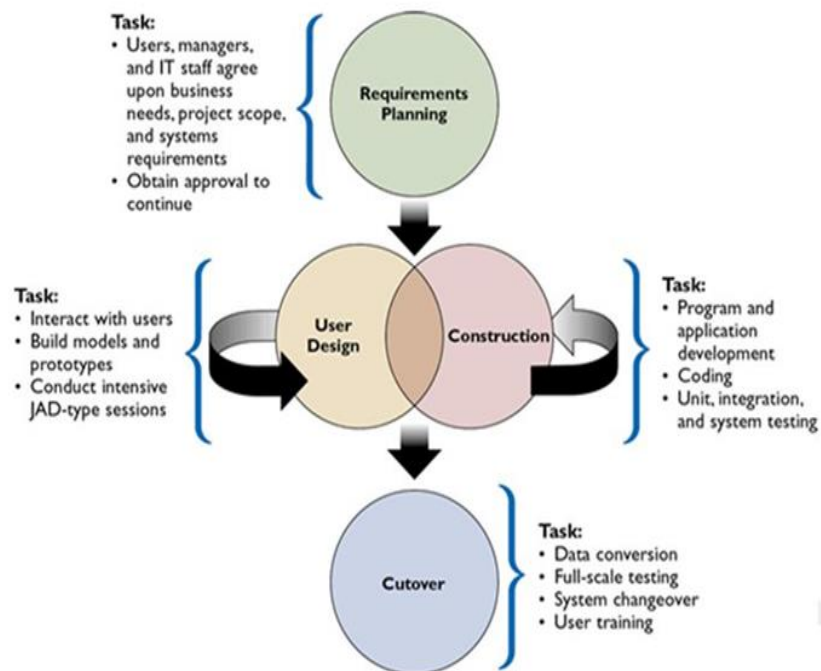


Figure 3.1 : Rapid Application Development (RAD)

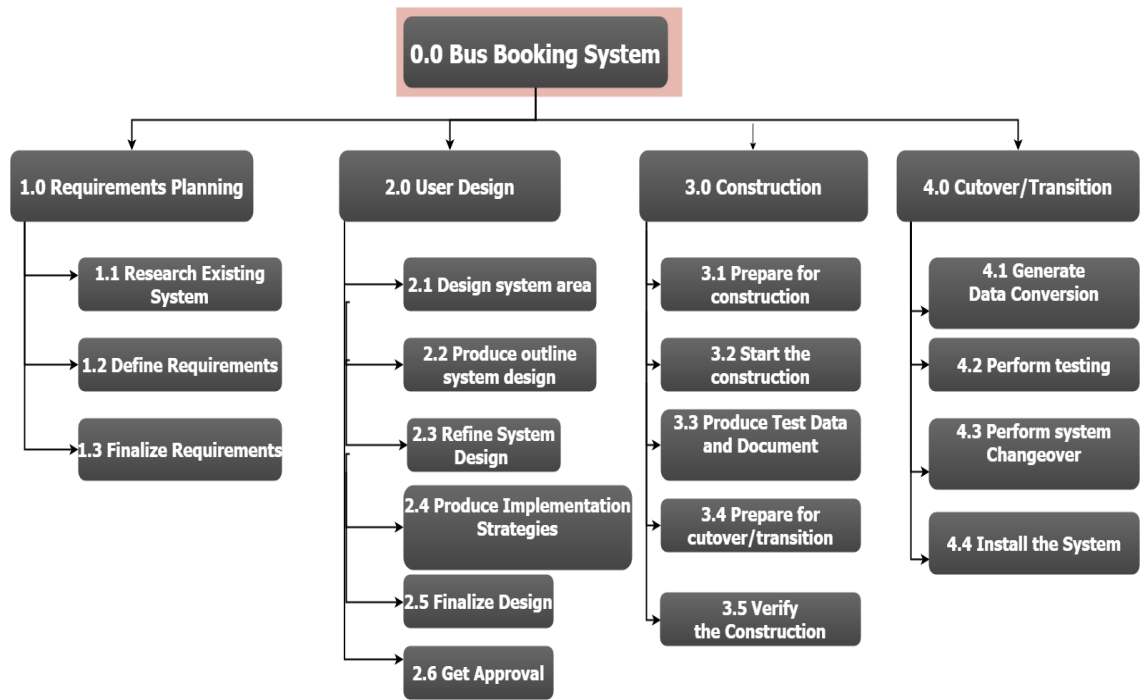


Figure 3.2 : Work Breakdown Structure in Rapid Application Development

3.2.2.1 Requirements Planning

The requirements planning stated the request made by the users on what, how and why they want their system to be done. The developer must follow their users requirements in order to give a satisfaction service to them. The user, manager, and all IT staff and developer must agreed to the project's need, scope, and requirements. In this project, some research has been done to identify the existing system that related to this project so that we can improve the current systems. Next, problem statements, project's objectives and scopes are defined in order to give a clear vision of what we are going to develop. After that, we finalized the requirements and estimation duration of the project development in a Gantt chart with approval of all related members of this project.

3.2.2.2 User Design

This is the important part. Developer must interact with users, build models and prototypes in order to give a clear view of how the system will look like. Design phase is important when you want to add new functionality or new version of the system. The Joint Application Design (JAD) session have to be conducted between development team and clients. In Bus Booking System (BBS), the context diagram, use case diagram, and

general architecture and package module have been done. Figure 3.3 shows the context diagram of Bus Booking System (BBS) and Figure 3.4 shows the use case diagram of Bus Booking System (BBS).

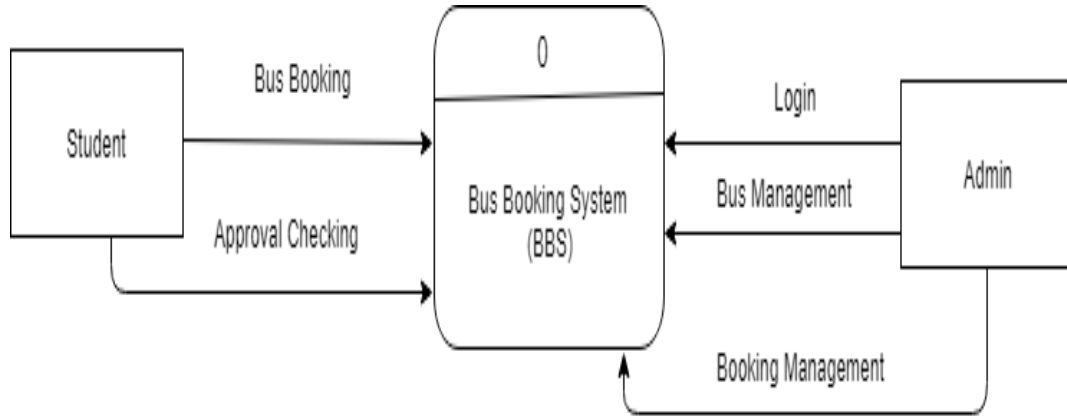


Figure 3.3 : Context Diagram of Bus Booking System

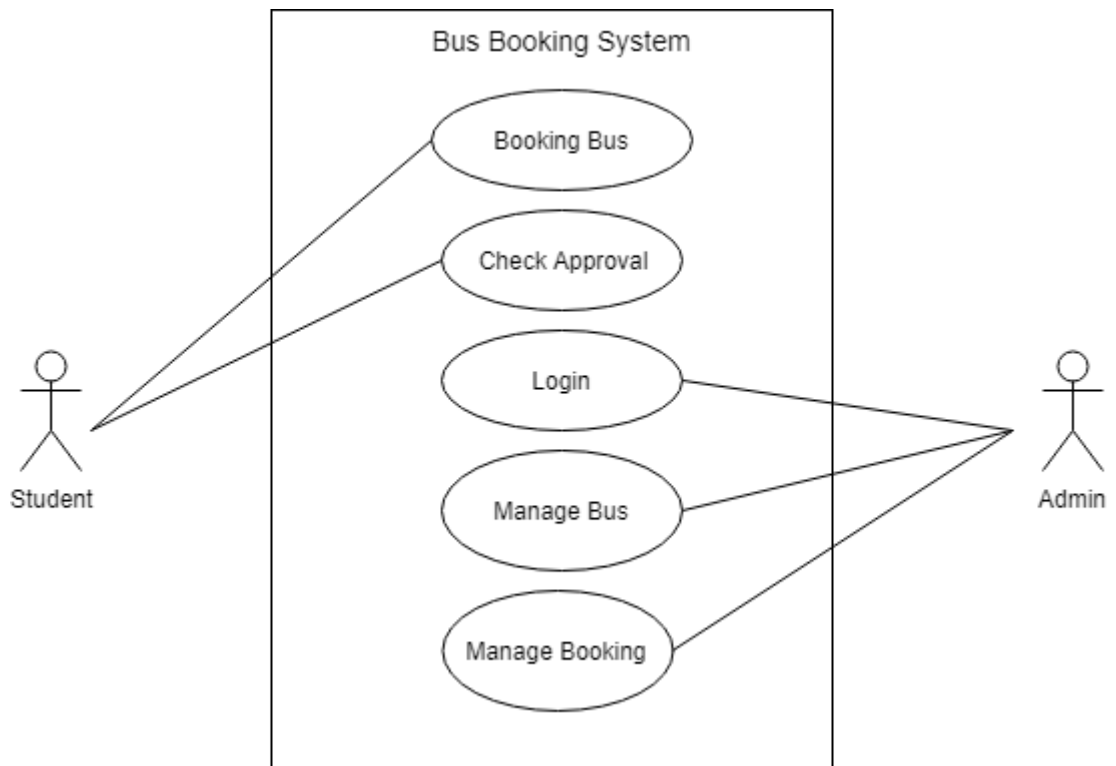


Figure 3.4 : Use Case Diagram of Bus Booking System

Table 3.2 shows the use case description of Bus Booking System (BBS). Figure 3.5 shows the general architecture of Bus Booking System (BBS). Figure 3.6 shows the package module of Bus Booking System (BBS).

Table 3.2 : The Use Case Description of Bus Booking System

No	Task	Description
1	Booking Bus	This use case is to describe the process of booking bus by student.
2	Check Approval	This use case is to describe the process to check the approval of the bus booking that has been made.
3	Login	This use case is to describe the process of admin login.
4	Manage Bus	This use case is to describe the process of admin manage the bus.
5	Manage Booking	This use case is to describe the process of admin manage the booking.

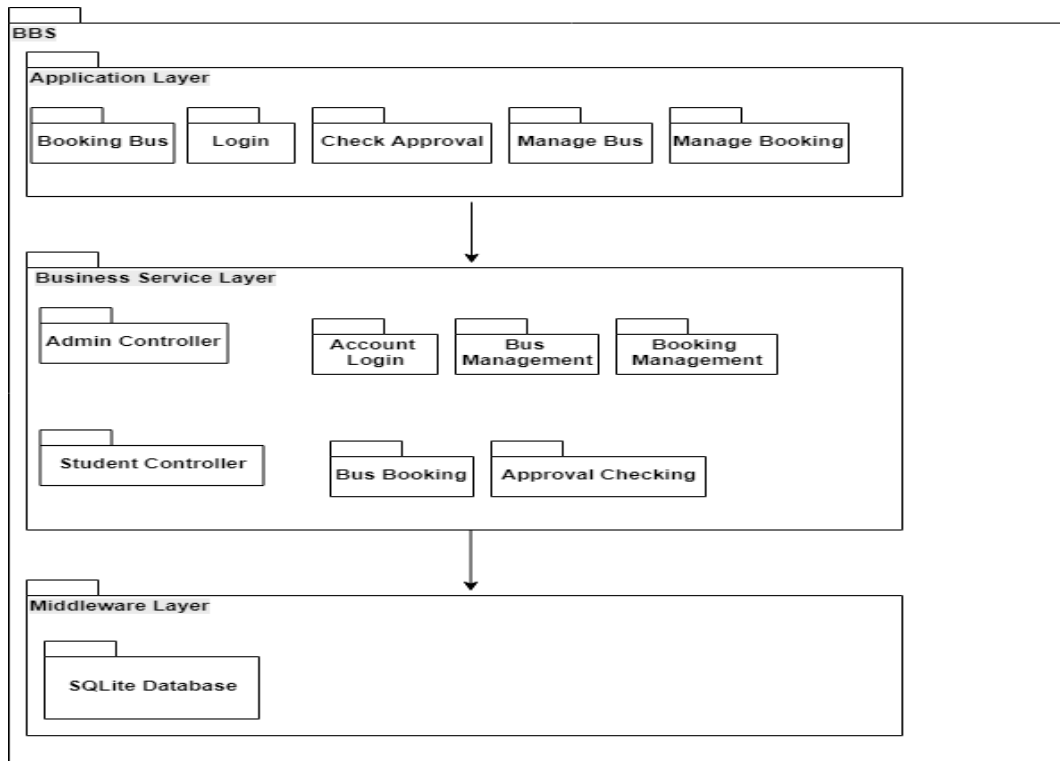


Figure 3.5 : General Architecture of Bus Booking System

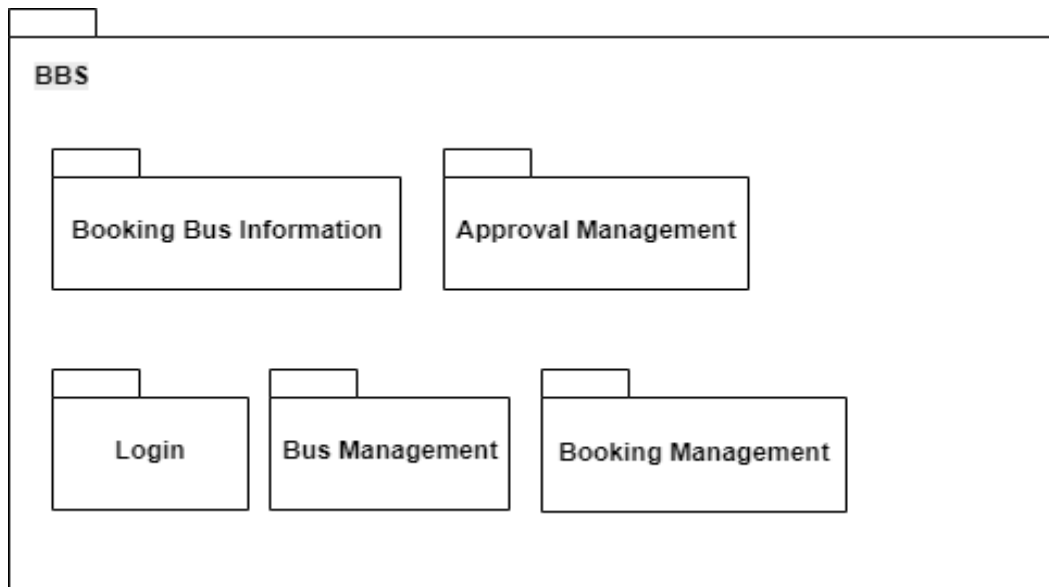


Figure 3.6 : Package Module of Bus Booking System

3.2.2.3 Construction

This phase focused on application and development tasks. It includes the coding, unit, integration, and system testing. User can still participate and suggest any changes that are needed to be made.

