PSM / PTA EVALUATION WEB MANAGEMENT SYSTEM

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I hereby declare that I have read this thesis and in my opinion this thesis/report is sufficient in terms of scope and quality for the award of the degree of Bachelor of Computer Science (Software Engineering)

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ABSTRACT

Currently, PSM/PTA evaluation management in FSKKP is done manually. As been accepted by the world wide, web-based management system is being used to ease the management process. This project was done to overcome the problem of PSM/PTA evaluation manual management process. PSM/PTA Evaluation Web Management System is web based system that design to manage PSM/PTA management process. This system includes three modules which are of users, student, lecturer, and coordinator. This project use Modified Waterfall Model methodology to implement the development process. PHP and MySQL have been be used as programming language and database respectively for project development. In this project, using web-based will increase the efficiency and reduce human workload in PSM/PTA. This system was tested with unit testing, functionality testing, and user acceptance test. The results show the functionality of the system is passed which users satisfy with the system.

ABSTRAK

Sehingga kini, di FSKKP pengurusan PSM/PTA dilakukan secara manual. Seluruh dunia mengakui bahawa tujuan sistem pengurusan berasaskan web digunakan adalah untuk memudahkan proses pengurusan. Projek ini bertujuan untuk menangani proses pengurusan penilaian PSM/PTA yang secara lazimnya dijalankan secara manual. Sistem Web Penilaian Pengurusan PSM/PTA yang dihasilkan adalah untuk menguruskan proses penilaian PSM/PTA. Sistem ini mempunyai tiga modul pengguna berbeza iaitu pelajar, pensyarah dengan penyelaras. Projek ini menggunakan metodologi Modified Waterfall Model untuk melaksanakan proses pembangunan. PHP dan MySQL telah digunakan sebagai bahasa pengatucaraan dan pangkalan data masing-masing bagi pembangunan projek. Dengan menggunakan system berasakan web dalam projek ini, ia akan meningkatkan kecekapan serta mengurangkan beban kerja manusia dalam menguruskan PSM/PTA. Sistem ini telah diuji untuk mengenalpasti kelancaran fungsian sistem dapat memudahkan proses pengurusan manual dengan benamkan aplikasi bijak. Keputusan menunjukkan kebolehfungsian sistem dan kepuasan kepada pengguna sistem ini.

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LIST OF ABBREVIATIONS

ABBREVIATION	TITLE
CSS	Cascading Style Sheets
FSKKP	Fakulti Sistem Komputer & Kejuteraan Perisian
FTP	File Transfer Protocol
FYP	Final Year Project
GUI	Graphical User Interface
HTML	Hypertext Transfer Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
IP	Internet Protocol
JSP	JavaServer Pages
MySQL	My Structured Query Language
PEMS	PSM / PTA Evaluation Web Management System
PHP	Hypertext Preprocessor
PSM	Projek Sarjana Muda
PTA	Projek Tahun Akhir
RAM	Random Access Memory
RDBMS	Relational Database Management System
SFTP	Secure File Transfer Protocol
SQL	Structured Query Language
SRS	Software Requirements Specifications
TCP	Transmission Control Protocol
URD	User Requirement Document
XML	eXtensible markup Language

PART I

INTRODUCTION

1.1 Research Background

The Internet is an ideal vehicle for integrating and publishing information over a network of participating groups and organizations. With the rapid growth of websites on the Internet, there is much useful information in terms of millions that available through the web. People these days can get information easily and freely on numerous devices (Bookmarks sharing and management system, 2012). The use of the web-based system has become popular recent years. Web-based management system is used to control dynamic collection of web materials such as HTML documents and images (Wikipedia, 2012).

A management system is a proven framework for managing and continually improving your organization's policies, procedures and processes. A management system helps an organization to achieve these goals through a number of strategies, including process optimization, management focus and disciplined management thinking (British Standards Institution, 2012). Web-based management system represents the excellent example of managing the online transactional process in order to get better achievement of the working process. The used of the web-based management system makes the data online. By using the web-based or computerize the management system, there is much more flexible in handle the data. Users can access to a wider variety of existing information, anytime, and from anywhere with quick and consume less time (TCMS, 2007).

Currently, in PSM/PTA manual process, student submits hardcopy or filled application form to the PSM/PTA coordinator. In addition, there will be difficulties for PSM/PTA coordinator on searching and storing the proposal of student’s title, this will

lead to data integrity and require larger space to keep student's hardcopy proposals. Furthermore, the manual process difficult to keep track of weekly activities between students and supervisors. Besides that, evaluators faced problem in sending marks to PSM coordinator as the marks given will be recorded in the given form. A web-based management system for PSM/PTA management should be developed to overcome the problem faced by the manual process. Proposed online system will ease the manual process.

1.2 Problem Statement

In addition, during supervision phase, students have to organize meeting with their supervisor to show their weekly process on the project. Log book is compulsory to record all the general meetings between students and supervisors. Sometimes students fail to organize the meeting as the supervisor may not around so that they cannot review their weekly work with their supervisor. As a result, they cannot do corrections on their works to be submitted and will get lower marks for their project.

Finally, on evaluation phase, all the evaluator will give marks to students based on their presentation. All marks will be recorded in form provided; this process requires a lot of man power and there is also no privilege on student's personal information such as given marks if occur missing of data. Besides that, after recording marks, all evaluators are responsible to key in the marks into excel format and email to the PSM/PTA coordinator. This process occurs a lot of difficulties such as missing of student's form, late sending of marks from an evaluator to PSM coordinator and typing error when the coordinator input data to computer.

1.3 Main Aims and Objectives

The objectives of the project are:

1. To develop a web-based system that contains final year project students' information based on user modules, which emphasize the evaluation process.
2. To embed the smart application in the system where the system can generate weekly activities done by students and can accept an excel file in .xls format.
3. To test the functionality of the system where the system will be tested to PSM students.

1.4 Scope and Limitation

This project will be developed using a web-based framework for management on PSM, which based on user modules, which consists:

1. Lecturer module
2. Coordinator module
3. Student module

The uses of software and hardware:

1. Software:
    - PHP languages
    - Apache
    - MySQL Database
    - Adobe Dreamweaver CS5
2. Hardware:
    - Laptop
    - FSKKP web server

Users or respondents:

1. Undergraduate students
2. Lecturer
3. PSM coordinator

1.5 Existing System

In earlier computing models, users need to install an application to their personal computer as every application had their own client program served as its user interface. An application, when upgrading of server-side code, typically require an upgrade to client-side code installed on each user's workstation, increasing support cost and decreasing productivity. In contrast, web applications use web documents written in a standard format such as HTML and JavaScript, which are supported by a variety of web browsers. Web applications serve as specific variant of client-server software where relevant web page or client software is downloaded to the client machine when client visiting the site, using standard procedures such as HTTP. Each time when a web page

is visited there will be happened an update in client side software. Web application is an application that is accessed by users over a network such as the Internet or an intranet. The key reasons of web applications become popular is its ability to update and maintain without installing and updating software on client computers; the inherit support for cross-platform compatibility (Web application, 2012).

There are some existing systems that use web-based application to manage their system:

1. The Design and Implementation of Online Management System for Undergraduates' Thesis (Project)
2. Nanyang Technological University Final Year Project Portal
3. Web-Based Evaluation for Online Courses and Learning Management System
4. Online Document Management System for Academic Institutes
5. System Development of FYP Portal (Registration Module)

Table 1.5 – Comparison on existing system

Existing System	Respondent	Software/ Technique/ Platform	Result
The Design and Implementation of Online Management System for Undergraduates' Thesis (Project)	System administrators, teachers, students and auditors	Web development ASP.NET, Ajax, SQL Server	Improvement of teaching management and the teaching quality
Nanyang Technological University Final Year Project Portal	University FYP undergraduate students	Web development ASP.NET	The system provides all the guidance and details on FYP to guide undergraduate students to develop their FYP
Web-Based Evaluation System	The approximately	Web development	Implementing a monitoring system of the students'

for Online Courses and Learning Management Systems	200 students of this course together with four instructors and two administrators		learning behavior and a consulting system based on the students' results.
Online Document Management System for Academic Institutes	160 students in the Faculty of University of Malaya	PHP5, JSP and MY SQL programming languages	Provide a collection of coordination pathways and interfaces to remove the problems of document access
System Development of FYP Portal (Registration Module)	Students in Faculty of Information and Communication Technology in Universiti Tunku Abdul Rahman	Visual basic web development, SQLServer	FYP Portal is developed and implemented, all processes that related to FYP should be done through this system

1.5.1 Comment on existing system

All the systems develop using a web application platform in order to be accessed by everyone on different places, and it is much easier to apply evaluation, especially when involves a large number of respondents. Most of the system used ASP.NET to develop the GUI of the system. In my opinion, PHP is the better development programming language as it is open source and can be implemented on most of the platform. From the existing system, it is much more focus on providing guidelines and final report submission. Based on my observed, management module is important in the system as it can help the FYP process more effective and efficiency.

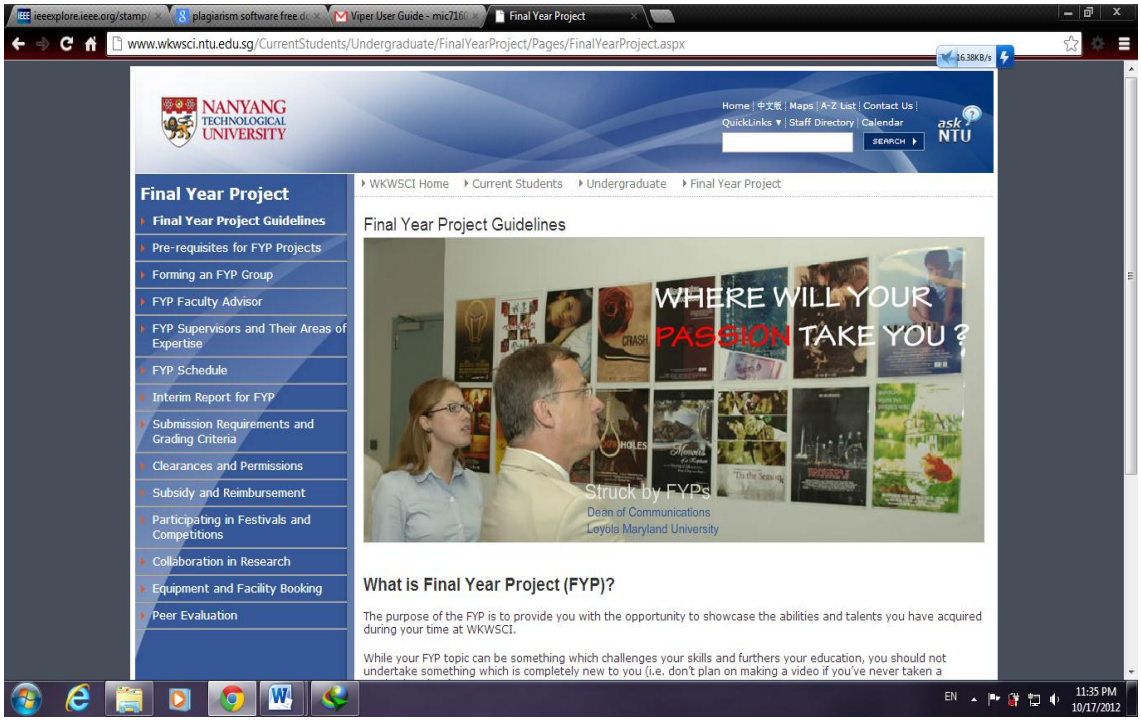

Figure 1.5.1-1 – Nanyang Tecnological University FYP Portal

Figure 1.5.1-2 –Universiti Tunku Abdul Rahman FYP Portal

1.5.2 Development Tools

Based on above explanation, this project will use tools in order to complete this system development. Description of each tool been used during the development are described below:

Table 1.5.2 – Development Tools

Software Tools	Adobe Dreamweaver CS5, Apache HTTP Server
Programming Language	PHP 5.0
Database	MySQL

a) Software Tools

This section will discuss about tools that will be used on develop the proposed system. There are many software tools can be used to develop web-based applications.

1. Adobe Dreamweaver CS5

Adobe Dreamweaver is a proprietary web development application originally created by Macromedia and now developed by Adobe Systems, which acquired Macromedia in 2005. Adobe Dreamweaver is available for both Mac and Windows operating systems. Dreamweaver can use third-party "Extensions" to extend the core functionality to the application, which any web developer can write, mostly on HTML and JavaScript. Dreamweaver is supported by a large community of extension developers who make extensions available for most web development tasks from simple rollover effects to full-featured shopping carts. Dreamweaver, like other HTML editors, edits files locally then uploads them to the remote web server using FTP, SFTP, or WebDAV (Adobe Dreamweaver, 2012).

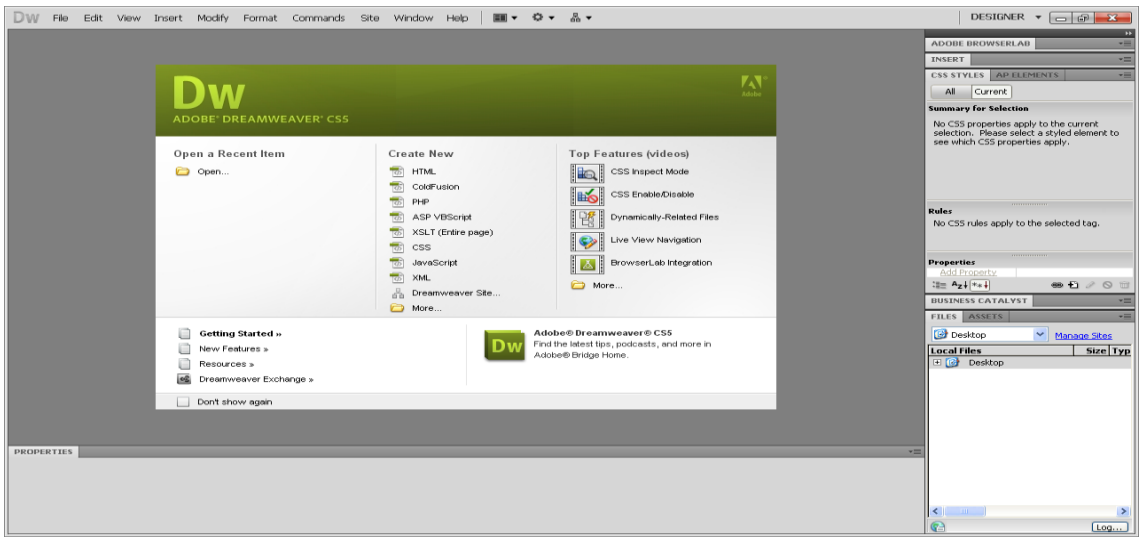

Figure 1.5.2-1 – Interface of Adobe Dreamweaver CS5

2. Microsoft Visio Studio Express 2010

Microsoft Visual Studio Express is a set of freeware integrated development environments developed by Microsoft those are lightweight versions of the Microsoft Visual Studio product line. Visual Web Developer Express is a freeware web development tool, with the role that allows developers to evaluate the web development and editing capabilities of the other Visual Studio editions at no charge. Its main function is to create ASP.NET websites. It has a user friendly, drag-and-drop user interface designer, enhanced HTML and code editors, support for other web technologies such as CSS, JavaScript, XML, and integrated, design-time validation for standards, including XHTML (Microsoft Visual Studio Express, 2012).

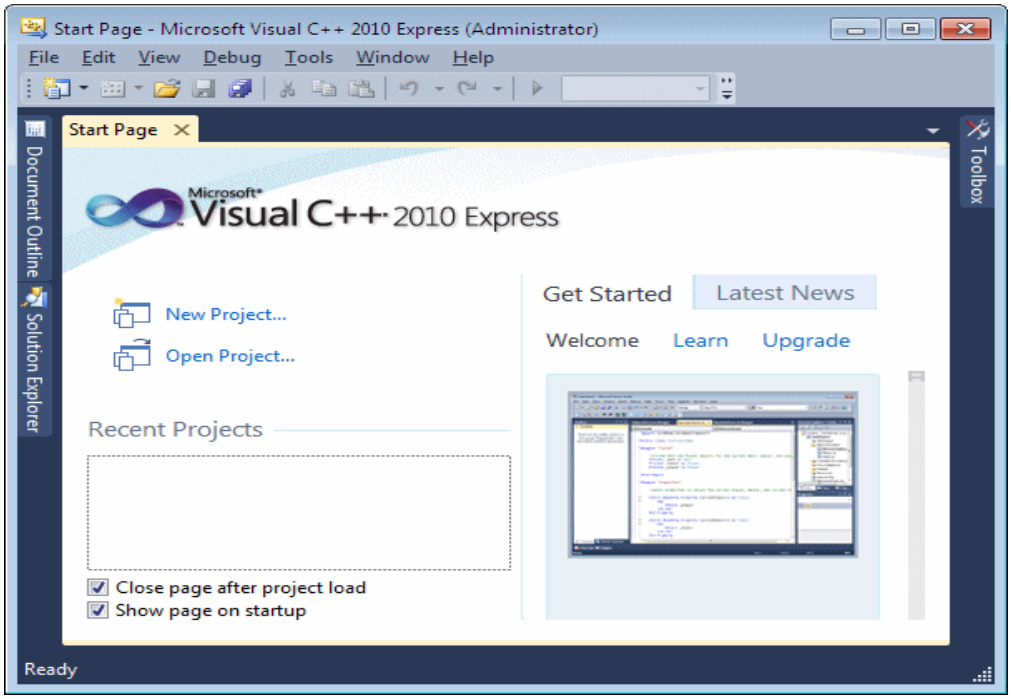

Figure 1.5.2-2– Interface of Microsoft Visual Studio Express 2010

3. Apache HTTP Server

Apache, otherwise known as Apache HTTP Server, is an established standard in the online distribution of website services, which gave the initial boost for the expansion of the World Wide Web. It is an open-source web server platform, which guarantees the online availability of the majority of the websites active today. The server is aimed at serving a great deal of widely popular modern web platforms or operating systems such as Unix, Windows, Linux, Solaris, Novell NetWare, FreeBSD,

Mac OS X, Microsoft Windows, OS/2, etc. Apache supports a variety of features, many implemented as compiled modules, which extend the core functionality. These can range from server-side programming language support to authentication schemes (Apache HTTP Server, 2012).

