E-APPOINTMENT SYSTEM

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E-APPOINTMENT SYSTEM

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Thesis submitted in fulfillment of the requirements
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ABSTRAK

Di era kini, penggunaan internet semakin meluas di serata pelosok dunia. Kebanyakan industri menggunakan sistem atas talian untuk mengakses maklumat dan sebagainya dengan internet. Tajuk projek sarjana muda ini ialah Sistem Temujanji. Objektif utama sistem ini dibangunkan untuk memudahkan pelajar Universiti Malaysia Pahang (UMP) untuk membuat temujanji dengan pensyarah. Terdapat pelbagai cara bagi pelajar-pelajar membuat temujanji dengan pensyarah di UMP seperti bertemu pensyarah secara peribadi, membuat panggilan telefon atau mesej melalui rangkaian sosial. Tetapi, dengan adanya sistem ini, temujanji yang dibuat menjadi lebih teratur dan direkod untuk dijadikan rujukan. Sistem ini dibangunkan berlandaskan web dan dihasilkan menggunakan bahasa pengaturcaraan web seperti PHP, HTML dan MYSQL sebagai pangkalan data untuk sistem ini. Sasaran pengguna sistem ini terdiri daripada pelajar, pensyarah dan pentadbir system. Kaedah atau teknik yang digunakan untuk membangunkan system ini ialah Pembangunan Aplikasi Rapid (RAD). Terdapat empat fasa dalam RAD iaitu fasa keperluan, fasa reka bentuk, fasa pembinaan dan fasa peralihan. Kaedah ini dipilih kerana ia membolehkan sistem ini diwujudkan dalam masa yang terhad. Konklusinya, projek ini dapat menjimatkan tenaga, masa dan mengurangkan kos operasi.

ABSTRACT

In today's era, internet usage is widespread throughout the world. Most industries use the online system to access information and other things with internet. The title of this bachelor project is E-Appointment System. The main objective of this system was developed to facilitate University Malaysia Pahang (UMP) students to make an appointment with lecturers. There are various ways for students to make an appointment with lecturers at UMP such as meeting lecturers personally, making phone calls or messages via social networks. However, with this system, appointments are made more organized and recorded for reference. This system is built on the web and is generated using web programming languages such as PHP, HTML and MYSQL as the database for this system. The target user of this system consists of students, lecturers and system administrators. The method or technique used to develop this system is Rapid Application Development (RAD). There are four phases in the RAD which are requirement phase, the design phase, the development phase and the cutover phase. This method is selected because it allows this system to be created within a limited time. In conclusion, this project can save energy, time and reduce operating costs.

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LIST OF ABBREVIATIONS

SMS	Short Messaging System
GUI	Graphical User Interface
CSS	Cascading Style Sheets
PHP	Hypertext Preprocessor
HTML	Hyper Text Markup Language
MySQL	My Structured Query Language
DBMS	Database Management System
RAD	Rapid Application Development
DFD	Data Flow Diagram

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDIES

Appointment system is an alternative support system designed and developed for handling and managing a process of appointing consultant. This system will anticipate an efficiency and accuracy of selecting qualified consultants for the projects, which will be performed. The main function of the system is about appointing the right consultants for the right project (Bakar, 2009).

Previously, in my findings, the current available appointment is lack of important and complete features. Therefore, somehow when we request an appointment using the system, the system does not generate the notification what the result obtain from the appointment request. To eliminate this errors based on the current appointments system, there is need to develop a system that enables appointment processes easier.

For students, they may frequently have numerous questions and doubts to lecturer regarding their labs, writing reports, exams, projects and many other and they always need to clarify those doubts. So, they have to find a proper time to perform a meeting with the particular lecturer. But, in university, students will have to go and return back to faculty many times to check the lecturer availability that will make them face some difficulties too according to their free time. This is because of the students did not know the lecturer's schedule or free time and they need to discuss it using instant messaging (Choudhari, Kusurkar, Sonje, Mahajan, & Vaz, 2014).

1.2 PROBLEM STATEMENT

Table 1.1 shows the problem related, description and effect with the current procedure of making appointment between students and lecturers.

Table 1.1 Problems Statement with Description and Effect

No	Problem	Description	Effect
1	Time consuming	Students always need to go to the lecturer's room or call their hand phone number to make sure either they are free or not. Sometimes, the lecturers take a long time to reply to students' calls or SMS (Short Messaging System).	It make students waiting for a long reply from the lecturers without knowing the status of their lecturers either busy or unavailable.
2	The current process of making an appointment in the system does not generate the notification.	There is no notification for user to know what the status of appointment that they have made.	It make difficult to user that they always need to check the system to see the appointment status.
3	Lack of the important features and unorganized interface in the system	There is useless information and also some of the unimportant navigation panel that have in the system.	It disturb and make difficult to the user to make the important appointment.

1.3 OBJECTIVES

There are several objectives in developing this system which are:

i. To help user making an appointment more easy and systematic.

ii. To design a web-based application for students to make an appointment with lecturers.

iii. To develop the proposed E-Appointment System in a web-based platform.

1.4 SCOPES OF PROJECT

i. System

The functionality of the system is it will automatically send the request of appointment do it by students, when lecturer log in into the system, they can make a decision if they want to reject the appointment made by the students before. The system will generate the status and come out with the notification to students.

ii. User

Students and lecturers will be the target user of this system. To make the appointment, students must login to this system's account and only users that have the registered account can make appointment with the lecturers. Administrator have to control the activities in the system such as adding new lecturer into the database.

iii. Platform

The platform of this E-Appointment system is a web-based. It is proved that web-based projects is more efficient because it will helps students to make an appointment online in more systematic and professional ways rather than using SMS, WhatsApp and other online communication.

1.5 THESIS ORGANIZATION

This thesis contain about five chapter to cover the entire thesis research requirement which are introduction, literature review, methodology, implementation and result and lastly conclusion. Start with the first chapter, which we will elaborates on the introduction, problem statements, objectives and the scope of the project.

The second chapter we will explain the literature review which is related to the research on the existing appointment system. Then, from there, we will compare and highlight their pros and cons to implement into this project. The third chapter on methodology that will cover what method to use in order to fulfil the requirement in developing this project.

The forth chapter is implementation and result of the project that will discuss on the way to implement in the project and the result after it being implement. The last chapter is the conclusion of the project.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Appointment system is an existing system that function is to help user make an appointment. By using the appointment system, the process will be easier for users to make an appointment without any troubles that can save more time, energy and money rather than do it manually.

E-Appointment System is an appointment system that help student and lecturer easy and professional ways in making an appointment. The platform of web-based system very appropriate and convenient platform for the student to make an appointment. It will be more comfortable and easy for student to make the appointment via online.

Therefore, in this new trend, people are recessive to use the appointment system using a web whereby they can easily arrange their appointment (Harding & Bottrell, 2016). An online appointment system is very important nowadays because it really help people who do not have many free time to go and make an appointment at their office.

2.2 STUDIES ON THE EXISTING SYSTEMS

The reason on studies the existing systems is to find the fundamental issues in the existing system that can be executed to enhance the performance of this project. The analyses being done to locate a conceivable answer for conquer the issue that exists in current available systems that are maybe related to improve E-Appointment System.

There are few systems that are discover to know it advantages and their disadvantages to compare. From it point of disadvantages, the system will being enhances

and update in step by step until it achieve the objective and goal of the system and also worth for these days innovation.

2.2.1 Online Appointment for Manipal's Hospital

Online Appointment for Manipal's Hospital is an existing appointment system and in Malaysia where users can make an appointment to meet a doctor. User may need to fill up the form first that required user email, date of appointment and other information. The platform is general so every person that have email's account can enter it before sending the details request of the appointment.

Figure 2.1 shows the existing appointment system where the system is done when user fill in the online form.

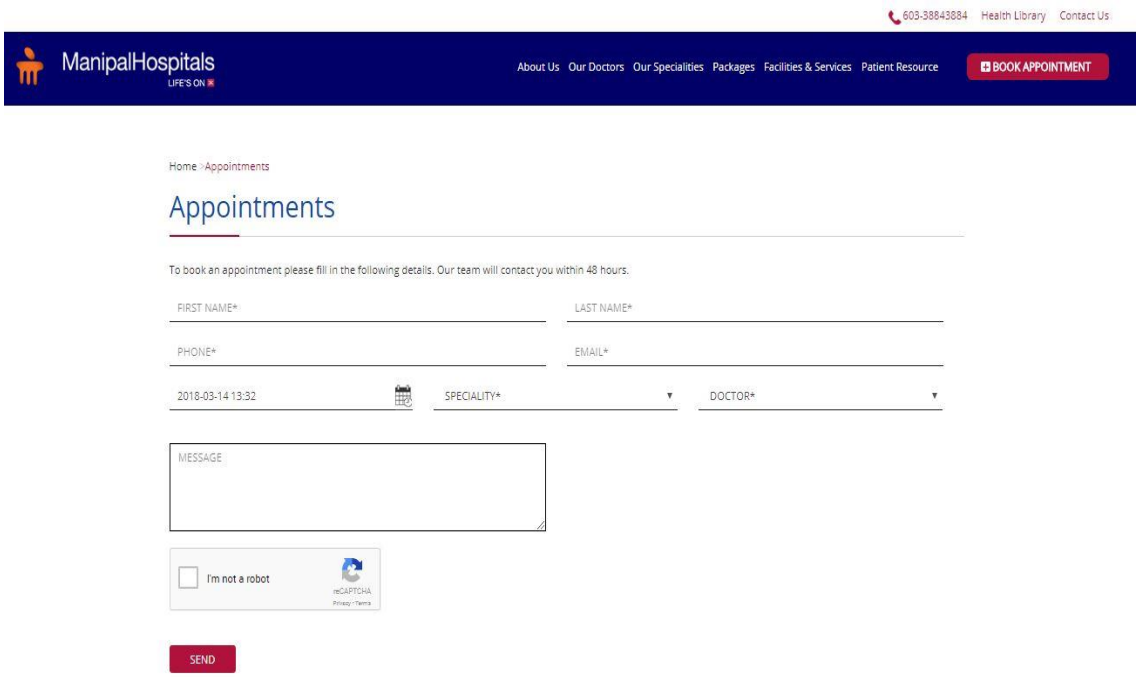


Figure 2.1 Online Appointment for Manipal's Hospital page

Source: https://www.manipalhospitals.com.my/appointments/

System: Web based system

The criteria will be discuss based on the table 2.1 below. As stated in Table 2.1, it shows some criteria of Online Appointment for Manipal's page. The criteria is include the GUI, security, the speed of browsing and also the language used in the page. For graphical user interface, the theme colour for the page is just plain because it is for formal used. Based on the website, it has a high spec of security. When browsing through the pages, the speed was quite fast. The languages used in this pages are Malay, English and Chinese.

Table 2.1 Online Appointment for Manipal's Hospital criteria

Criteria	**Description**
Graphical User Interface (GUI)	The information is clear because it show the details of the appointment that we need to fill in. The theme colour was not too bright but it was just plain and nice to see.
Security	Yes.
Speed of browsing	Fast.
Language	Malay, English and Chinese.

2.2.2 Book Spa, Facial, Mani-Pedi and Salon Appointment

Book Spa, Facial, Mani-Pedi and Salon Appointment is known as the excellence appointment in Malaysia. This system is enables user to browse, read reviews and book appointment from 1000 spas, facial, manicure, pedicure treatments across Malaysia.

Figure 2.2 shows the existing appointment system in Malaysia to search for spas and salons.

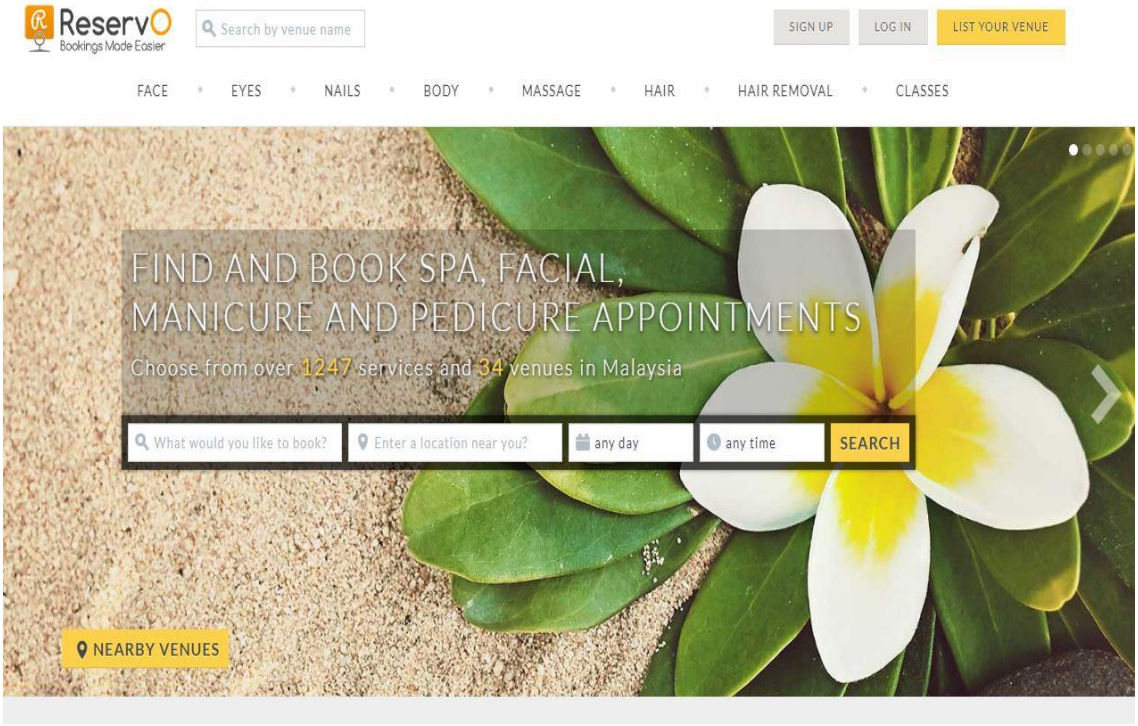


Figure 2.2 Book Spa, Facial, Mani-Pedi and Salon Appointment page

Source: https://www.reservo.my/

System: Web based system

As stated in Table 2.2, it shows some criteria of Book Spa, facial, Mani-Pedi and Salon Appointment page. The criteria is include the GUI, security, the speed of browsing and also the language used in the page. For graphical user interface, image-based with the white background make the page interesting to see and suitable to the goal of the

system itself. Based on the website, it has a medium spec of security. When browsing through the pages, the speed was fast. The languages used in this pages is mainly English

Table 2.2 Book Spa, Facial, Mani-Pedi and Salon Appointment criteria

Criteria	Description
Graphical User Interface (GUI)	The image-based with the white background make the page interesting to see. The information that we gain will be more accurate because it show the details of the place that we want to make appointment.
Security	Yes.
Speed of browsing	Fast.
Language	English only.

2.2.3 BookDoc Search & Book System

BookDoc Search & Book System is an appointment system that allows users to find a 24-hour doctors, dentists, clinics and other specialist in their area and book them.

Figure 2.3 shows the existing appointment system where the system is done when users fill in the online form.

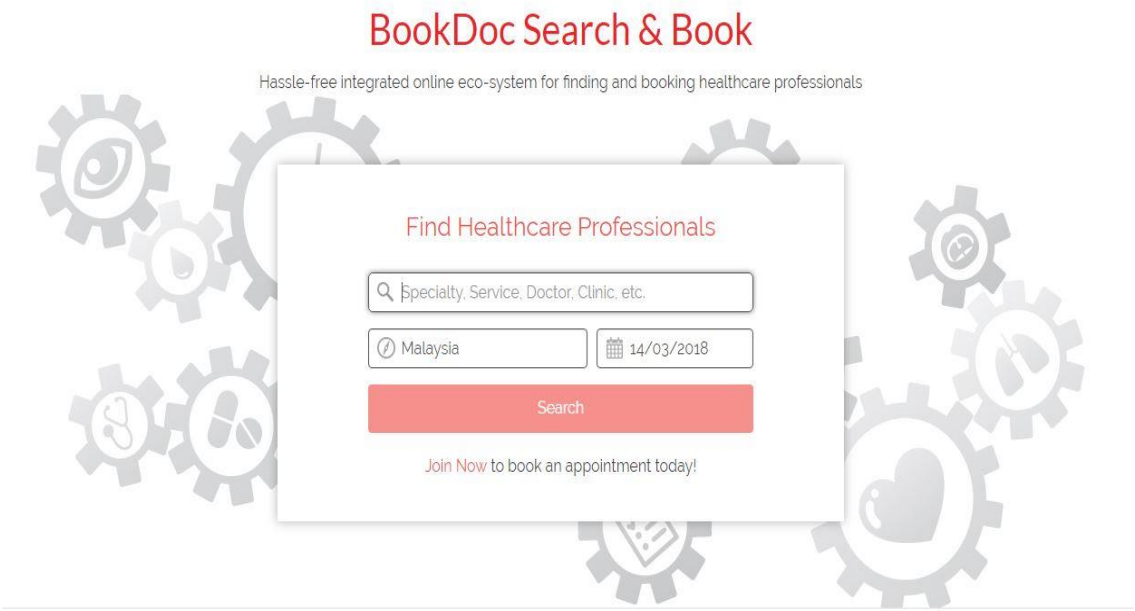


Figure 2.3 BookDoc Search & Book System page

Source: https://www.bookdoc.com/

System: Web based system

As stated in Table 2.3, it shows some criteria of BookDoc Search& Book System page. The criteria is include the GUI, security, the speed of browsing and also the language used in the page. For graphical user interface, it have a simple interface but easy to understand Based on the website, it has a high spec of security. When browsing through the pages, the speed was quite fast. The languages used in this pages is mainly English.