3.2.2.4 Cutover/Transition

Resembles the final tasks in implementation phase which includes data conversion, full-scale testing, system changeover, and user training.

3.2.3 Propose User Interface

Figure 3.7 – 3.22 show the propose user interface of Bus Booking System (BBS).

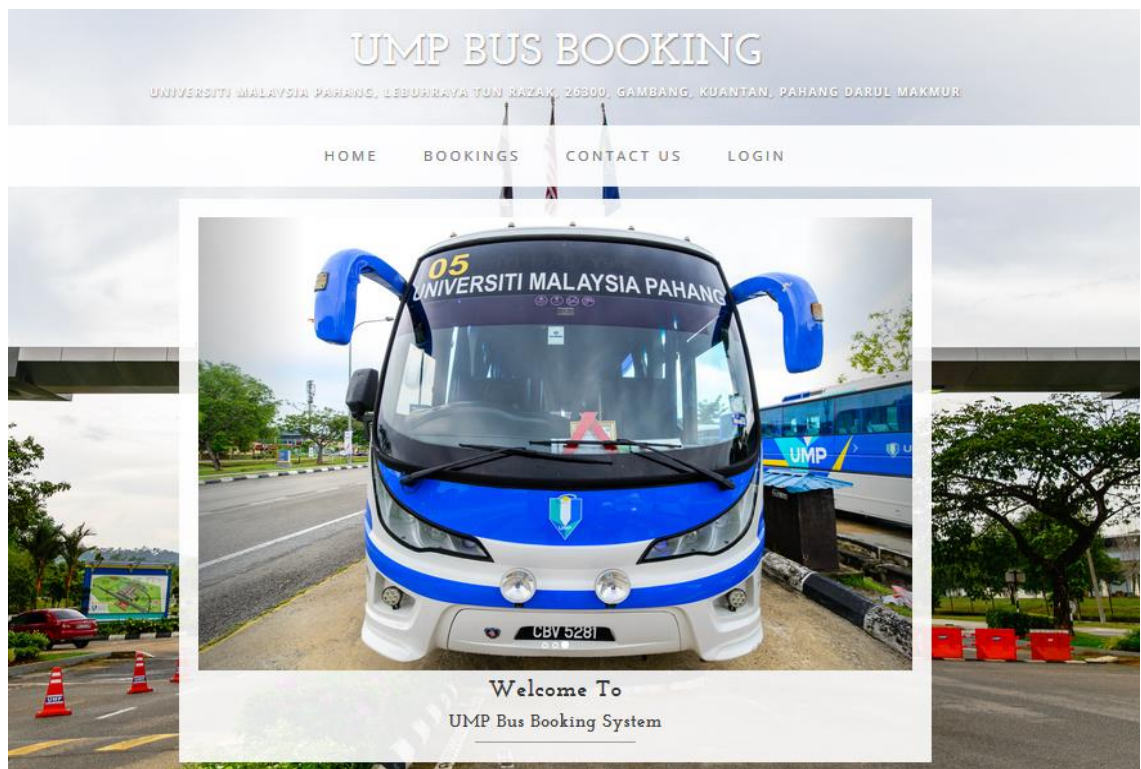


Figure 3.7 : Home page

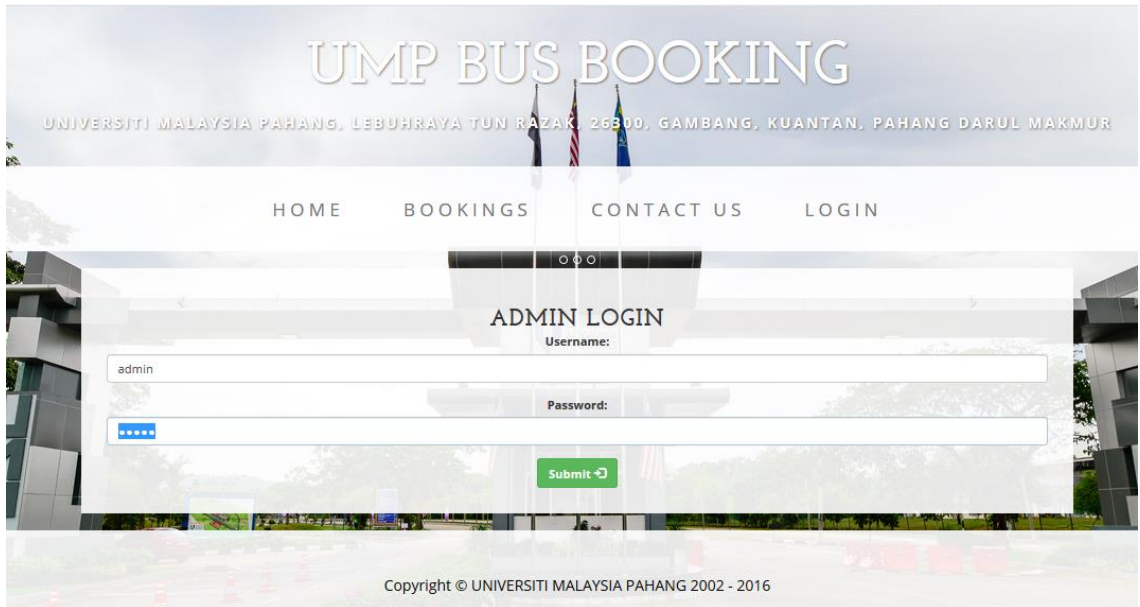


Figure 3.8 : Admin Login Page

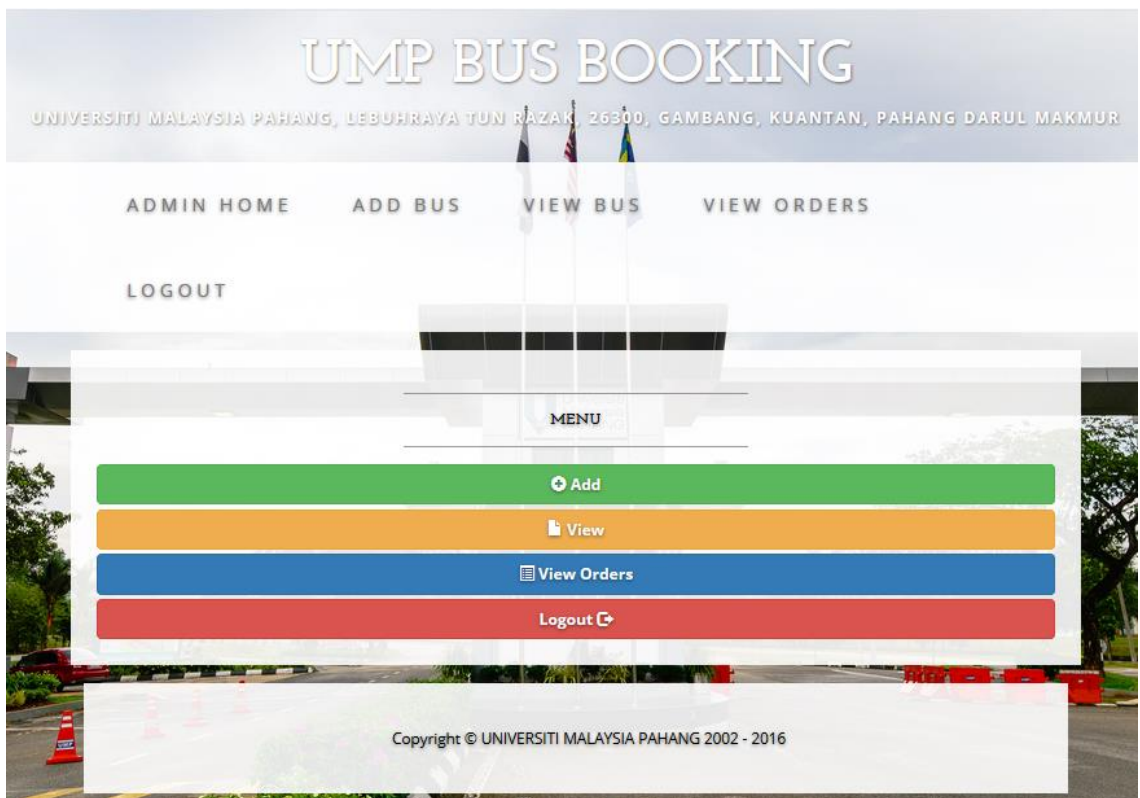


Figure 3.9 : Admin Page

ADD NEW BUS

Well done! Successfully processed.

Title:

Driver:

From : **To :**

Time: **To:**

Figure 3.10 : Add Bus Page

VIEW CURRENT BUS & DRIVER

Bus ID	Title	Driver	Date	Date Last	Time	Time Last	Options
17	DTE 1234	Encik Yusuf	2018-12-12	2018-12-12	8.00 AM	2.00 PM	<input type="button" value="Delete"/>
16	FDD 1234	Encik Yazid	1970-01-01	1970-01-01	0000-00-00	0000-00-00	<input type="button" value="Delete"/>
15	QWE 1234	Encik Razi	2018-12-12	1970-01-01	0000-00-00	0000-00-00	<input type="button" value="Delete"/>
14	WDU 1234	Encik Hafiz	1970-01-01	1970-01-01	0000-00-00	0000-00-00	<input type="button" value="Delete"/>
13	PGR 1234	Encik Hasan	1970-01-01	1970-01-01	0000-00-00	0000-00-00	<input type="button" value="Delete"/>

Figure 3.11 : View Bus Page

CUSTOMER BOOKING LIST

Search:

Booking ID	Bus ID	Name	NRIC	Student ID	Faculty	Date	E-mail	Addr.	Phone	Price
14	8	Atiqah	960202035294	ca15126	fskcp	1970-01-01 to 1970-01-01	atiqahmatzin@gmail.com	TM Dasar Laut	0145312006	RM
15	9	syaza	960202035294	ca15114	fskcp	1970-01-01 to 1970-01-01	atiqahmatzin@gmail.com	Gambang Resort	0145312006	RM
18	7	a	960202035294	ca15114	fskcp	1970-01-01 to 2018-01-12	atiqahmatzin@gmail.com	gambarh	0145312006	:
19	10	ali	960202035294	ca15126	fskcp	1970-01-01 to 1970-01-01	atiqahmatzin@gmail.com	Gambang Resort City, 26000 Kuantan Pahang	0145312006	


Figure 3.12 : View Booking Page

UNIVERSITI MALAYSIA PAHANG, DEBUHRAYA TUN RAZAK, 26300, GAMBANG, KUANTAN, PAHANG DARUL MAKMUR

HOME BOOKINGS CONTACT US LOGIN

BOOKINGS AND APPROVALS

PAPERWORK

 **APPROVAL**

STATUS = PENDING

Status:

Price:

Figure 3.13 : Paperwork Approval Page

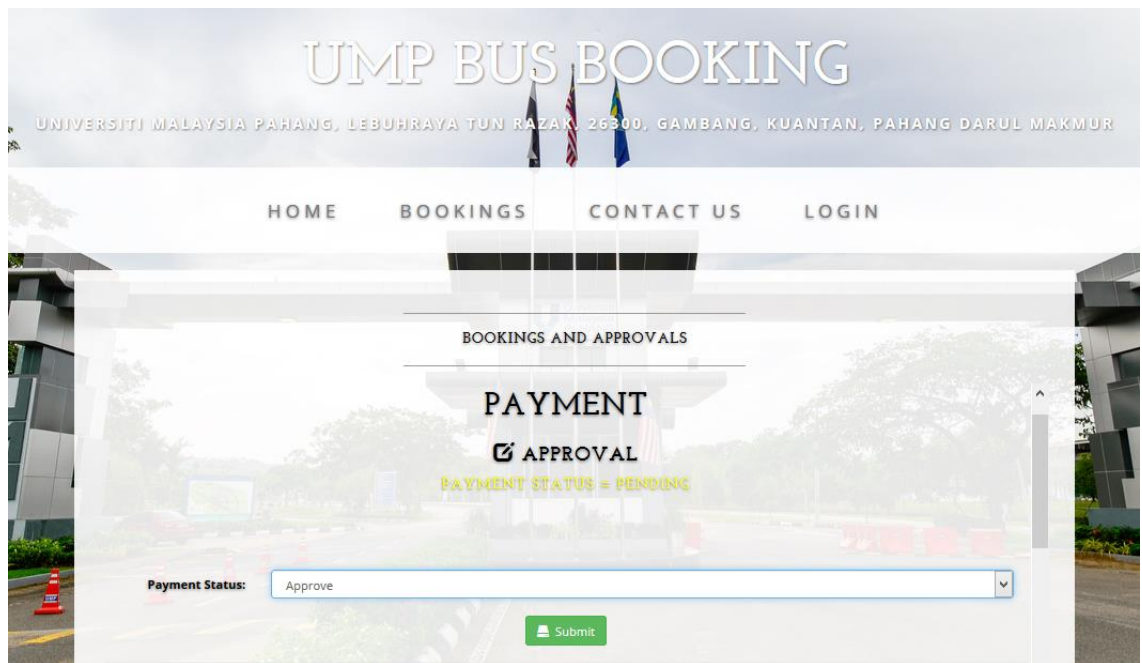


Figure 3.14 : Payment Approval Page



Figure 3.15 : User Booking and Approval Page

CHOOSE DATE, TIME AND BUS ID

From :	<input type="text" value="13/12/2018"/>	To :	<input type="text" value="13/12/2018"/>
From :	<input type="text" value="8.00 AM"/>	To :	<input type="text" value="2.00 PM"/>
Bus :	<input type="text" value="FDD 1234"/>		

Bus is Available ! Proceed -->

Figure 3.16 : Choose Bus and Date Page

UNIVERSITI MALAYSIA PAHANG, LEBUHRAYA TUN RAZAK, 26300, GAMBANG, KUANTAN, PAHANG DARUL MAKMUR

[HOME](#) [BOOKINGS](#) [CONTACT US](#) [LOGIN](#)

BUS DETAILS

BUS DETAILS

DCE 1234

DATE: 30/11/2018 TO 01/12/2018
DRIVER: ENCIK ALI

USER DETAILS

Name:	<input type="text" value="Firdaus"/>
NRIC:	<input type="text" value="960202035293"/>
STUDENT ID:	<input type="text" value="ca15126"/>

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Figure 3.17 : Bus and User Details Page

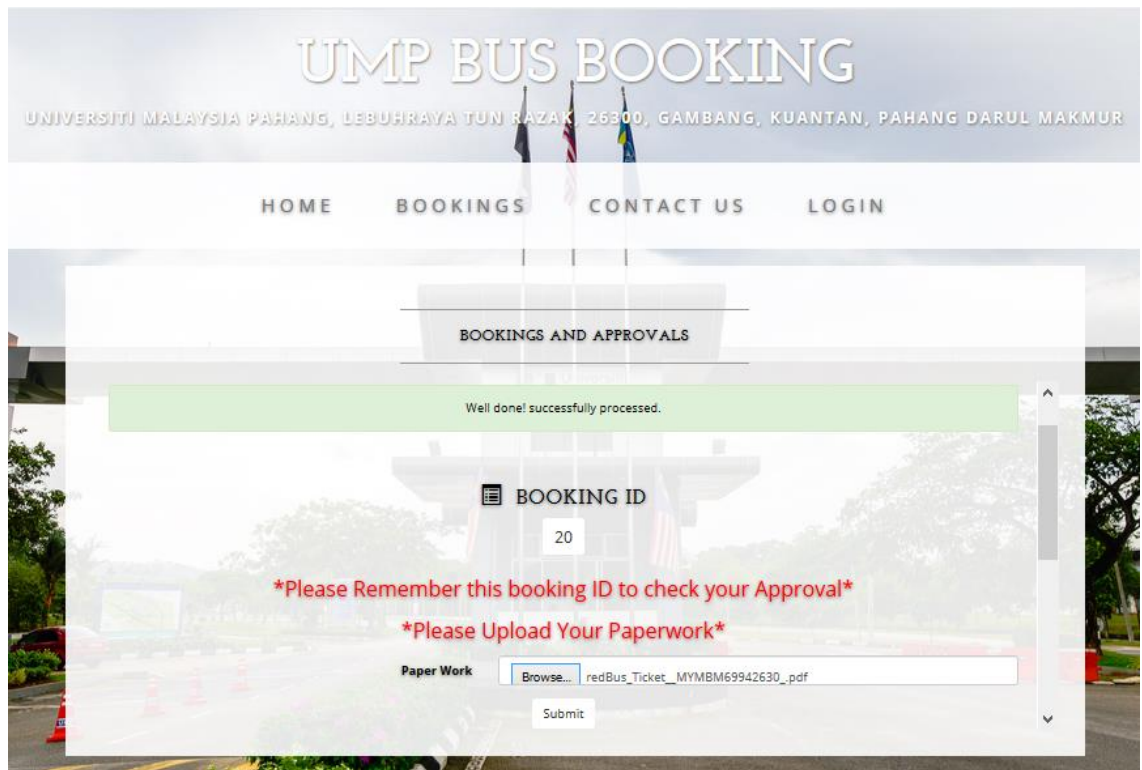


Figure 3.18 : Paperwork Upload Page

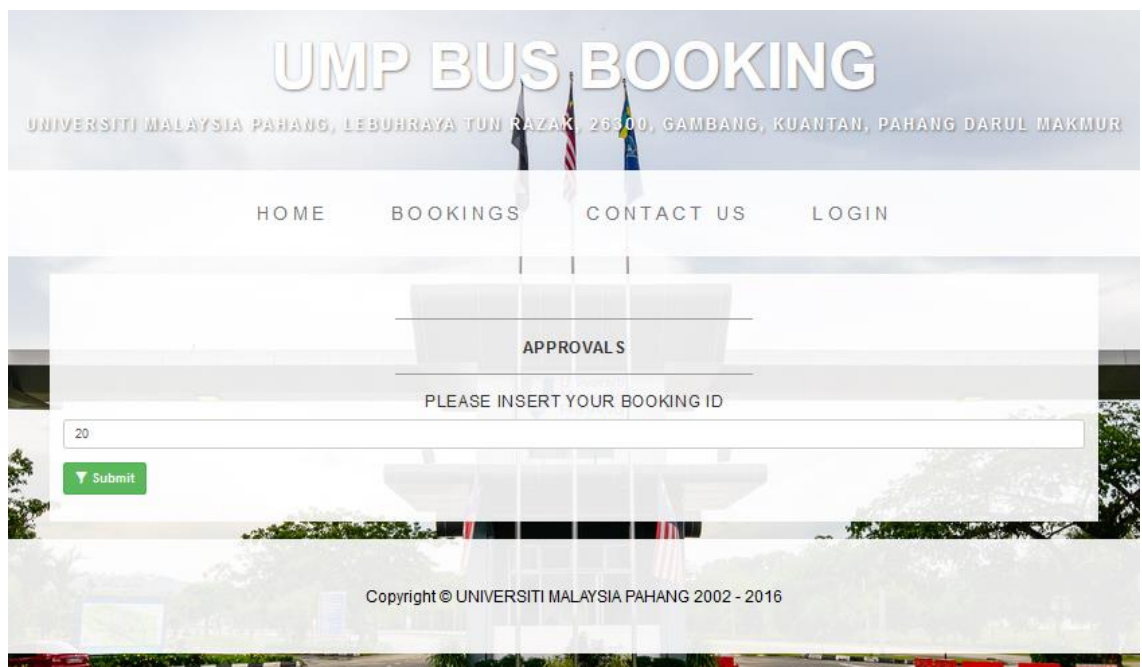


Figure 3.19 : Check Approval Page

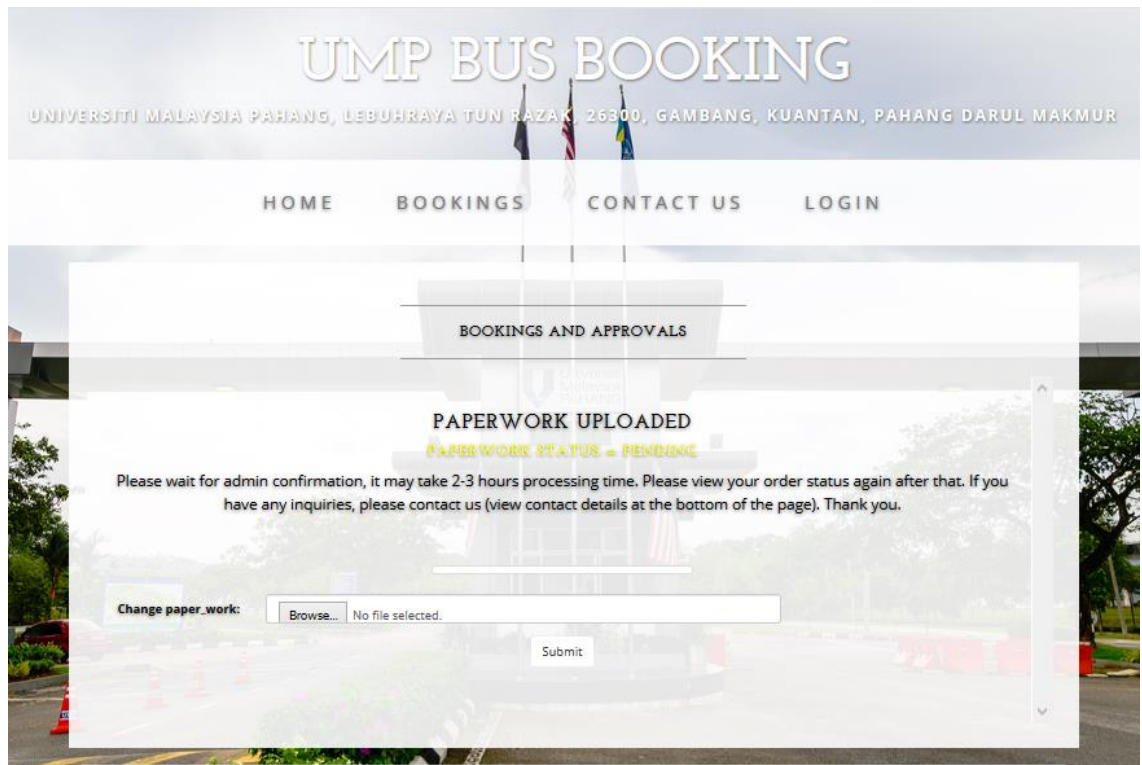
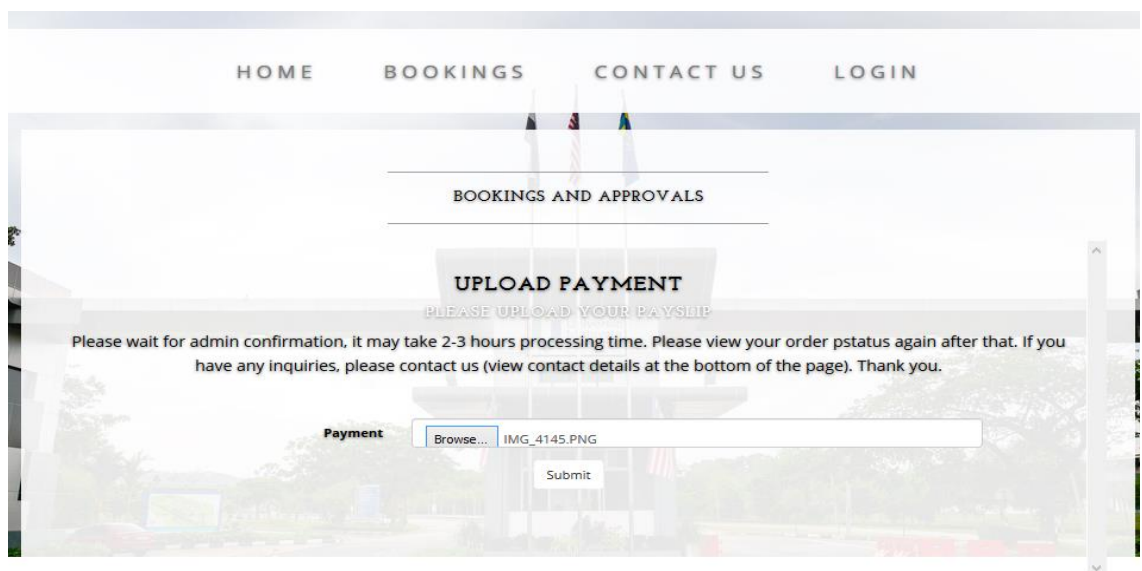


Figure 3.20 : Change Paperwork Page



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Figure 3.21 : Payment Upload Page