4. Comparison and Discussion

For the use of software tools, Adobe Dreamweaver is the best choice compare to Microsoft Visual Studio Express to develop the proposed system. It can provide professional tools and use server technology to build powerful web-based applications. Apache HTTP Server is another software tool to use in development.

b) Programming Language

Programming Language is tool used in software development to develop, debug, maintain, and support other applications and programs. The term usually refers to relatively simple programs that can be combined together to accomplish the task, much as one might use multiple hand tools to fix a physical object.

1. PHP 5.0

PHP is a server-side scripting language mostly used in web development runs on web server. PHP code is executed to create dynamic web page content on the website. PHP can be installed or deployed on most web servers, operating systems and platforms, and can integrate with many types of the database management system. PHP is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use (PHP, 2012).

Table 1.5.2-1 – Advantages & Disadvantages of PHP 5.0

Advantages	Disadvantages
• It is open source compare to ASP.NET • Easy to use and stable. • Can run on many platforms. • Built in database connection modules	• Not suitable for large applications

2. ASP.NET

ASP.NET is a Web application framework developed and marketed by Microsoft to allow programmers to build dynamic Web sites, Web applications and Web services. ASP.NET Web pages, known officially as Web Forms, are the main building blocks for application development. ASP.NET is a very valuable tool for programmers and developers because it allows them to create dynamic Web sites and rich web applications using compiled languages like C# and Visual Basic (ASP.NET, 2012).

Table 1.5.2-2 – Advantages & Disadvantages of ASP.NET

Advantages	Disadvantages
• Can develop website faster as it provide many beneficial features of the language • Huge collection of rich server and client side control • Built in database connection modules	• Expensive and costly to develop • Too much using of window forms

3. Comparison and discussion

PHP is the most suitable programming language to develop this system compare to ASP.NET. This is because PHP is more flexible in database connectivity. Several databases can connect by PHP which MySQL is the common. There will be no increasing of cost as MySQL is an open source. If using ASP, we need to purchase MS-SQL as it is a Microsoft product. In terms of maintaining the website, loading speed is important factor. PHP codes execute faster than ASP as it runs on own memory space compared to ASP uses an overhead server. Most tools associated with PHP are the open source while additional tools might purchase with using ASP (ASP versus PHP, n.d.).

c) Database

A database is an organized collection of data. The data is typically organized to model relevant aspects of reality in a way that supports processes requiring this information. The term database system implies that the data is managed to some level of quality and this in turn often implies the use of a general-purpose database management system (Database, 2012).

1. MySQL

MySQL is a common, famous choice of database for use in web applications. MySQL is primarily an RDBMS and ships with no GUI tools to administer MySQL databases or manage data contained within the databases. Users may use the included command line tools, or use MySQL "front-ends", desktop software and web applications that create and manage MySQL databases, build database structures, backup data, inspect status, and work with data records. MySQL is an open-source high-performance, multi-threaded, multi-user relational database management system that relies on SQL for processing the data into the database that built around client-server architecture. MySQL is noted specifically for its speed, stability, reliability, and flexibility (MySQL, 2012).

Table 1.5.2-3 – Advantages & Disadvantages of MySQL

Advantages	Disadvantages
• Supports large number of embedded applications which makes MySql very flexible. • Use of Triggers, Stored procedures and views which allows the developer to give a higher productivity. • Allows transactions to be rolled back, commit and crash recovery.	• MySQL does not support a very large database size as efficiently • Transactions are not handled very efficiently.

2. Microsoft SQL Server

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database, it is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on the same computer or those running on another computer across a network (Microsoft SQL Server, 2012).

Table 1.5.2-4 – Advantages & Disadvantages of Microsoft SQL Server

Advantages	Disadvantages
• Enterprise Grade Management Software • Excellent Data Recovery Support	• Cost of implement • Limited Compatibility

3. Comparison and Discussion

MySQL is the suitable database used to develop the system compared to others. MySQL is an open-source system; it gives remarkable performance with used of very less storage space on the disk and can run on many platforms. (Adam Hobach, 2008).

1.5.3 Current System

Currently, process throughout the undergraduate project is done by manually. PSM/PTA coordinator used this current manual process to manage the subject activities such as proposal submission, assigning presentation schedule, marks calculation, log book submission, etc. The following flowchart will describe the process in completing the undergraduate project.

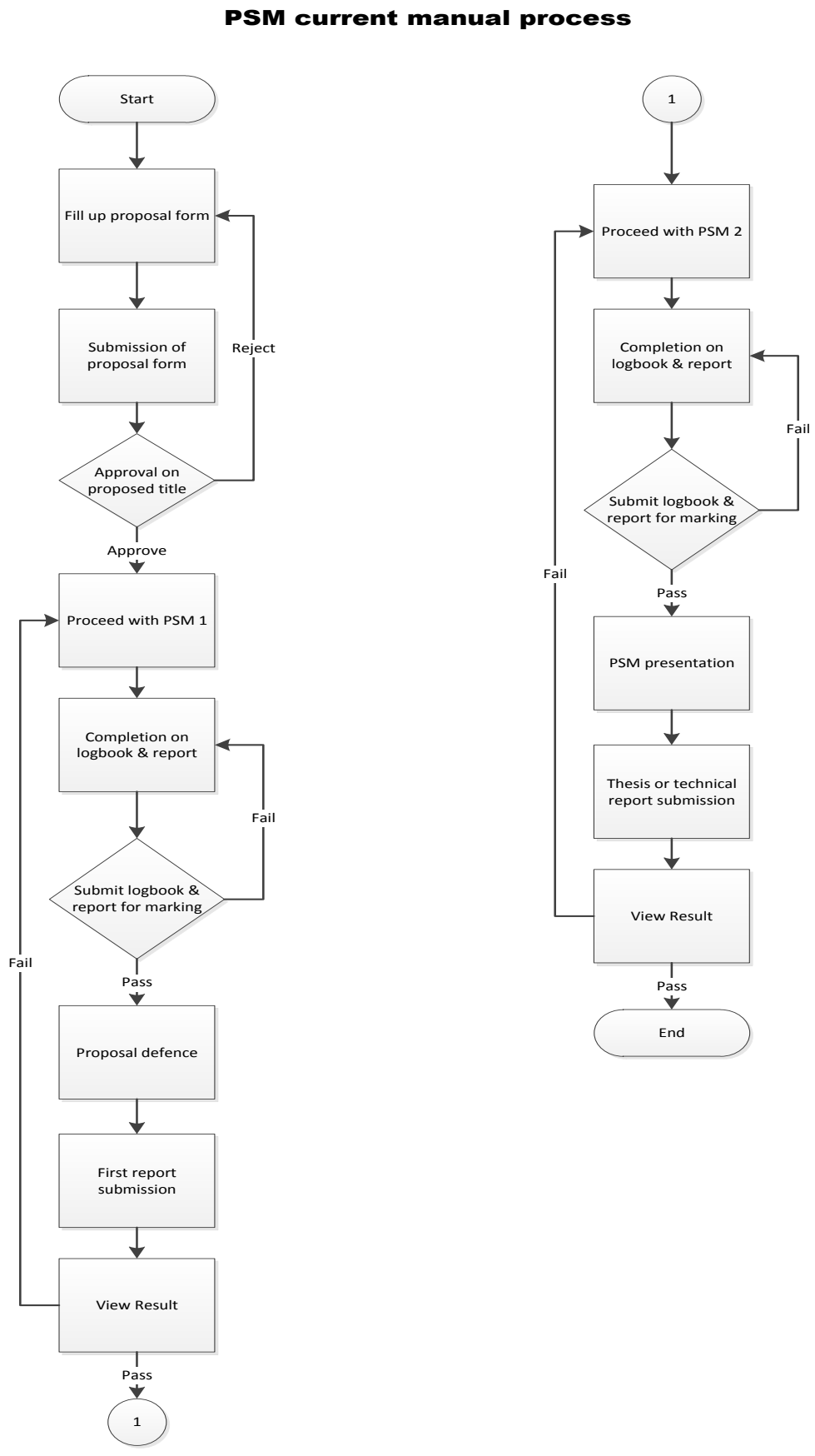

Figure 1.5.3-1 – PSM current manual process flow chart

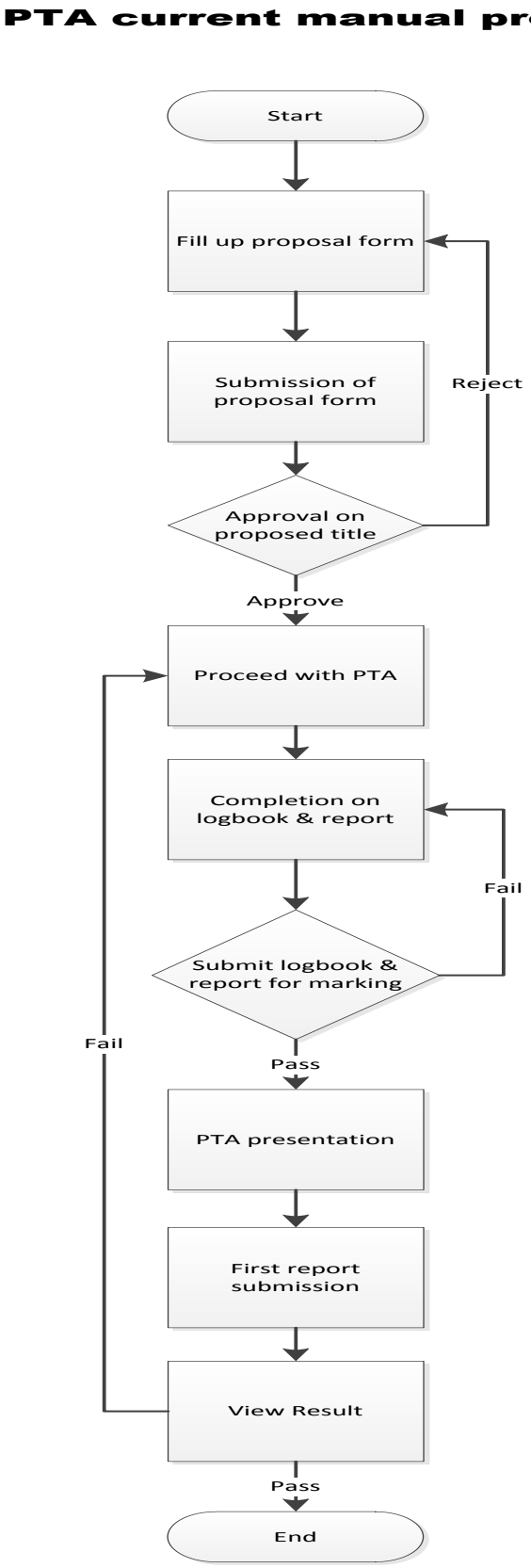

Figure 1.5.3-2 – PTA current manual process flow chart

1.6 Outline of Material

The overall of this report consists of three (3) main parts. Part 1 will discuss on the purpose behind the project, existing system that related to the proposed system.

Part 2 will discuss on user requirement, design description, development plan and testing plan in the system.

Finally, it will discuss in the conclusion obtain in the overall process through the development throughout the system.

PART II

REPORT BODY

2.1 User Requirement

During designing a software product, the important and difficult process is to determine what the user need is. Generally, customer not able to explain and discuss their needs, sometimes the information is not in a complete form, self-conflicting and less accurate. The project manager has the responsibility to understand their customer needs. Once the requirement is documented in URD, the software will spell out exactly as stated in the document because the contractual agreement was signed off between both firms.

2.1.1 Product Perspective

PSM/PTA Evaluation Web Management System will develop using web-based application, Adobe Dreamweaver CS5 and PHP scripting language, and interact with MySQL Server.

1. The web pages (XHTML/PHP) are present to provide the user interface on the client side.
2. The Client Software is to provide the user interface of system user on client side, and for this TCP/IP protocols are used.
3. Communication between client and server is provided through HTTP/HTTPS protocols.
4. On the server-side, web server is for PHP and database server is for storing the information.

a) System Interfaces

The system interfaces are as below:

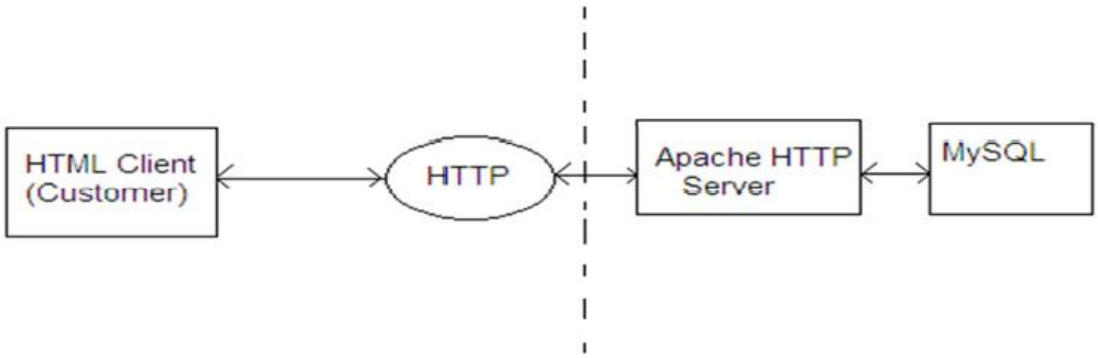

Figure 2.1.1-1: System Interfaces

b) User Interfaces

There are three different category of users who will use the system; coordinator, student and lecturer. All users will access the system via the web browser. The application should allow the basic process such as insert, update, delete, and view for all the users. The context diagram shows the user interfaces within the system:

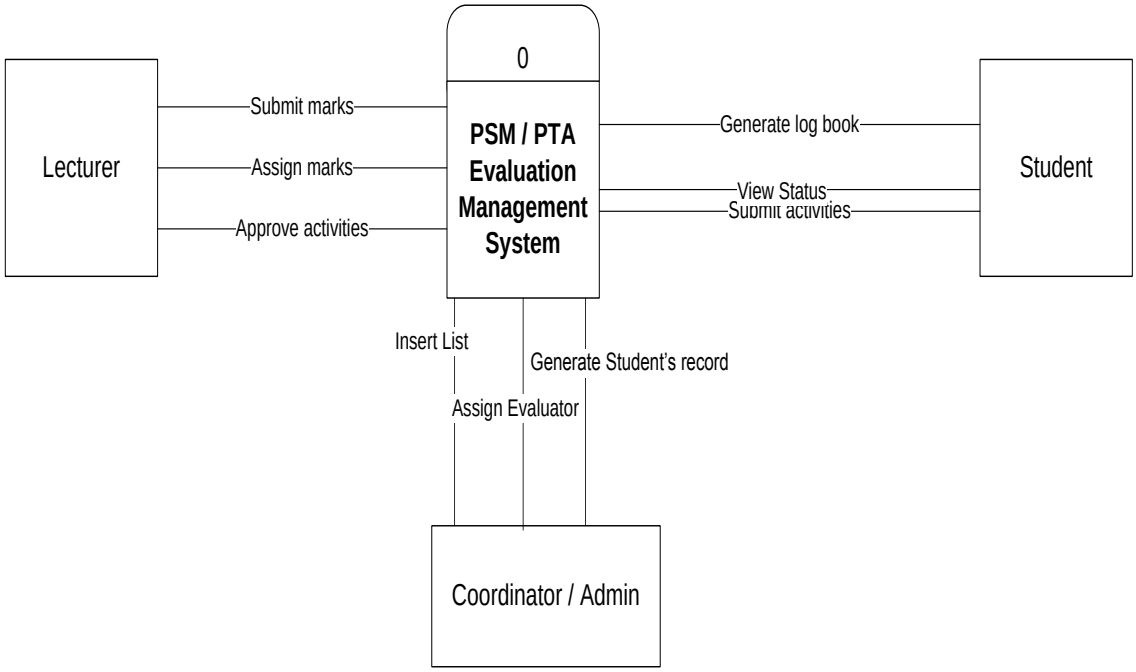

Figure 2.1.1-2: Context Diagram of PEMS

1. **Student Interfaces**

In the student's interface consists of login interface, activity submission and generate log book interface, view status interface. Student will register into the system by the coordinator Student will have to login to the system using their own username and password. Student will be redirected to their main page, which contains the list of student options. They will later submit activities done and view their marks. They can generate log book from the system.

2. **Lecturer Interfaces**

In the lecturer's interface consists of a login interface, approve activities interface, marks evaluation interface, and category interface. Lecturer will have to login to the system using their own username and password. Lecturer will be redirected to their main page, which contains the list of supervisor options if they select to supervise students. They will approve activities submit by students, assign marks to them based on the rubric stated. The total mark is 60% and will divide into two stages. They will have to submit final marks to the coordinator. If a lecturer selects to evaluate students, they will have same options as a supervisor except approve activities interface. The total mark is 20%, and they will submit the final marks to the coordinator.

3. **Coordinator Interfaces**

In the coordinator's interface consists of a login interface, assign evaluator interface, and generate student's record interface. The coordinator will have to login to the system. Coordinator will be redirected to their main page, which contains a list of coordinator options. They will register students to the database; the file should be in excel format which the extension .xls. Coordinator then will assign two evaluators to each single student. Coordinator will be able to generate all student records into excel in .xls format.

c) Hardware Interfaces

Required Hardware:

Table 2.1.1-1: Hardware Interfaces

Client Side			
	Processor	RAM	Disk Space
IE 6.0 & above	Pentium III at 500MHz	512MB	120GB
Server Side			
	Processor	RAM	Disk Space
Apache HTTP Server V2.2.17	Pentium IV at 1.3 GHz	512MB	500GB
MySql V5.5.8	Pentium IV at 1.3 GHz	512MB	200MB(Excluding Data Size)

d) Software Interfaces

Required Software:

Table 2.1.1-2: Software Interfaces

Software	**Purpose**
Microsoft Windows Operating System • Windows 7 Ultimate	• As a platform for a system to run • Operating system which will be used to develop the system
• Microsoft Word 2007 • Microsoft PowerPoint 2007 • Microsoft Project 2007 • Microsoft Visio 2007	• Prepare proposal and documentation • Prepare slide for presentation • Scheduling, planning and prepare Gantt Chart • Design and draw chart and diagram
IBM Rational Rose Professional	Design and draw use case, sequence diagram
Adobe Dreamweaver CS5	Design interface and generate coding
Apache MySQL phpMyAdmin	Database for the system; generate database, database management and database platform

e) Products Functions

The PEMS can be accessed by students, lecturers, and coordinator through the website. In this system, coordinator who is an administrator; insert student list, view activities of student, check and assign marks of students. The lecturer will play two roles within the system, which is as supervisor and as an evaluator. As a supervisor, they can assign marks to their supervise students, approval on student's activities. As an evaluator, they will assign marks to students on their performance during presentation. Students will have to login to submit activities, generate log book and view their status.

f) User Characteristics

There are three different categories of users in PEMS, which are coordinator/admin, lecturer, and student. All users are assumed to have basic knowledge of computers and Internet browsing. Coordinator should know the flow and process within the system in order to assist other users when they face problems in using the application.

g) Constraints

1. System is limited to HTTP/HTTPS protocols as the system is a web-based application.
2. The used of hardware and software by users should fulfill the minimum requirement of the system.
3. Server must be always available.

h) Assumptions and Dependencies

1. The system will be able to access by major of Internet browser such as Internet Explorer, Google Chrome and Mozilla Firefox.
2. The speed of accessing the system depends on the network speed.
3. Higher RAM provides higher performance of the system.