Table 2.3 BookDoc Search & Book System criteria

Criteria	Description
Graphical User Interface (GUI)	The colour used in the system is suitable with the type of appointment itself. Simple but easy to understand.
Security	Yes.
Speed of browsing	Fast.
Language	English only.

2.2.4 Comparison between the Existing Systems

The three existing appointment system that were discussed are Online Appointment for Manipal's Hospital, Book Spa, Facial, Mani-Pedi and Salon Appointment and also BookDoc Search & Book System.

As shown in Table 2.4 below, through all the criteria, the comparison have been done to see clearly what is their pros and cons.

Table 2.4 Comparison between the Existing System

Criteria	**Online Appointment for Manipal's Hospital**	**Book Spa, Facial, Mani-Pedi and Salon Appointments**	**BookDoc Search & Book System**
First Impression			
User Registration – user need to registered to view the content of system	Yes	Yes	Yes

Color Theme	The white theme color is very normal.	The colour is not to bright and acceptable.	The white and pink theme colour is very normal.
Readability	Easy to read without challenges.	Little difficult to read since they put an image as the background.	Simple and easy to read without any difficulties.
User Interface	The interface are suitable and complete.	The interface are suitable and simple for the system.	The interface are simple and user friendly.
Graphic Usage	The system is not too crowd and have a proper graphic images.	The system is not too crowd and have a proper graphic images.	The system is not too crowd and have a proper graphic images.
Navigation			
From home page – return the first page	Yes	Yes	Yes
Freedom of use	Easy to use.	Easy to use.	Easy to use.
Content			
Image Usage	Yes	Yes	Yes
Useful Information	Yes	Yes	Yes
Contact Details-person in charge contacts	Yes	Yes	Yes
Multiple Language	Malay, English and Chinese.	English only.	English only.
Latest information-the information is up to date	Yes	Yes	Yes
Technique/Technology			
Programming Language	HTML and Java Script.	HTML and Java Script.	HTML and Java Script.

Use Email Notification	No	No	No
Protection			
Security	Yes	Yes	Yes

Table 2.5 shows the advantages and disadvantages from three different existing appointment system. From the disadvantage above, the system can be improved step by step then having a notification is the goal of improving this appointment system.

Table 2.5 Comparison in Advantages and Disadvantages between the Existing Systems

	Advantages	**Disadvantages**
Online Appointment for Manipal's Hospital	Complete details form and features.	Simple form interface and Not giving notification the status of appointment to user.
Book Spa, Facial, Mani-Pedi and Salon Appointment	Simple features details.	Not giving notification the status of appointment to user.
BookDoc Search & Book System	Simple features details.	Simple form but not giving notification the status of appointment to user.

2.3 TECHNIQUE

The current technique or method to be developed in developing the E-Appointment System will be review in this section. The technique that will be used in this E-Appointment System are programming languages, database management system and web server and email notification.

2.3.1 Programming Languages

The frequently programming languages used in developing system are C, C++, JavaScript, CSS, Hypertext Preprocessor (PHP), Hyper Text Markup Language (HTML), MySQL, PHPMyAdmin and other else. One of the example is Hyper Text Markup Language (HTML) which is one of well-known scripting language that is utilized as a part to create structure and configuration the documents for presentation on the web which is not difficult to learn and easy to make new web.

2.3.2 Database Management System

DBMS is also the other name of Database Management System that is define as a software tool to arrange data in database that appropriate to apply in developing the E-Appointment System. To store data information and transform data into information during making decision is one of the purpose of DBMS. Database is also valuable for storing information and keep users appointment in single database.

2.3.3 Web Server

A program that uses Hypertext Transfer Protocol (HTTP) to serve the files that would form the web pages to the users and in response to their request sent, and then later be forwarded by their computer's HTTP clients is called web server. E-Appointment System will used the web server of Apache to develop the system.

2.4 TECHNOLOGY

The technology that will be used in improving the E-Appointment System will be discuss in this section. One of the technology that will develop in this system is the notification of appointment through email. The benefits of utilizing email is it free delivery when send the email, instant delivery when the recipient received and send the reply instantly, file attachment when the user can send documents, pictures or other files, long-term storage, and environment friendly because not require any papers.

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

Methodology is the way to accomplish in completing a project within time and being able to fulfil the user's requirements. It is also an additional description of the chosen method approach that will be utilized when developing the project. Each step in the selected methodology will be implement in this project. The procedure of the entire task should be done properly in the earlier stage so that the project is guaranteed to be on the right path towards the goals and objectives of the project. A brief introduction of the project title and objectives, the selected method to be implement in this project progress, a software and hardware used and also a Gantt's Chart of the planned progress will be included in this chapter of methodology.

3.2 METHODOLOGY

The selected methodology as well as the procedures and methods that will be utilized in developing the E-Appointment System will be discuss on this chapter. To ensure the precise and appropriate project schedule is utilized and conduct us to the right route of developing the system, the specific selection of methodology, techniques, tools and project methods should be done through this chapter. Basically, methodology is a collection of methods which apply to all phases of the software development life cycle. There are several types of model in software development life cycle such as Waterfall model, Spiral model, Prototyping model, Rapid Application Development model (RAD), Formal Method model, Concurrent Development model, WINWIN Spiral model, and Incremental Model. The development of the project usually follows a life cycle. SDLC is an overall process of developing information systems through a multi-step process from investigation of initial requirement through analysis, design, implementation and

maintenance. The six major phase that use are project identification, planning, analysis, design, development and implementation.

3.3 Rapid Application Development Model (RAD)

The Rapid Application Development model is simple and easy to use and also understand. It is also act as a guideline during developing the system. The RAD model contain of four phases which are planning requirements, user design, rapid construction and cutover.

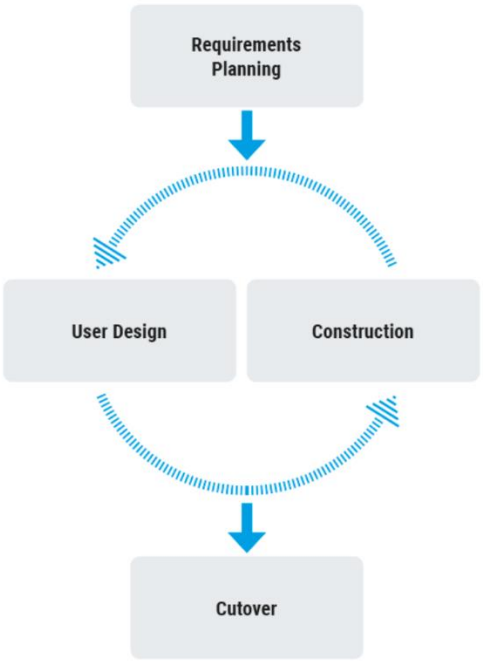


Figure 3.1 Rapid Application Development Model Diagram

3.3.1 Requirement Planning

During the first phase which is planning requirements, this is the phase when it come with an idea to make up the title of this system, the problem statement, the project scope and also application requirements, so that future stages with prototyping can begin. The requirement that need in this system is as below:

i. The system provides the user which is student to make the appointment while lecturer have the right to approve or reject the appointment.

ii. The system allows the admin to login and manage the database of all the user.

iii. The system will also display status of appointment in the page of appointment history when the user open the system.

iv. The user which are admin, student and lecturer be able to update their information to be appear in the system.

v. The system allows the admin to view, add, update or delete the data of the student, lecturer and appointment information.

3.3.2 User Design

The second phase is user design where it is the phase of determining the system architecture. This allows initial modelling and prototypes to be created. This step include the drawing of context diagram, use case diagram, flowchart, functions, data flow diagram, modules, data modelling (ERD), data dictionary, dialogue diagram and also the storyboards of the system. This system have three modules in total which are user module, admin module and lecturer module. The prototype of every modules will be shown in this stage. Meanwhile, the uses case for interaction between system and users is shown in sub-section below.

3.3.2.1 Context Diagram

Figure 3.2 shows the Context Diagram for E-Appointment System. It is a web based system that will include the interaction between student and lecturer. For student, they need to login first with the correct password and username. Then they can make the appointment and also get to view their appointment that have made. Same goes to lecturer, they need to login first with the correct password and username but a little different they need to make a decision on appointment made by student. Therefore, the lecturer also can view their schedule appointment through this system. An admin be able to manage all the data about student and lecturer.

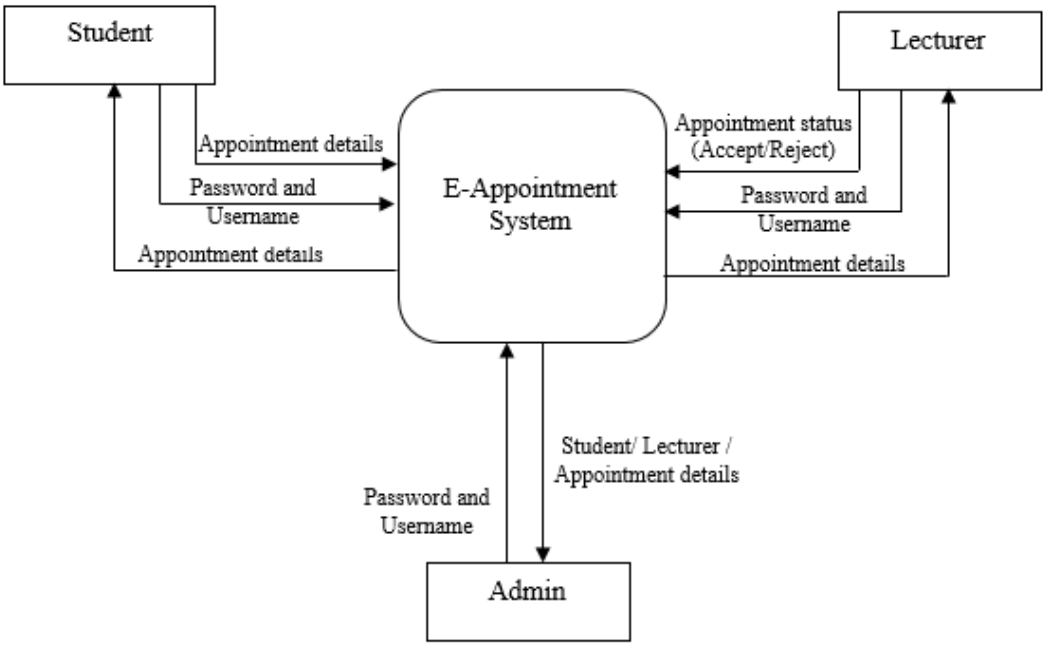


Figure 3.2 Context Diagram for E-Appointment System

3.3.2.2 Use Case Diagram

Refer to figure 3.3, there are three actors in this E-Appointment System which are admin, student and lecturer. In this use case diagram of E-Appointment System, there are seven main use case which are sign up, login, make appointment, view status appointment, approve/reject appointment, manage lecturer/ students and view appointment history. Student can sign up, login, make the appointment, view the status appointment and view the appointment history while lecturer can login, view appointment history and make a decision either approve or reject the appointment. View appointment history for admin is mean by the lecturer can add, edit, delete and update the appointment

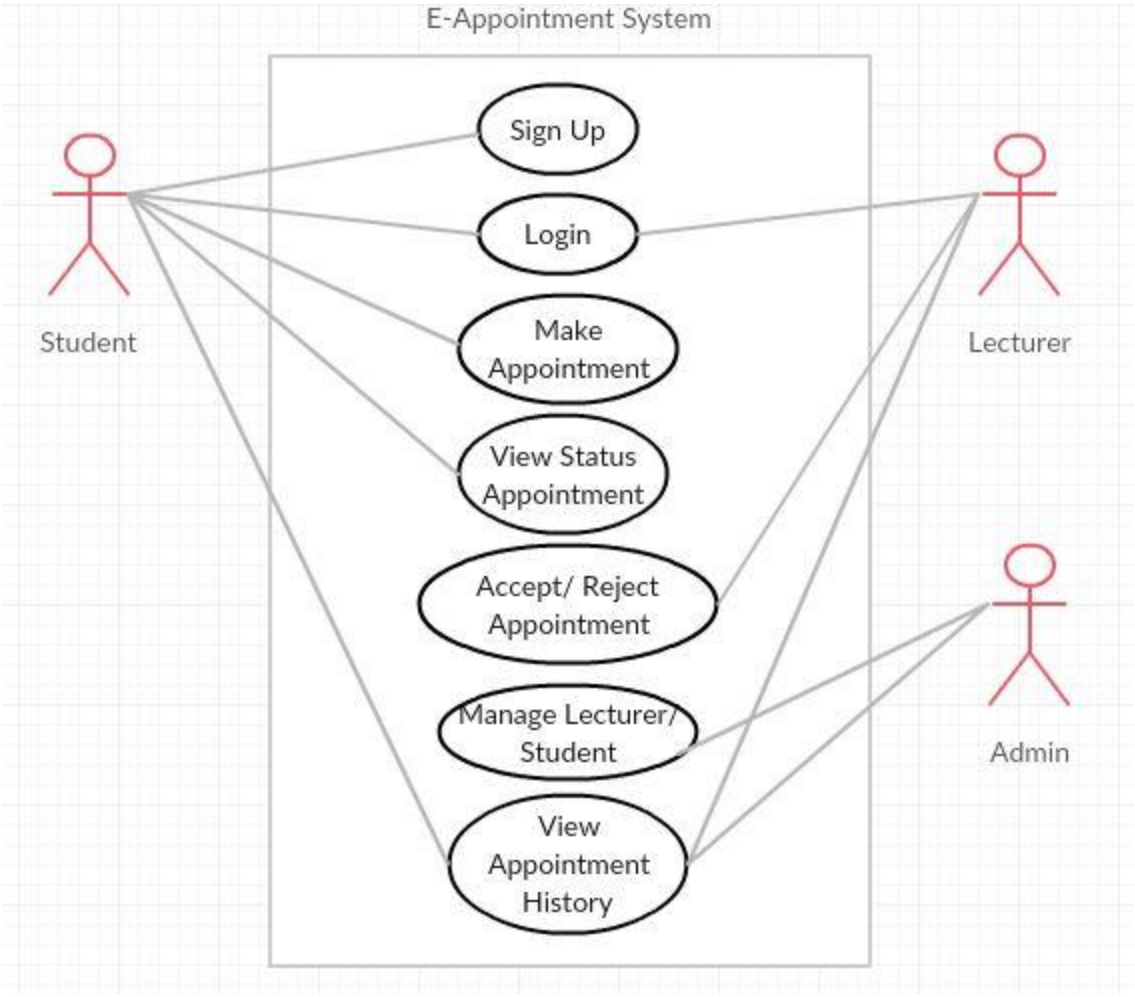


Figure 3.3 Use Case Diagram for E-Appointment System

3.3.2.3 Flowchart

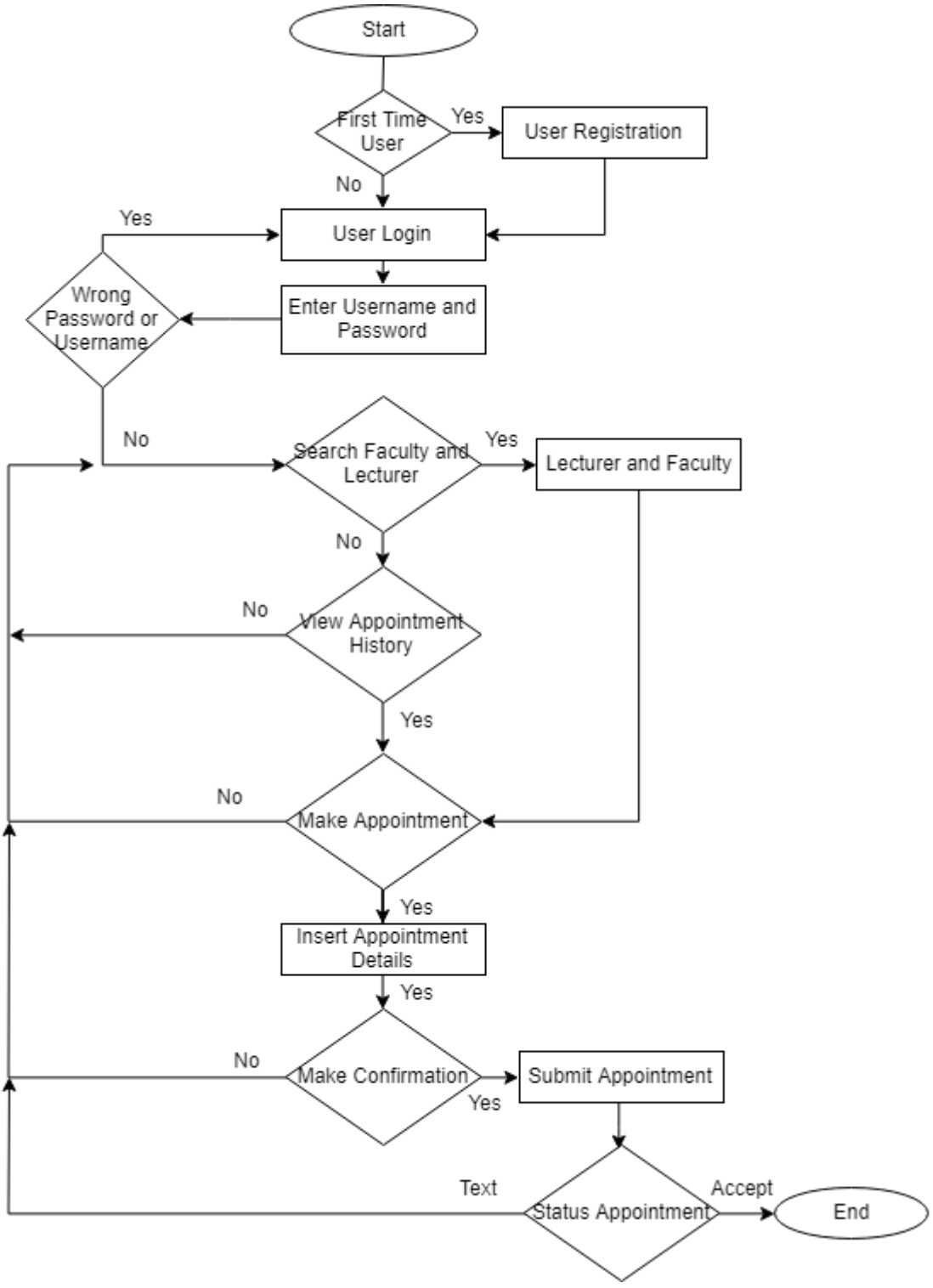


Figure 3.4 Flowchart for E-Appointment System

3.3.2.4 Functions

As stated in table 3.1, the table shows the function table for the students. Student may login or sign up first to insert into the system. Then, they may choose of lecturer that they want to make an appointment with. After that they will make an appointment through selecting time slot and submit the appointment which is required their email and password in order to get a notification of status appointment that they have made through status from the system itself.