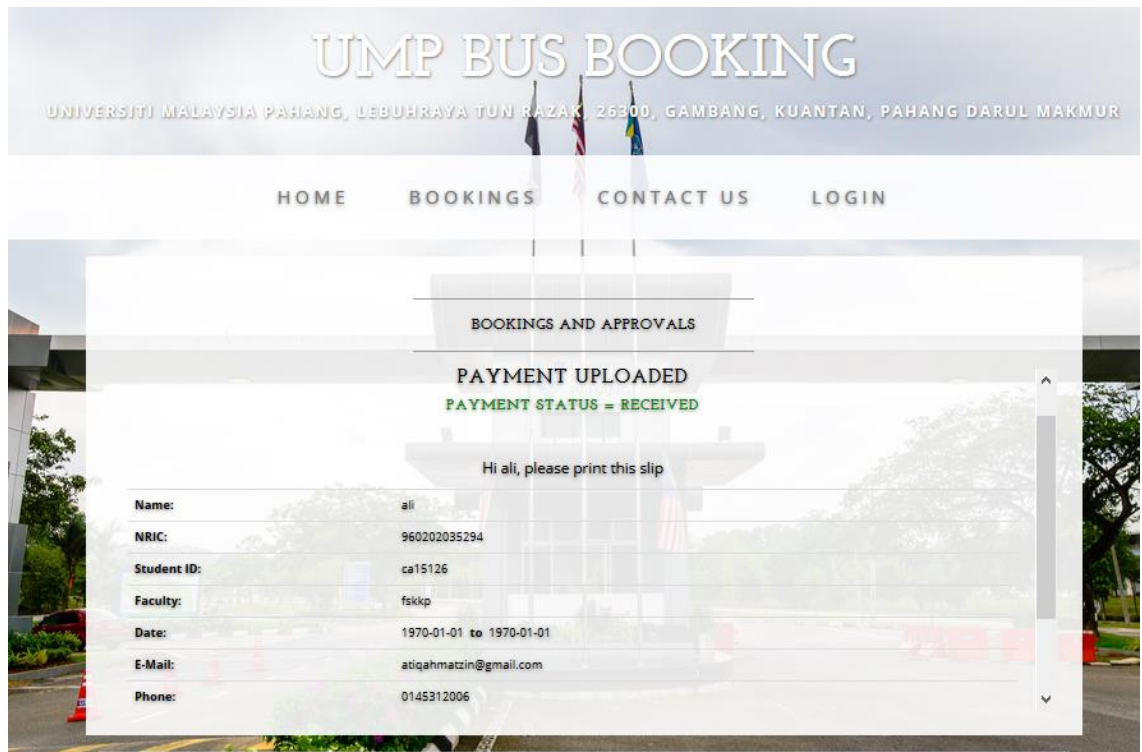


Figure 3.22 : Print Slip Page

3.3 Hardware and Software

Hardware and software are important for this project as they contributed a lot in the process of the project development regarding the coding, documentation, running the programs and many more. Without this two important things, the project cannot be done at all. There are several hardware and software that are used which meets the requirements of the project.

3.3.1 Hardware Requirements

Table 3.3 shows the hardware requirements in developing Bus Booking System (BBS).

Table 3.3 : Hardware Requirements

Items	Specifications	Importance	Function
Laptop/Notebook	-Microsoft Windows 8 (64 bit) -4 GB RAM	-A complete multimedia tool that gives a great help to the human activities.	-Used for developing the system including the coding and documentation.
External Hard Disk	-500 GB	-Can store data in a permanent storage that can be separated from the laptop.	-As a backup storage of the project in case some failure happened.

3.3.2 Software Requirements

Table 3.4 shows the software requirements in developing Bus Booking System (BBS).

Table 3.4 : Software Requirements

Items	Importance	Function
Notepad++	<ul style="list-style-type: none"> Act as a platform that enable developer to write the codes. 	<ul style="list-style-type: none"> To build the high quality website.
Windows 8 and above	<ul style="list-style-type: none"> Act as an operating system for desktop. 	<ul style="list-style-type: none"> To make your system functions smoothly with the latest version.
Microsoft Office (Word, Power Point, Visio, Project)	<ul style="list-style-type: none"> Act as a very useful software that offered beneficial function. 	<ul style="list-style-type: none"> To do the documentation. To do the presentation slides. To draw the context diagram and use case diagram. To do the gantt chart.
Draw.io	<ul style="list-style-type: none"> Enable user to create the diagram drawing online. 	<ul style="list-style-type: none"> To do the context diagram and use case diagram.

3.4 Gantt Chart

Figure 3.23 and Figure 3.24 show Gantt chart for Bus Booking System (BBS).

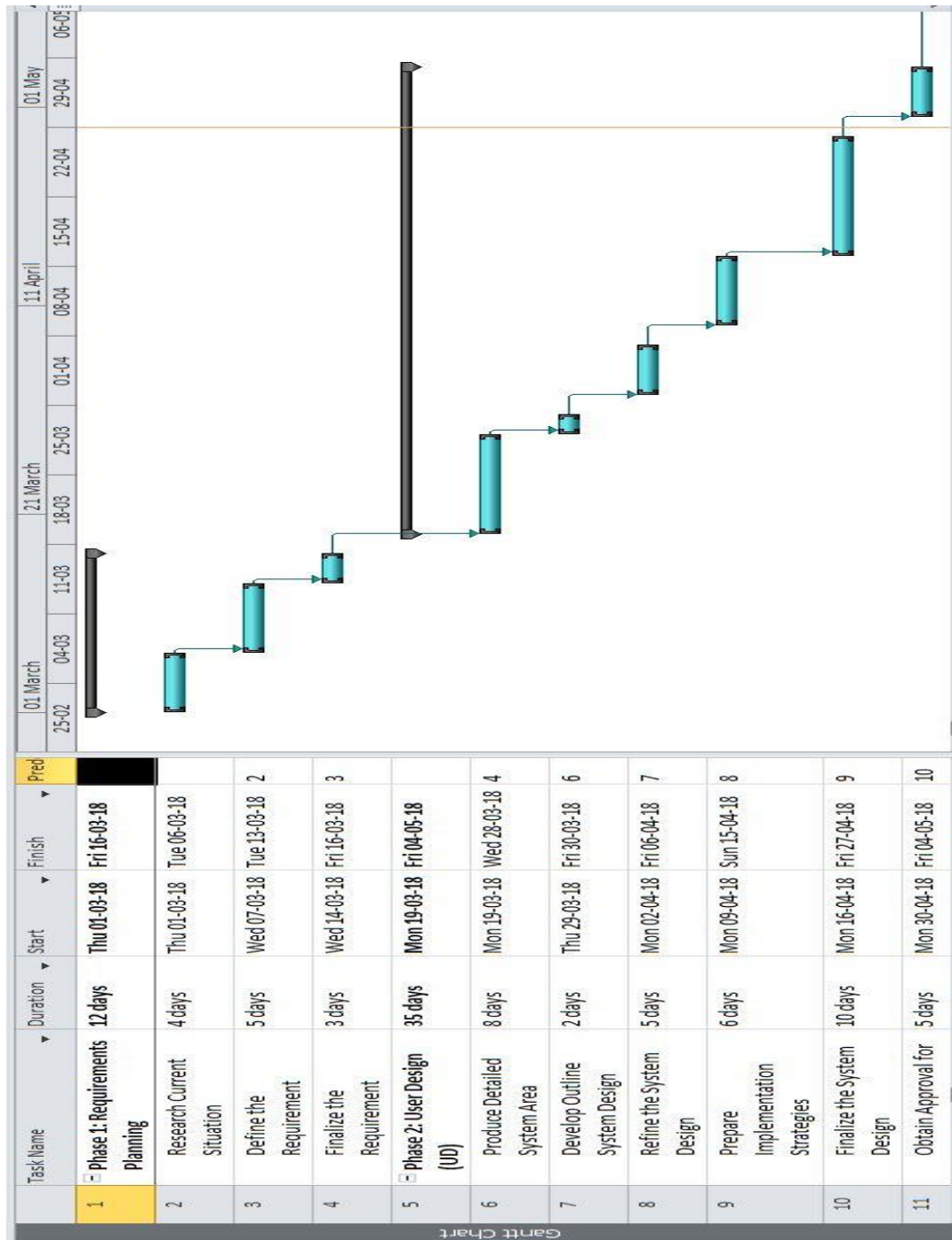


Figure 3.23 : Gantt Chart

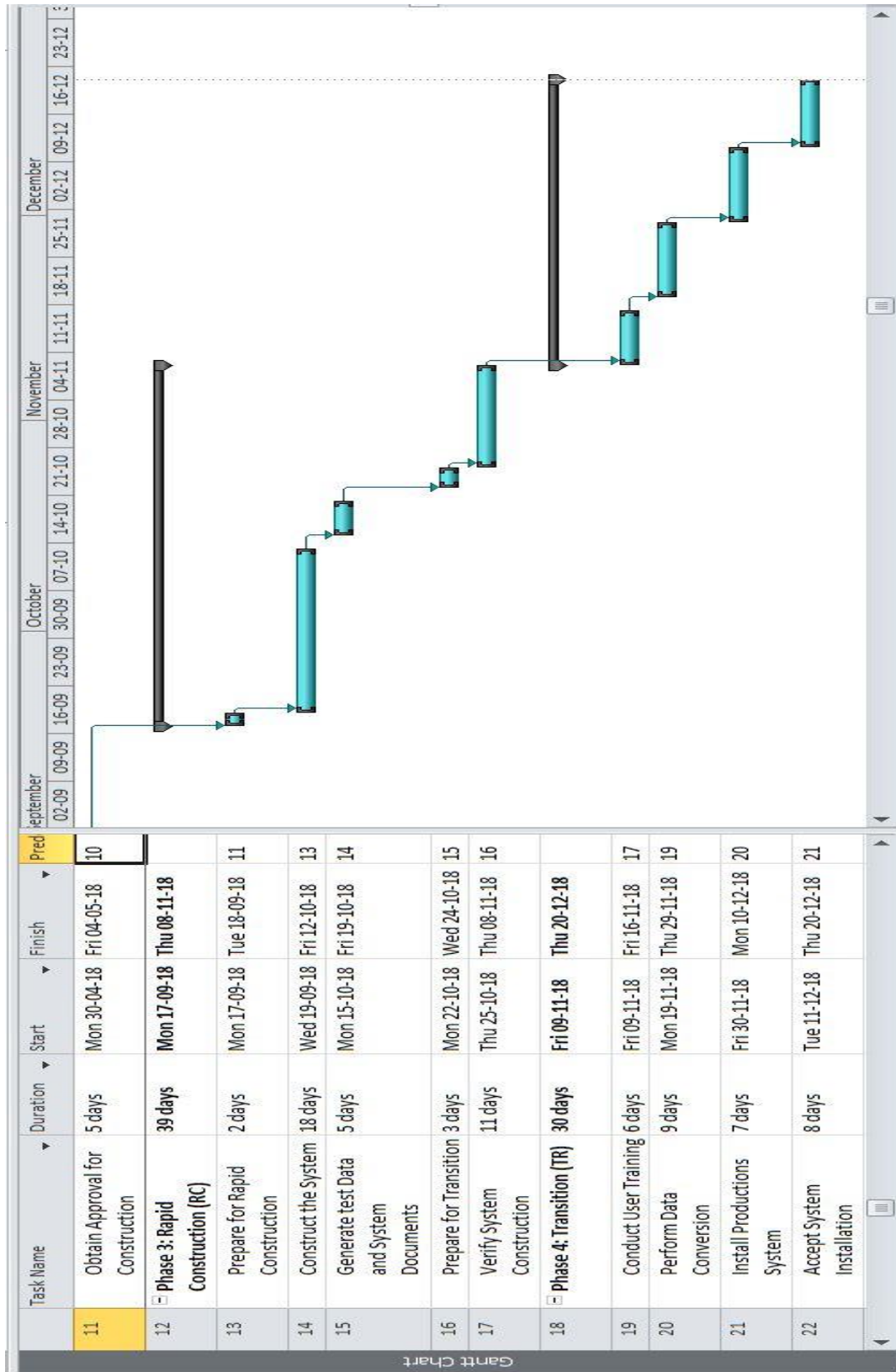


Figure 3.24 : Gantt Chart

3.5 Implementation

Rapid Application Development (RAD) is the best and suitable methodology that can be used to develop Bus Booking System (BBS). Every methodology has its own pros and cons including RAD itself. But, RAD approach is the best methodology to be used because it ensures a great communication between users and project development team. It also helps in overcoming the issues such as time-consuming development, unpredictable changes from users, and many more.