2.1.2 Specific Requirements

a) Functions

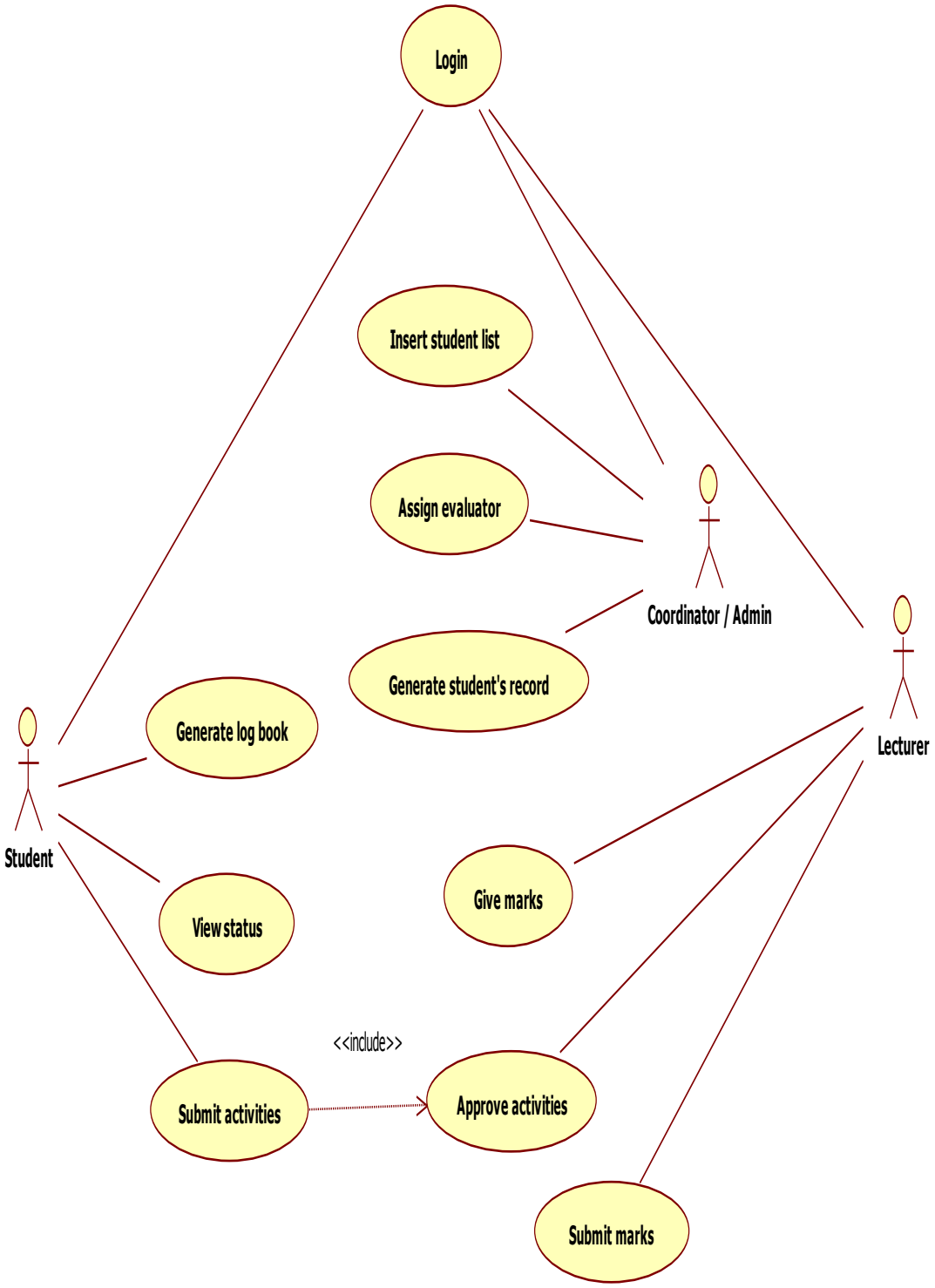

Figure 2.1.2: UML Use Case Diagram

Use Case:	Login
ID:	EMS001
Scope:	This use case details the login steps of a user; it is necessary to gain access to other functionality of the system.
Priority:	1/10
Summary:	In login module separate login will be create student, coordinator and lecturer
Primary Actor:	Student, Coordinator, Lecturer
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	None
Trigger:	NA
Normal Flow:	1. The system displays form for the **username** and **password**, in user interface **LOGIN** button is displayed. 2. User enters the **username** 3. User enters the **password** 4. User presses the **LOGIN** button 5. The system verifies the user's access rights 6. The system displays the home page of particular user.
Sub-Flows:	NA
Alternate Flow/ Exceptions:	In section 5, system fail to verify User's access rights, the system will redirect to login failed page and terminates the use case.
Post-Condition:	User can access system functionality.
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-1: Use Case Description for Login

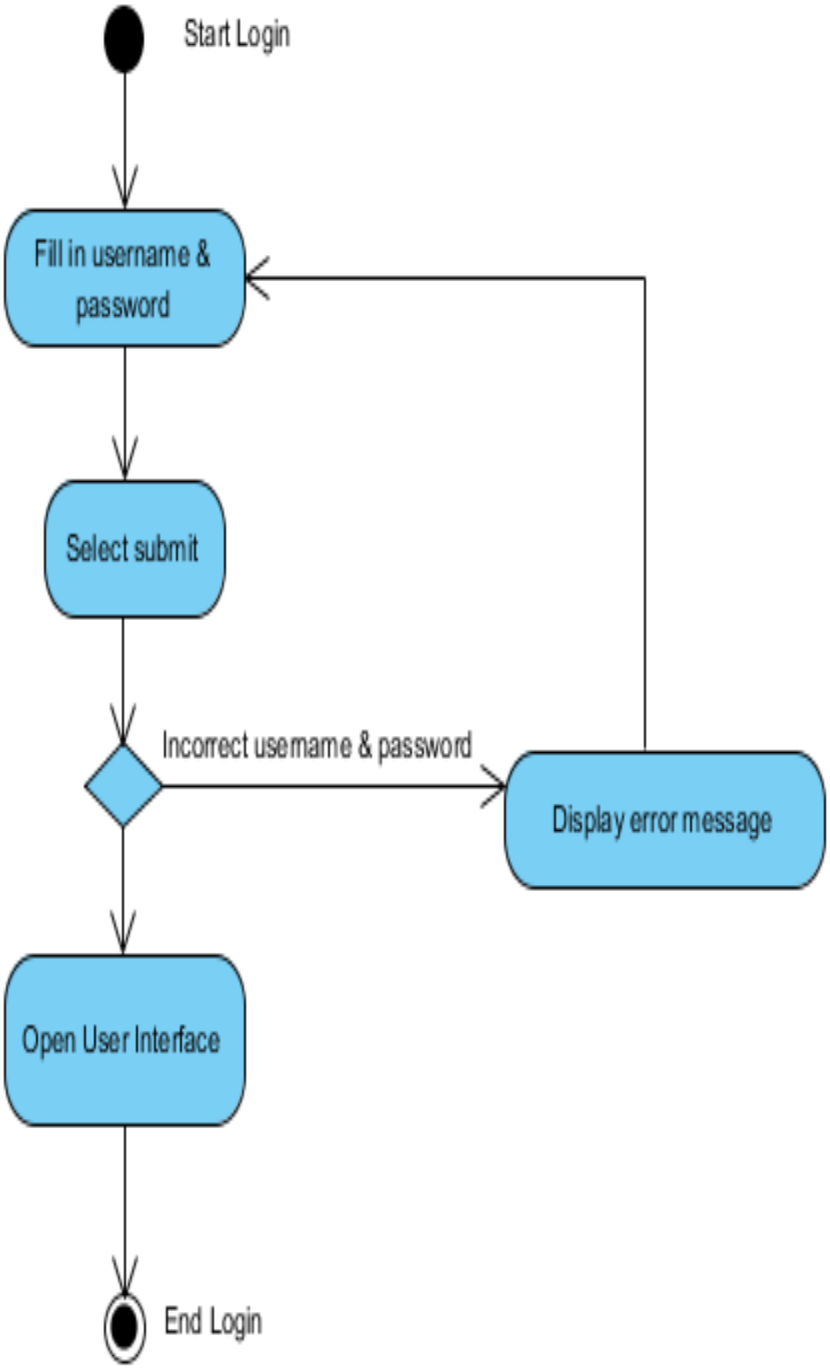

Figure 2.1.2-1: Login Activity Diagram

Use Case:	Submit activities
ID:	EMS002
Scope:	This use case show the schedule details of a user
Priority:	2/10
Summary:	In this module, student will submit every activity done, the activities then will send to their supervisor.
Primary Actor:	Student
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	Approve activities
Extend:	NA
Precondition:	Student title already been approve by coordinator
Trigger:	NA
Normal Flow:	1. Student register title 2. Student check approval on title 3. Student submit activities to supervisor
Sub-Flows:	NA
Alternate Flow/ Exceptions:	None
Post-Condition:	User can check every activities submitted
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-2: Use Case Description for Submit activities

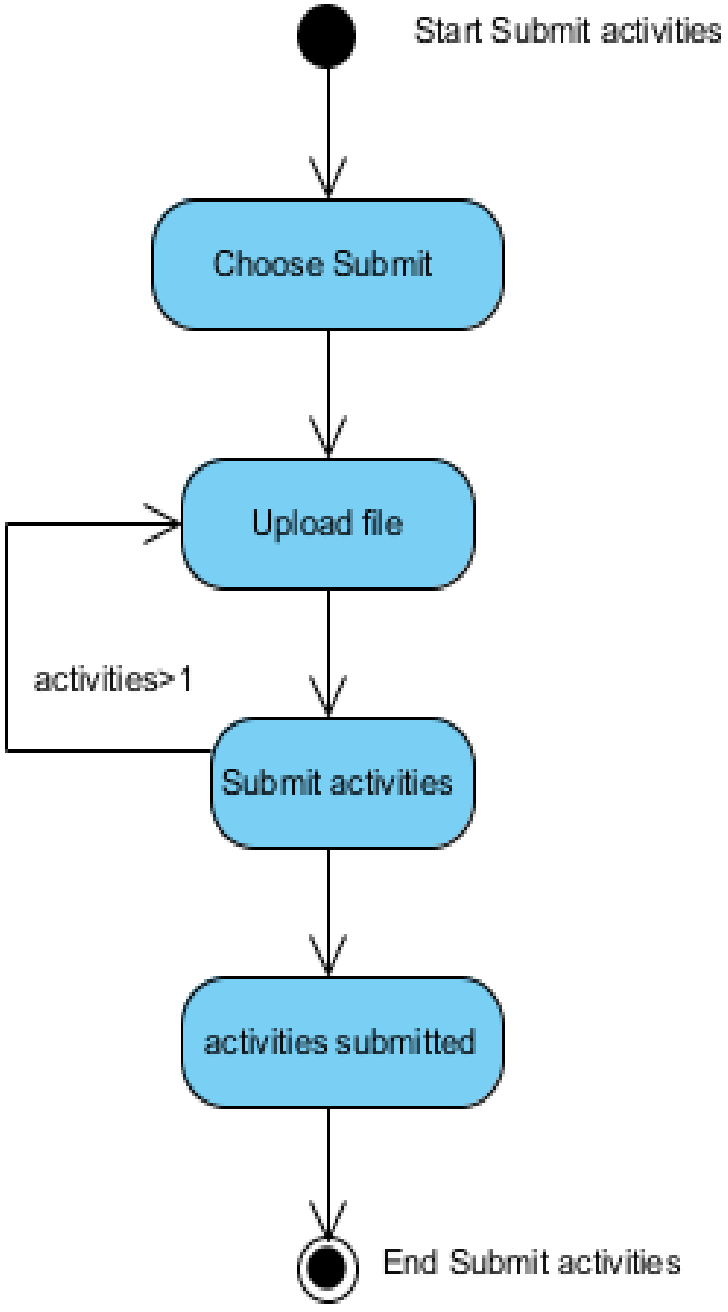

Figure 2.1.2-2: Submit activities Activity Diagram

Use Case:	View status
ID:	EMS003
Scope:	This use case shows student's mark that had been assign by their supervisor.
Priority:	3/10
Summary:	In this module, student can check their marks and comment given by the supervisor.
Primary Actor:	Student
Supporting Actors:	Lecturer
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	Evaluation had been done by lecturer as supervisor and evaluator.
Trigger:	NA
Normal Flow:	1. The student will login to the system 2. Student can access to check their overall marks given from their supervisor.
Sub-Flows:	NA
Alternate Flow/ Exceptions:	NA
Post-Condition:	Student can view their overall marks of the project.
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-3: Use Case Description for View marks

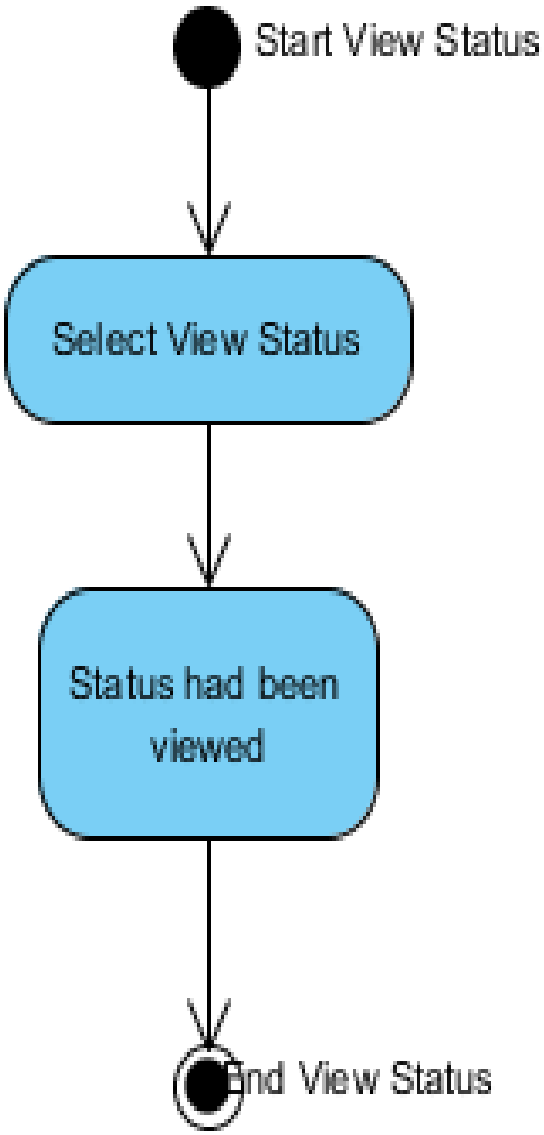

Figure 2.1.2-3: View Status Activity Diagram

Use Case:	Generate log book
ID:	EMS004
Scope:	This use case help to generate all approved activities into log book
Priority:	4/10
Summary:	In this module, student can generate a log book based on their submitted activities that had been approved by their supervisor. The log book then can submit to coordinator
Primary Actor:	Student
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	At least 1 activities had been approved by supervisor
Trigger:	NA
Normal Flow:	1. In user interface a table of activities list and button generate is displayed 2. Student click on generate button 3. System display a message to ask student to save the file
Sub-Flows:	NA
Alternate Flow/ Exceptions:	None
Post-Condition:	Student can generate the log book to be submit to coordinator
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-4: Use Case Description for Generate log book

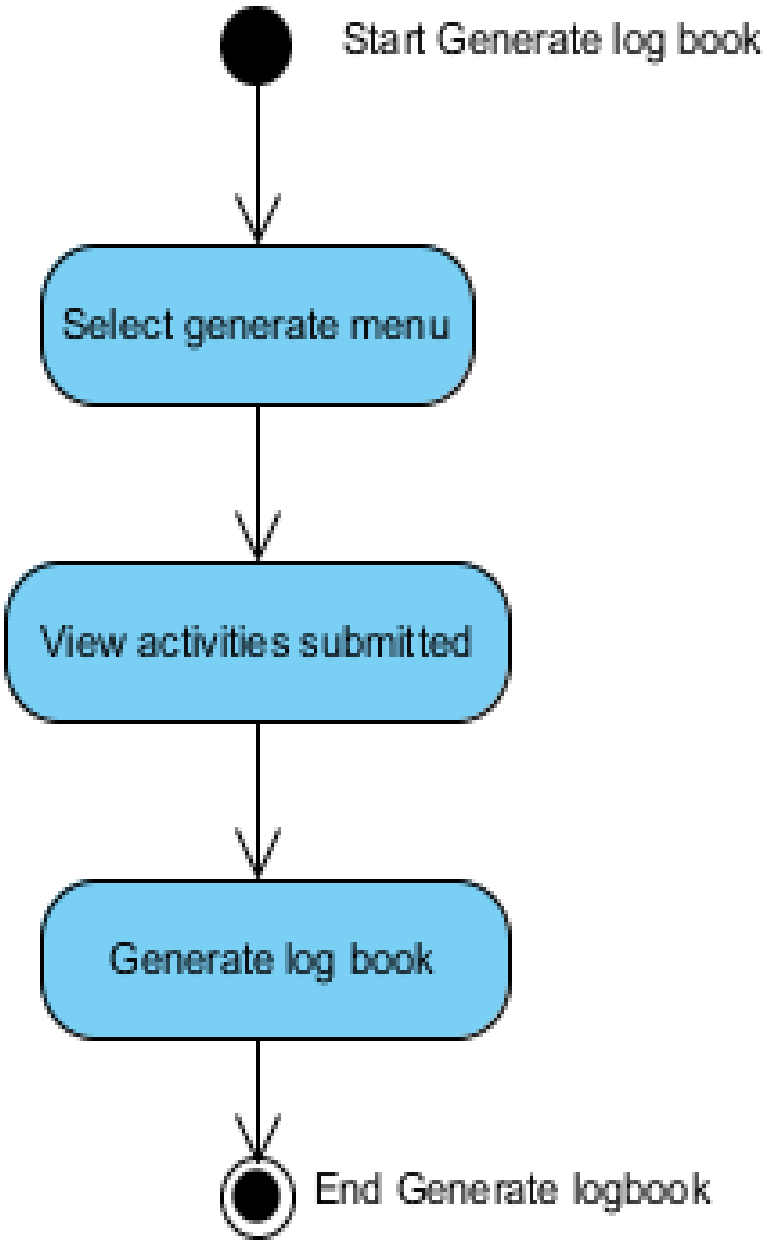

Figure 2.1.2-4: Generate log book Activity Diagram

Use Case:	Insert student list
ID:	EMS005
Scope:	This use case show the process of coordinator insert registered students list into the system.
Priority:	5/10
Summary:	In this module, the coordinator will insert all list of students into the system by using excel .xls format.
Primary Actor:	Coordinator
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	Coordinator get list of students
Trigger:	NA
Normal Flow:	1. The system ask user to upload file 2. Coordinator choose a file 3. Coordinator click on IMPORT button 4. Data saved in to database.
Sub-Flows:	NA
Alternate Flow/ Exceptions:	NA
Post-Condition:	Coordinator insert all list of students into database
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-5: Use Case Description for Insert student list