Table 3.1 Function Table for Student

Function	**Description**
Login	The login function is used when student want to login into their account by using their username and password.
Sign Up	The sign up function is used when student do not have any account yet and must register it through email.
Make Appointment	The make appointment function is used when student is ready to make appointment
Submit Appointment	The submit appointment is used when the appointment want to be submitted and it will be send to the lecturer to get the approval appointment.
View Appointment History	The view appointment history function is used to view the status of the appointment either being accept or reject by lecturer.

As stated in table 3.2, the table shows the function table for the lecturer. Lecturer may login to insert into the system. Then, they may view schedule appointment that have been made by students. After that they will make a decision either want to approve or reject the appointment made by the students. The decision then will be submit and student will get the notification of status appointment through the status from the system. Therefore, lecturers can always manage their schedule to perform a better information to students.

Table 3.2 Function Table for Lecturer

Function	**Description**
Login	The login function is used when lecturer want to login into their account by using their username and password.
Approve/ Reject Appointment Button	The approve/reject appointment is a decision made by the lecturer that should be made through this button from the view schedule function.
Submit Appointment Status	The submit appointment status is used when lecturer have done with his/her decision to give the student through the system.
View Appointment History	The view appointment history function is used to view the appointment that they have and already had.

As stated in table 3.3 the table shows the function table for the admin. Admin may login first to insert into the system. Then, admin may manage lecturer or student to add, update, delete and edit their details.

Table 3.3 Function Table for Admin

Function	**Description**
Login	The login function is used when admin want to login into their account by using their username and password.
Manage Lecturer/ Student/ Appointment	The manage lecturer/ student is used when the admin want to add, update, delete and edit their details.

3.3.2.5 Data Flow Diagram (DFD)

Figure 3.5 shows the data flow diagram level 0 for E-Appointment System. It start with the login for admin, student and lecturer. Then, view schedule of lecturer. Then student can make appointment and also view status of appointment while lecturer will accept or reject the appointment and also manage the schedule in terms of edit, update, add and delete their schedule. The appointment then will be submit and store into the database of the system.

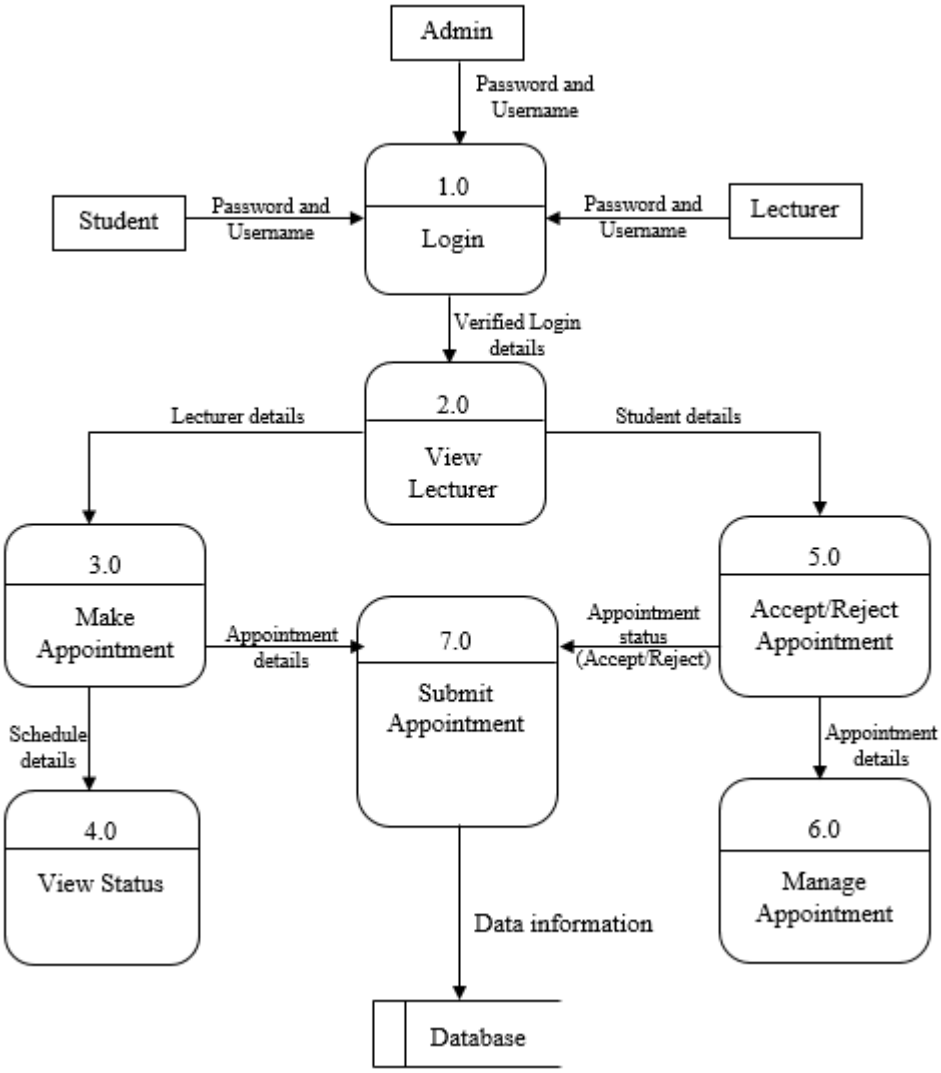


Figure 3.5 Data Flow Diagram for E-Appointment System

3.3.2.6 Dialogue Diagram

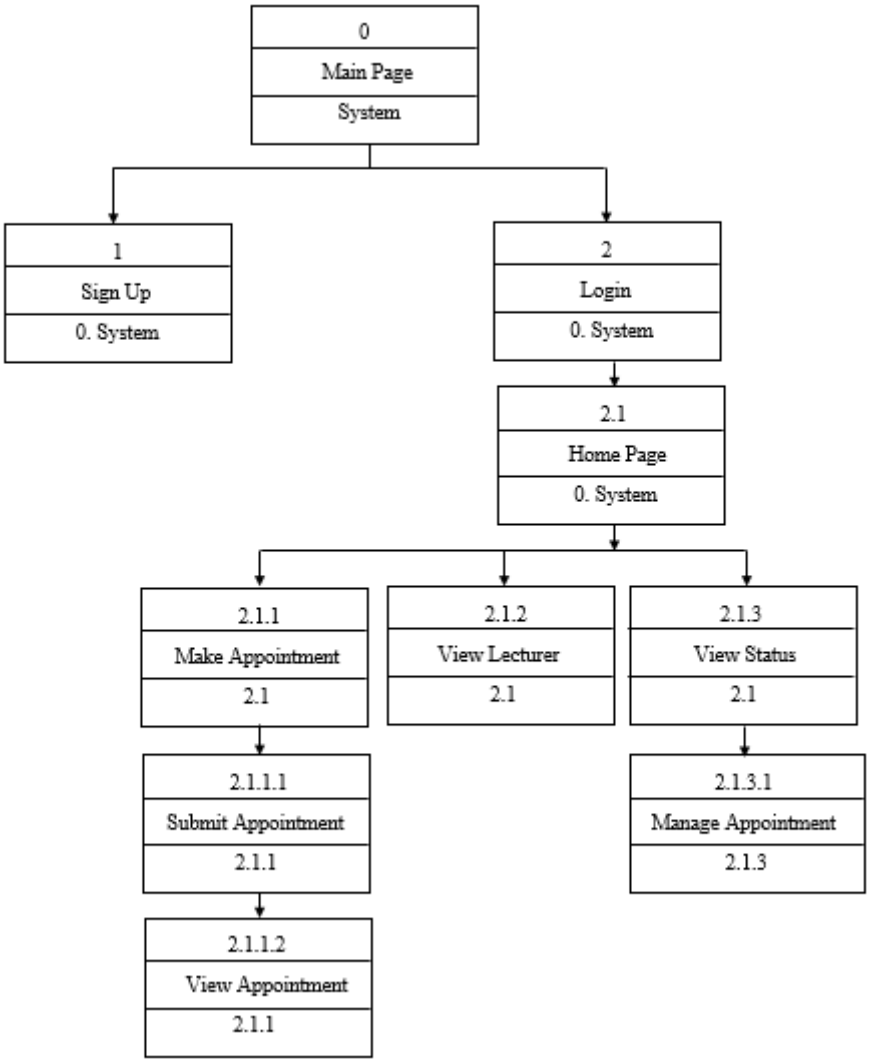


Figure 3.6 Dialogue Diagram for E-Appointment System

3.3.2.7 Modules

The first one is student modules. In this module, student first need to login or sign up for a new user. Then, student make an appointment with the selected lecturer and also view status appointment.

Second is lecturer module. Through this module, lecturer also first need to login to the system. Then, they can view appointment's schedule, make a decision on status appointment either want to accept or reject and also can manage appointment in content of they can add, edit, delete and update in this E-Appointment System.

The third module is for admin. Admin need to login and admin can manage lecturer and student by adding, editing, deleting, updating their profile.

3.3.2.8 Data Modelling (ERD)

The figure 3.7 shows the entity relationship diagram of E-Appointment System. One student can make one or many appointment to lecturer while one lecturer can approve or reject one or many appointment made by students. Admin can manage on or many student and lecturer at one time.

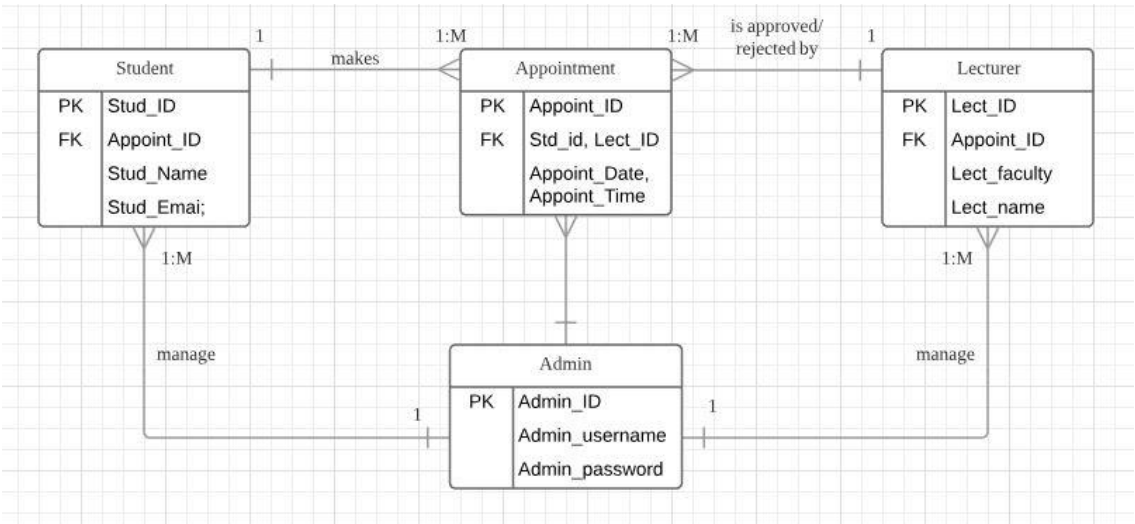


Figure 3.7 Entity Relationship Diagram for E-Appointment System

3.3.2.9 Data Dictionary

Table 3.4 Data Dictionary for Student Information

Field Name	Description	Data Type	Constraint
Std_ID	Student ID	String	Primary Key
Appoint_ID	Appointment ID	String	FK
Std_Name	Student Name	Char(50)	
Std_Email	Student Email	String	

Table 3.4 shows the data dictionary for student information. As stated in table, Std_ID is set as the primary key and Appoint_ID as foreign key.

Table 3.5 Data Dictionary for Lecturer Information

Field Name	Description	Data Type	Constraint
Lect_ID	Lecture ID	String	Primary Key
Appoint_ID	Appointment ID	String	FK
Lect_Status	Lecturer Status Appointment	String	

Table 3.5 shows the data dictionary for lecturer information. As stated in table, Lect_ID is set as the primary key and Appoint_ID as foreign key.

Table 3.6 Data Dictionary for Admin

Field Name	Description	Data Type	Constraint
Admin_ID	Admin ID	String	Primary Key

Table 3.6 shows the data dictionary for admin information. As stated in table, Admin_ID is set as the primary.

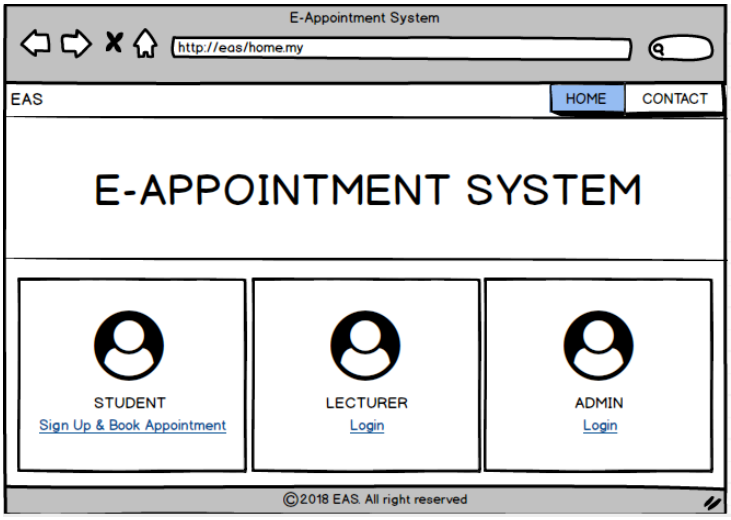
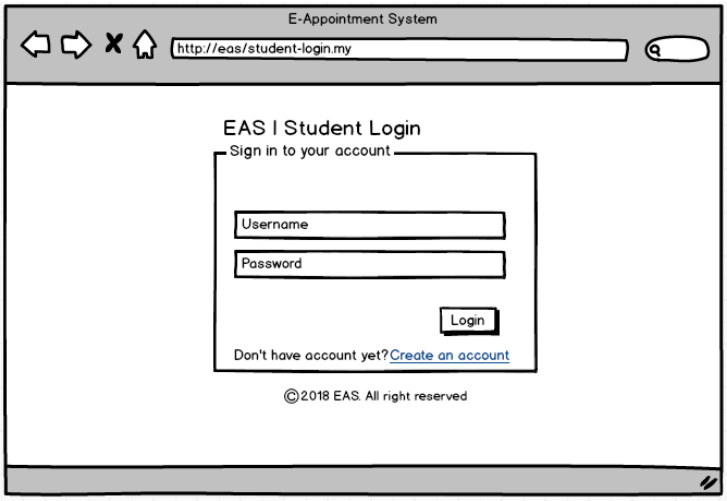
Table 3.7 Data Dictionary for Appointment Information