Hardware and software requirements and specifications are important to develop this project. This is because they act as a platform for the developer to complete the system successfully. Meanwhile, the Gantt chart provides the schedule of the project so that the developer can manage their time wisely and finish the task on the scheduled time.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Introduction

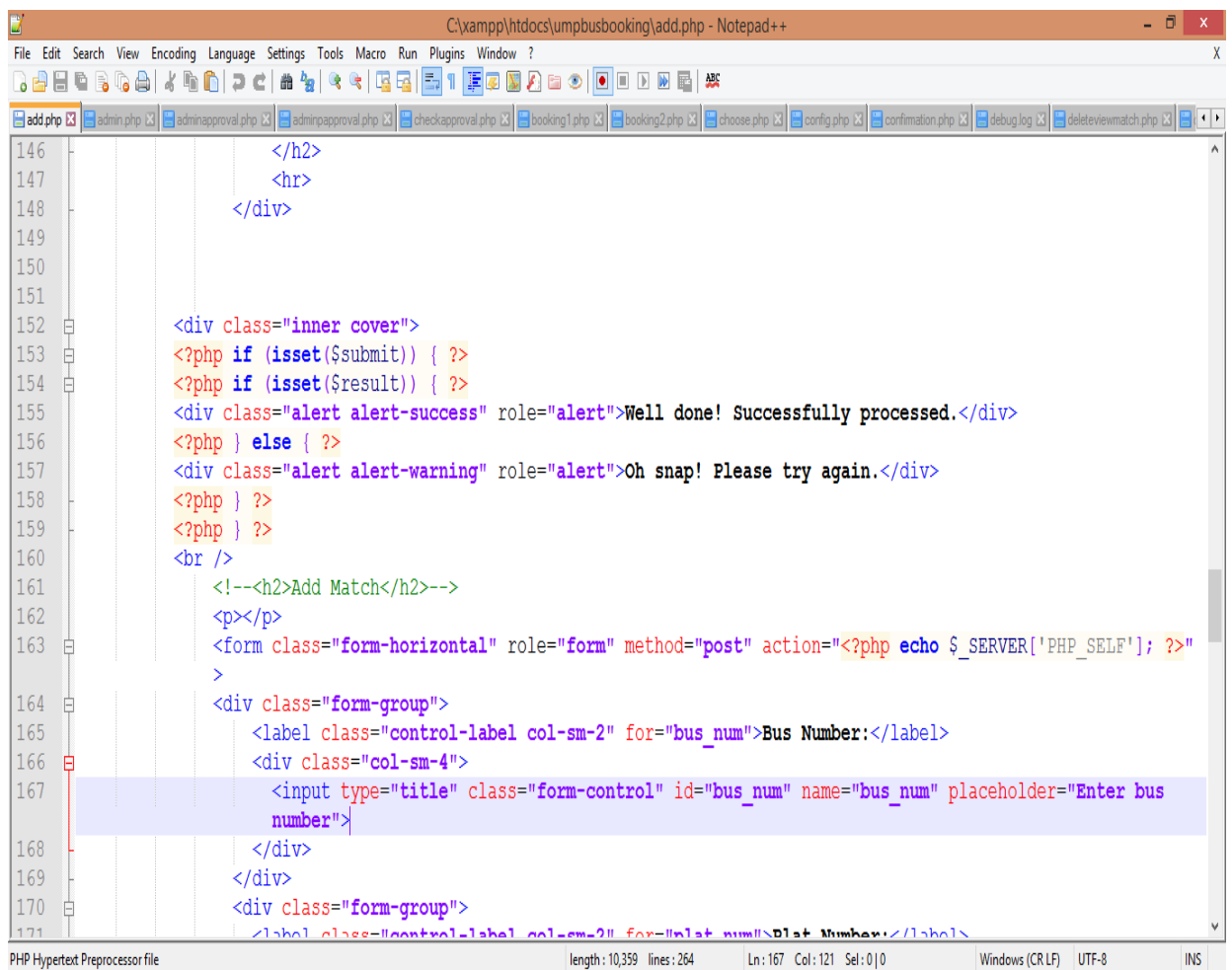
The purpose of this chapter is to discuss the details on the process flow of the Bus Booking System (BBS). The development phase is about the implementation of the system including the coding that is used to make the function works which can also achieve the goal and objective of the system. This implementation part will help the developer to figure out any defects exist in the system and fix the error occurred.

4.2 Implementation

Bus Booking System (BBS) is developed by combining several programming languages such as HTML, PHP, CSS, and JavaScript. PhpMyAdmin is used as a database that will store the data and information for this system. HTML is used to define the structure and layout of a web document by using a variety of tags and attributes. Meanwhile, CSS is used for describing the presentation of web pages, such as colours, layout, and fonts. Other than that, JavaScript is written in HTML page to add functions including login, retrieve data, and many others that are required in the Software Requirement Specification. PHP is basically used for connecting the web pages to the database.

4.2.1 Tools

A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other programs and applications (Contributors, 2018b). Development phase is the main focus and vital to ensure the system can run smoothly with error-free. In order to develop this project, developers must use the suitable tools or software that enable them to implement the ideas and function into codes. This project uses HTML, CSS, JavaScript and PHP language which is written using Notepad++ that supports most of the programming languages. Besides, this tool enables tabbed editing which means user can write and edit multiple project files in a single window. Figure 4.1 shows Notepad++ that is used as a tool to write the code of the system.



```
146         </h2>
147         <hr>
148     </div>
149
150
151
152     <div class="inner cover">
153         <?php if (isset($submit)) { ?>
154         <?php if (isset($result)) { ?>
155         <div class="alert alert-success" role="alert">Well done! Successfully processed.</div>
156         <?php } else { ?>
157         <div class="alert alert-warning" role="alert">Oh snap! Please try again.</div>
158         <?php } ?>
159         <?php } ?>
160         <br />
161         <!--<h2>Add Match</h2-->
162         <p></p>
163         <form class="form-horizontal" role="form" method="post" action="<?php echo $_SERVER['PHP_SELF']; ?>"
164         >
165         <div class="form-group">
166             <label class="control-label col-sm-2" for="bus_num">Bus Number:</label>
167             <div class="col-sm-4">
168                 <input type="text" class="form-control" id="bus_num" name="bus_num" placeholder="Enter bus
169                 number">
170             </div>
171         </div>
172         <div class="form-group">
173             <label class="control-label col-sm-2" for="plat_num">Plat Number:</label>
```

Figure 4.1 : Notepad++

4.2.2 Database Design

Database design is the organisation of data according to a database model. The designer determines what data must be stored and how the data elements interrelate. With this information, they can begin to fit the data to the database model (Access, Conceptual, & Further, 2018). The BBS use phpMyAdmin to store all the information of the system in the database. PhpMyAdmin is a well-known administration tool for MySQL database management which is written in PHP language. This tool is user-friendly which you can easily create, select, insert, alter, drop, delete, import and export MySQL database tables of the system information. Figure 4.2 shows the busori database including the tables in that database such as booking_bus, user, and user_booking.

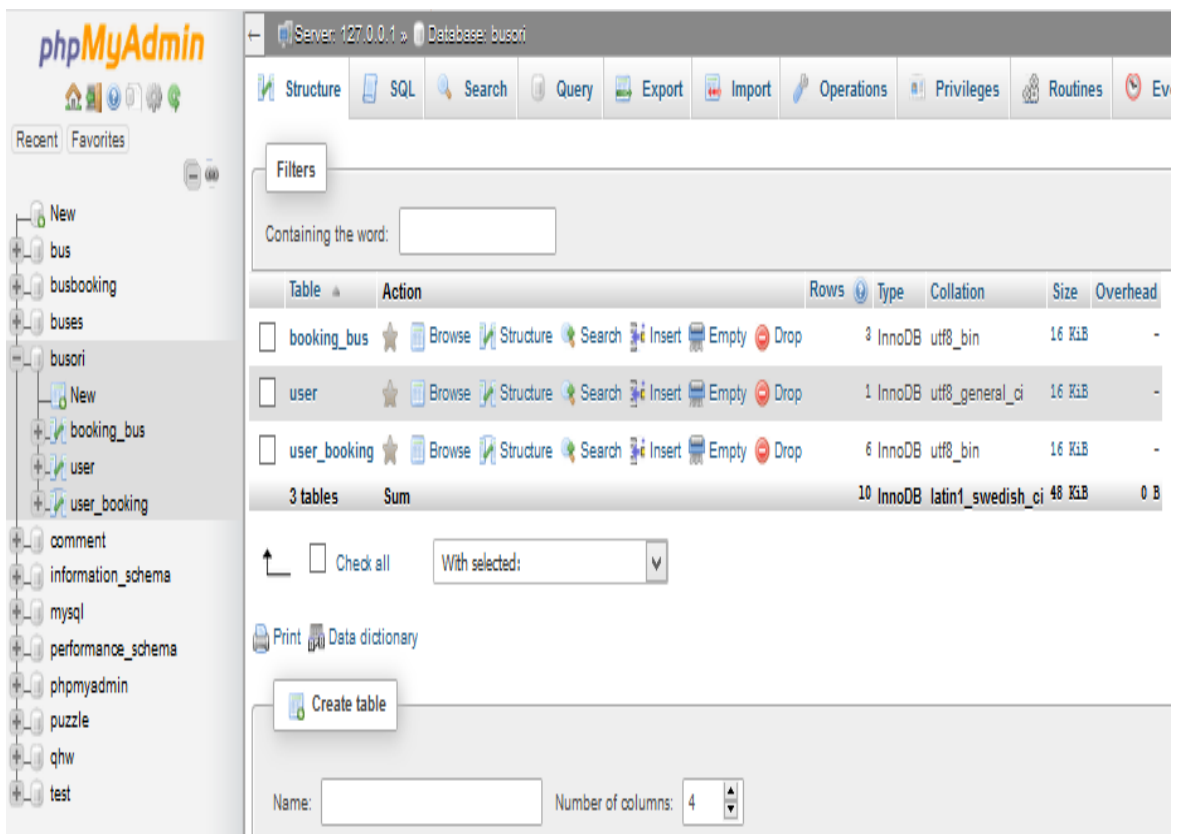


Figure 4.2 : Busori database

Figure 4.3 shows the booking_bus table and the columns created including bus_id, bus_num, plat_num, date, date_last, time, time_last and driver columns.

+ Options














 		num_booking	title	date	date_last	time	time_last	driver
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	8	DWE 1234	1970-01-01	1970-01-01	0000-00-00	0000-00-00	Encik Halim
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	10	WWE 1234	1970-01-01	1970-01-01	0000-00-00	0000-00-00	Encik Faris
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	11	DCE 1234	1970-01-01	1970-01-01	0000-00-00	0000-00-00	Encik Ali
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	12	DCY 1234	1970-01-01	1970-01-01	0000-00-00	0000-00-00	Encik Idris
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	13	PGR 1234	1970-01-01	1970-01-01	0000-00-00	0000-00-00	Encik Hasan
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	14	WDU 1234	1970-01-01	1970-01-01	0000-00-00	0000-00-00	Encik Hafiz
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	15	QWE 1234	2018-12-12	1970-01-01	0000-00-00	0000-00-00	Encik Razi
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	16	FDD 1234	1970-01-01	1970-01-01	0000-00-00	0000-00-00	Encik Yazid
<input type="checkbox"/>  Edit  Copy  Delete	<input type="checkbox"/>	17	DTE 1234	2018-12-12	2018-12-12	0000-00-00	0000-00-00	Encik Yusuf

Figure 4.3 : booking_bus Table

Figure 4.4 shows the user table and the columns created including id, usern, and passwd columns. This table is to create admin username and password.

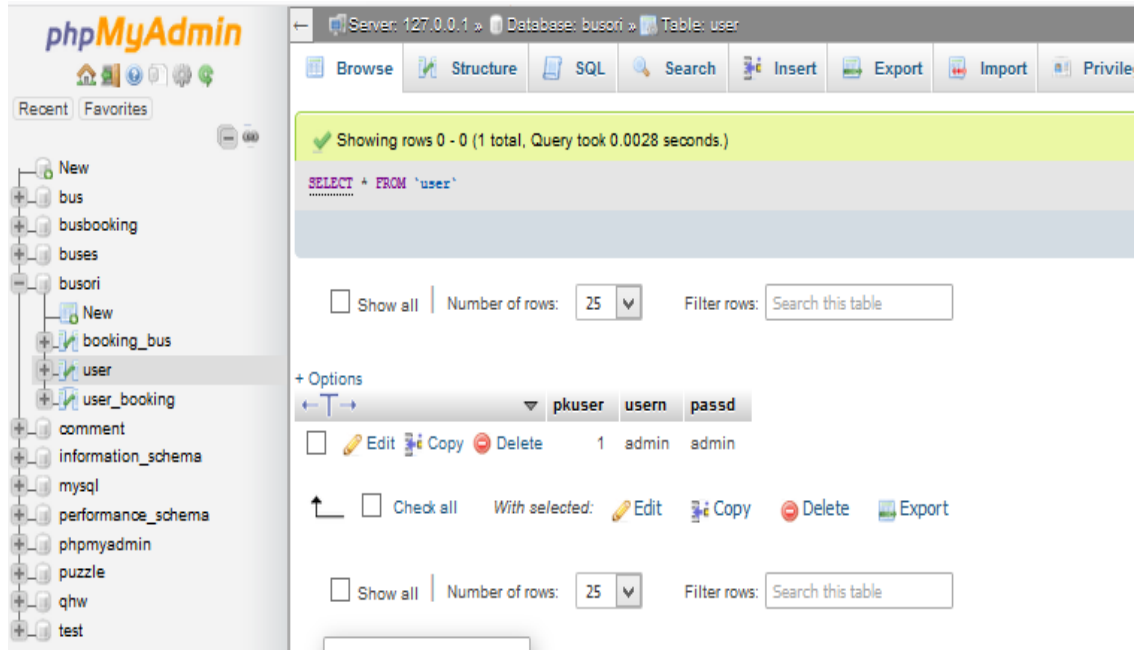


Figure 4.4 : user Table

Figure 4.5 shows the user_booking table and the columns created including id, num_booking, name, nric, std_id, faculty, date, date_last, time, time_last, email, phone, and address columns.