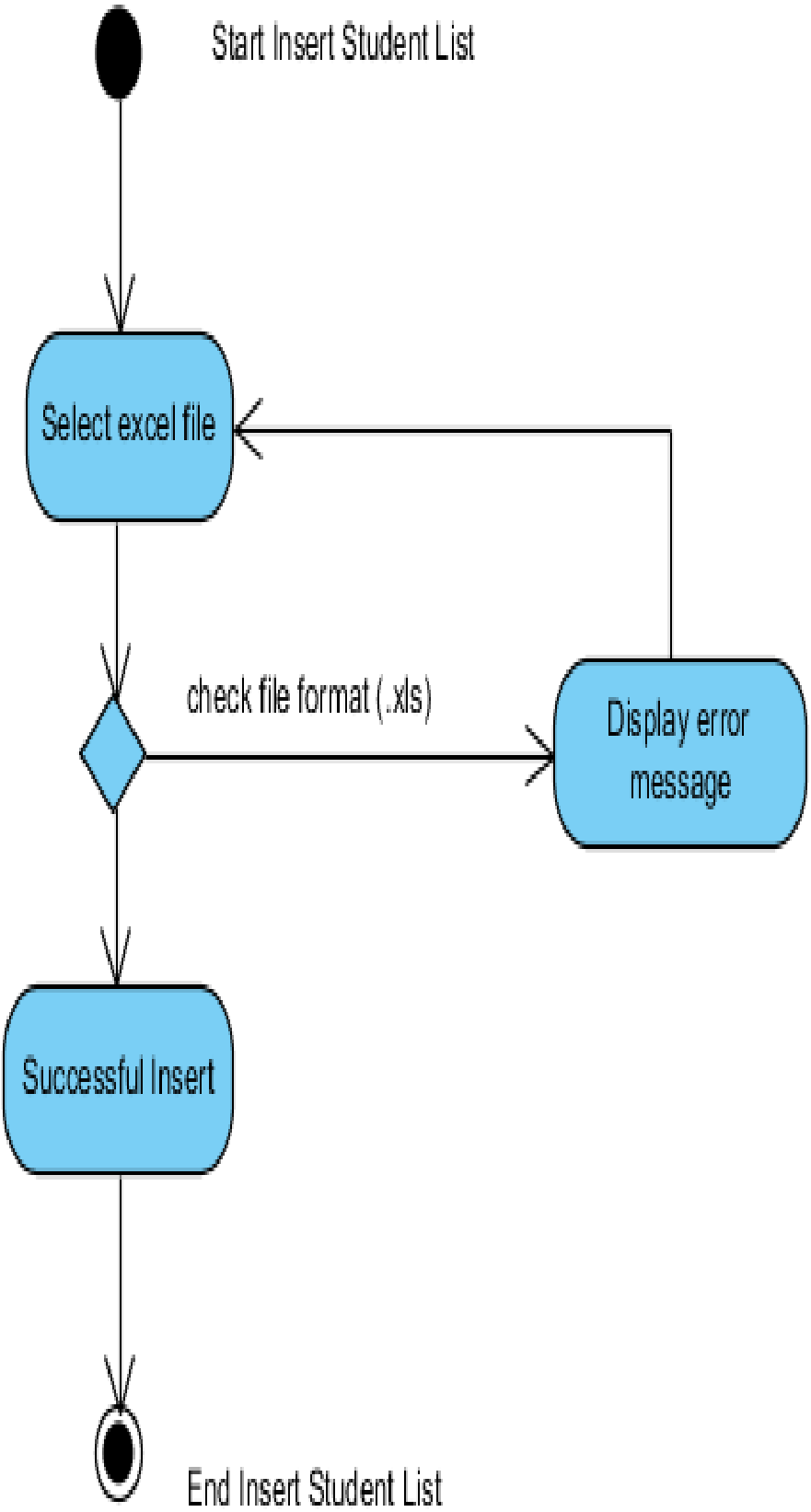

Figure 2.1.2-5: Insert Student List Activity Diagram

Use Case:	Assign evaluator
ID:	EMS006
Scope:	This use case show the process of coordinator assign evaluator to the students
Priority:	6/10
Summary:	In this module, the coordinator will choose two lecturer to be the evaluator of a student
Primary Actor:	Coordinator
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	Student's title had been approved
Trigger:	NA
Normal Flow:	1. The system displays list of approved students and **ASSIGN** button is displayed. 2. Coordinator click on ASSIGN button 3. Coordinator choose two lecturer
Sub-Flows:	NA
Alternate Flow/ Exceptions:	NA
Post-Condition:	Coordinator added evaluator to student successfully
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-6: Use Case Description for Assign evaluator

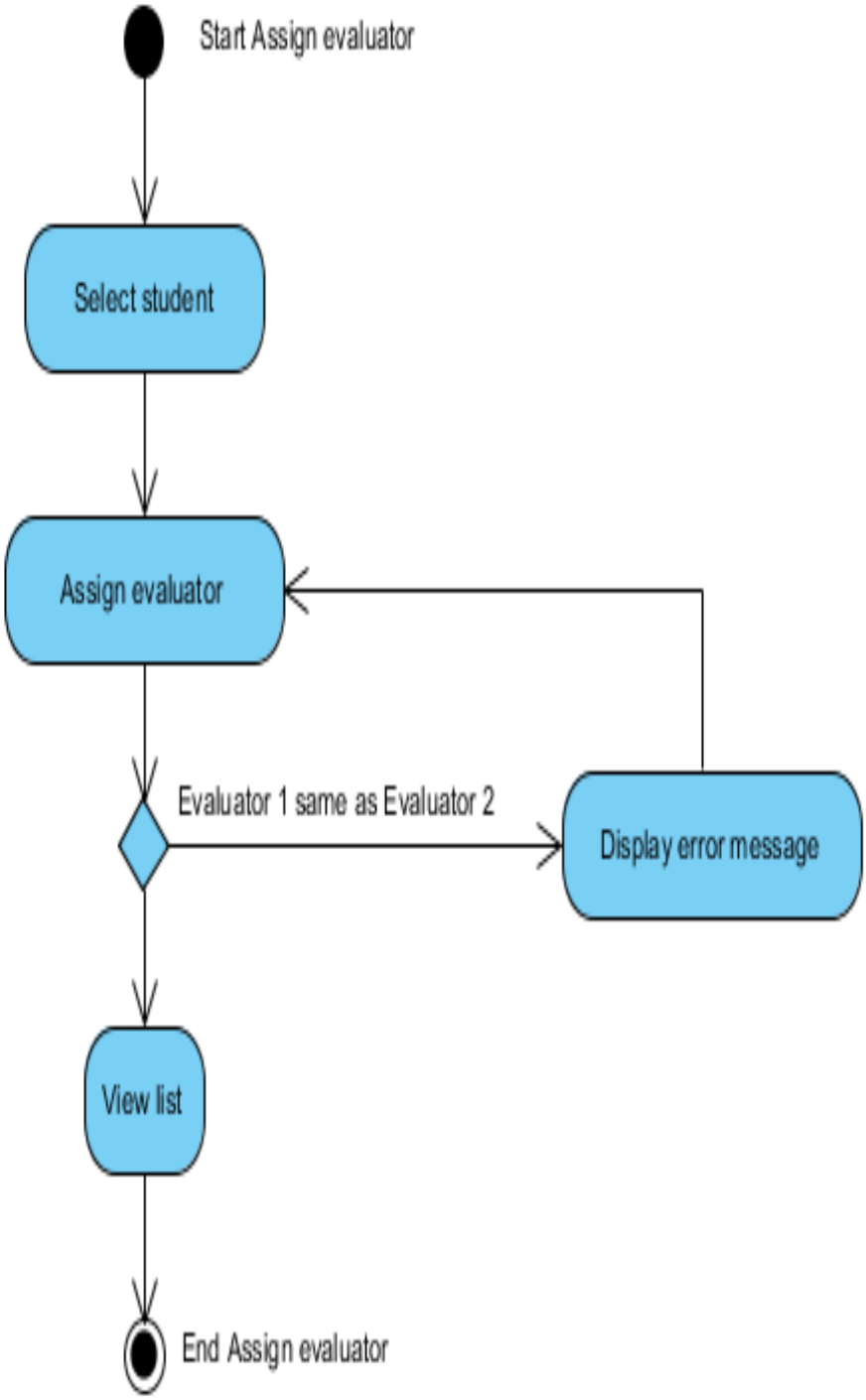

Figure 2.1.2-6: Assign evaluator Activity Diagram

Use Case:	Approve activities
ID:	EMS007
Scope:	This use case show the supervisor approves or rejects activities submitted by their students.
Priority:	7/10
Summary:	In this module, lecturer who play roles as supervisor will submit their marks for students based on rubric given
Primary Actor:	Lecturer
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	At least one activity had been submitted.
Trigger:	NA
Normal Flow:	1. Lecturer check students activities 2. Lecturer approve or reject that activities 3. Lecturer click submit
Sub-Flows:	NA
Alternate Flow/ Exceptions:	NA
Post-Condition:	Student can view their status of activities submitted.
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-7: Use Case Description for Approve activities

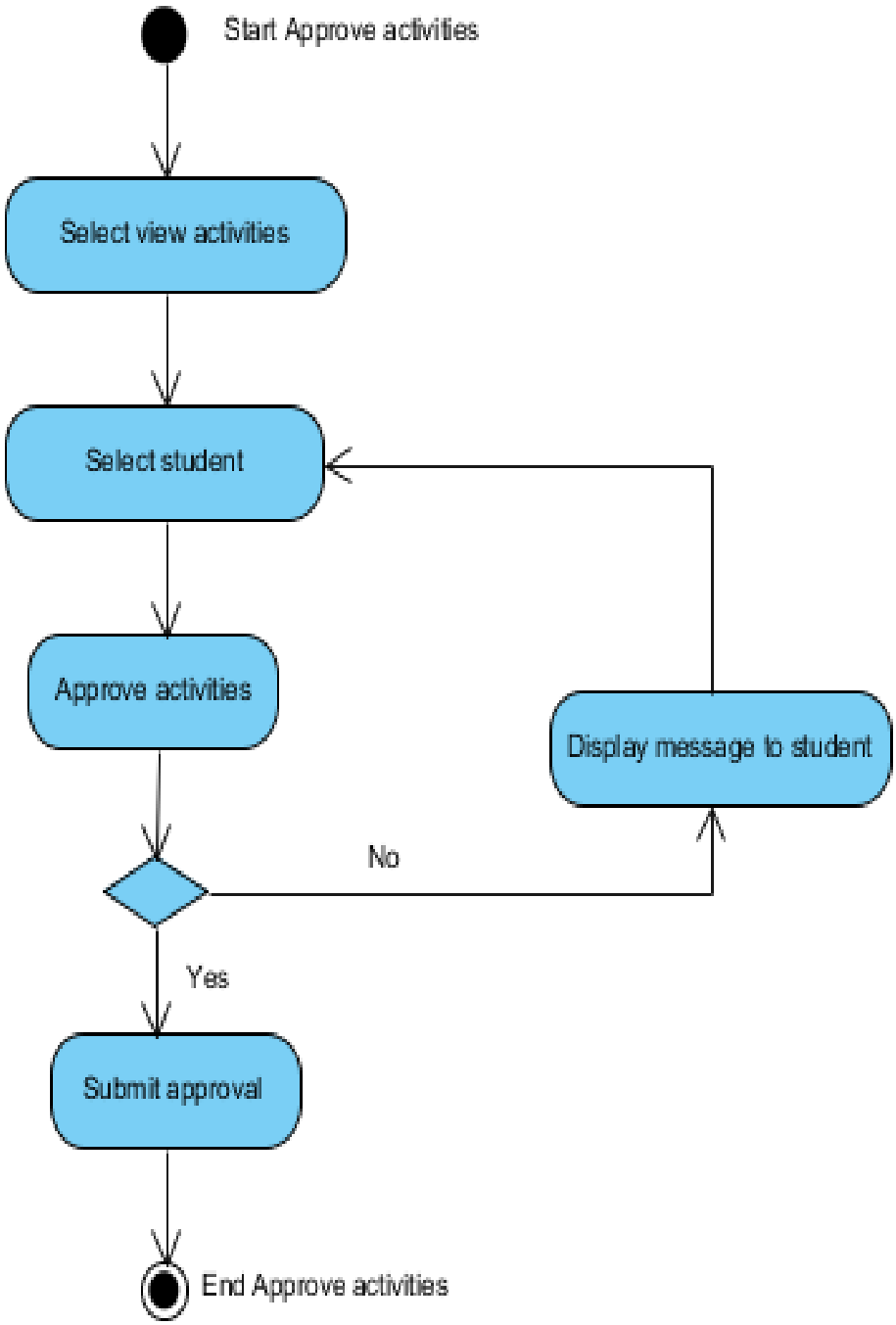

Figure 2.1.2-7: Approve activities Activity Diagram

Use Case:	Give marks
ID:	EMS008
Scope:	This use case display the marks given by lecturer, as a supervisor or evaluator to students
Priority:	8/10
Summary:	In this module, the lecturer who play roles as supervisor and evaluator will assign marks to students based on the rubric.
Primary Actor:	Lecturer
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	View marks
Extend:	NA
Precondition:	Student's title had been approved
Trigger:	NA
Normal Flow:	1. The system displays list of approved students and a form marks rubric will displayed. 2. Lecturer choose to supervise or evaluate their students 2. Lecturer choose a student 3. Lecturer insert marks 4. Lecturer submit marks
Sub-Flows:	NA
Alternate Flow/ Exceptions:	None
Post-Condition:	Lecturer added their marks to student
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-8: Use Case Description for Give marks

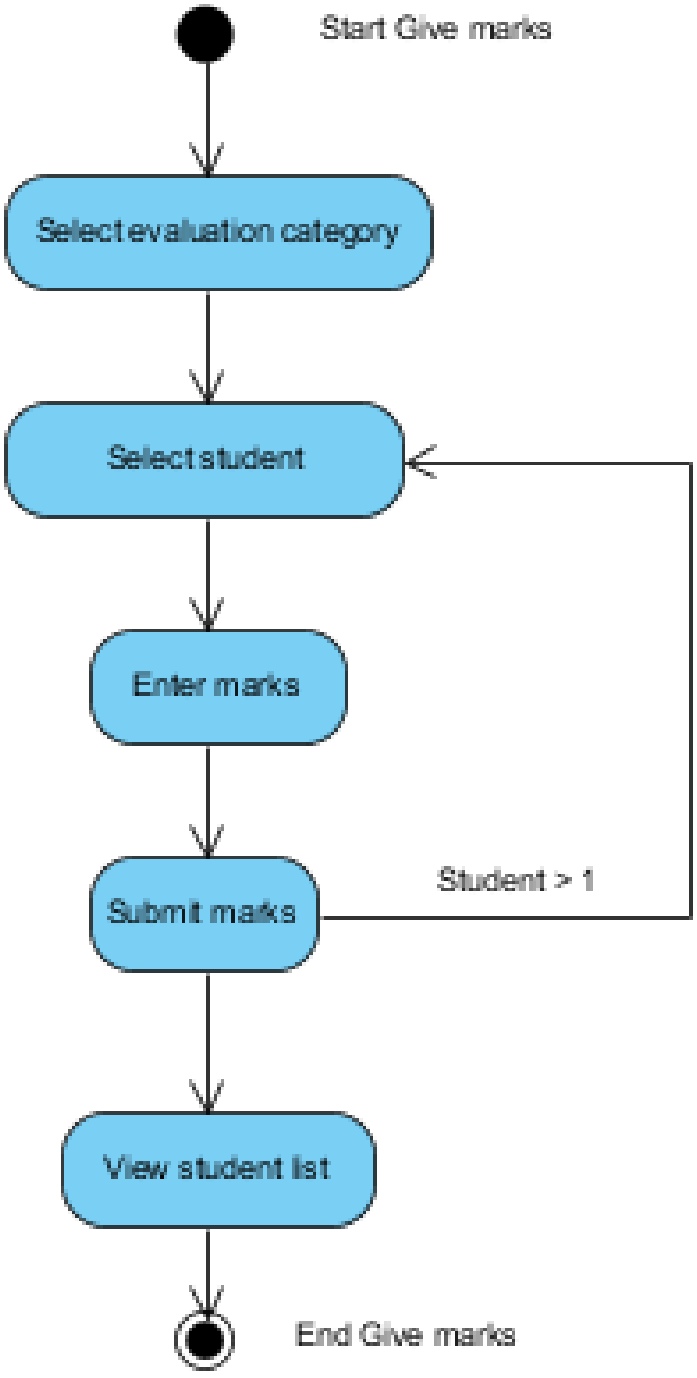

Figure 2.1.2-8: Give marks Activity Diagram

Use Case:	Submit marks
ID:	EMS009
Scope:	This use case will submit all student's mark from lecturer to coordinator
Priority:	9/10
Summary:	In this module, lecturer will submit student's marks to coordinator
Primary Actor:	Lecturer
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	Student had been evaluated
Trigger:	NA
Normal Flow:	1. Lecturer click on SUBMIT button. 2. Lecture submit marks to coordinator
Sub-Flows:	NA
Alternate Flow/ Exceptions:	None
Post-Condition:	Coordinator get marks from lecturer
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-9: Use Case Description for Submit marks