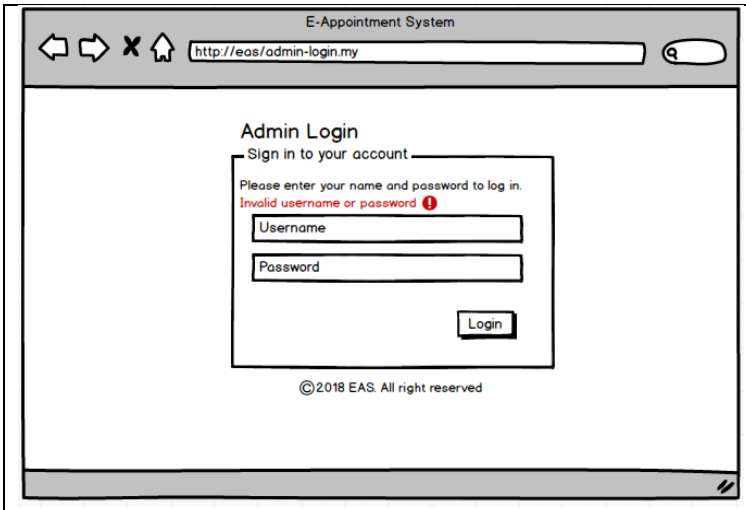
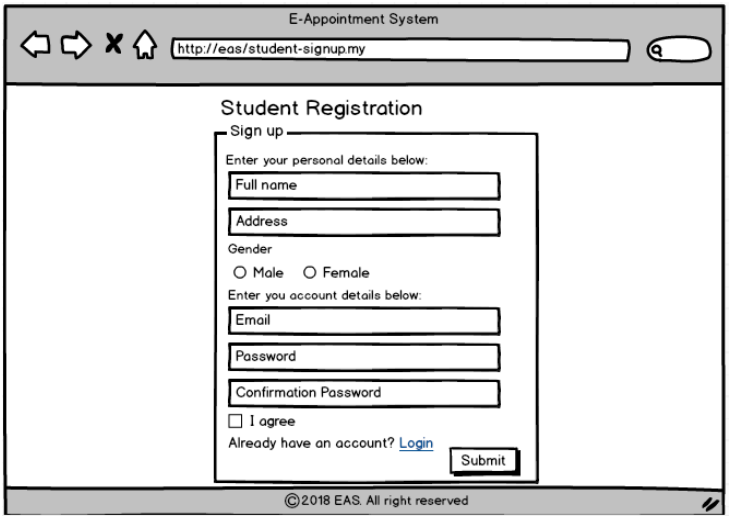
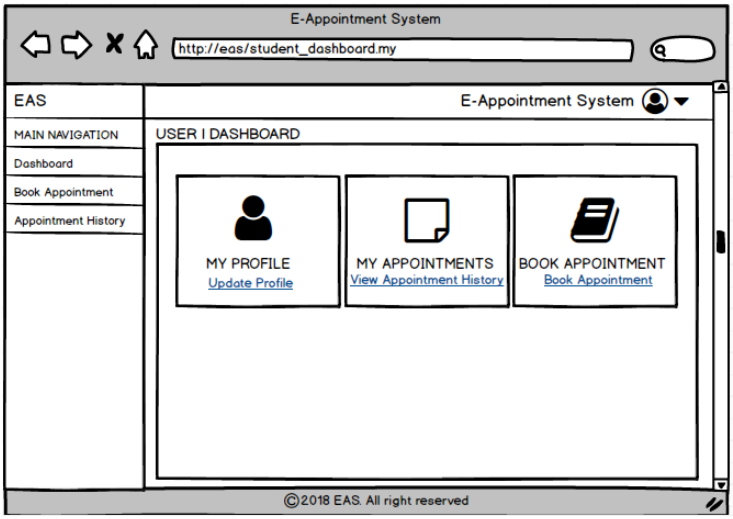
Field Name	Description	Data Type	Constraint
Appoint_ID	Appointment ID	String	Primary Key
Lect_ID	Lecture ID	String	FK
Std_ID	Student ID	String	FK
Appoint_Date	Appointment Date	String	
Appoint_Time	Appointment Time	String	

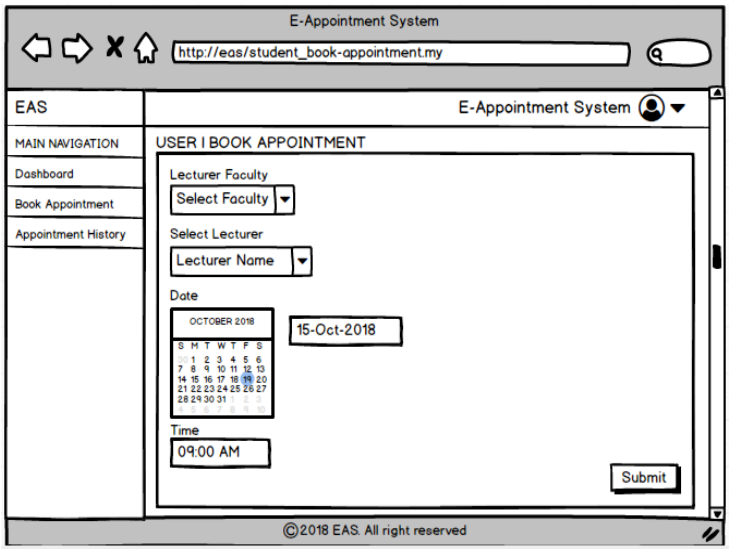
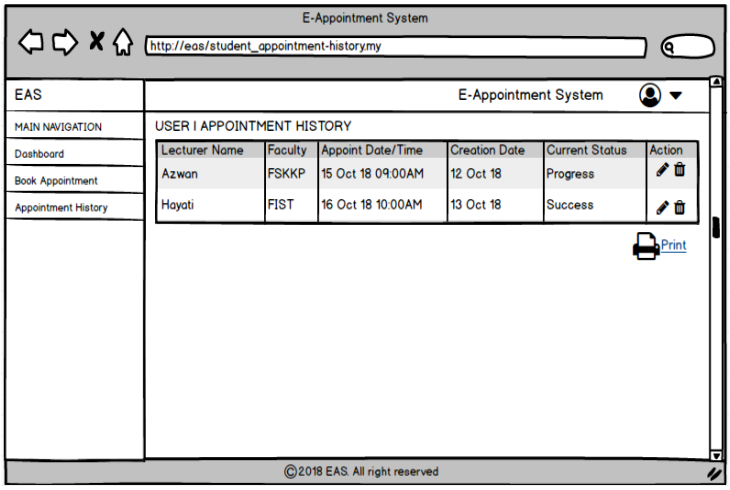
Table 3.7 shows the data dictionary for appointment information. As stated in table, Appoint_ID is set as the primary key and Lect_ID and Std_ID as foreign key.

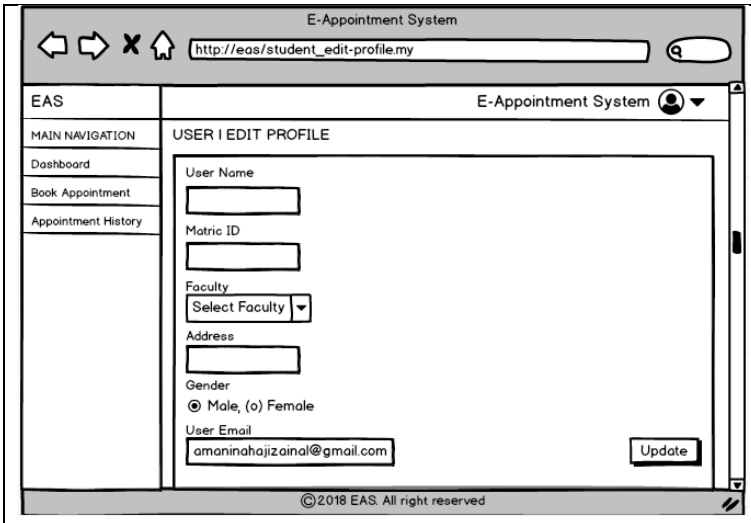
3.3.2.10 Story Board

Table 3.8 Story Board for E-Appointment System

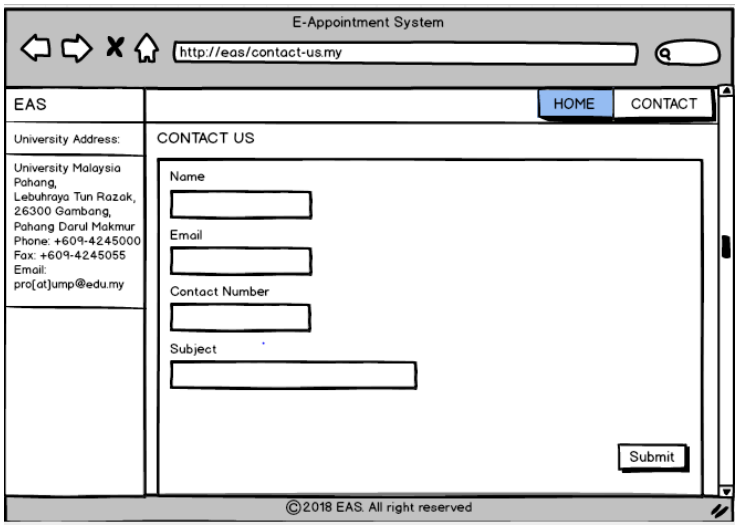
Interface	Description
Screen Title: Main Page 	The Main Page of E-Appointment System is appearing the Login all user. User need to choose what the position they are before login.
Screen Title: Login Page 	When user click the 'Login' button, this screen will be display. User need to fill in email and password
Screen Title: Wrong Password Page	If user fill in the email or password wrong, the alert

	message with red colour will appear.
Screen Title: Sign Up Page 	The Sign Up Page is the page that user need to go when they do not have an account to login.
Screen Title: Dashboard Page 	The Dashboard Page of E-Appointment System is appearing all the activities of user.

Screen Title: Book Appointment Page 	Book Appointment Page will appear the slot of booking appointment time and date with the selected faculty and lecturer's name.
Screen Title: Appointment History Page 	The Appointment History Page is the page that user can view all the appointment that they have made and also the status of the appointment.
Screen Title: Edit Profile Page	In this page, user be able to edit and update their details information.



Screen Title: Contact Us Page	This Page will help user if they have any question to ask.



3.3.2.11 Work Breakdown Structure

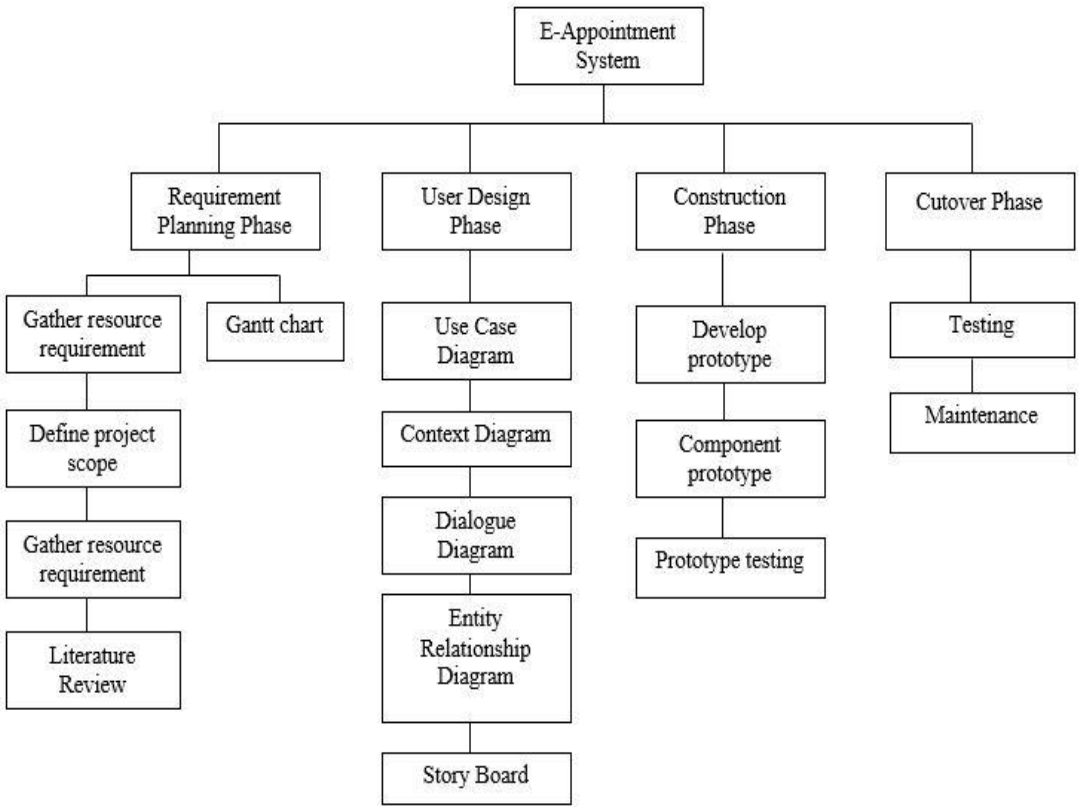


Figure 3.8 Work Breakdown Structure for E-Appointment System

3.3.3 Construction

The third phase is Rapid Construction. Once the system design has started, the construction phase is where most of the actual application coding, testing, and integration takes place. Along with User Design, the Rapid Construction phase is repeated as regularly as necessary, as new components that are required or adjustments are made to address the needs of the project. Therefore, the development progress of this system can be monitor well since the RAD include the looping process between user design and construction. XAMPP Server and notepad++ in file of HTML is a software that will be used to run and develop this system while MySQL, phpMyAdmin as a database.

3.3.4 Cutover

The last phase which is cutover where the phase that final cutover or transition stage allows the development team time to move components to a live production condition, where any essential full-scale testing or team training can take place. In this phase the system need to be test to know their functionality work or not and the most important to avoid from error and fulfil the requirement for the users.

3.4 HARDWARE AND SOFTWARE

The hardware and software used during the development process of this E-Appointment System will be explain in the table below:

Table 3.9 Hardware Requirement Table

Hardware	**Specification**	**Purpose**
Laptop	1. Windows 10 2. Intel Pentium Inside(i5) 3. Model: Toshiba	1. Preparing report and document 2. Platform for operating system run 3. For design and develop E-Appointment System
USB Storage Device	Kingston 16GB	Documentation backup
Printer	Canon Pixma E400	Printing report, thesis, document and related source.

Table 3.10 Software Requirement Table

Software	**Purpose**
Microsoft Office Word 2013	Produce system's documentation
Microsoft Office PowerPoint 2013	Prepare presentation slide
Smartsheet	Produce Gantt Chart for scheduling project duration.
Draw.io	Produce context diagram, use case diagram, flowchart and other figures.
Mockflow	Produce purposed interface of system/ Storyboard.
Lucidchart	Produce entity relationship diagram

3.5 GANTT CHART

Gantt chart is the visual of project planning according to the tasks required over time in finishing the project. It is very useful to shows the task schedule progress and estimated time to make up the project in the right path. Refer to Appendix A.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 INTRODUCTION

In this chapter, it will includes the result of the finding based on the experiment from developing this system. The purpose of this chapter is to discuss in detail on the development of the E-Appointment System. The construction phases include the coding, testing, and integration. E-Appointment System is a prototype system that use development like PHP, HTML, and CSS for the coding. Therefore, developer must make sure that the implementation phase of this system meets the specific requirement and cover all the objective and scope.

It is also contains the explanation and discussion about every interfaces and implementation of database management implement in the system that shows the objectives of the project/ research is fulfilled.

4.2 IMPLEMENTATION

During the phase of designing, the interface that have been proposed would be implement to develop this system. Here is the explanation of function the steps of constructing the system.

4.2.1 Development Environment

For this E-Appointment System, XAMPP local host is chosen as the web server that free to install and contains Apache distribution of PHP, MySQL database and others.

Implementation phases are very essential phases which can be used to ensure the successfulness of this project. The main language user for this project is a PHP (Hypertext Pre-processor) and the code will develop by using a Notepad++ and save it as a PHP file.

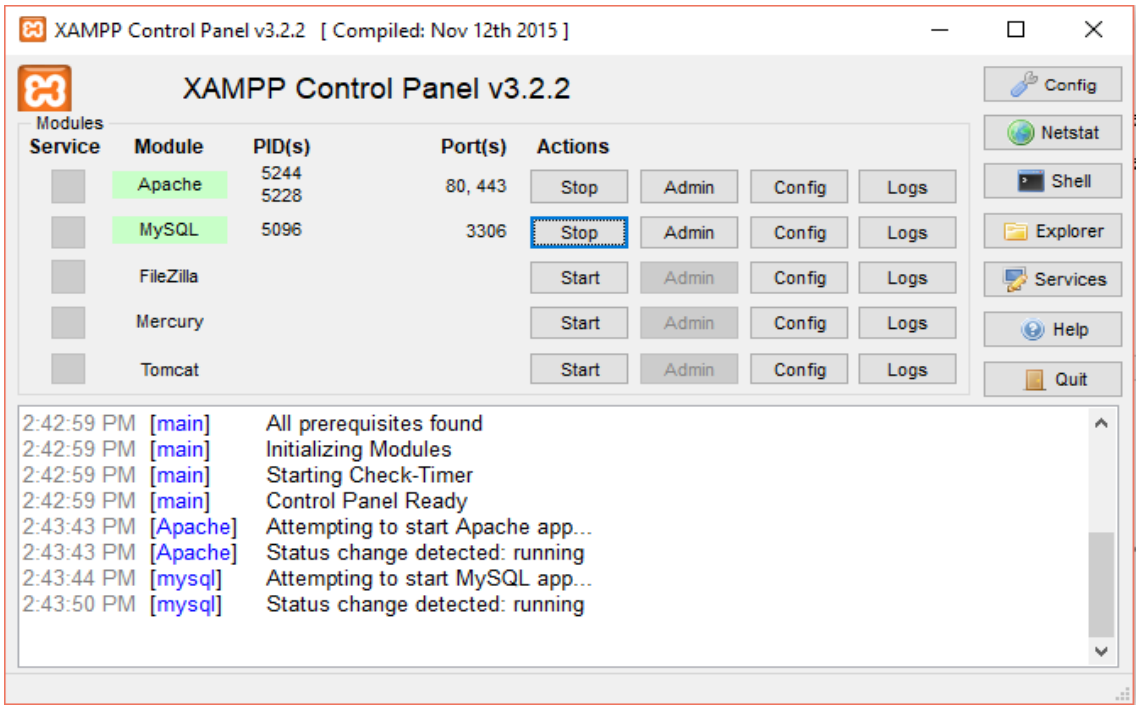


Figure 4.1 XAMPP Control Panel

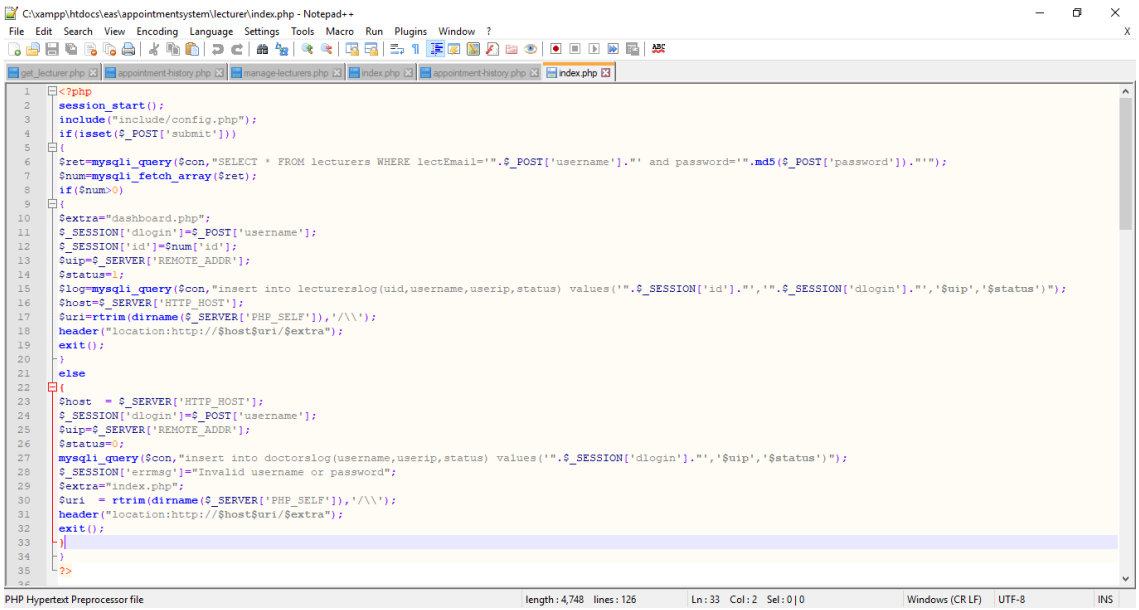


Figure 4.2 Notepad++

Figure 4.1 and 4.2 shows the XAMPP Control Panel and the code that developed by using Notepad++ tools in order to develop E-Appointment System.