Showing rows 0 - 5 (6 total, Query took 0.0039 seconds)

SELECT * FROM 'user_booking'

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

	num_user_booking	num_booking	name	nric	std_id	faculty	date	date_last	time	time_last	email	phone	address	price	remarks	p
<input type="checkbox"/>	13	5	sadsa	9602423453	5452	figfódf	2015-12-06	2015-12-07			gdfg@gmail.com	02252452	dfgd	0		d
<input type="checkbox"/>	21	24	h	960202035294	y	h	06/12/2018	08/12/2018	1:2 AM	4:2 AM	atiqahmatzin@gmail.com	8	h			A
<input type="checkbox"/>	22	25	Fatimah	960202035294	ca15126	fsktp	22/12/2018	23/12/2018	3:26 AM	12:26 PM	atiqahmatzin@gmail.com	0145312006	Gambang			A
<input type="checkbox"/>	23	28	Nina	960202035294	ca15126	fsktp	21/12/2018	21/12/2018	8:29 AM	12:29 PM	nina@gmail.com	0145312006	Gambang Pahang	28000		A
<input type="checkbox"/>	24	29	Atiqah	960202035294	ca15126	fsktp	20/12/2018	20/12/2018	9:46 AM	1:46 PM	atiqahmatzin@gmail.com	0145312006	Gambang	RM200		A
<input type="checkbox"/>	25	30	ali	960202035294	ca15126	fsktp	20/12/2018	20/12/2018	11:11 AM	2:12 PM	atiqahmatzin@gmail.com	0145312006	Gambang	RM120		A

Check all | With selected: Edit Copy Delete Export

Figure 4.5 : user_booking Table.

4.3 Interface Design Description

Graphical user interface (GUI) is one of the essential features to be analysed in this system. Before the development and implementation process begins, the prototype design has been developed earlier to sketch and figure out on how the real system might look like. Figure 4.6 shows the Home page of the BBS website. Booking and Contact Us options are meant for users, while the Login option is meant for admin.

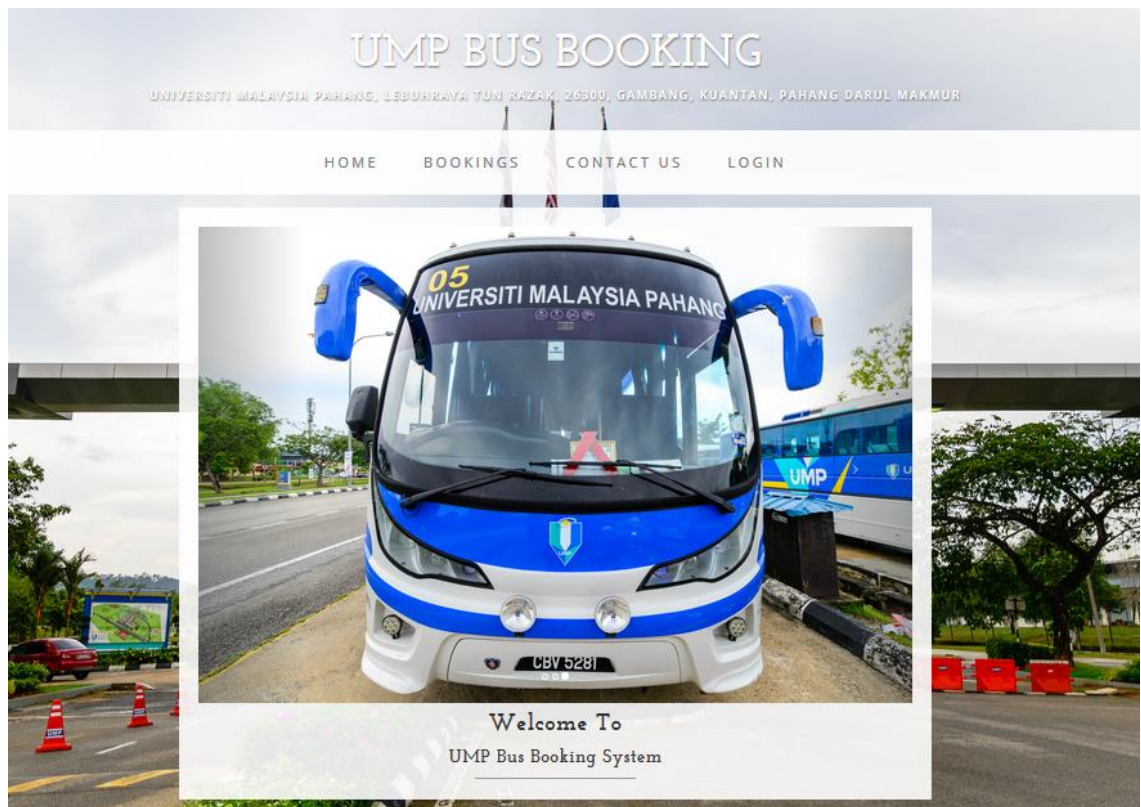


Figure 4.6 : Home page

Figure 4.7 shows the Admin Login page of the BBS website. Admin has to key in a valid username and password that have been stored in the database.

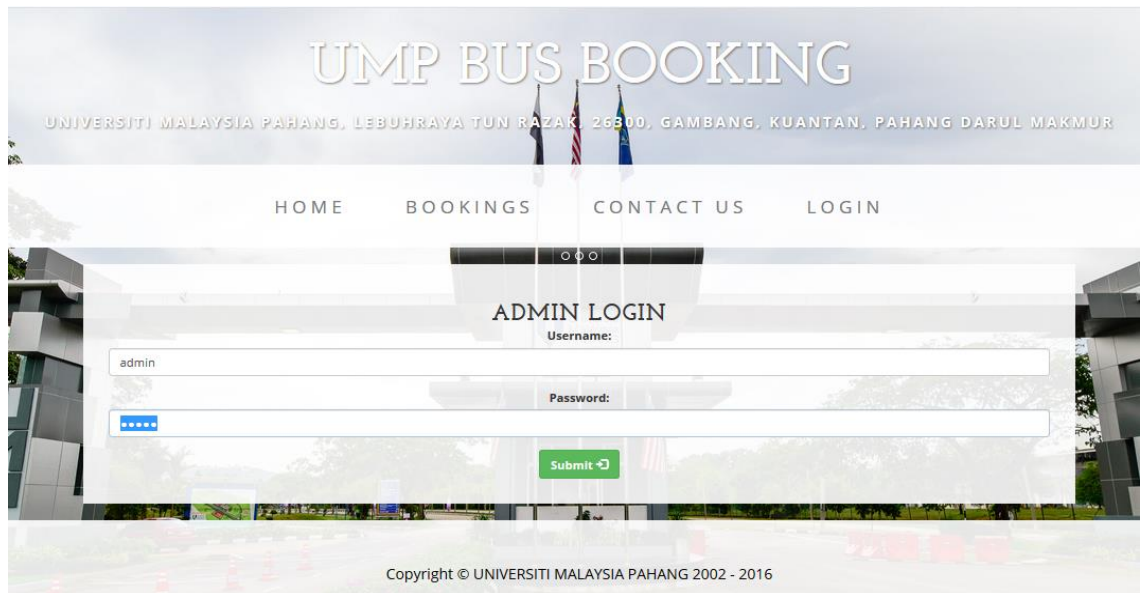


Figure 4.7 : Admin Login Page

Figure 4.8 shows the Admin page of the BBS website that has a add and view bus function, view orders and logout.

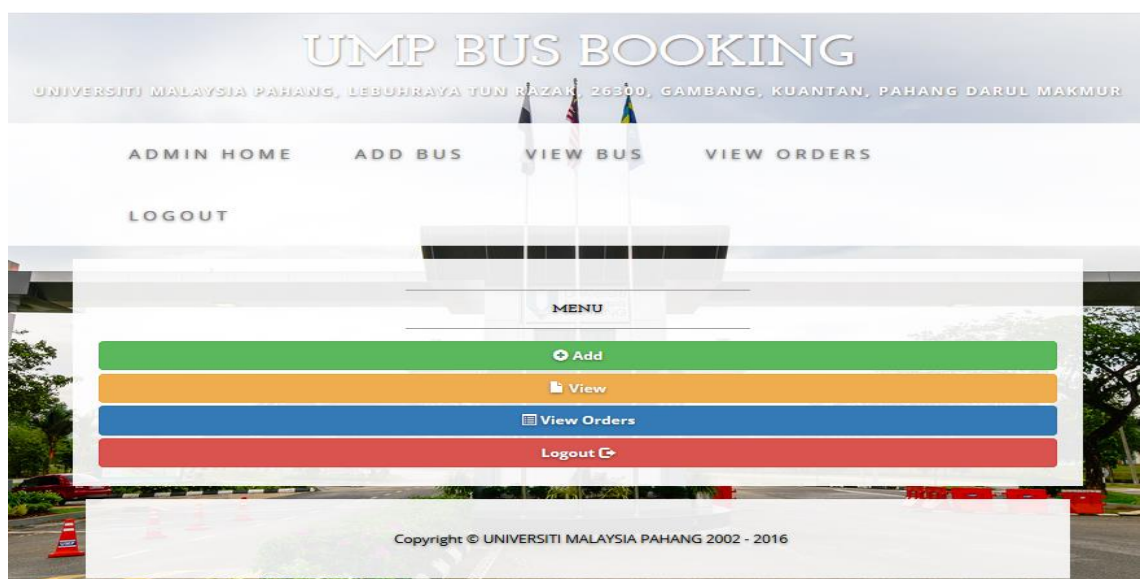


Figure 4.8 : Admin Page

Figure 4.9 shows the Add Bus page of the BBS website. Admin can add new bus by enter a plat number, driver name, date and time.

Figure 4.9 : Add Bus Page

Figure 4.10 shows the View Bus page of the BBS website. Admin can view bus that has been added and can delete.

Num Booking	Plat Number	Date	To	Time	To	Driver	Options
28	DRY_1234	21/12/2018	21/12/2018	8:27 AM	3:27 PM	Encik Syukri	Delete
29	GTU_1234	20/12/2018	20/12/2018	9:43 AM	1:43 PM	Encik Haris	Delete
30	ASE_1234	20/12/2018	20/12/2018	11:9 AM	12:9 PM	Encik Ahmad	Delete
31	TYU_1234	03/01/2019	03/01/2019	5:25 PM	5:25 PM	Encik Wan	Delete

Figure 4.10 : View Bus Page

Figure 4.11 shows the View Booking page of the BBS website. Admin view the booking list with the user details and booking status.

Booking ID	Bus ID	Name	NRIC	Student ID	Faculty	Date	E-mail	Addr.	Phone	Price
14	8	Atiqah	960202035294	ca15126	fskcp	1970-01-01 to 1970-01-01	atiqahmatzin@gmail.com	TM Dasar Laut	0145312006	RM
15	9	syaza	960202035294	ca15114	fskcp	1970-01-01 to 1970-01-01	atiqahmatzin@gmail.com	Gambang Resort	0145312006	RM
18	7	a	960202035294	ca15114	fskcp	1970-01-01 to 2018-01-12	atiqahmatzin@gmail.com	gambanh	0145312006	:
19	10	ali	960202035294	ca15126	fskcp	1970-01-01 to 1970-01-01	atiqahmatzin@gmail.com	Gambang Resort City, 26000 Kuantan Pahang	0145312006	

Figure 4.11 : View Booking Page

Figure 4.12 shows the Paperwork Approval page of the BBS website. Admin can choose to approve or reject the paperwork.

UNIVERSITI MALAYSIA PAHANG, DEBUHRAYA TUN RAZAK, 26300, GAMBANG, KUANTAN, PAHANG DARUL MAKMUR

HOME BOOKINGS CONTACT US LOGIN

BOOKINGS AND APPROVALS

PAPERWORK
APPROVAL
 STATUS = PENDING

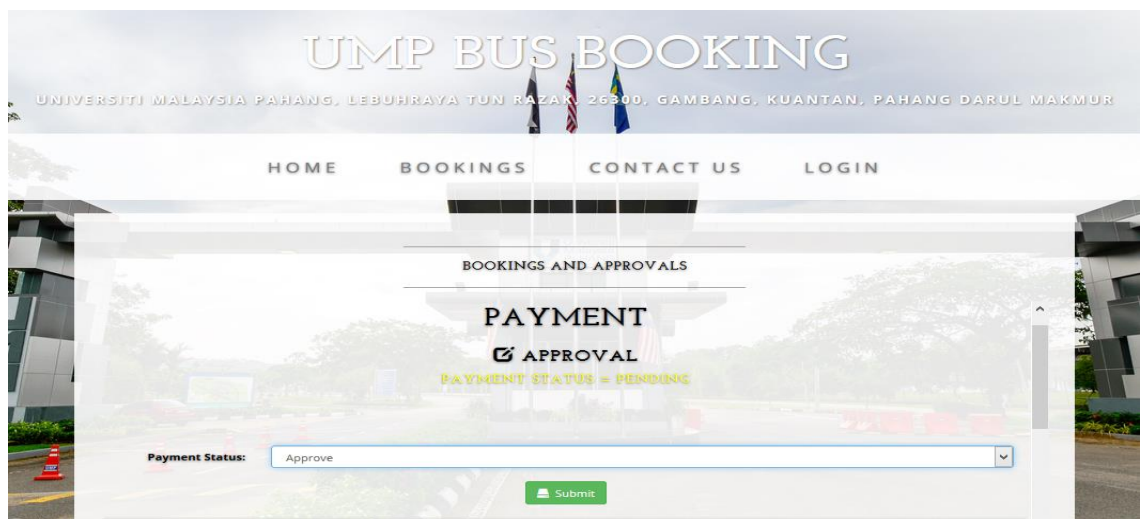
Status: Approve

Price: RM120

Submit

Figure 4.12 : Paperwork Approval Page

Figure 4.13 shows the Payment Approval page of the BBS website. Admin can chose to approve or reject the payment.