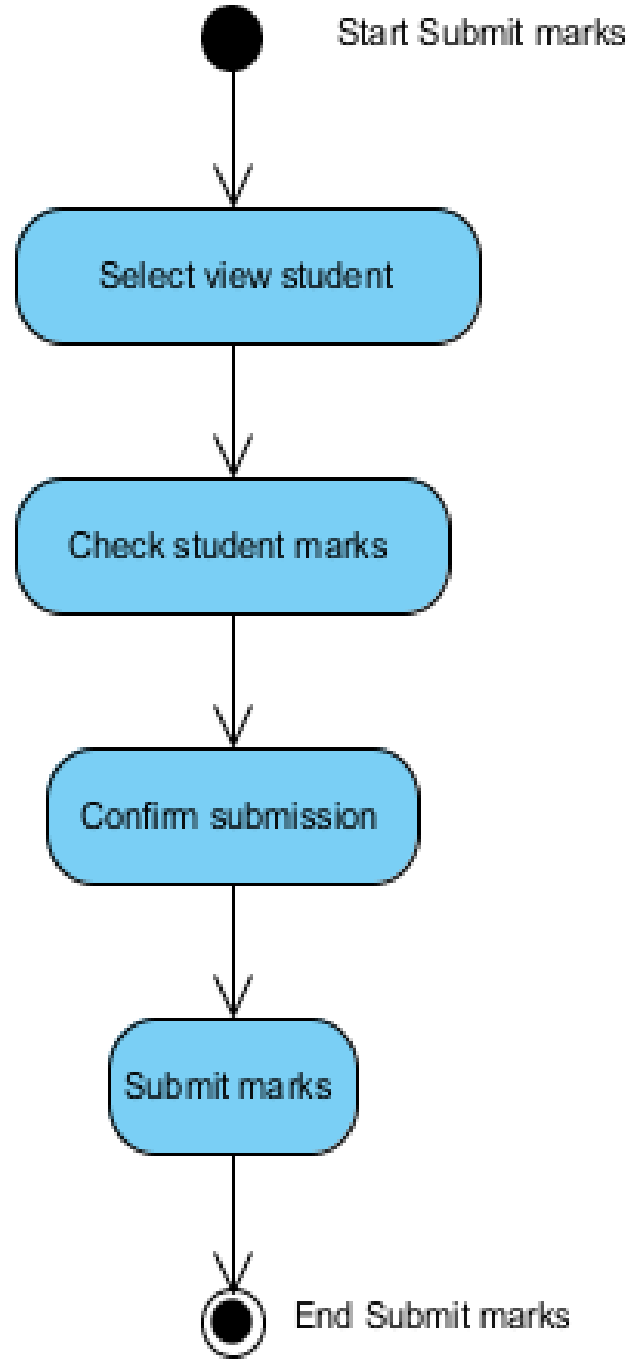

Figure 2.1.2-9: Submit marks Activity Diagram

Use Case:	Generate student's record
ID:	EMS010
Scope:	This use case display all student's records
Priority:	10/10
Summary:	In this module, coordinator can view all marks score by registered students and generate the records into excel file.
Primary Actor:	Coordinator
Supporting Actors:	NA
Stakeholders:	NA
Generalization:	NA
Include:	NA
Extend:	NA
Precondition:	The title is fulfill the requirement needed
Trigger:	NA
Normal Flow:	1. The system displays all lists of registered students. In user interface **GENERATE** button is displayed 2. Coordinator click on generate button 3. Coordinator save record into excel file
Sub-Flows:	NA
Alternate Flow/ Exceptions:	None
Post-Condition:	Coordinator save an excel file with content of all student's record
Non-Behavioral Requirements:	None
Open Issues:	NA
Source:	Requirement statement
Author:	Michael
Revision & Date	Revision 1.12.2012

Table 2.1.2-10: Use Case Description for Generate student's record

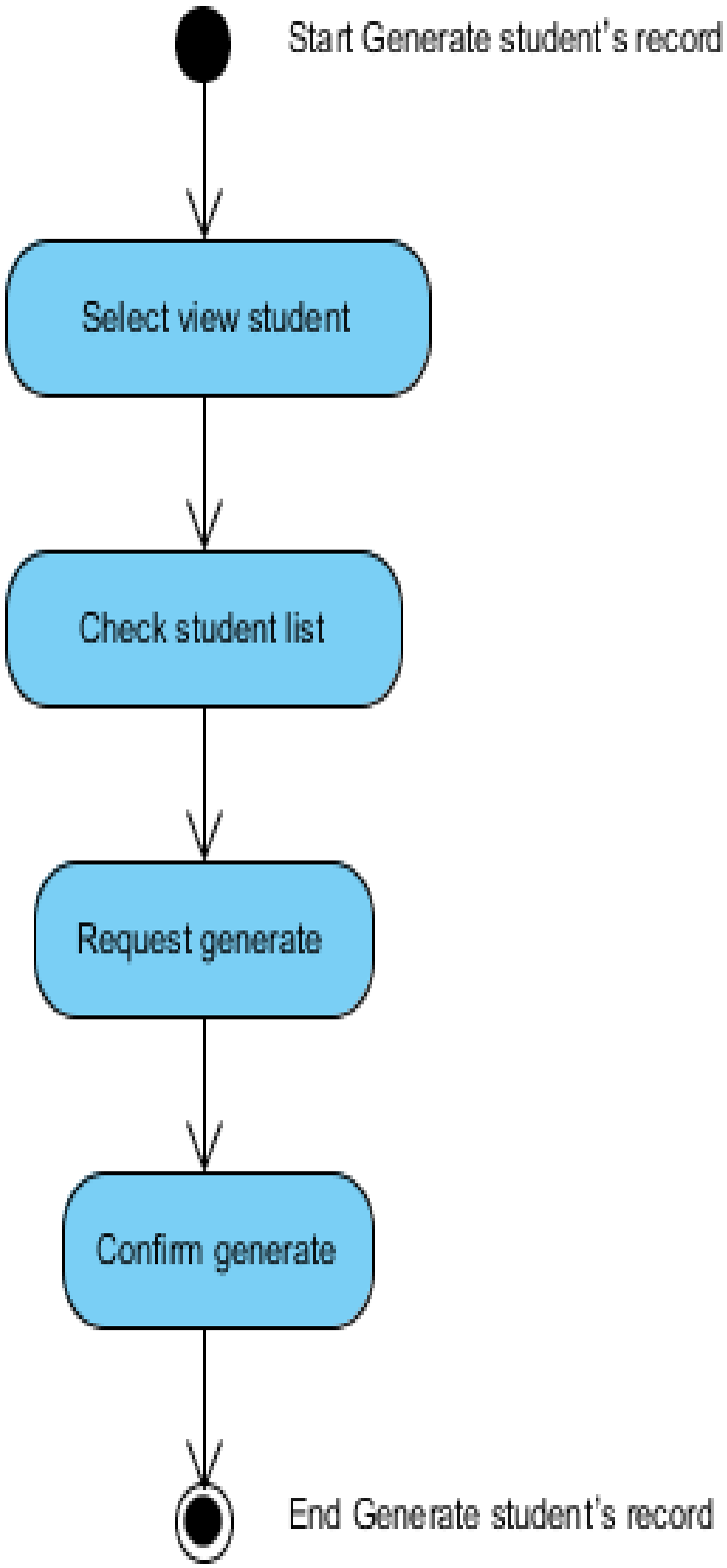

Figure 2.1.2-10: Generate student's record Activity Diagram

b) Performance Requirements

The system will be built into a single database to ensure the efficient data flow. MySQL database will be used to store the data or information in this system. All data is stored in one database to avoid any duplication of data and can easily handle. The table created are fully connected with each other and normalized to facilitate updating process. The database should scalable that is must have the capacity to hold a large number of data in the future.

The system should be extensible. There are more functions, and module can be added to the application easily. Error handling should be implementing, and the application should be able to handle all run time errors. If an error condition occurs, the system should display a helpful error message and if not recovery is impossible, it should exit gracefully. The system will be completely functional on any web browsers.

c) Logical Database Requirements

An entity-relationship (ER) diagram is a specialized graphic that illustrates the relationships between entities in a database. Since the system will be using the database to connect one form to another, the entities must be defined within it characteristics. Every single entity has it Primary Key (PK) which is unique character among all characters in single entity. There is also the entity that has Foreign Key (FK) which is the primary key from another entity. The cardinality must be stated in order to show their relationship between each other.

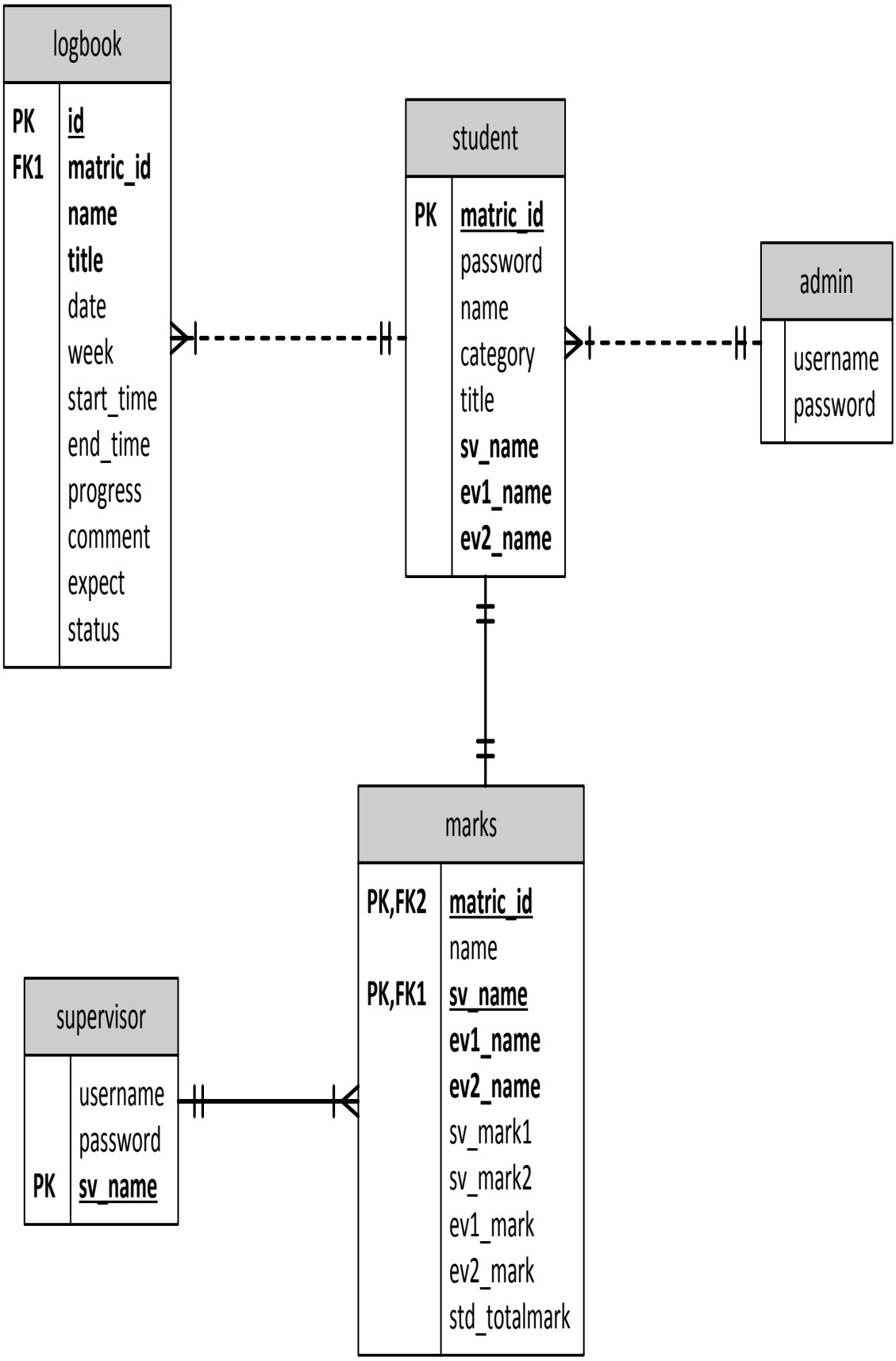

Figure 2.1.2-11: Logical Database Requirement

The data descriptions of each of these data entities are as follows:

Table 2.1.2-11: Marks Entity

Attributes	Definition	Data Type	Details
matric_id	Defines student matric no example (CBXXXX)	VARCHAR(7)	The matric id for the student
name	Defines student name	VARCHAR(150)	The name of the student
sv_name	Defines student supervisor	VARCHAR(50)	The supervisor that supervise a student
ev1_name	Defines student first evaluator	VARCHAR(50)	The evaluator that evaluate a student
ev2_name	Define student second evaluator	VARCHAR(50)	The evaluator that evaluate a student
sv_mark1	Defines first evaluation mark from supervisor	FLOAT	The mark of 20% given by supervisor
sv_mark2	Defines second evaluation mark from supervisor	FLOAT	The mark of 40% given by supervisor
ev1_mark	Defines evaluator mark	FLOAT	The mark given by evaluator
ev2_mark	Defines evaluator mark	FLOAT	The mark given by evaluator
std_totalmark	Define student total marks	FLOAT	The overall mark scored by a student

Table 2.1.2-12: Logbook Entity

Attributes	Definition	Data Type	Details
id	Defines lecturer username	VARCHAR(20)	Used as a unique key to log in into system
matric_id	Defines student matric no example (CBXXXX)	VARCHAR(7)	The matric id for the student
name	Defines student name	VARCHAR(150)	The name of the student
title	Defines student project title	VARCHAR(300)	The project name of a student
date	Defines date of activity submission	VARCHAR(10)	The submission date of activity
week	Defines week of activity submission	INT(2)	The submission week of activity
start_time	Defines beginning time of activity submission	VARCHAR(10)	The begin time of submission of activity
end_time	Defines end time of activity submission	VARCHAR(10)	The end time of submission of activity
progress	Defines progress of project	VARCHAR(200)	The progress of current activity of student
comment	Defines comment of lecturer	VARCHAR(200)	The comment made by lecturer to student activity
expect	Defines expect progress from lecturer	VARCHAR(200)	The expectation of lecturer to the student progress
status	Defines status of activities approval	VARCHAR(10)	The approval made by lecturer to students activity

Table 2.1.2-13: Admin Entity

Attributes	Definition	Data Type	Details
username	Defines admin username	VARCHAR(20)	Used as a unique key to log in into system
password	Defines admin password	VARCHAR(20)	Used as a unique key to log in into system

Table 2.1.2-14: Student Entity

Attributes	Definition	Data Type	Details
matric_id	Defines student matric no example (CBXXXX)	VARCHAR(7)	Used as unique key to log into the system
password	Defines student password	VARCHAR(9)	Used as a unique key to log in into system
name	Defines student name	VARCHAR(150)	The name of the student
category	Defines student project category (PSM1)	VARCHAR(4)	The category of project of student
title	Defines student project title	VARCHAR(300)	The project name of a student
sv_name	Defines student supervisor	VARCHAR(50)	The supervisor that supervise a student
ev1_name	Defines student first evaluator	VARCHAR(50)	The evaluator that evaluate a student
ev2_name	Define student second evaluator	VARCHAR(50)	The evaluator that evaluate a student

Table 2.1.2-15: Supervisor Entity

Attributes	Definition	Data Type	Details
username	Defines lecturer username	VARCHAR(20)	Used as a unique key to log in into system
password	Defines lecturer password	VARCHAR(20)	Used as a unique key to log in into system
sv_name	Defines lecturer name	VARCHAR(50)	The lecturer name of the system

2.2 Method and Material

Methodology is generally a guideline for solving a problem, with specific components such as phases, tasks, methods, techniques and tools. It is also can be defined as the systematic study of methods that have been applied within a discipline. Similarly, methodology refers to the rationale or the philosophical assumptions that underlie a specific study or a particular methodology. There are various models of software development process and a lot of methodologies, which might be used in developing good software. By choosing the right and suitable method of software development process, it will determine the efficient and effectiveness of the system. This section will discuss the method that will be used by the system during the development process of PEMS. The Modified Waterfall Model was chosen as the methodology used to implement in this project.

2.2.1 Project Methodology

Waterfall Model or Traditional Waterfall Model is the sequential approach implemented in software development. Phases are flow steadily from one phase into next phase in this development process. This model is hard to draw back when the development process encounters problems at the previous phases. Therefore, this Modified Waterfall Model came into existence because of the defects in the traditional waterfall model. The main change in Modified Waterfall Model is this modified model allowed to overlap phases. In software engineering, a lot of flexibility able discovers when the phases are overlapped. At the same time, a number of tasks can function

concurrently, as every phase of the model verification and validation step has been added; therefore, it ensures that the defects in the software are removed in the earlier development stage, the overhead cost of making changes to the software before implementation is saved. In addition, it is possible to change basic design as a number of phases active in one point of time. In case there are any errors introduced because of the changes made, rectifying them is also easy. This helps to reduce any oversight issues.