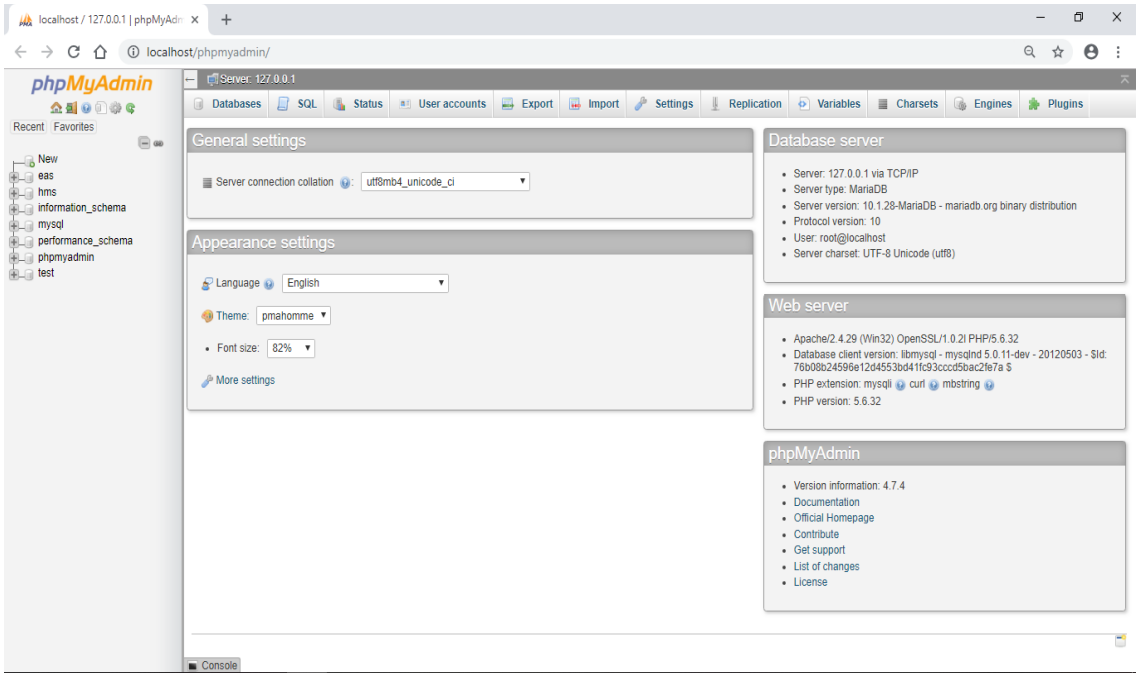


Figure 4.3 phpMyAdmin Working Environment

Moreover, database is also important in the system in order to store data in the system. Figure 4.3 shows the phpMyAdmin Working Environment that need the database and table to be set up to create the connection in the database.

4.2.2 Database Design

This E-Appointment System use MySQL as a database server. This tools quite easy to use in inserting, deleting and updating the records of information. This system have one database called “eas” which is consists of seven tables. From the database, system will be able to create, retrieve, update and manage data of the user.

Figure 4.4 show database table exist in the phpMyAdmin that view each table related to E-Appointment System. This database was created to store all the information.

Table	Action	Rows	Type	Collation	Size	Overhead
admin	Browse Structure Search Insert Empty Drop	1	InnoDB	latin1_swedish_ci	16 KiB	-
appointment	Browse Structure Search Insert Empty Drop	2	InnoDB	latin1_swedish_ci	16 KiB	-
lecturerfaculty	Browse Structure Search Insert Empty Drop	9	InnoDB	latin1_swedish_ci	16 KiB	-
lecturers	Browse Structure Search Insert Empty Drop	6	InnoDB	latin1_swedish_ci	16 KiB	-
lecturerslog	Browse Structure Search Insert Empty Drop	9	InnoDB	latin1_swedish_ci	16 KiB	-
userlog	Browse Structure Search Insert Empty Drop	10	InnoDB	latin1_swedish_ci	16 KiB	-
users	Browse Structure Search Insert Empty Drop	6	InnoDB	latin1_swedish_ci	16 KiB	-
7 tables	Sum	43	InnoDB	latin1_swedish_ci	112 KiB	0 B

Figure 4.4 Database Environment

4.3 INTERFACE DESIGN DESCRIPTION

Graphical User Interfaces (GUI) designs have been developed for this E-Appointment System. There are three type of user interfaces is provided in this implementation. There are admin, lecturer and student. This design is developed by following the prototype design. Each of the design will be explain in the sub-chapter.

4.3.1 Homepage/ Main Page Interface

On this home page, the user can view "E-Appointment System" using a web browser. The user can easily view the contact information and can login into the system. Figure 4.5 below shows the interface of the homepage is as follows:

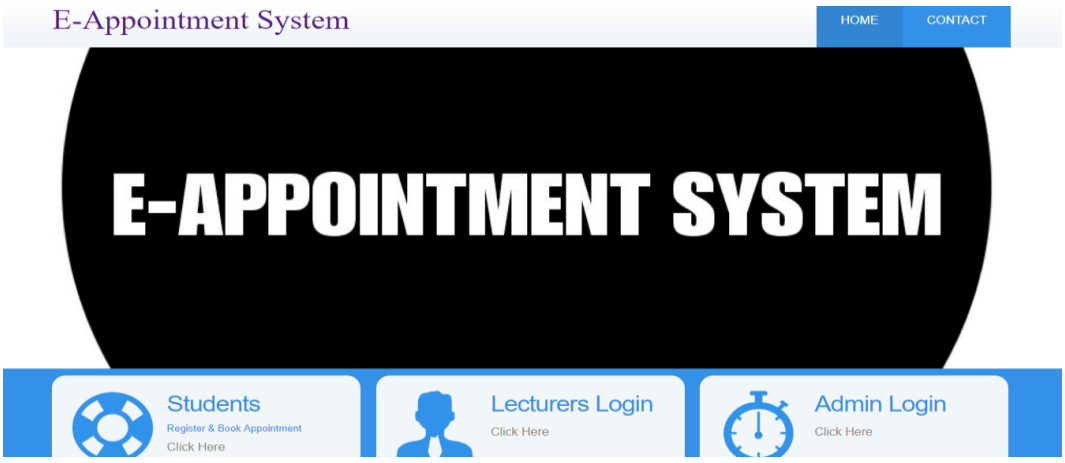


Figure 4.5 Home Page

4.3.2 Admin Page

4.3.2.1 Admin Login Page

In this page, this is the login process for users. Only Admin, Student and Lecturer of can log into the system with their identify username. After the user enters their username, password and selects, it will log into the system. Figure 4.6 shows the log in process for admin. In this page, admin need to enter the username, password to log into the system.

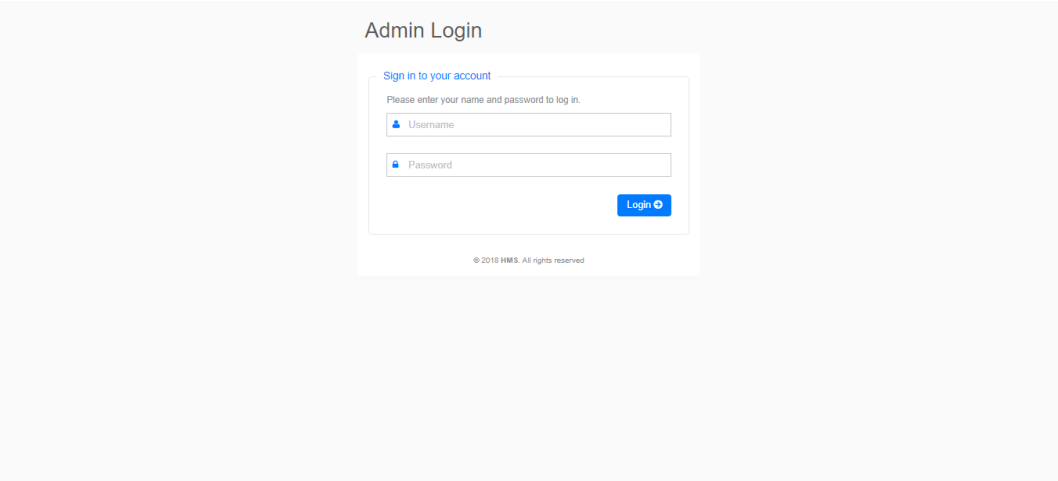


Figure 4.6 Admin Login Page

4.3.2.2 Wrong Password Message

Figure 4.7 shows the action when user fill the wrong username or password, the message of “invalid username or password’ will appear with the red colour alert.

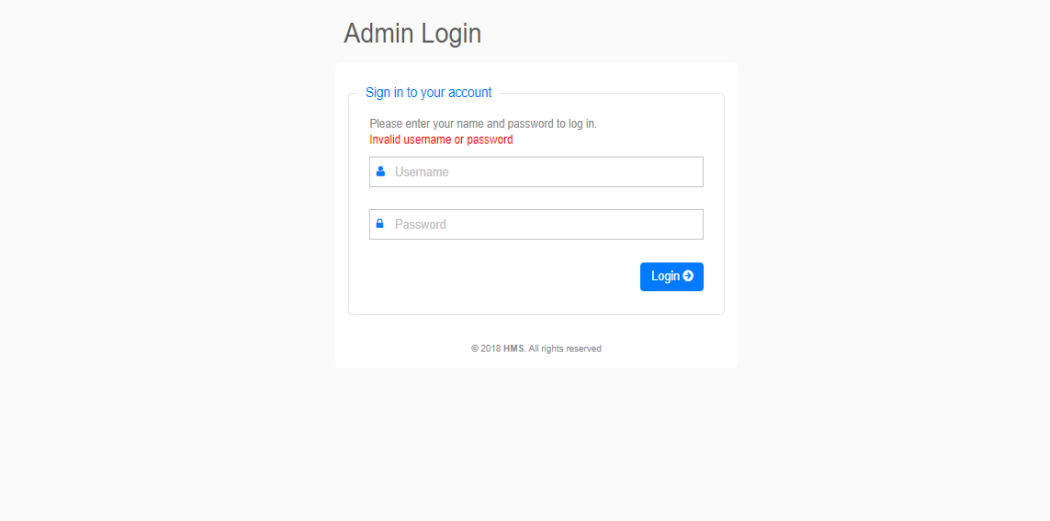


Figure 4.7 Wrong Password Message

4.3.2.3 Admin Dashboard Page

In figure 4.8, the dashboard shows admin will be able to see any event that happened in the system such as appointment history, student and lecturer logs.

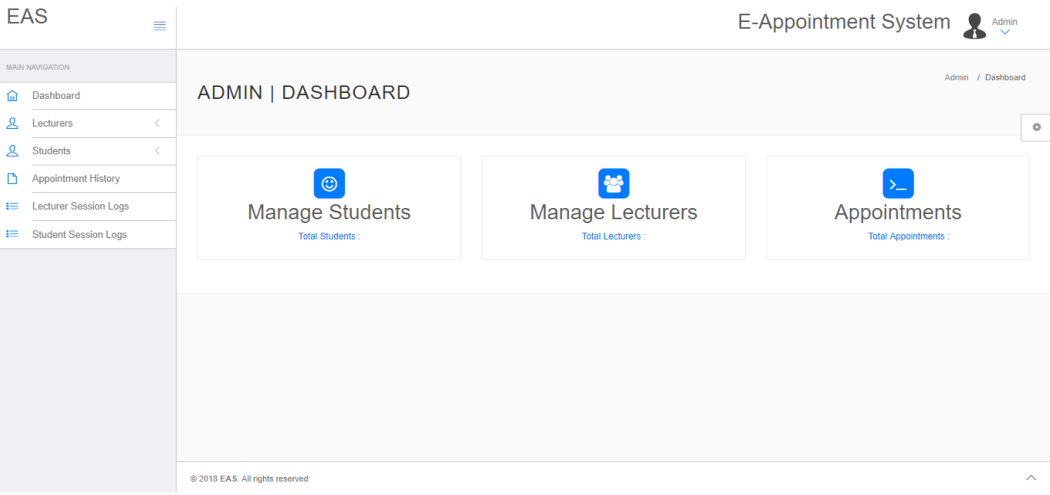


Figure 4.8 Admin Dashboard Page

4.3.2.4 Admin Add Lecturer Page

Figure 4.9 shows an admin has the authority to add new lecturer into the database. Admin need to fill in the form that has been provided and submit to the database.

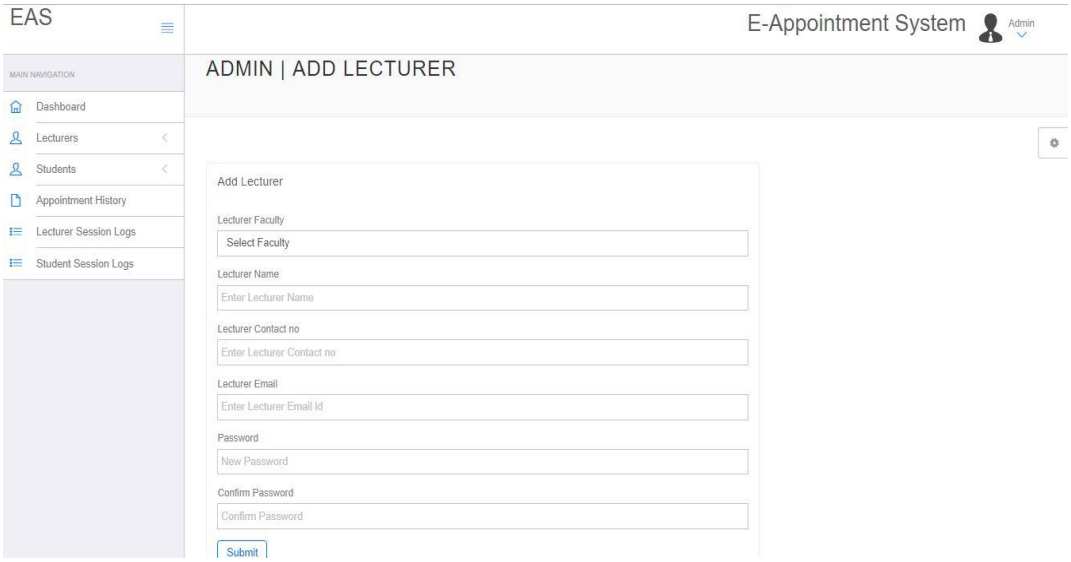


Figure 4.9 Admin Add Lecturer Page

4.3.2.5 Admin Manage Lecturer Page

Figure 4.10 shows admin will be able to manage the data of lecturer. Admin have choice on edit profile of lecturer or delete their data.

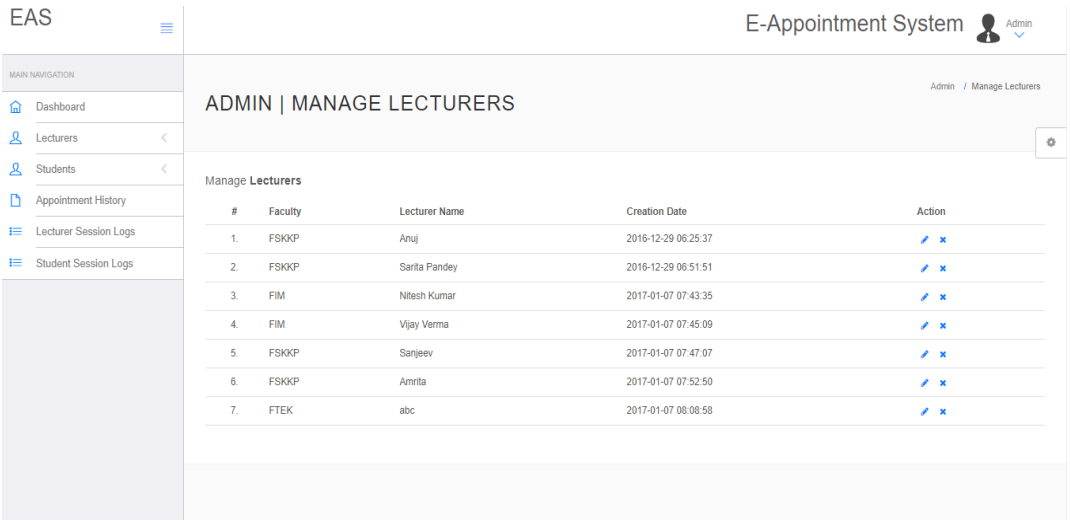


Figure 4.10 Admin Manage Lecturer Page

4.3.2.6 Admin Appointment History Page

In this figure 4.11, the page shows admin will be able to see the history of appointment that have done between the lecturer and student.