4.13 : Payment Approval Page

Figure 4.14 shows the User Booking and Approval page of the BBS website. User can click on booking button to make a booking and approvals button to check the paperwork and payment approval.

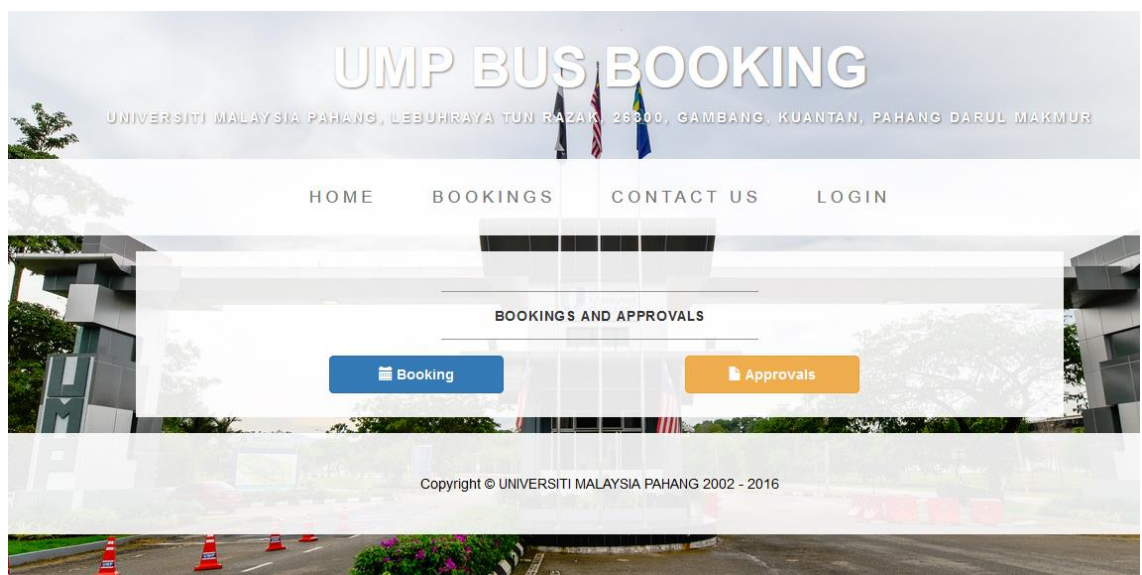


Figure 4.14 : User Booking and Approval Page

Figure 4.15 shows the Choose Bus and Date page of the BBS website. User need to choose the date and last date, and bus plat number.

CHOOSE DATE, TIME AND BUS ID

From : 13/12/2018 To : 13/12/2018

From : 8.00 AM To : 2.00 PM

Bus : FDD 1234

Search

Bus is Available ! Proceed ->

Figure 4.15 : Choose Bus, Date, and Time Page

Figure 4.16 shows the Bus and User Details page of the BBS website. User need to key in their details in order to proceed with the booking.

UNIVERSITI MALAYSIA PAHANG, LEBUHRAYA TUN RAZAK, 26300, GAMBANG, KUANTAN, PAHANG DARUL MAKMUR

HOME BOOKINGS CONTACT US LOGIN

BUS DETAILS

BUS DETAILS

DCE 1234

DATE: 30/11/2018 TO 01/12/2018

DRIVER: ENCIK ALI

USER DETAILS

Name: Firdaus

NRIC: 960202035293

STUDENT ID: ca15126

Copyright © UNIVERSITI MALAYSIA PAHANG 2002 - 2016

Figure 4.16 : Bus and User Details Page

Figure 4.17 shows the Paperwork Upload page of the BBS website. User need to upload the paperwork.

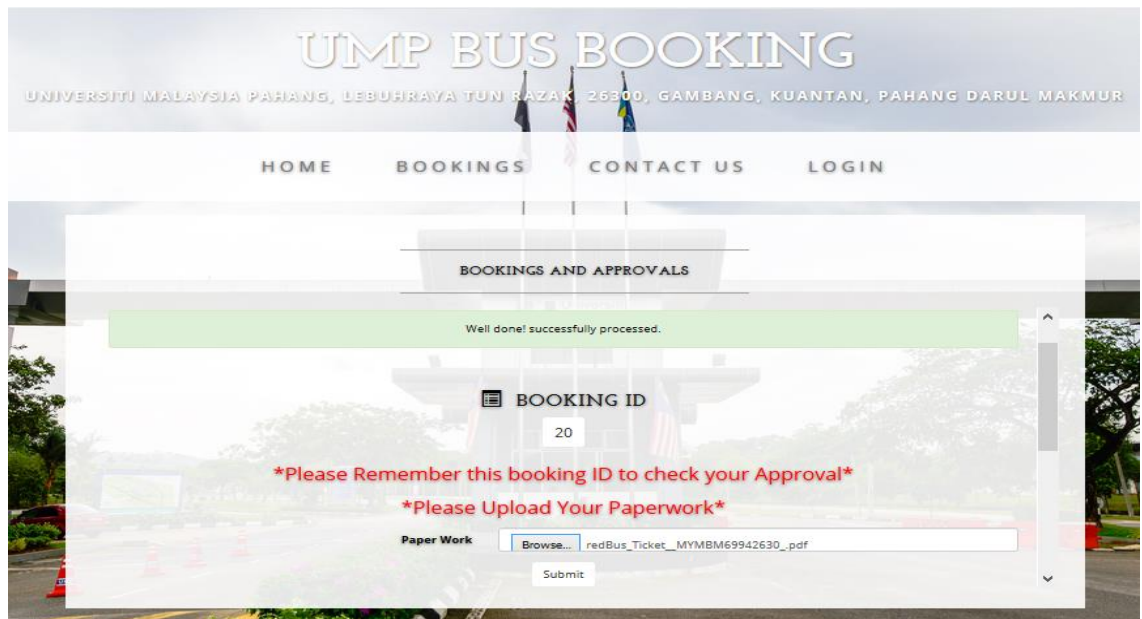


Figure 4.17 : Paperwork Upload Page

Figure 4.18 shows the Check Approval page of the BBS website. User need to enter the booking ID in order to check the approval.

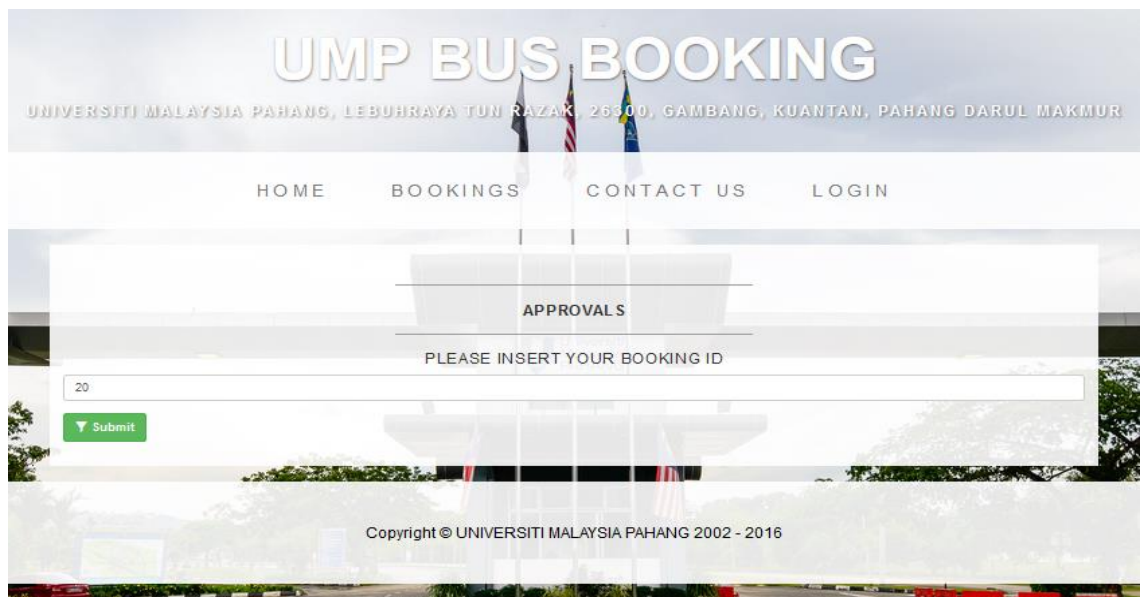


Figure 4.18 : Check Approval Page

Figure 4.19 shows the Change Paperwork page of the BBS website. User can upload a new paperwork if they want to change their paperwork.

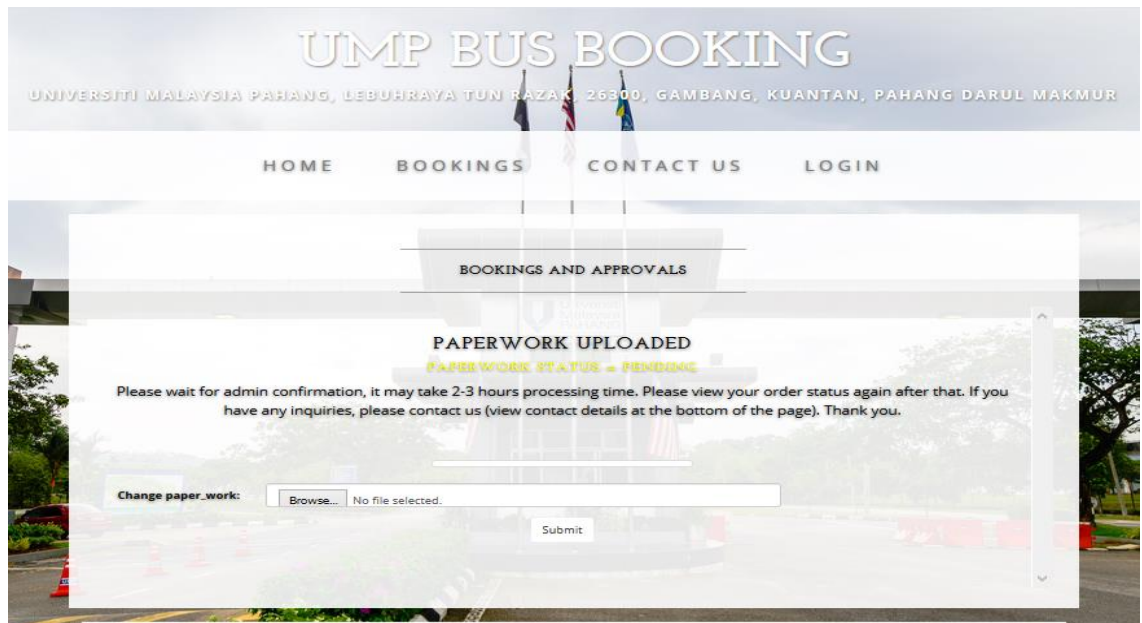
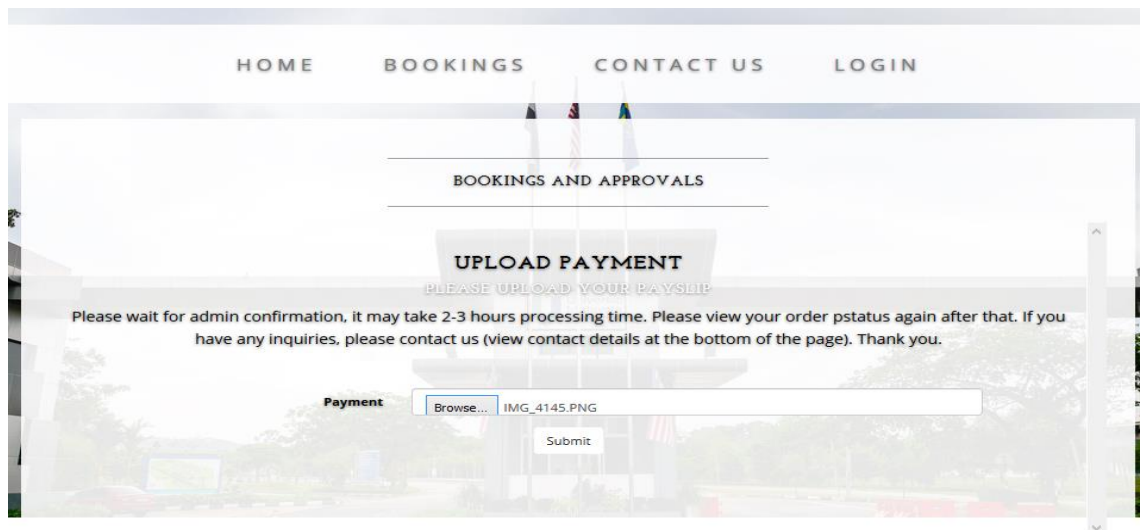


Figure 4.19 : Change Paperwork Page

Figure 4.20 shows the Payment Upload page of the BBS website. After their paperwork has been approved, users need to upload their payment receipt.



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Figure 4.20 : Payment Upload Page

Figure 4.21 shows the Print Slip page of the BBS website. After their payment has been approved, users need to print the slip.