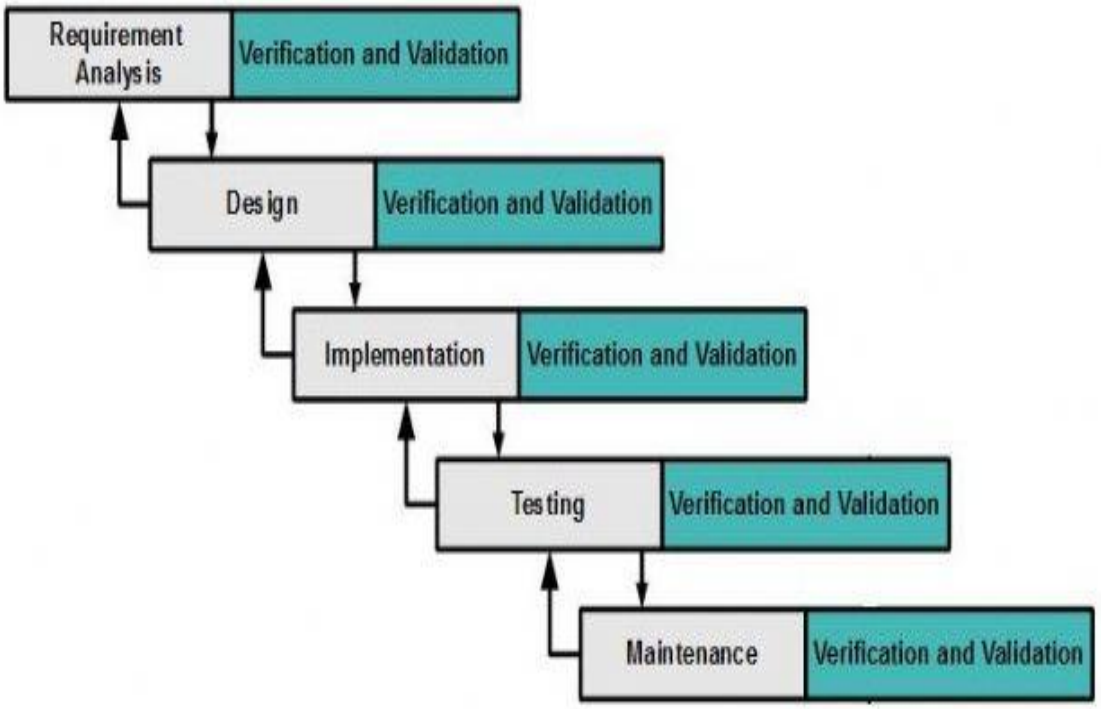

Figure 2.2.1 – Modified Waterfall Models Methodology

a) Requirement Analysis

In this phase, the definition of various interfaces between external entities and the software functions to be developed are well defined. The deliverables of this phase are binding documents that guide the rest of software development activities. The SRS document had been created to enlist all necessary requirements that were required during the project development. User requirements are well-defined and agreed upon by the PSM coordinator.

Refer to section 2.1

b) Design

The design phase is started once the analysis phase are reviewed and accepted by PSM coordinator. This design activity includes high-level architectural, database, interface, and detail design. Design documents are reviewed for correctness, quality, and completeness with respect for the SRS document.

Refer to section 2.3

c) Implementation

The implementation phase starts once the design deliverables are approved and finalized by PSM coordinator. High-level design is transformed into executable code. The database design is implemented and integrated with executable code.

Refer to section 2.4

d) Testing

In this phase, each module is tested individually. The integration test plans are executed. The system will test by coordinator, lecturer and student for PSM/PTA. The system will install on FSKKP server used to manage PSM/PTA projects. Acceptance test plan will runs, and the test results obtained will be analyzed and bugs discovered will be fixed.

Refer to section 2.6

e) Maintenance

This is the final phase in which the completed software product is handed over to the client after alpha, beta testing. After the software has been deployed on the client site, it is the duty of the software development team to undertake routine maintenance activities by visiting the client site. If the customer suggests changes or enhancements, the software process has to be followed all over again right from the first phase during the development process.

2.2.2 Hardware requirement

The hardware that will be used for this project is as below:

Table 2.2.1-1 - Hardware Requirement

Hardware	Purpose
Laptop i. Acer Aspire 4736G ii. 4.00 GB RAM iii. Intel(R) Core(TM)2 Duo CPU iv. 64-bit Operating System	Personal research, testing server and project development based on the task delegated.
Portable Hard Disk : Toshiba 500GB	Backup data and files
Printer : Canon PIXMA MP258	Print document

2.2.3 Software Requirement

The software that will be used for this project is as below:

Table 2.2.1-2 - Software Requirement

Software	Purpose
Apache	Web Server
Adobe Dreamweaver CS5 (PHP)	Development language
MySQL Database	Database application software
PhpMyAdmin	Database management

2.3 System Architecture

2.3.1 Architecture Design

Three-tier architecture is a software design pattern and well-established software architecture. Three-tier architecture is a client-server architecture in which the functional process logic, data access, computer data storage and user interface are developed and maintained as independent modules on separate platforms.

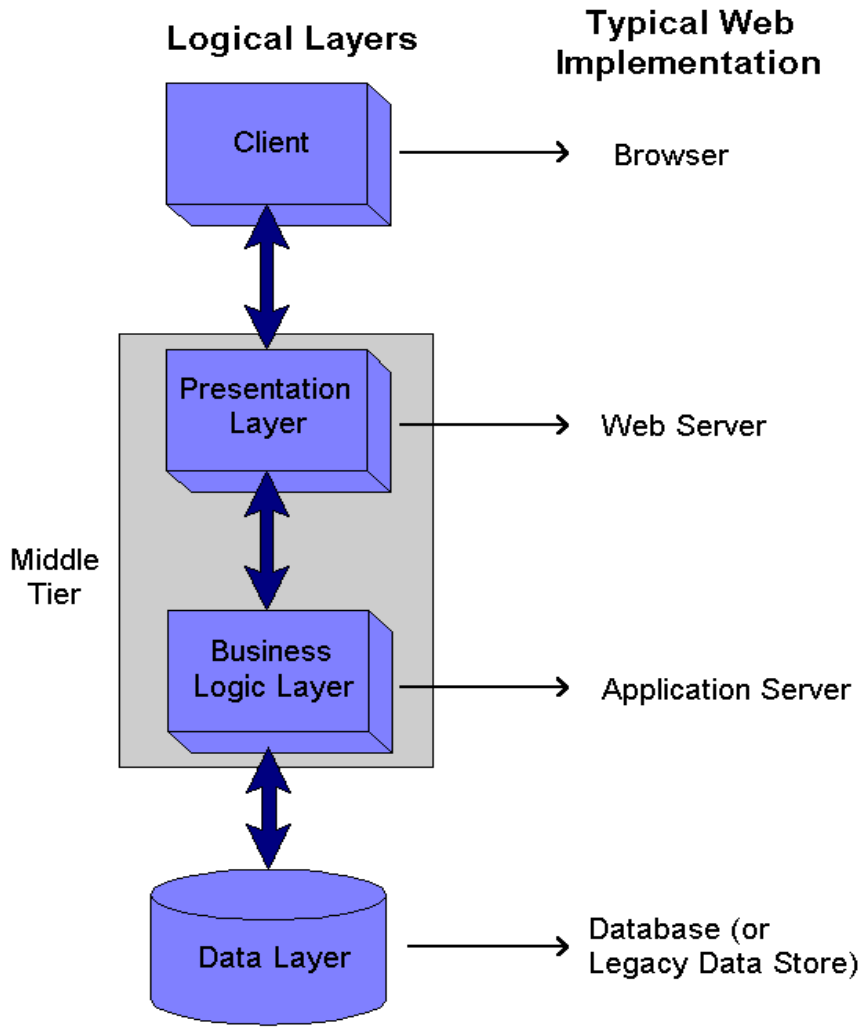

Figure 2.3.1: Architecture Design

2.3.2 Decomposition Description

This paragraph identifies the internal organizational structure within the system. The relationship between system subsystems will be described.

a) Presentation Tier

This tier occupies the top level, displaying information related to services available on a website. This tier communicates with other tiers by sending results to the browser and other tiers in the network.

Figure 2.3.2-1: Home Page of PEMS

b) Application Tier

This tier also called the middle tier, logic tier, business logic or logic tier; this tier is pulled from the presentation tier. It controls application functionality by performing detailed processing.

Context Diagram

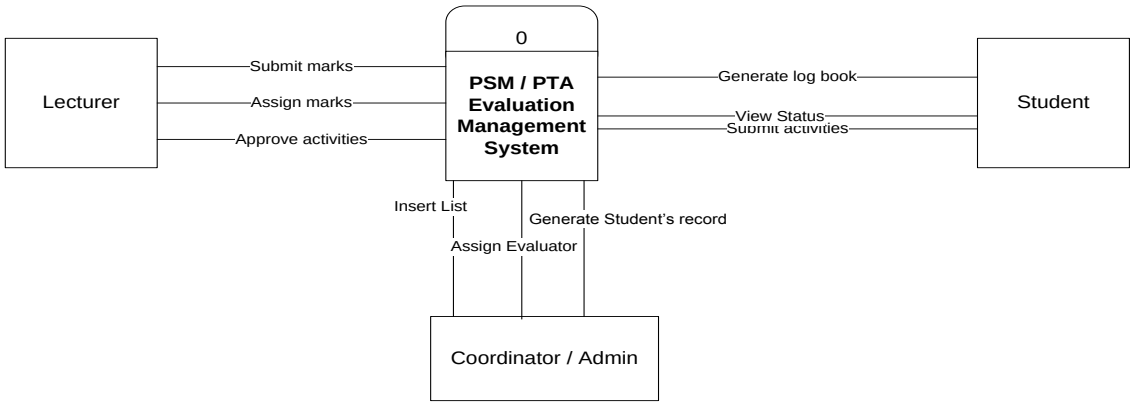

Figure 2.3.2-2: Context Diagram of PEMS

Use Case Diagram

The use case diagram shows the main actors interacting in the system.

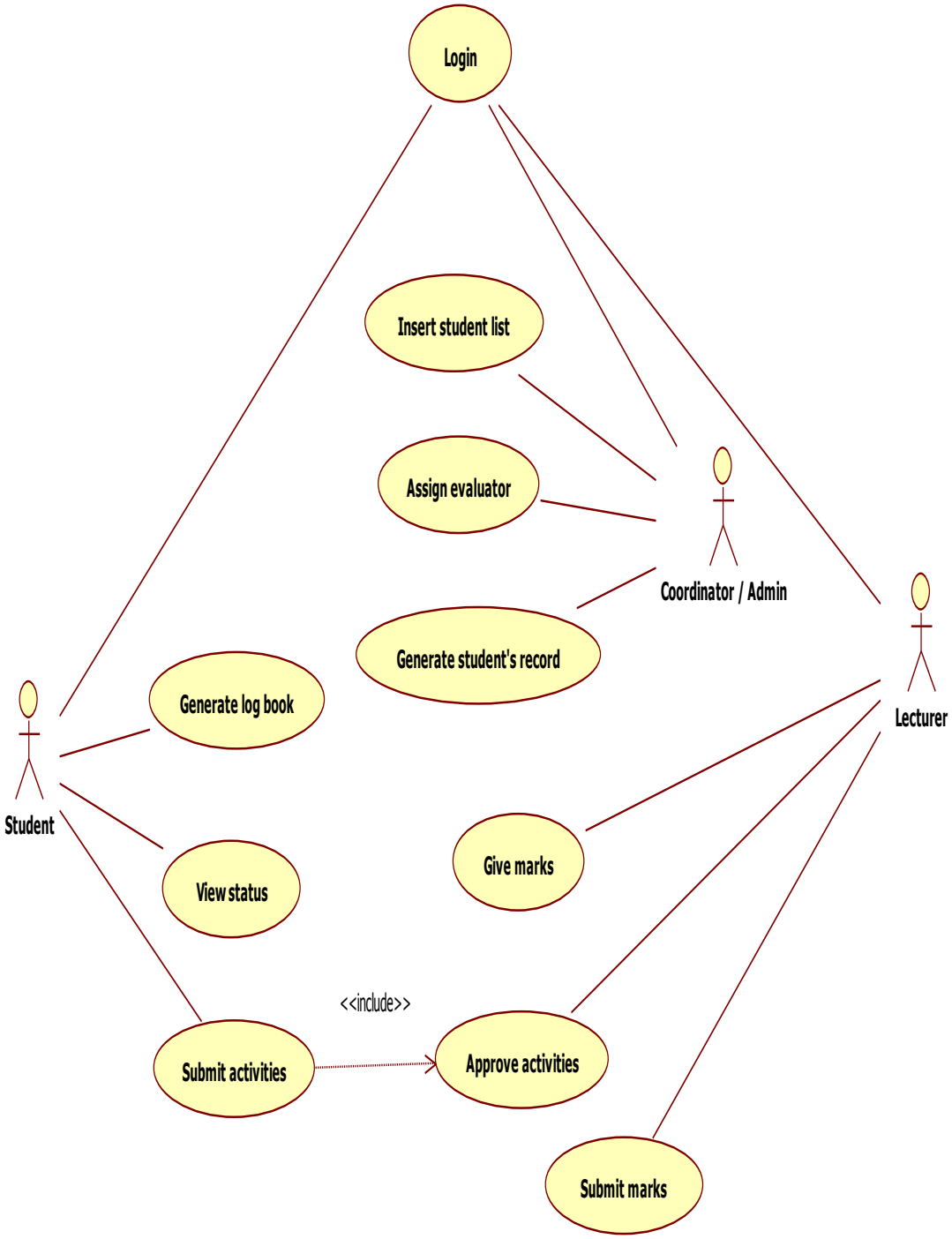

Figure 2.3.2-3: Use Case of PEMS

Data Flow Diagram

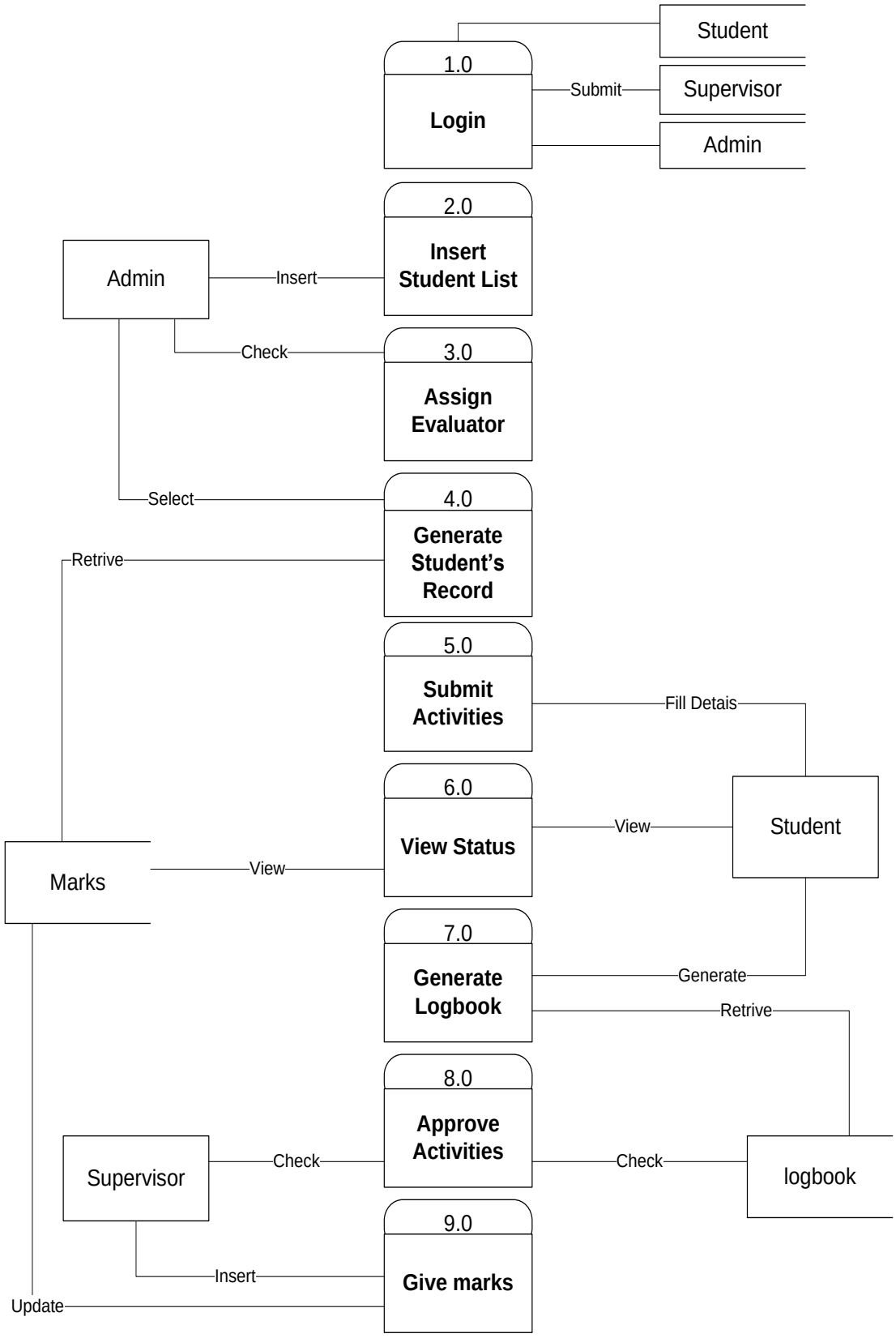

Figure 2.3.2-4: DFD Level 0 of PEMS

c) Data Tier

This tier is houses' database servers where information is stored and retrieved. Data in this tier is kept independent of application servers or business logic.