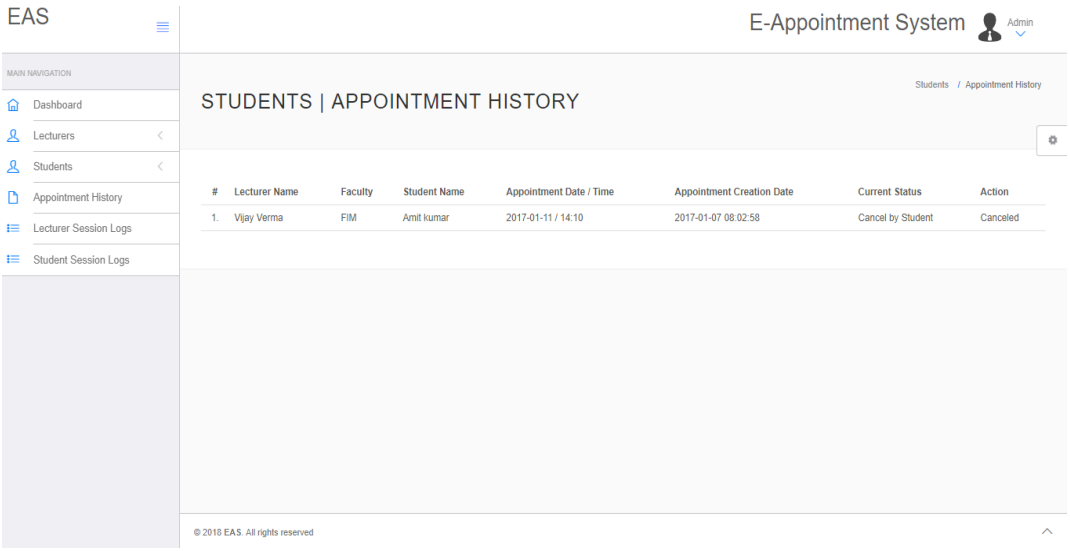


Figure 4.11 Admin Appointment History Page

4.3.2.7 Admin User Session Logs Page

Figure 4.12 shows the page that admin will be able to display all user's login and logout time and also their status of appointment.

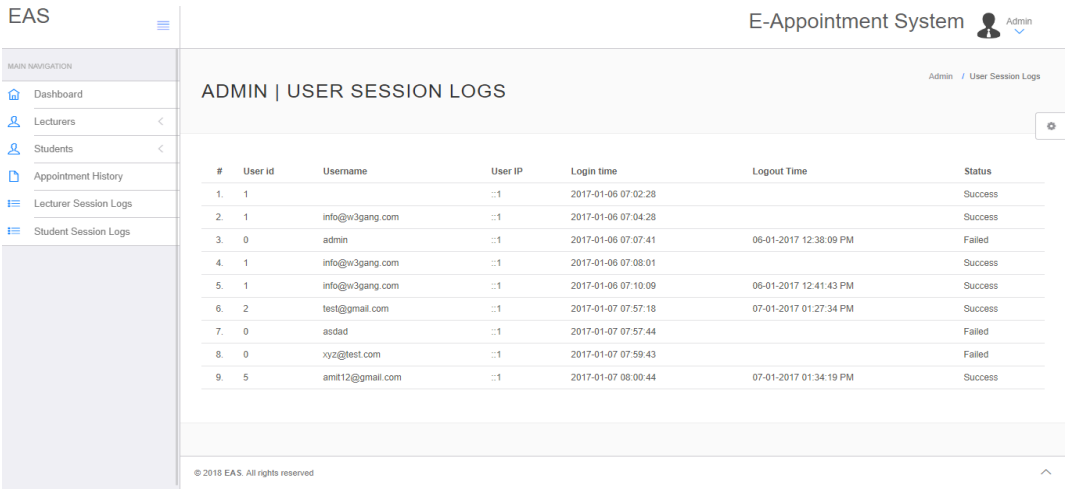


Figure 4.12 Admin User Session Logs Page

4.3.3 Student Page

4.3.3.1 Student Login Page

In this figure 4.13, it shows the page that student would be able to login. When student login, it will appear to their own dashboard.

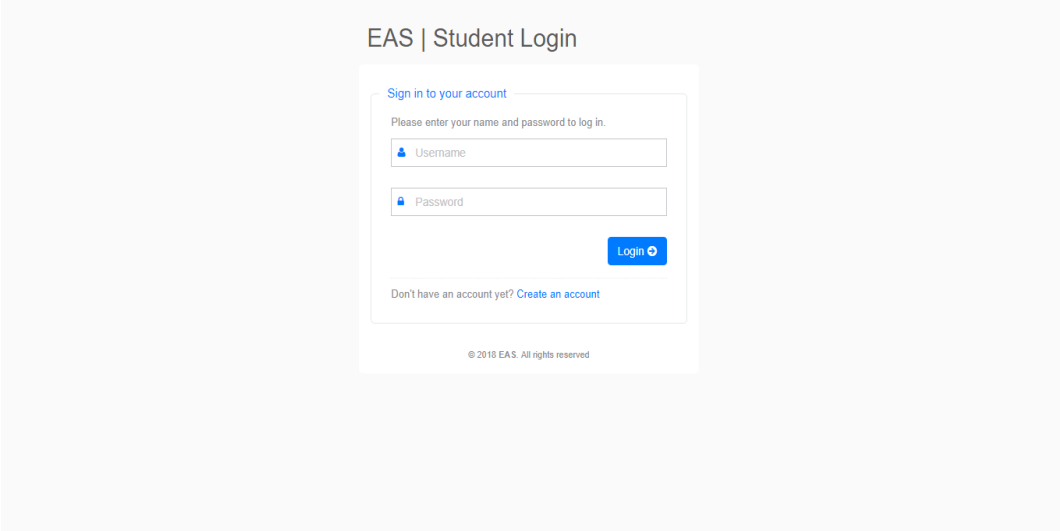


Figure 4.13 Student Login Page

4.3.3.2 Student Registration Page

Figure 4.14 shows the page that will be able for student who not have account yet, they need to sign up to use this system. E-mail required with the right format.

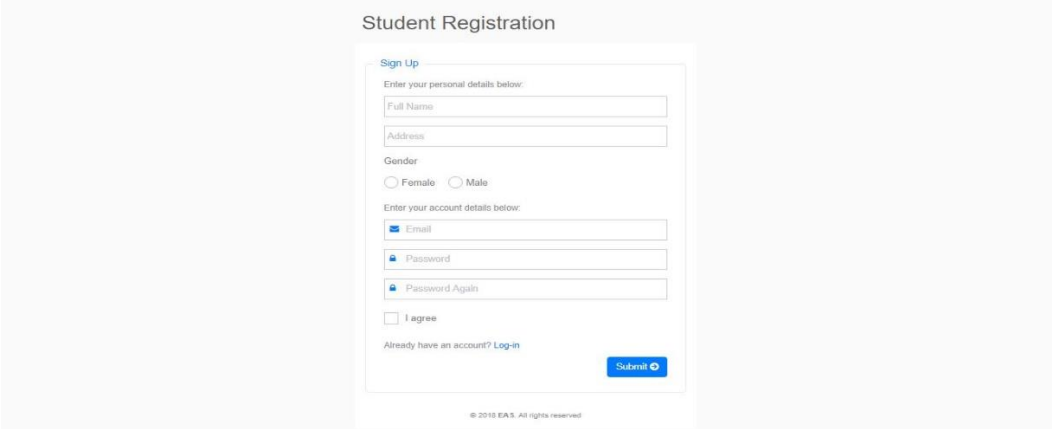


Figure 4.14 Student Registration Page interface

4.3.3.3 Student Dashboard

In figure 4.15, there is the dashboard of student that will able them to see any event that happened in the system such as their appointment status.

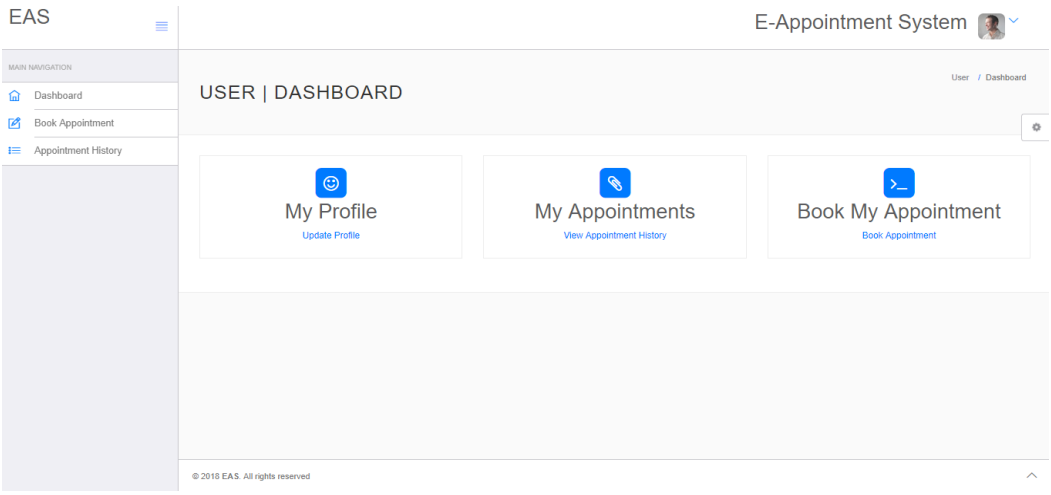


Figure 4.15 Student Dashboard Page

4.3.3.4 Student Book Appointment Page

In figure 4.16, student will book appointment with the lecturer through this page. They need to choose the time and date and submit as requested. For lecturer faculty, student be able to choose the faculty of the lecturer to make the appointment

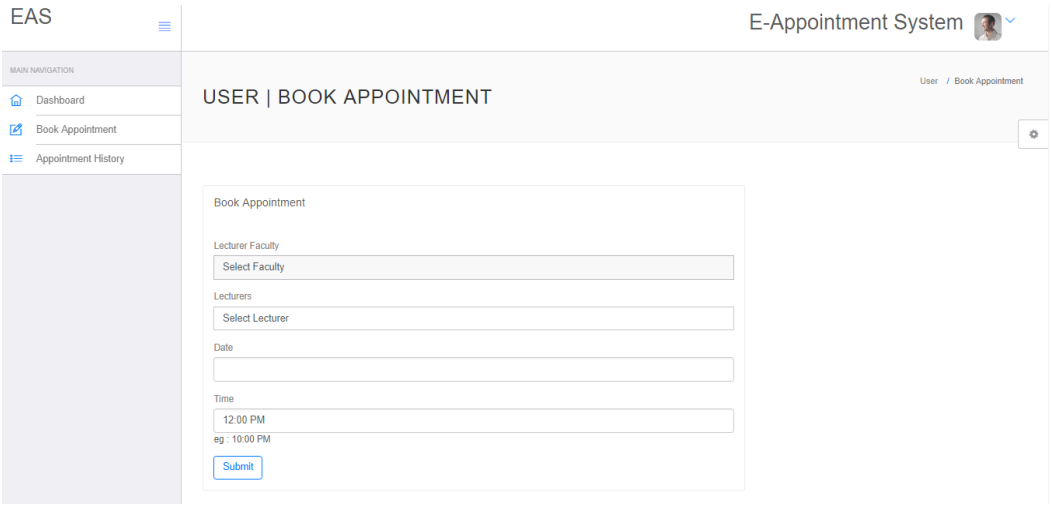


Figure 4.16 Student Book Appointment Page

4.3.3.5 Student Appointment History Page

In this figure 4.17, the page shows lecturer will be able to see the history of appointment that they been done and also action to take either edit or cancel their appointment.

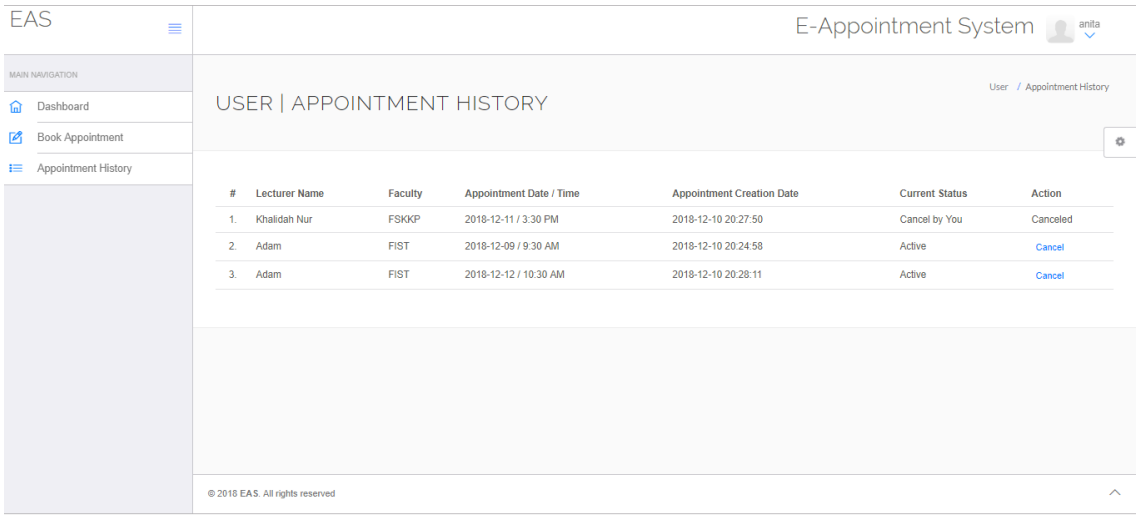


Figure 4.17 Student Appointment History Page

4.3.3.6 Student Change Password Page

In figure 4.18, the page able student to change their password by fill in the form provided and submit, then the data will be updated in the database.

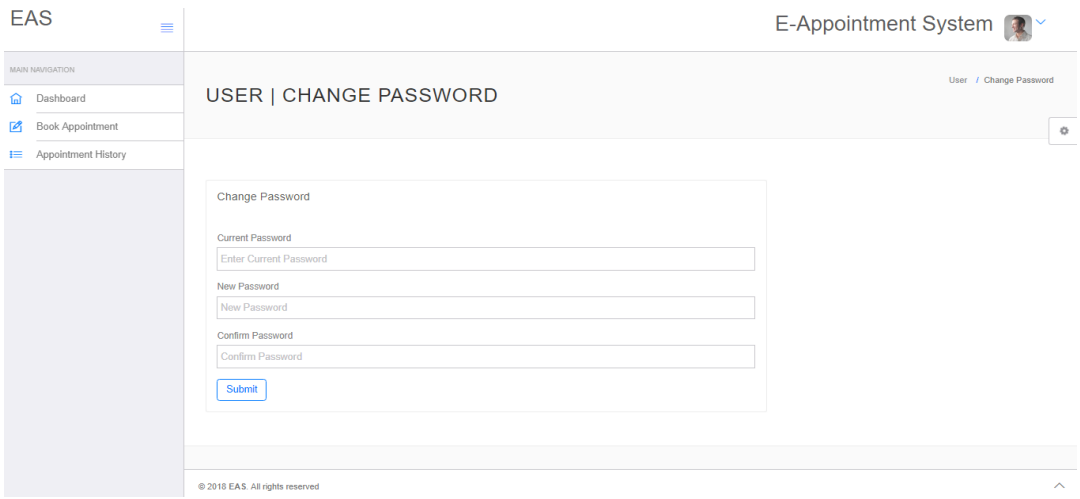


Figure 4.18 Student Change Password Page

4.3.4 Lecturer Page

4.3.4.1 Lecturer Login Page

In figure 4.19, the page shows lecturer would be able to login. When lecturer login, it will appear to their own dashboard.

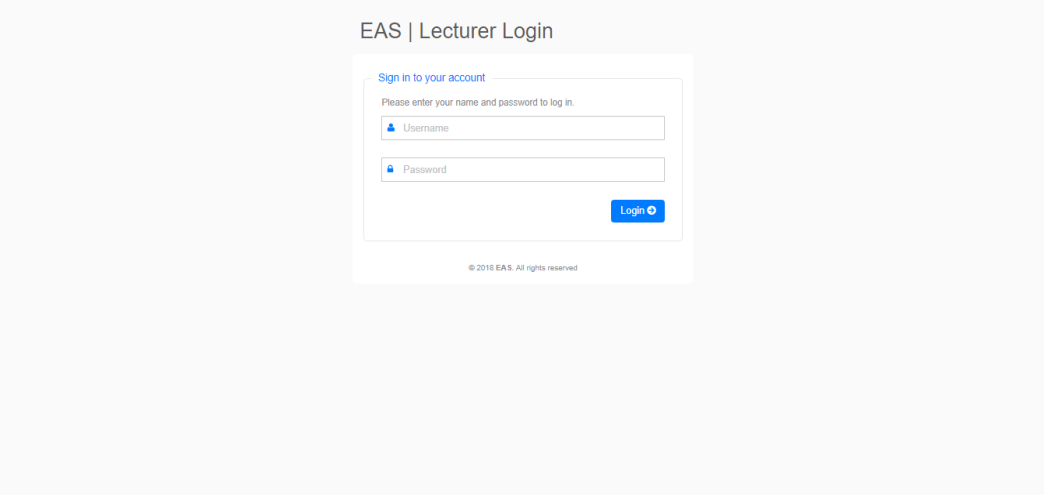


Figure 4.19 Lecturer Login Page

4.3.4.2 Lecturer Dashboard

In figure 4.20, the dashboard of lecturer will be able the, to see any event that happened in the system such as their appointment schedule.