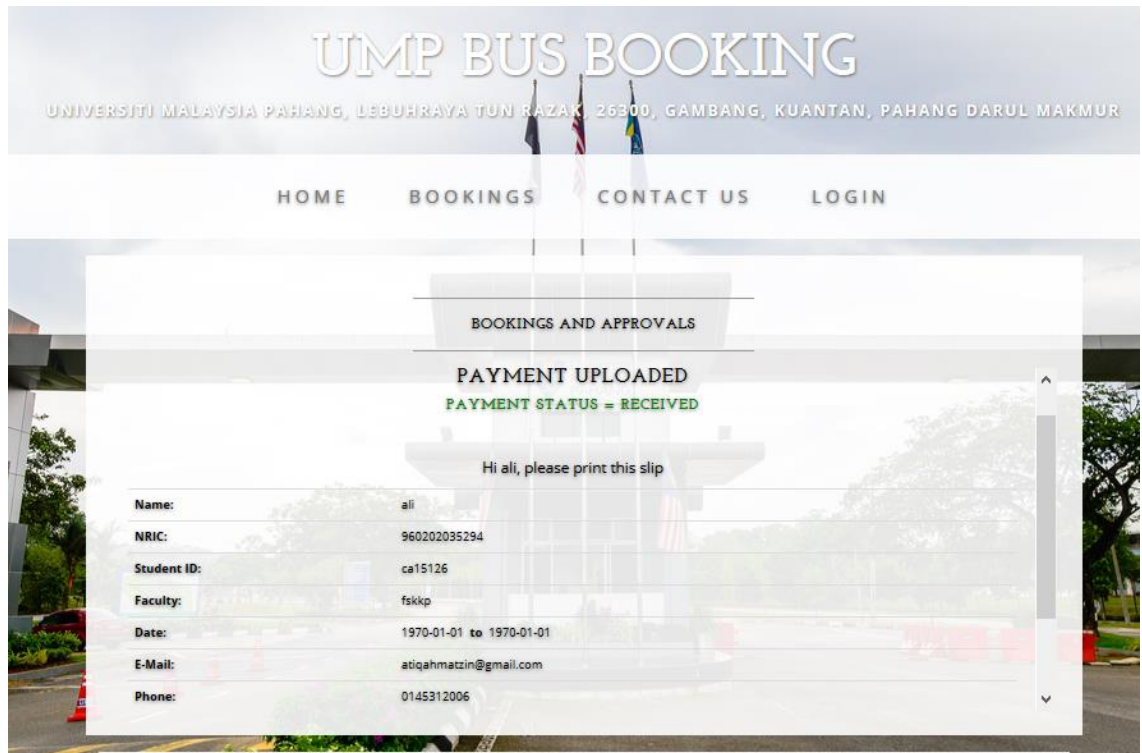


Figure 4.21 : Print Slip Page

4.4 Testing and Result Discussion

Testing is the process to test the system and identify whether the system has any defects, errors, etc. The aim of the testing is to provide efficient systems for the client. The system need to be tested before it is shown to the client in order to reduce the probability of dissatisfactions from them. The Bus Booking System (BBS) is developed to meet the user requirements and the complete system will be tested by the client to have confirmation from them whether all features in the system had meet the requirements. Based on discussion made, BBS help administrator to manage the bus booking in smart and efficient way. Besides, the system itself can help reduce the time consume to store data manually.

During the testing, BBS use test plan to test if the system can run smoothly or otherwise. The client themselves will run the test plan to make sure that they are satisfied enough with the system.

4.4.1 System Testing

Before the User Acceptance Testing is run by the user, the system testing is being run first to see if any ways or improvements that can be done to the system functionality. This is include the integration of notification function in this system that can be managed by the admin (staff) to send the notification to the students regarding the booking status and reminder of the booking that has been made. Basically, the notification is expected to be sent by admin (staff) to the students via their Telegram account. To make this function works, the connection between the database, system and Telegram need to be done. The steps of enabling the notification function are described as follows.

Firstly, Laravel needed to be installed in the laptop which provides an application programming interface (API) for sending notification through Telegram. But before the installation can be proceed, Composer need to be installed first as Laravel utilizes Composer to manage its dependencies.

Secondly, Laravel application named Telegram has been created and Telegram Bot API packages has been installed through the composer. Some steps need to be

configured in order to enable the packages can run smoothly. All these steps need to be done in the terminal window.

Next, Telegram application is installed in the laptop and the Telegram Bot is created. Some messages has been sent to the BotFather in order to created the Telegram Bot then the BotFather provided a token to access the HTTP API. The token is copied and inserted in the .env file. The next step is the creation of the notification channel. This channel is to send the notification. After that, the channel chat ID is obtained so that admin can send the notification to the channel. So basically students need to join the channel first in order to get the notification. There are few steps that cannot be configured due to the lack of systems requiements, skills, understanding, and expertise. This method is not really worked actually but with more efforts, time, and research in the future, the notification via Telegram can be done and worked properly with the system and database.

4.4.2 User Acceptance Testing

User acceptance testing (UAT) consists of a process of verifying that a solution works for the user. It is not system testing (ensuring software does not crash and meets documented requirements), but rather ensures that the solution will work for the user (i.e., tests that the user accepts the solution); software vendors often refer to this as "Beta testing" (Contributors, 2018a).

Table 4.1 shows the use case Login (Admin) in the BBS. Admin will have to key in the valid username and password in order to successfully login. Otherwise, the system will notify to key in a valid username and password.

Table 4.1 : The Use Case Login (Admin) in the BBS.

No	Event	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
1	Login with right input	Insert valid username, password	System will go to the menu page	System executes to the Menu page	Pass	
2	Login with wrong input	Insert invalid username, password	System will notify user to key in a valid username and password	System goes to Login page	Pass	
3	Login with wrong input	Insert valid username and wrong password	System will notify user to key in a valid username and password	System goes to Login page	Pass	
4	Login with the wrong input	Insert invalid username, valid password	System will notify user to key in a valid username and password	System goes to Login page	Pass	
5	Login with wrong input	Input nothing to username and password	System will notify user to key in a valid username and password	System goes to Login page	Pass	

This test has been performed by:

Name : NUR AINA AUNI BINTI RAMLAN

Signature : *AZINJ*

Date : 20 OCT 2018

Table 4.2 shows the use case Add Bus (Admin) in the BBS. Admin can add a new bus by enter date, time, plat number and driver name.

Table 4.2 : The Use Case Add Bus (Admin) in the BBS.

No	Event	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
1	Add new bus	Insert date, time, plat number, driver name	System will notify that record is successfully added	System notify that record is successfully added	Pass	

This test has been performed by:

Name : NUR AINA AUNI BINTI RAMLAN

Signature : *AZINJ*

Date : 20 OCT 2018

Table 4.3 shows the use case Give Approval (Admin) in the BBS. Admin will check the paperwork and decide whether to give pending, approve, or rejected status to the paperwork.

Table 4.3: The use case Give Approval (Admin) in the BBS.

No	Event	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
1	Give approval	Select pending status and submit	System will update the status to the user booking status	System able to update the status to the user booking status	Pass	
2	Give approval	Select rejected status and submit	System will update the status to the user booking status	System able to update the status to the user booking status	Pass	
3	Give approval	Select approve status and submit	System will update the status to the user booking status	System able to update the status to the user booking status	Pass	

This test has been performed by:

Name : NUR AINA AUNI BINTI RAMLAN

Signature : 

Date : 20 OCT 2018

Table 4.4 shows the use case Booking (User) in the BBS. User will have to pick the date, time and plat no. The system will search if the bus is available or not.

Table 4.4 : The Use Case Booking (User) in the BBS.

No	Event	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
1	Choose available date, time, plat no	Search the available date, time and plat no	System will go to the Booking Form page	System executes to the Booking Form page	Pass	
2	Choose unavailable date, time, plat no	Search the unavailable date, and plat no	System will notify user that the bus is not available	System goes to the Booking page	Pass	

This test has been performed by:

Name : NUR AINA AUNI BINTI RAMLAN

Signature : 

Date : 20 OCT 2018

Table 4.5 shows the use case Check Approval (User) in the BBS. User will have to enter a valid booking id. If the booking id is valid, it will direct to Change Paperwork page that will ask user to upload a paperwork file. Otherwise if the booking id is invalid, the system will direct to the Paperwork page.

Table 4.5 : The Use Case Check Approval (User) in the BBS.

No	Event	Test Data	Expected Result	Actual Result	Pass/Fail	Comment
1	Check the approval status	Insert a valid booking id	System will go to the Change Paperwork page	System executes to the Change Paperwork page	Pass	
2	Check the approval status	Insert an invalid booking id	System will go to the Paperwork page	System executes to the Paperwork page	Pass	

This test has been performed by:

Name : NUR AINA AUNI BINTI RAMLAN

Signature : 

Date : 20 OCT 2018

4.4.3 Result

The Bus Booking System (BBS) is used to meet the user requirement. After the system testing and User Acceptance Testing have been done, these can be concluded that most of the functions are work properly and as expected results except for the notification function. When the system has been successfully developed, the full version of BBS is published and installed. Based on the discussion, this system help staff and students a lot plus it solves the problems and achieving the objective of the project which is to make the online booking instead of do it manually.

However, there are also few efforts need to be done in the future in order to improve the weaknesses of the system itself. With the right guideline, understanding and enough time, the BBS can be better in terms of the functionality and usage of the system.

4.5 Challenges

During the development of this project, there are pretty much challenges that need to be faced both physically and mentally. For an instance, in designing the user interface. Many aspects that need to be considered to make the interfaces user-friendly plus can boost the user experience as well. As a result, user can explore the website without any difficulties and confusions. It is said that the performance should be considered first before developing the website. Keeping good performance of the website is quite challenging as we need to ensure the written code is powerful enough, optimizing database, and others. Apart from that, time management. Time management in doing this project and other subject assessment is really need to be arranged properly. So that, despite of finishing this project, other task will not be neglected. But, it is quite hard especially when it comes to the problems such as error, lags, and many others. These problems require most of the time as it is crucial to be more focus on this project in order to finish the project before the submission date. Besides, sometimes the function in this project is not working and attempts are made to fix the error, but it will get worse. It is seriously very depressed and stressful moments in developing this project.

CHAPTER 5

CONCLUSION

5.1 Introduction

Bus booking system (BBS) is proposed to improve the current manual UMP bus service booking. The BBS helps students to make online bus booking and be able to know the booking status. Moreover, SAffAD staff can store the bus information and the booking details in the database and it is more easy by using the system rather than do it manually. The system also reduced the complexity of the current manual UMP bus service that is require more energy and time.

This project consists of five chapters. These chapters include an introduction, literature review, methodology, result and discussion, and conclusion. This last chapter summarizes the system development process. Functions in this system are expected to enable users to have a better experience in booking buses processes that make their life easier.

5.2 Discussion on User Acceptance Test

Admin is enable to login into the system by entering username and password. Then admin can do the add, view, and delete function of the bus information. Other than that, admin also can view and delete the booking information. Also, admin can decide whether to approve or reject the booking. This system is designed to be a user-friendly system that can provide the best user experience even to those who are not familiar enough with the current technology. Apart from that, it will make admin work much easier and faster as the information and data are stored in the database.

For students, they are able to choose date, time and bus then search if the bus is available or not. If the bus is available, they can proceed with the booking process by providing their information and submit to the system. Students also have the ability to check the paperwork approval by entering their booking id. If the paperwork has been approved, they can proceed with the payment. Otherwise, they need to change the paperwork. All of these can promote the ease of the booking process itself.

5.3 Advantages and Constraints

In every projects that are developed there will be its pros and cons. For the BBS project, the advantages that can be highlighted are the save of time and energy. The BBS replaced the previous version of manual bus booking by enabling users to make online bus booking that can be made anywhere and anytime. Therefore, it does save time and energy. Apart from that, provide efficient management of booking process. By using BBS, the management of the booking process will be more organised as all the information and data will be inserted into the system and stored in the database. Besides, encouragement of human-computer interaction. Rather than human-to-human interaction, the online booking (BBS) will encourage users to interact with computers. A computer has many uses and this takes place as an open-ended dialog between the user and the computer (Newell, 1983). The main valuable lessons that has learnt from this project is to have the knowledge and ability on how to develop the system and how to connect to the database. It also helps to improve problem-solving skills. Besides, this project urged in having a good time management as the project need to be completed and submitted within the scheduled date. Moreover, by developing the system itself, fixing the errors, and implementing functions, the programming skills keep on improving from time to time

There are also constraints that can be identified in BBS. These include the time constraint. The time needed to complete the project is high and it is pretty challenging to manage the time between completing the project and doing other assessments. This requires a very schedulable time management in order to ensure that the time is manage wisely. Next, the resource constraint. The resources of notification via Telegram is quite limited as it needs more effort to find the best guidance or tutorial on how to implement

the method. Indeed somehow the tutorial is not showing clear and understandable steps that make it more difficult to catch up the actual process. Lastly, the development constraint. For this project, the installation of composer and laravel need to be added in the laptop to enable the implementation of notification via Telegram. But, the problem occurred in the installation process that make the development of the project stucked at the moment.

5.4 Future Enhancement

This system is expected can be improved for future plans. The improvements can include the addition of more powerful function that absolutely will make it a great system to be used by its users.

The system needs to be upgraded and more research should be made on how to add function to redirect the payment page to the selected online banking website. So that user can directly make a payment without having to do it manually then upload the receipt. For bus availability checking, it can be improved by displaying the bus availability that includes the details such as plat no, time, date, and driver name. It will be more presentable and clear to the users. Last but not least, the system could be developed in mobile application as the number of mobile users has overtaken the number of desktop users. Besides, mobile application is much more easier and allow for more interactive ways for the user to engage with your content. Rather than looking at the exact same text and images as a website, mobile application can integrate features which allow users to interact with certain components of the application.

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