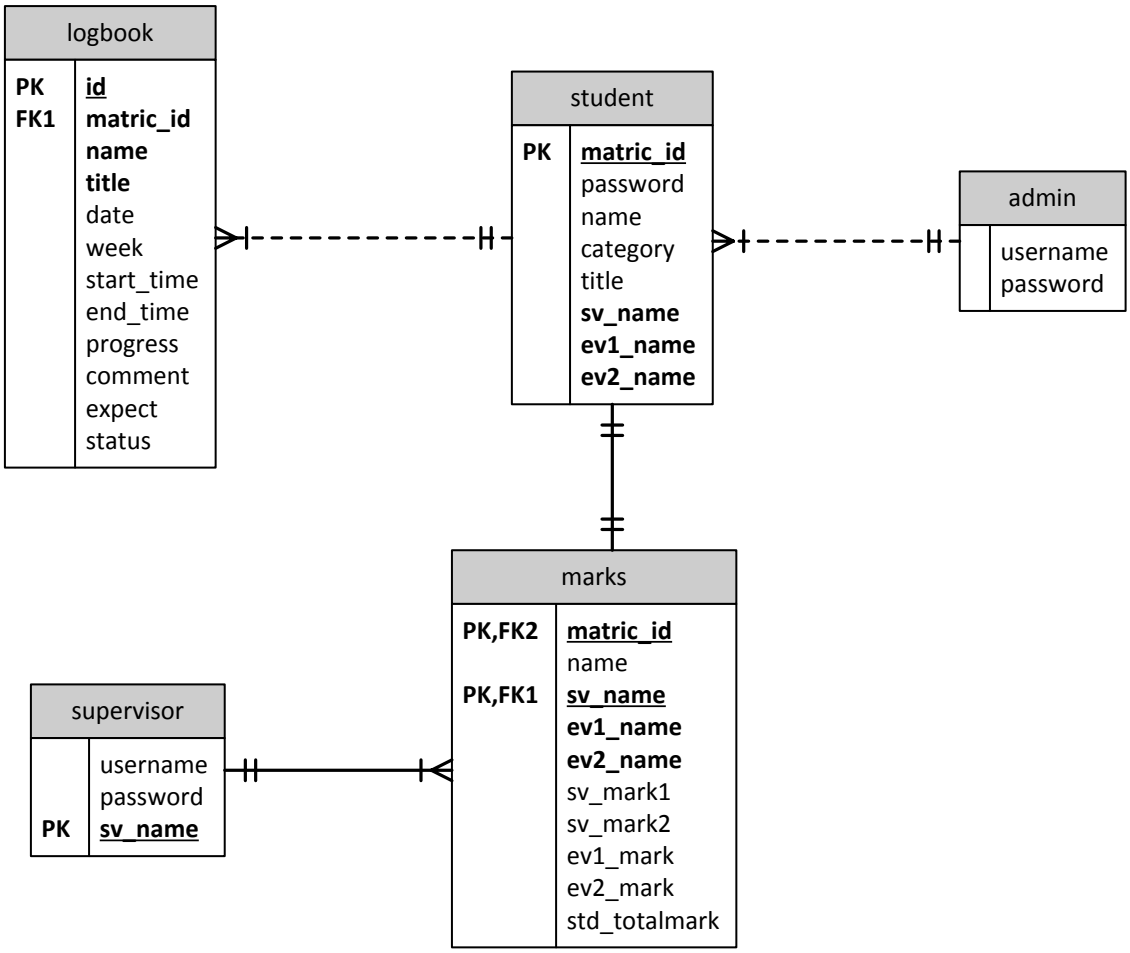

Figure 2.3.2-5: Entity Relationship Diagram of PEMS

2.3.3 Detailed Design

This section divided into the following paragraphs and subparagraphs to describe the detailed design.

a) Dialogue

Refer Appendix C

b) User Package [PEMS-01-2013]

1. Login [PEMS-01-2013-01]

Table 2.3.3-1: Login Module

Class Type	:	General		
Responsibility	:	Allow all type of user to log in to their individual home page		
Attributes	:	username	:	varchar
	:	password	:	varchar
Methods	:	index.html	:	Verify username, password and category of login user.

2. Insert student list [PEMS-01-2013-02]

Table 2.3.3-2: Insert student list Module

Class Type	:	Coordinator / Admin		
Responsibility	:	Insert all registered students list into the system with importing excel spreadsheet .xls format.		
Methods	:	admin_insert.php	:	Import spreadsheet .xls format into system
	:	admin_insert_list.php	:	Successful page after importing list
	:	admin_insert_list_process.php	:	Function that process importing spreadsheet and save the content into database

3. Assign Evaluator Module [PEMS-01-2013-03]

Table 2.3.3-3: Assign Evaluator Module

Class Type	:	Coordinator / Admin		
Responsibility	:	Allow admin to select two lecturer to become the evaluator for an individual student.		
Methods	:	admin_assign_ev.php	:	View all the student list before assign the evaluator
	:	admin_assign_ev_process.php	:	Select two lecturer to become evaluator for one student
	:	admin_assign_ev_process_update.php	:	Function to update student database after evaluator is being selected

4. Generate Student's Record [PEMS-01-2013-04]

Table 2.3.3-4: Generate Student's Record Module

Class Type	:	Coordinator / Admin		
Responsibility	:	Allow admin to generate student's record into spreadsheet .xls format.		
Methods	:	admin_view.php	:	Allow admin to select category they wish to generate the spreadsheet
	:	admin_view_process.php	:	Function to process database table and value into spreadsheet

5. Submit Activities [PEMS-01-2013-05]

Table 2.3.3-5: Submit Activities Module

Class Type	:	Student		
Responsibility	:	Allow student to submit activities and wait approval from their supervisor		
Methods	:	student_submit_activities.php	:	Allow student to submit activities to their supervisor
	:	student_submit_activities_process.php	:	Function to insert activities submitted into database

6. View Status Module [PEMS-01-2013-06]

Table 2.3.3-6: View Status Module

Class Type	:	Student		
Responsibility	:	Allow student to view marks given by their supervisor		
Methods	:	student_view_status.php	:	Allow student to view marks given by supervisor

7. Generate Log Book Module [PEMS-01-2013-07]

Table 2.3.3-7: Generate Log Book Module

Class Type	:	Student		
Responsibility	:	Allow student to generate approved activities into logbook		
Methods	:	student_generate_logbook	:	View all activities submitted and status replied from supervisor
	:	student_delete_logbook.php	:	Delete activities from the list

	:	pdf.php	:	Function to create logbook in PDF format including all approved activities.

8. Approve Activities Module [PEMS-01-2013-08]

Table 2.3.3-8: Approve Activities Module

Class Type	:	Lecturer		
Responsibility	:	Allow lecturer to approve/reject activities submitted by their supervisee		
Methods	:	lecturer_approve_activities.php	:	Allow lecturer to view their entire supervisee list.
	:	lecturer_approve_activities_view.php	:	Allow lecturer to view list of activities submitted by a stuent
	:	lecturer_approve_activities_process.php	:	Allow lecturer to take action on each activities submitted by a student
	:	lecturer_approve_activities_process_update.php	:	Function to update the action to the activities submitted

9. Give Marks Module [PEMS-01-2013-09]

Table 2.3.3-9: Give Marks Module

Class Type	:	Lecturer		
Responsibility	:	Allow lecturer to give marks to the students		
Methods	:	lecturer_supervise_marks.php lecturer_evaluate_marks.php	:	Allow lecturer to give marks to a student
	:	lecturer_supervise_marks_process.php lecturer_evaluate_marks_process.php	:	Function to insert marks given by lecturer into database

c) Tools

The software and hardware used for this project is as below:

Table 2.3.3-10 - Hardware

Hardware	Purpose
Laptop i. Acer Aspire 4736G ii. 4.00 GB RAM iii. Intel(R) Core(TM)2 Duo CPU iv. 64-bit Operating System	Personal research, testing server and project development based on the task delegated.
Portable Hard Disk : Toshiba 500GB	Backup data and files
Printer : Canon PIXMA MP258	Print document

Table 2.3.3-11 - Software

Software	Purpose
Apache	Web Server
Adobe Dreamweaver CS5 (PHP)	Development language
MySQL Database	Database application software
PhpMyAdmin	Database management

d) System coding

Refer Appendix D

2.4 Technical results and comparison

There is a lot of Final Year Project Web Portal used in the University. Based on the comparison on Nanyang Tecnological University FYP Portal, it is much more focus on providing guidelines and final report submission. There are some enhancements in PEMS to ease the management process such as the ability to import and export to excel file in order to reduce the workload of Coordinator, the real time logbook monitoring which student can generate logbook using PEMS, and the online evaluation process.

2.5 Discussion and Analysis of Material

In PEMS implementation, the database used is MySQL and the language or source codes that applied for development or implementation is PHP. The server used throughout the system is Apache server while HTML language is to create all the interfaces.

2.5.1 Database

The database used in PEMS is MySQL database. MySQL encrypted data in transit, enforces additional authentication and provides supplementary audit record of connections to the database server. MySQL is a database that uses IDE tools to interact with the function. Figure 2.4.1 shows the main interface of MySQL.

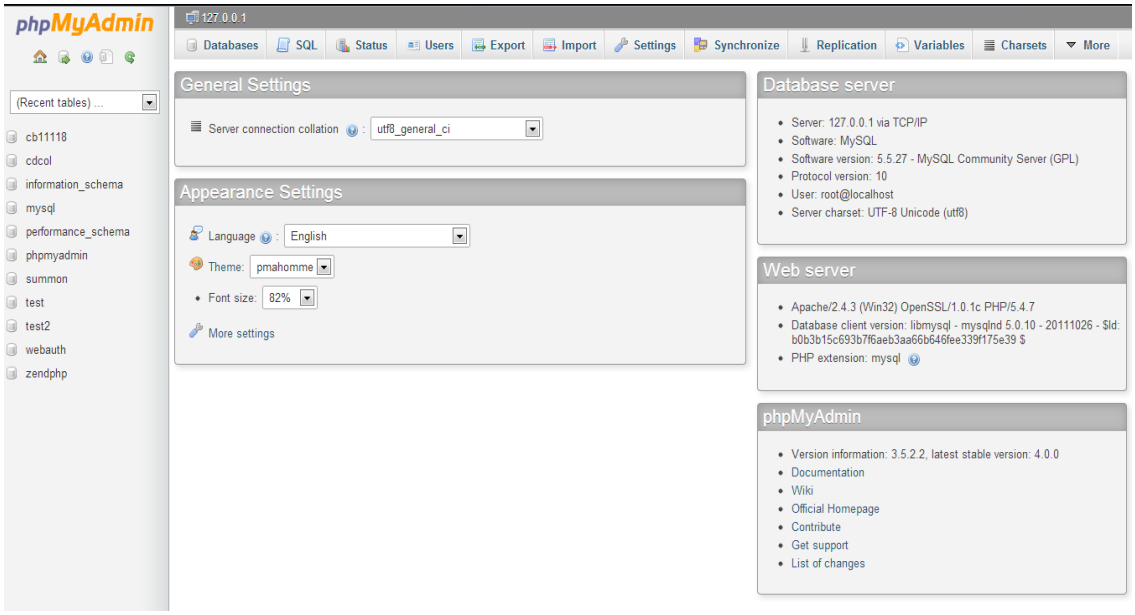

Figure 2.5.1: Main Interface of MySQL

2.5.2 Interface Design

PEMS used Adobe Dreamweaver CS5 to design all interfaces. It helps in fast design and shortens the development process of interface's design. The interface is developed with the combinations of HTML and CSS command. Figure 2.5.2-1 below shows the sample design of the interface.

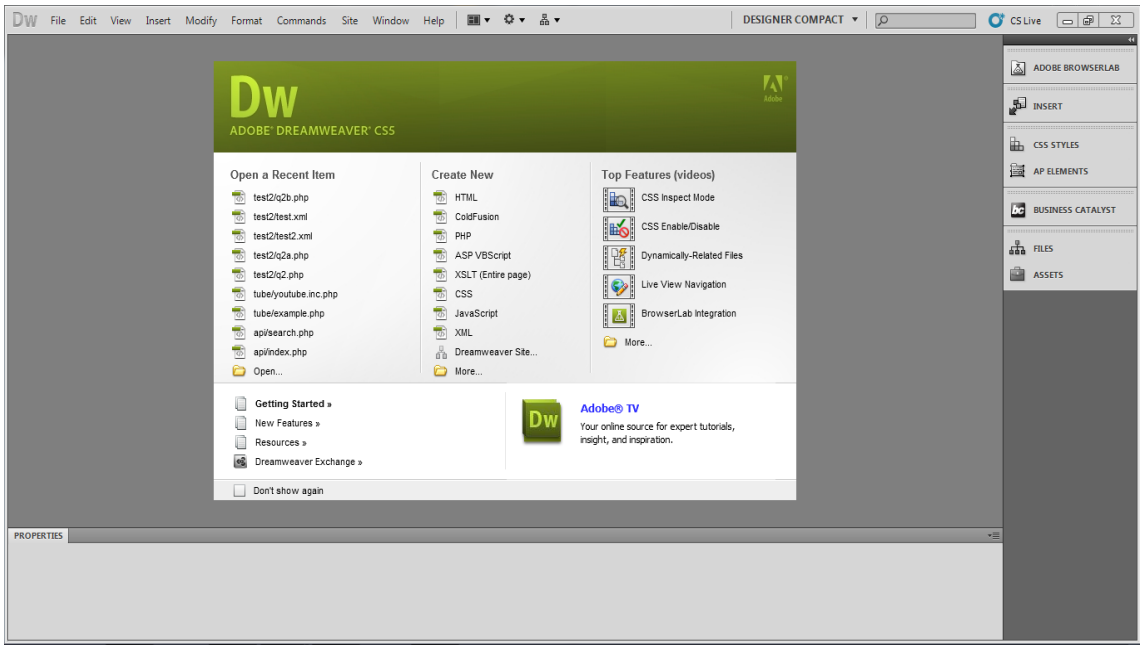

Figure 2.5.2-1: Interface of Adobe Dreamweaver CS5

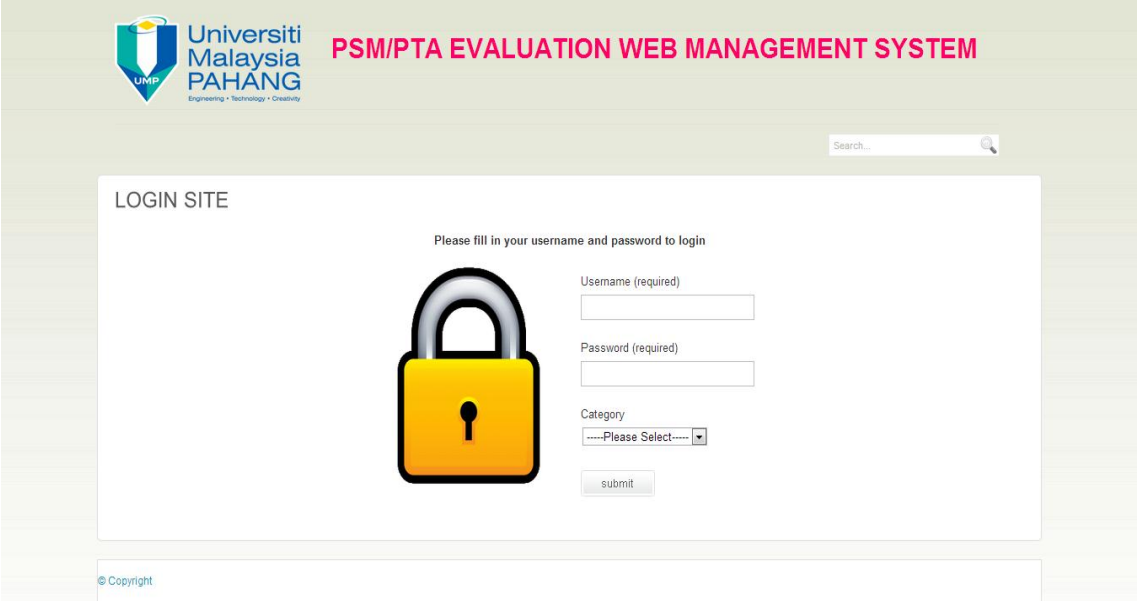

Figure 2.5.2-2: Interface of PEMS

2.5.3 Web Server

PEMS used Apache web server to develop and maintain HTTP server. XAMPP is an open-source web server which supports cross-platform, provides solution staff packages, consisting mainly Apache HTTP Server, MySQL Database, and interprets scripts written in PHP programming languages. Figure 2.5.3 below shows the interface of XAMPP.

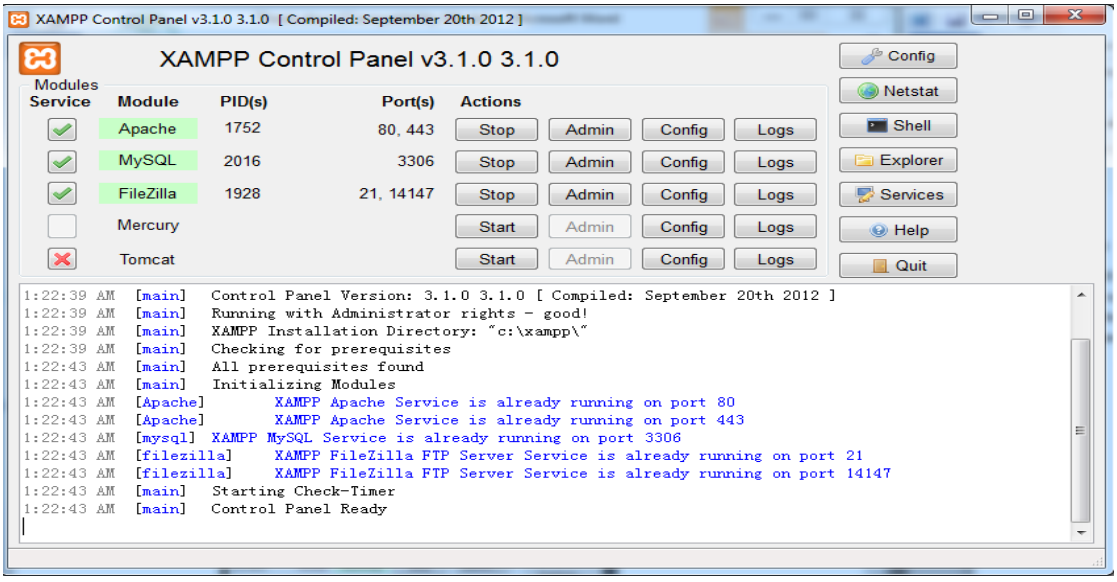

Figure 2.5.3: Interface of XAMPP Control Panel

2.5.4 Source code

PHP is server-side HTML embedded scripting language. PHP provides developers with a full suite of tools for building dynamic websites. PEMS used PHP in most of the development through the combination of Javascript, HTML and CSS.

2.6 Testing plan and result

Testing is needed to uncover as many errors as possible before integrated into client's server. There are few types of testing to ensure the system is errors free, which are unit testing, functional testing and user acceptance test. Each type of testing must go through carefully before integrated into client's server. Unit testing was tested based on each module; the results show the appearance and validation of each form is performing correctly. Functional testing tested the function of each module; the results show the entire module function performs correctly and without logical errors. User acceptance test is conducted by using a questionnaire; the results shows 90% of the respondents satisfies with the system.

2.6.1 Unit Testing

Unit testing is used to test individual part of coding where the test plan is design based on the specific module. Any error that found in unit testing will be fixed immediately by developer when the error is found. Unit testing can also ensure that all input data is in correct format and no error when passing the data within the database.