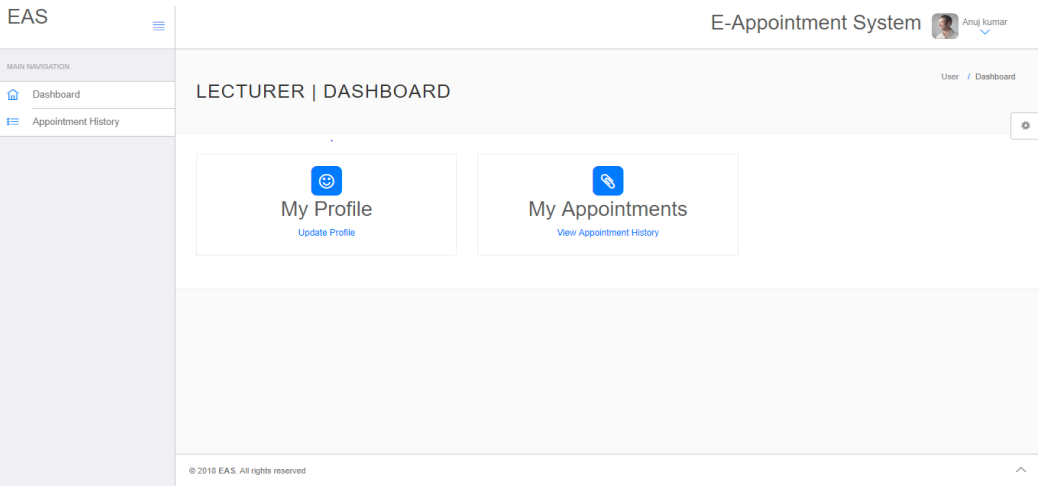


Figure 4.20 Lecturer Dashboard Page

4.3.4.3 Lecturer Appointment History Page

In figure 4.21, the page shows lecturer will be able to see the history of appointment that they been done and also action to take either accept or reject the student appointment.

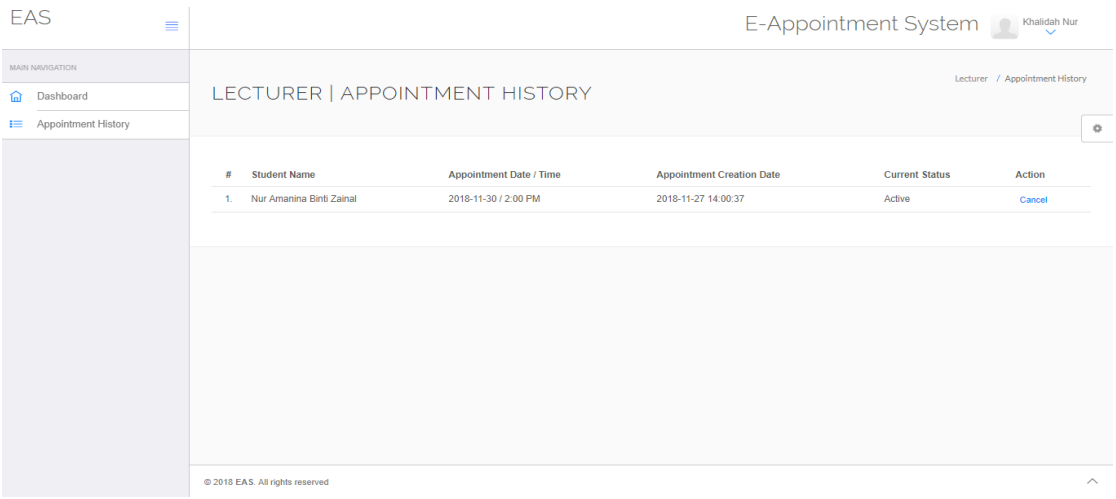


Figure 4.21 Lecturer Appointment History Page

4.3.4.4 Lecturer Change Password Page

Figure 4.22 shows the page lecturer be able to change their password by fill in the form provided and submit, then the data will be updated in the database.

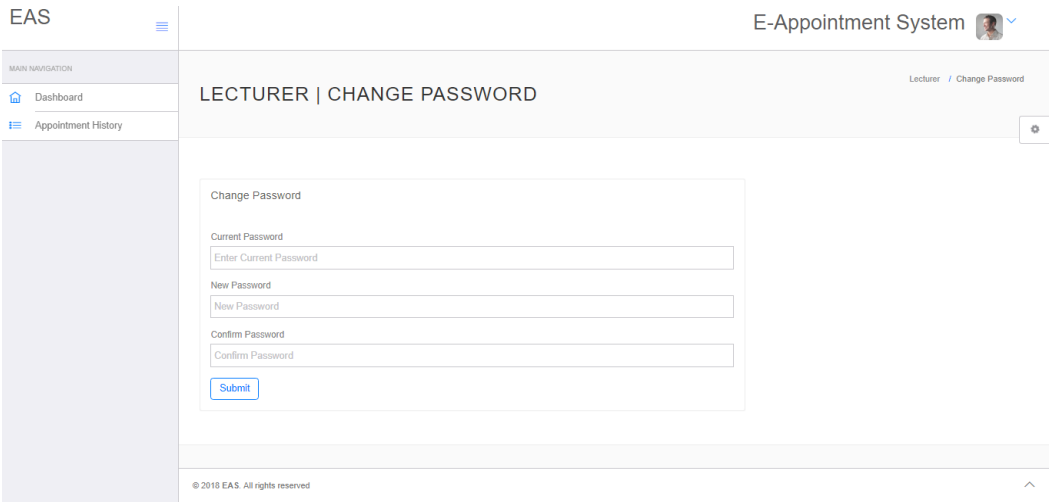


Figure 4.22 Lecturer Change Password Page

4.4 TESTING AND RESULT DISCUSSION

The selected testing technique is User Acceptance Testing (UAT). The appendix B shows the acceptance test form.

4.5 USER MANUAL

The User Manual is provided for the E-Appointment System user to know how to perform the functions offered in the system. The appendix C shows the User Manual

CHAPTER 5

CONCLUSION

5.1 INTRODUCTION

In this chapter, it will conclude the project that have been done which is the E-Appointment System. The E-Appointment System has been designed and developed to introduce the online platform for making appointment in UMP. The whole systems activities are divided into three parts of users which are students, lecturers and admin. Each of them have their own role to perform and system respond accordingly. Users are allowed to make appointments and admin is only capable of accessing user's records. The methodology use to develop this system is Rapid Application Development (RAD) as stated in chapter 3 which is all the related data to approach is expressed.

5.2 RESEARCH CONSTRAINT

5.2.1 Constraints

Constraints for this research are stated below:

i. Time management

Proper time management is really needed in order to manage time between the process of developing system and documentation.

ii. Knowledge

During the development phase, there is limited knowledge and skills on programming and web development. Lack of skills in programming can make the phase of developing system take a long time to finish and difficult to meet the requirement.

5.2.2 Development constraint

One of the development constraints will be the host of the system. E-Appointment System using Xampp as the platform to host which needed client to install first the platform. Even the Xampp host service does not use internet to open it, but it still such a quite difficult to client to use it.

In term of functionalities, this system does not be able to generate reports, it only generates appointment status within the user. Other than that, a lot of studies and research have been done to plan the web design with the capabilities skill of developer which this way. From the study, it is more easy to use PHP and HTML language as the coding to build this system since the language is easier to understand.

5.3 FUTURE WORK

In the future, there are several enhancements could be suggested for future improvement of the system such as SMS integrated to user and also a platform for a mobile application. Therefore, it is planned that E-Appointment System will have more advanced in features and functionality improving from the current work.

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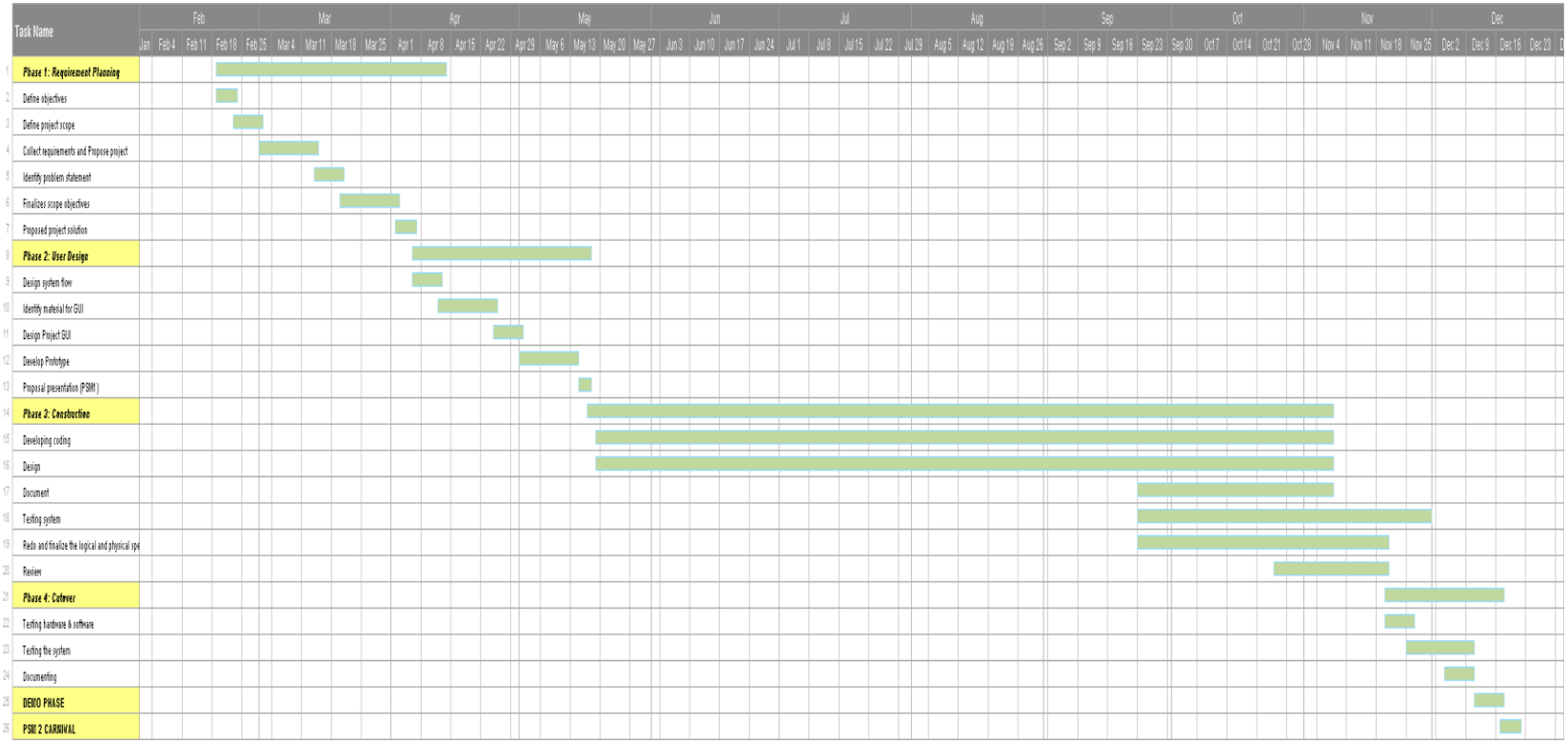
APPENDIX A
GANTT CHART


Task Name
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb 4
Feb 11
Feb 18
Feb 25
Mar 4
Mar 11
Mar 18
Mar 25
Apr 1
Apr 8
Apr 15
Apr 22
Apr 29
May 6
May 13
May 20
May 27
Jun 3
Jun 10
Jun 17
Jun 24
Jul 1
Jul 8
Jul 15
Jul 22
Jul 29
Aug 5
Aug 12
Aug 19
Aug 26
Sep 2
Sep 9
Sep 16
Sep 23
Sep 30
Oct 7
Oct 14
Oct 21
Oct 28
Nov 4
Nov 11
Nov 18
Nov 25
Dec 2
Dec 9
Dec 16
Dec 23
1 Phase 1: Requirement Planning
2 Define objectives
3 Define project scope
4 Collect requirements and Propose project
5 Identify problem statement
6 Finalizes scope objectives
7 Proposed project solution
8 Phase 2: User Design
9 Design system flow
10 Identify material for GUI
11 Design Project GUI
12 Develop Prototype
13 Proposal presentation (PSM1)
14 Phase 3: Construction
15 Developing coding
16 Design
17 Document
18 Testing system
19 Redo and finalize the logical and physical spe
20 Review
21 Phase 4: Cutover
22 Testing hardware & software
23 Testing the system
24 Documenting
25 DEMO PHASE
26 PSM 2 CARNIVAL

APPENDIX B
USER ACCEPTANCE TEST (UAT)

E-APPOINTMENT SYSTEM

Faculty of Computer Science & Software Engineering (FSKKP)

PREPARED BY: NUR AMANINA BINTI ZAINAL

User Acceptance Test (UAT)

TABLE OF CONTENT

1.0 TESTING REPORT

The purpose of this section is to show the User Acceptance Test (UAT) process of E-Appointment System. Approval of this testing implies that reviewers are confident that following the execution of the test plan, resulting system will be considered fully-tested and eligible for implementation.

User Type: **Admin**

Event	Test Data	Expected Result	Actual Result	Pass/ Fail	Comment
View main page	Admin view the main page	Able to view the main page	Same as expected result	Pass	
Login with right input	Insert username, password	System will go to the admin dashboard page	System execute admin dashboard page	Pass	
Login with wrong password or username	Admin insert incorrect username or password or both	Login failed	Same as expected result	Pass	
View admin dashboard	Admin view the dashboard page	Able to view the dashboard page	Same as expected result	Pass	
Add lecturer information into database	Admin add new lecturer information in the system	Successfully add into the database	Same as expected result	Pass	

Edit lecturer information in database	Admin edit the existing lecturer information in the database	Successfully edit and save into the database	Same as expected result	Pass	
Delete lecturer information in database	Admin delete the existing lecturer information in the database	Successfully delete from the database	Same as expected result	Pass	
Delete student information in database	Admin delete the existing student information in the database	Successfully delete from the database	Same as expected result	Pass	
View details of the appointment	Admin view more details about the appointment between student and lecturer	Successfully show the details of the appointment	Same as expected result	Pass	
View lecturer log activity	Admin view lecturer login, logout time and the status of login	Successfully show on the page of lecturer log	Same as expected result	Pass	
View student log activity	Admin view student login, logout time and the status of login	Successfully show on the page of student log	Same as expected result	Pass	

User Type: **Student**

Event	Test Data	Expected Result	Actual Result	Pass/ Fail	Comment
View main page	Student view the main page	Able to view the main page	Same as expected result	Pass	
Login with right input	Insert username, password	System will go to the student dashboard page	System execute student dashboard page	Pass	
Login with wrong password or username	Student insert incorrect username or password or both	Login failed	Same as expected result	Pass	
View student dashboard	Student view the dashboard page	Able to view the dashboard page	Same as expected result	Pass	
Edit profile information in database	Student insert correct information into the database	Successfully edit and save into the database	Same as expected result	Pass	
Update Password	Student change password	Able to change password that save into database	Same as expected result	Pass	

Make appointment	Student able to choose time and date to make appointment with lecturer	Successfully select appointment details	Same as expected result	Pass	
Delete appointment	Student delete the appointment from database	Successfully delete from the database	Same as expected result	Pass	
View details of the appointment	Student view details about the appointment	Successfully show the details of the appointment	Same as expected result	Pass	
Edit appointment	Student edit details about the appointment	Successfully edit the details of the appointment	Same as expected result	Pass	

User Type: **Lecturer**

Event	Test Data	Expected Result	Actual Result	Pass/ Fail	Comment
View main page	Lecturer view the main page	Able to view the lecturer page	Same as expected result	Pass	
Login with right input	Insert username, password	System will go to the lecturer dashboard page	System execute student dashboard page	Pass	
Login with wrong password or username	Lecturer insert incorrect username or password or both	Login failed	Same as expected result	Pass	
View lecturer dashboard	Lecturer view the dashboard page	Able to view the dashboard page	Same as expected result	Pass	
Edit profile information in database	Lecturer insert correct information into the database	Successfully edit and save into the database	Same as expected result	Pass	
Update Password	Lecturer change password	Able to change password that save into database	Same as expected result	Pass	

Delete appointment	Lecturer delete the appointment from database	Successfully delete from the database	Same as expected result	Pass	
View details of the appointment	Lecturer view details about the appointment	Successfully show the details of the appointment	Same as expected result	Pass	

2.0 SYSTEM TESTING APPROVAL

	Name	**Date**
Verified By: _____ Developer		
Approved By: _____ Client		

APPENDIX C
USER MANUAL

Version

1

E-APPOINTMENT SYSTEM

Faculty of Computer Science & Software Engineering (FSKKP)

PREPARED BY: NUR AMANINA BINTI ZAINAL

USER MANUAL

TABLE OF CONTENT

1.0 GENERAL INFORMATION

1.1 System Overview

E-Appointment System is a prototype hosting by Xampp server. It uses MySQL server database as a service provided by Xampp as well. All the data will be saved in the phpmyadmin database. This prototype is created for three users, which are admin, student and lecturer. For admin, they are able to add, update, delete, and view any information of students and lecturer. While for the student, they be able to make appointment, view, edit the appointment and also their profile information and password. Last user, lecturer which they can view the appointment. In addition, they can view, edit, delete and update the appointment and also their profile information.

1.2 Organization of the Manual

The relationship between the system with student and lecturer user is shown in figure 1.1 below:

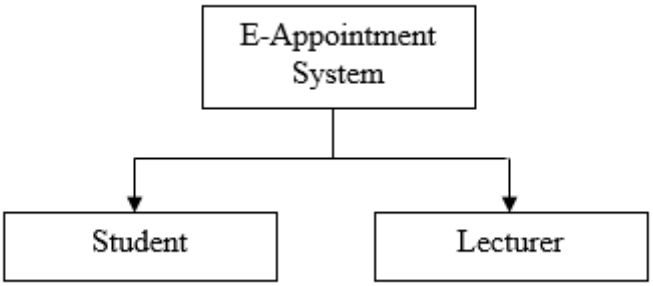


Figure 1.1 The Organization level between the Users

2.0 SYSTEM SUMMARY

2.1 System Configuration

E-Appointment System is operating using any browser like Google Chrome, Firefox, Internet Explorer and others. Its need to have Xampp server running it as local host at the browser. Other than that, it should have this server to assessing their database and also need to add the databases that are want to use. Otherwise, the system will not work properly. Figure 2.1 shows the example of error if doesn't run the Xampp server.

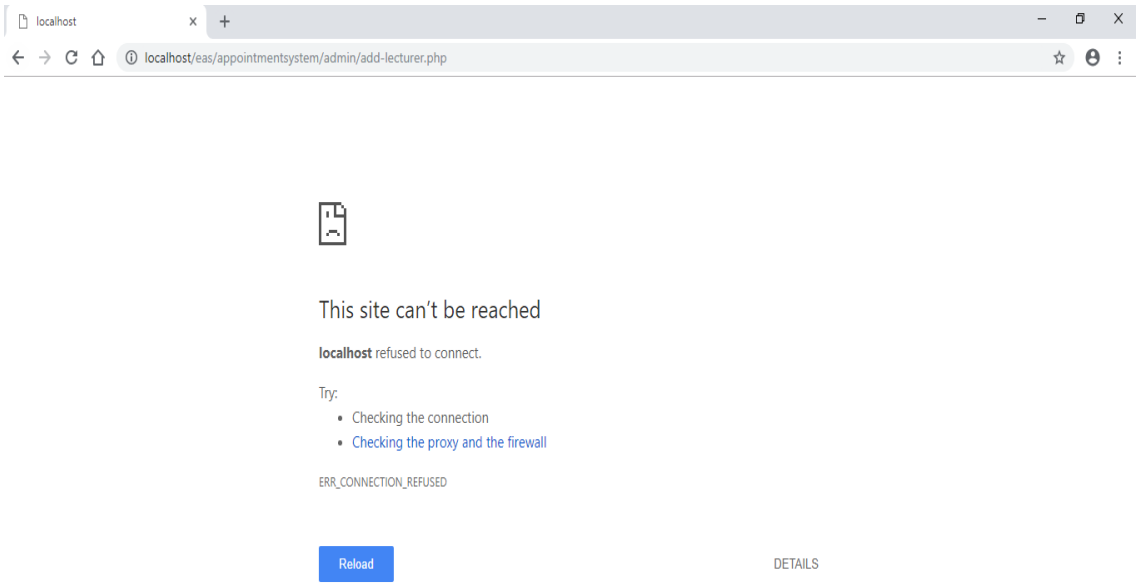


Figure 2.1 Error if Not Run Xampp Server

2.2 User Access Levels

User access for this level is dividing into three type of user.

1. Admin

   Admin will be able to add, update, delete and view al details regarding student and lecturer. It’s forbidden to expose all the information related to this system.

2. Student

   The student be able to make an appointment. They also can view, edit their information. Other than that, they can view progress of the appointment.

3. Lecturer

   Lecturer is able to view all information about the appointment. Then, they can edit or delete the appointment and their details. They also be able to change their password.

3.0 GETTING STARTED

3.1 Installation and Logging in

No physical installation on device is needed. The only require installation is Xampp server and browser in order to use this prototype.

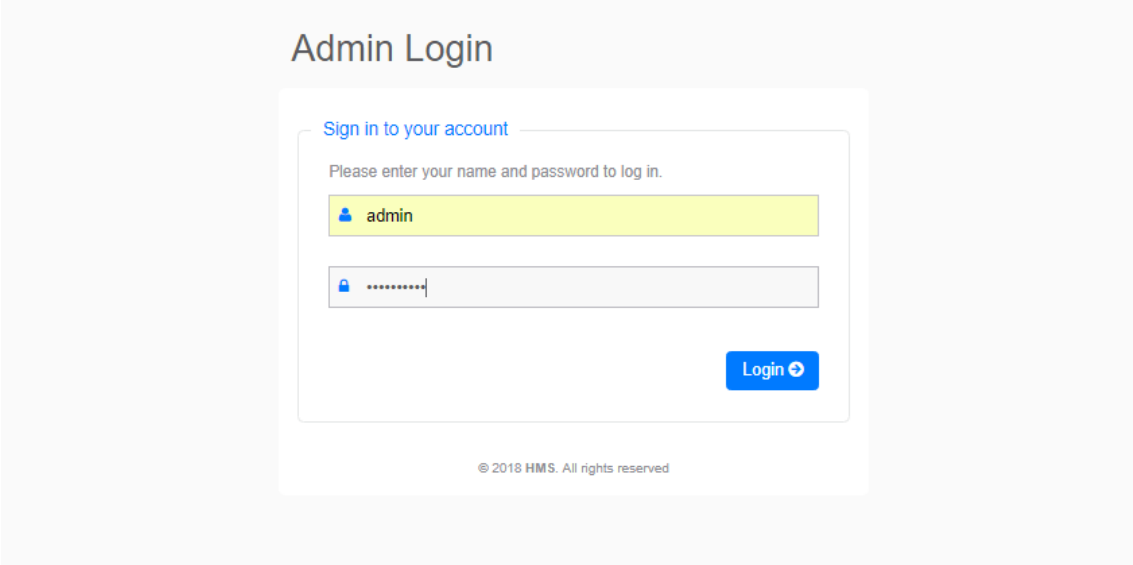


Figure 3.1 Admin Login Page

Current created login for E-Appointment System admin

Username: admin

Password: Test@12345

3.2 System Dashboard

E-Appointment System has three different website dashboards which are for admin, student and lecturer. Figure 3.2 show the website dashboard for admin, figure 3.3 shows the website dashboard for student and figure 3.4 shows the website dashboard for lecturer.

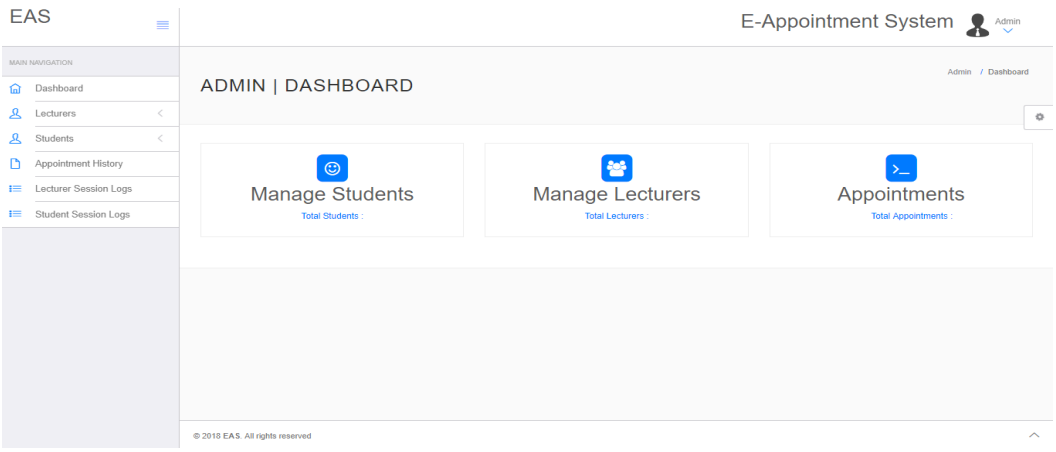


Figure 3.2 Admin Dashboard

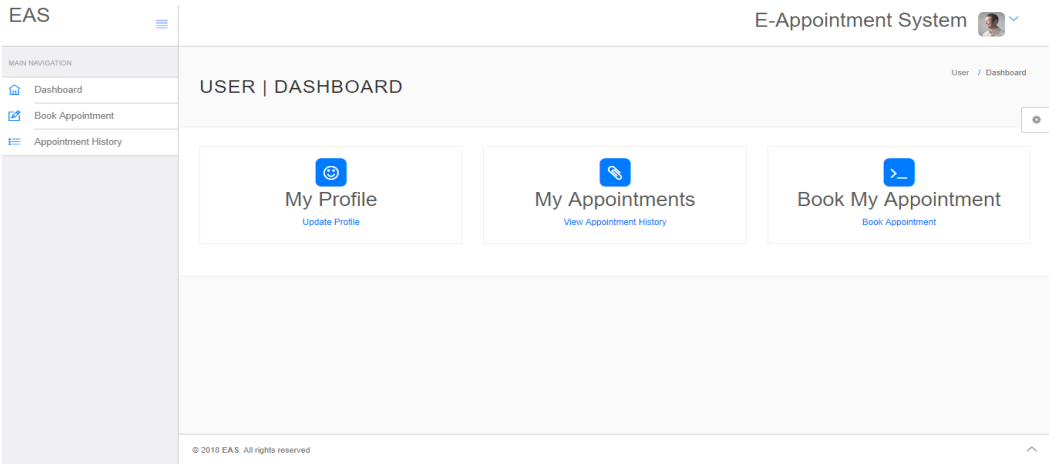


Figure 3.3 Student Dashboard

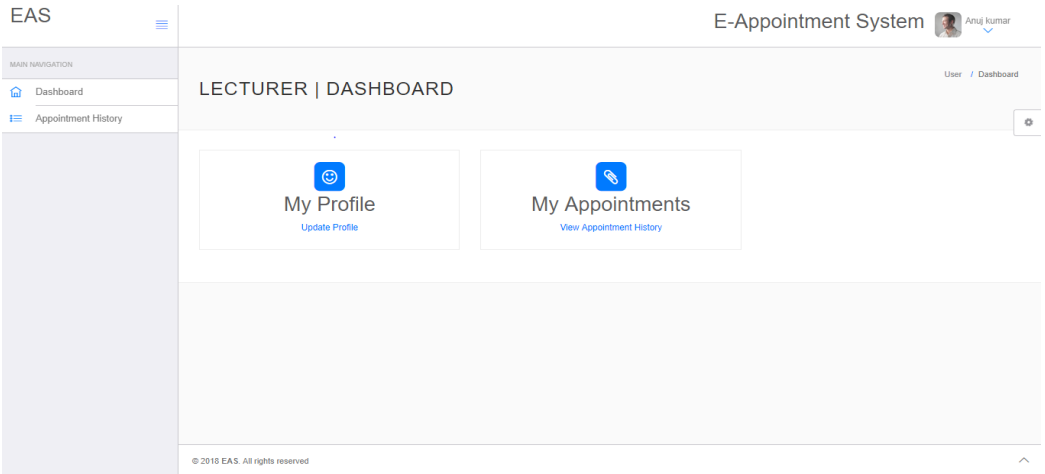


Figure 3.4 Lecturer Dashboard

3.3 Starting the Application

E-Appointment System requires starting Xampp server services to use this website. If the Xampp services are stopped working, the website will not function at all. The figure 3.5 and 3.6 show the step on how to start the process of website.

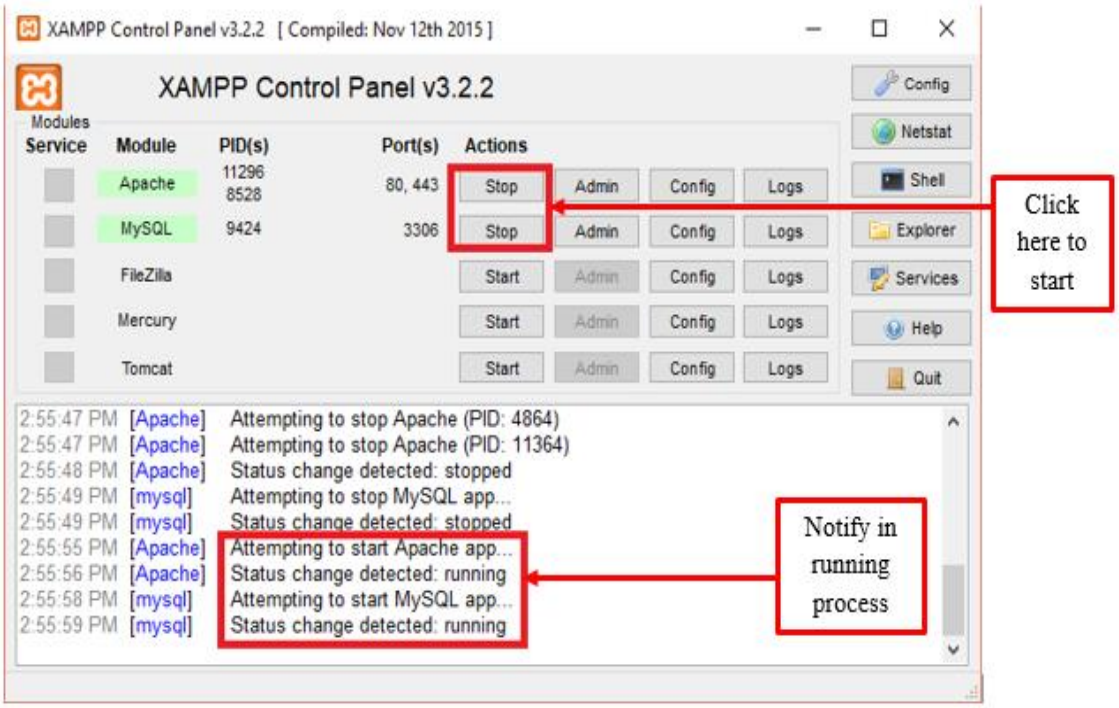


Figure 3.5 First Step: Start Xampp

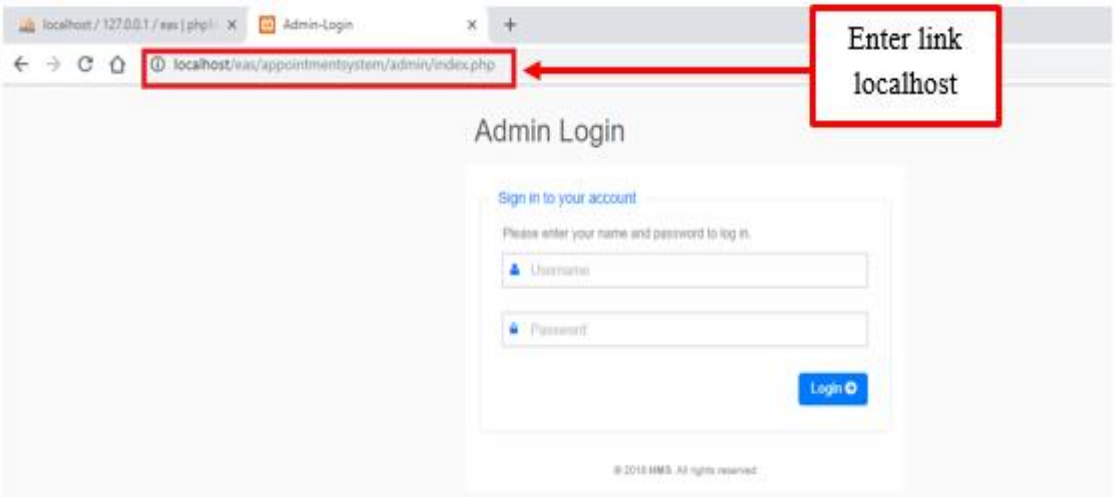


Figure 3.6 Second step: Run localhost at web browser

3.4 Exit Website

To exit from the website, click on the log out tab on the top of the right website that will be same for all user which are admin, student and lecturer. Figure 3.7 shows the tab to log out and close the website.

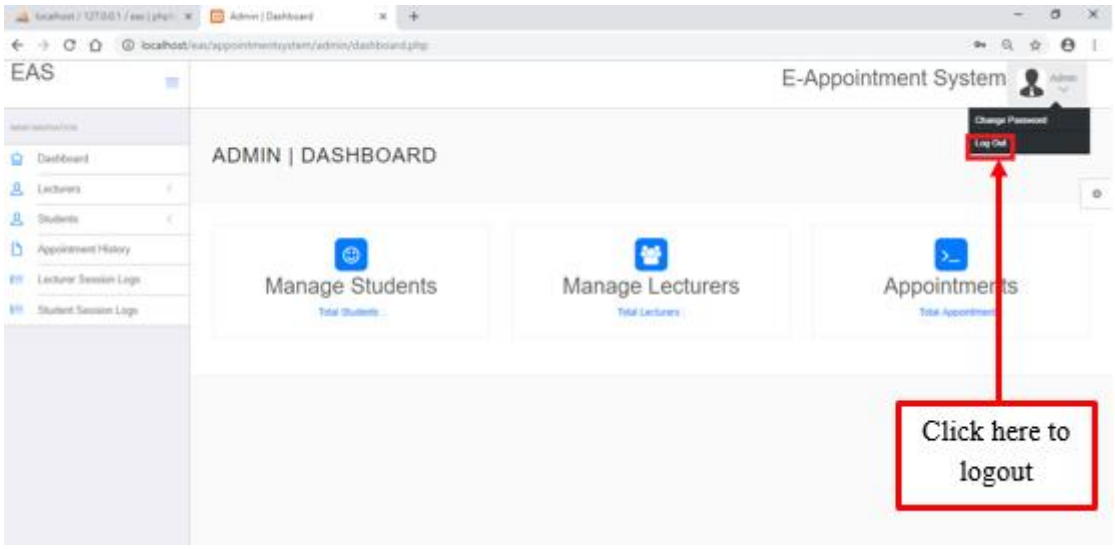


Figure 3.7 Log out from website