Unit Testing 1: Login

Table 2.6.1-1: Login Unit Testing

No	Event	Attribute and Value	Expected Result	Result
1	Verify login user after the correct input data is submit on login form	Username: admin Password: admin2013	Successful login to admin home page	Pass
2	Verify login user after the null value is submit on login form	Username: Password:	Message box displayed request user to input the empty field	Pass
3	Verify login user after the invalid value is submit on login form	Username: admin Password: password	Login fail and the page redirect back to the home page.	Pass

Unit Testing 2: Import Student List

Table 2.6.1-2: Import Student List Unit Testing

No	Event	Attribute and Value	Expected Result	Result
1	Verify file type after click on the Import button on import student list form with selected excel file	-	File uploaded successfully and the records are save into database	Pass
2	Verify file type after click on the Import button on import student list form without a file	-	Error message is displayed and request user to select a file	Pass
3	Verify file type after click on the Import button on import student list form with not an excel file	-	Error message displayed and request user to select only an excel file	Pass

Unit Testing 3: Assign Evaluator

Table 2.6.1-3: Assign Evaluator Unit Testing

No	Event	Attribute and Value	Expected Result	Result
1	Verify evaluator name after click on Update on select/assign evaluator form with correct input	First Evaluator: RahmahBintiMokhtar Second Evaluator: LiewSiauChuin	Successful update and the record will save into database	Pass
2	Verify evaluator name after click on Update on select/assign evaluator form with null input value	First Evaluator: Second Evaluator:	Error message is displayed and request user to choose an evaluator	Pass
3	Verify evaluator name after click on Update on select/assign evaluator form with same input value	First Evaluator: RahmahBintiMokhtar Second Evaluator: RahmahBintiMokhtar	Error message displayed stated both evaluator cannot be the same	Pass
4	Verify evaluator name after click on Update on select/assign evaluator form with more than 8 same input value	First Evaluator: RahmahBintiMokhtar Second Evaluator: LiewSiauChuin Condition: LiewSiauChuin>8	Error message displayed stated an evaluator cannot manage more than 8 students	Pass

Unit Testing 4: Generate Student's Record

Table 2.6.1-4: Generate Student's Record Unit Testing

No	Event	Attribute and Value	Expected Result	Result
1	Verify the selection made by user with correct value	All records	Successful generate all students record into excel file	Pass
2	Verify the selection made by user with nullt value	-	Error message is displayed and request user to choose a category to generate record.	Pass

Unit Testing 5: Submit Activities

Table 2.6.1-5: Submit Activities Unit Testing

No	Event	Attribute and Value	Expected Result	Result
1	Verify activities submitted after click on Add button on submit activities form with correct input values	Meeting Date: 12/12/2012 Meeting Time (Start): 2:00 pm Meeting Time (End): 3:30 pm Week: 3 Progress: Submit Chapter 1	Successful insert activities to database and redirect to home page of log book	Pass
2	Verify activities submitted after click on Add button on submit activities form with correct null values	Meeting Date: Meeting Time (Start): Meeting Time (End): Week: Progress:	Error message is displayed and request user to insert the missing field	Pass

Unit Testing 6: Approve Activities

Table 2.6.1-6: Approve Activities Unit Testing

No	Event	Attribute and Value	Expected Result	Result
1	Verify action of approval after click on Submit button on approve logbook activities form with correct input values	Status: Approve Comment: Good test technique Expected Progress: More test data run	Successful insert the action into database and redirect back to home page of approve activities	Pass
2	Verify action of approval after click on Submit button on approve logbook activities form with null input values	Status: Comment: Expected Progress:	Error message is displayed and request user to insert the missing field	Pass

Unit Testing 7: Give marks

Table 2.6.1-7: Give marks Unit Testing

No	Event	Attribute and Value	Expected Result	Result
1	Verify total marks given to student after click on Submit button on different category of project with correct input values	Matric No: CB11118 Total: 50	Successful insert the marks into database	Pass
2	Verify total marks given to student after click on Submit button on different category of project with null input values	Matric No: Total:	Error message is displayed and request user to insert the missing field	Pass

2.6.2 Functional Testing

After unit testing is completed, functional testing will be continued. Functional testing is to test the functionality of each module to ensure the requirements of user are met. Following is the text plan that prepared by developer for functional testing.

Functional Testing 1: Login with different users

Table 2.6.2-1: Login with different users

No	Event	Attribute and Value	Expected Result	Result
1	Login as Student	Username: CB11118 Password: cb11118mi Category: Student	Home page of student displayed	Pass
2	Login as Lecturer	Username: RahmahBintiMokhtar Password: 12345 Category: Lecturer	Home page of lecturer displayed	Pass
3	Login as Admin	Username: admin Password: admin2013 Category: Admin	Home page of admin displayed	Pass

Functional Testing 2: Logbook activities

Table 2.6.2-2: Logbook activities

No	Event	Attribute and Value	Expected Result	Result
1	Login as Student	Username: CB11118 Password: cb11118mi Category: Student	Home page of student displayed	Pass
2	Create a new activities	Meeting Date: 12/12/2012	New activities added	Pass

		Meeting Time (Start): 2:00 pm Meeting Time (End): 3:30 pm Week: 3 Progress: Submit Chapter 1		
3	Login as Supervisor	Username: RahmahBintiMokhtar Password: 12345 Category: Lecturer	Home page of lecturer displayed	Pass
4	Click on approve activities to view activities submitted by supervisee	-	All student with sv_name equal RahmahBintiMokhtar will displayed in table	Pass
5	Click on action based on individual student	Status: Approve Comment: Good test technique Expected Progress: More test data run	Status of activities is updated to Approve	Pass
6	Login as Student to check the status of approval	Username: CB11118 Password: cb11118mi Category: Student	Home page of student displayed	Pass
7	Click on Logbook menu to check the status of approval	-	Status of the activities is updated to Approve	Pass
8	Click on generate button below the table	-	Logbook is generate in .pdf format which the list of activities approved by lecturer	Pass

Functional Testing 3: Marks process

Table 2.6.2-3: Marks Process

No	Event	Attribute and Value	Expected Result	Result
1	Login as Lecturer	Username: RahmahBintiMokhtar Password: 12345 Category: Lecturer	Home page of lecturer displayed	Pass
2	Click on Supervise Student menu and then choose give marks	-	Three categories with 2 progress is shown	Pass
3	Click on Progress I on PSM2	Select Progress I below PSM2	- All list of student register with category PSM2 is displayed - Supervision form with PSM2 Progress I criteria is shown below the student list	Pass
4	Select Student Matric No, click calculate button after scale of marks is select	Matric No: CB11118 Total: 16	The marks will saved into database	Pass
5	Click on Evaluate Student menu and then choose give marks	-	Three categories is shown	Pass
6	Click on PSM2	Select PSM2	- All list of student register with category PSM2 is displayed - Evaluation form with PSM2 criteria is shown below the student list	Pass
7	Select Student Matric No, click calculate button after scale of marks is select	Matric No: CB11118 Total: 16	The marks will saved into database	Pass
8	Login as Student to check status of marks	Username: cb11118 Password: cb11118mi Category: Student	Home page of student displayed	Pass

9	Click on view menu	-	A table with student information which included supervisor marks will displayed	Pass

Functional Testing 4: Assign evaluator to registered students

Table 2.6.2-4: Assign evaluator to registered students

No	Event	Attribute and Value	Expected Result	Result
1	Login as Admin	Username: admin Password: admin2013 Category: Admin	Home page of admin displayed	Pass
2	Click on assign menu	-	All registered students are listed	Pass
3	Choose a student and click on EDIT button to insert evaluator	Select EDIT	The list of particular student is displayed	Pass
4	Select two lecturer to assign as evaluator to the student	Select AzlinaBintiZainuddin, KirahmanBinABRazak	Both evaluator is assigned to the student	Pass
5	Login as Lecturer	Username: KirahmanBinABRazak Password: 12345 Category: Lecturer	Home page of lecturer displayed	Pass
6	Click on Evaluate Student menu and then choose give marks	-	Three categories is shown	Pass
7	Click on PSM2	Select PSM2	- All list of student register with category PSM2 is displayed - Evaluation form with PSM2 criteria is shown below the student list	Pass

Functional Testing 5: Print excel records

Table 2.6.2-5: Print excel records

No	Event	Attribute and Value	Expected Result	Result
1	Login as Admin	Username: admin Password: admin2013 Category: Admin	Home page of admin displayed	Pass
2	Click on generate menu	-	A dropdown list is displayed to request admin choose a categories	Pass
3	Select a categories to generate the excel file	Select All Records	The list of all student's information will save into excel file and being downloaded by admin	Pass

2.6.3 User Acceptance Test

User Acceptance Test refers the final stage for testing stage of a system. When the test is done or is successful, it indicates the agreement to implement the system lives. Enhancement and some small changes may still need to be test, but the test shows the system is considered stable and able to process data according to requirements.

User acceptance test is conducted by using a questionnaire; the respondents consist of student, lecturer, and PSM/PTA coordinator. The results shows 90% of the respondents satisfies with the system. Refer Appendix E

PART III

CONCLUSION AND FUTURE WORKS

3.1 Conclusion

As conclusion, PEMS is developed to ease the process of PSM/PTA management. The objective has achieved which a web-based system that contains final year project student's information, which based on three modules, registration module, management module, and evaluation module was developed. This system also embeds smart application in the system where the system can generate weekly activities done by students and can accept excel in .xls format. There are a few enhancements that can be done to produce a better system. System further research had to be done to ensure a good system created and fulfilled all users' requirement.

3.2 Results

The developed system, PEMS has met all the objectives of this project, which are:

1. To develop a web-based system that contains final year project students' information based on user modules, which emphasize the evaluation process.
2. To embed the smart application in the system where the system can generate weekly activities done by students and can accept .xls format.
3. To test the functionality of the system where the system will be test to PSM students.

3.3 Limitations and advantages of the findings

3.3.1 Limitations

The limitations or constraints of the system were identified as below:

- For the lecturer side, it is hard to keep to keep track of their supervise students where they cannot get notified on the problem students, and they have to approve each student's activities in order.
- For the admin side, it is hard to assign evaluator to students. The system does not provide function that automatically assigning based on department respectively. Admin has to insert evaluator one by one for each student.

3.3.2 Advantages

This project fulfilled the objectives where the system successfully developed a prototype for PEMS; which embedded the smart applications and successfully tested its functionality.

3.4 Judgment / Evaluation

PEMS successfully eases the difficult process of PSM/PTA management. PEMS provides improvement in evaluation procedure; reduce the workload of admin and lecturer, and student management.

3.5 Suggestion and Further Enhancement

There are several enhancements that can be carried out for future improvement of PEMS to ensure that the development throughout the system is more reliable and dependable for prospective management activity.

1. The scope of the system can extends or with combinations of other sub modules so that a complete web-based system can be developed to cover all the activities of PSM/PTA management.
2. Recommended and encourages increasing the security of the system such as using Oracle database.

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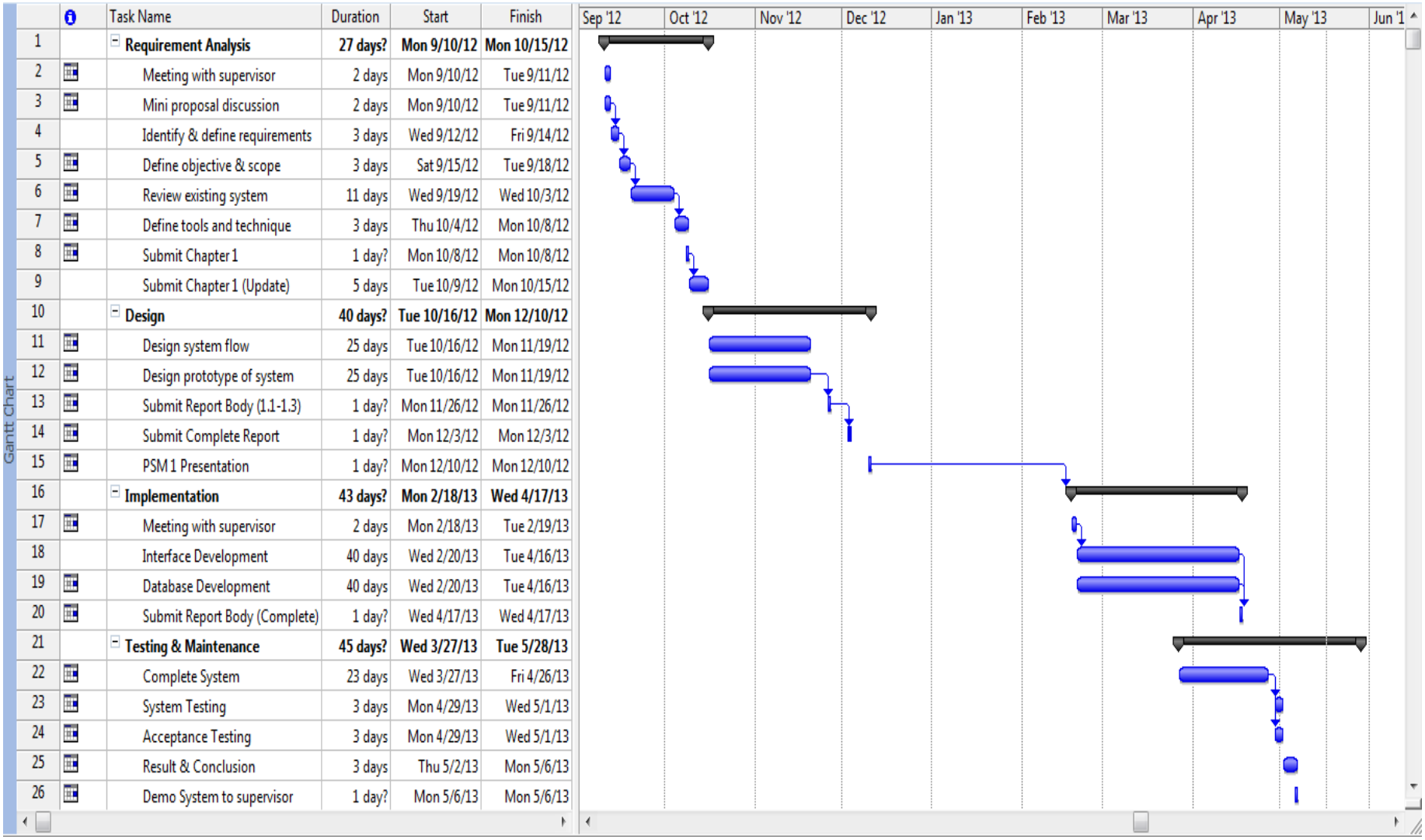
APPENDIX A

GANTT CHART

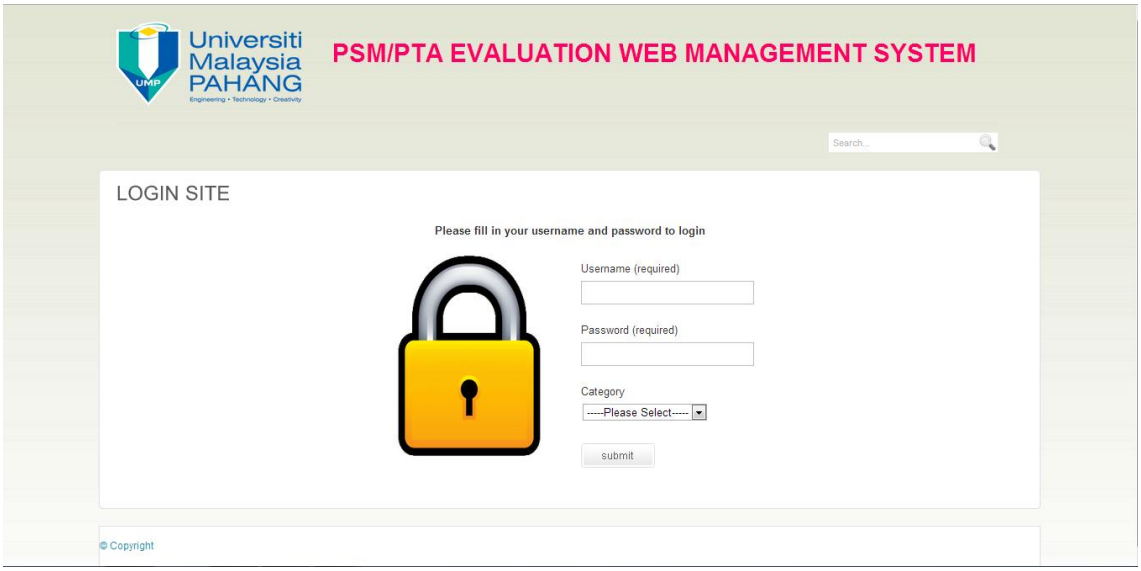

Gantt Chart
Task Name
Duration
Start
Finish
1 Requirement Analysis 27 days? Mon 9/10/12 Mon 10/15/12
2 Meeting with supervisor 2 days Mon 9/10/12 Tue 9/11/12
3 Mini proposal discussion 2 days Mon 9/10/12 Tue 9/11/12
4 Identify & define requirements 3 days Wed 9/12/12 Fri 9/14/12
5 Define objective & scope 3 days Sat 9/15/12 Tue 9/18/12
6 Review existing system 11 days Wed 9/19/12 Wed 10/3/12
7 Define tools and technique 3 days Thu 10/4/12 Mon 10/8/12
8 Submit Chapter 1 1 day? Mon 10/8/12 Mon 10/8/12
9 Submit Chapter 1 (Update) 5 days Tue 10/9/12 Mon 10/15/12
10 Design 40 days? Tue 10/16/12 Mon 12/10/12
11 Design system flow 25 days Tue 10/16/12 Mon 11/19/12
12 Design prototype of system 25 days Tue 10/16/12 Mon 11/19/12
13 Submit Report Body (1.1-1.3) 1 day? Mon 11/26/12 Mon 11/26/12
14 Submit Complete Report 1 day? Mon 12/3/12 Mon 12/3/12
15 PSM 1 Presentation 1 day? Mon 12/10/12 Mon 12/10/12
16 Implementation 43 days? Mon 2/18/13 Wed 4/17/13
17 Meeting with supervisor 2 days Mon 2/18/13 Tue 2/19/13
18 Interface Development 40 days Wed 2/20/13 Tue 4/16/13
19 Database Development 40 days Wed 2/20/13 Tue 4/16/13
20 Submit Report Body (Complete) 1 day? Wed 4/17/13 Wed 4/17/13
21 Testing & Maintenance 45 days? Wed 3/27/13 Tue 5/28/13
22 Complete System 23 days Wed 3/27/13 Fri 4/26/13
23 System Testing 3 days Mon 4/29/13 Wed 5/1/13
24 Acceptance Testing 3 days Mon 4/29/13 Wed 5/1/13
25 Result & Conclusion 3 days Thu 5/2/13 Mon 5/6/13
26 Demo System to supervisor 1 day? Mon 5/6/13 Mon 5/6/13
Sep '12
Oct '12
Nov '12
Dec '12
Jan '13
Feb '13
Mar '13
Apr '13
May '13
Jun '1

APPENDIX B

USER MANUAL

Guidelines for using PEMS

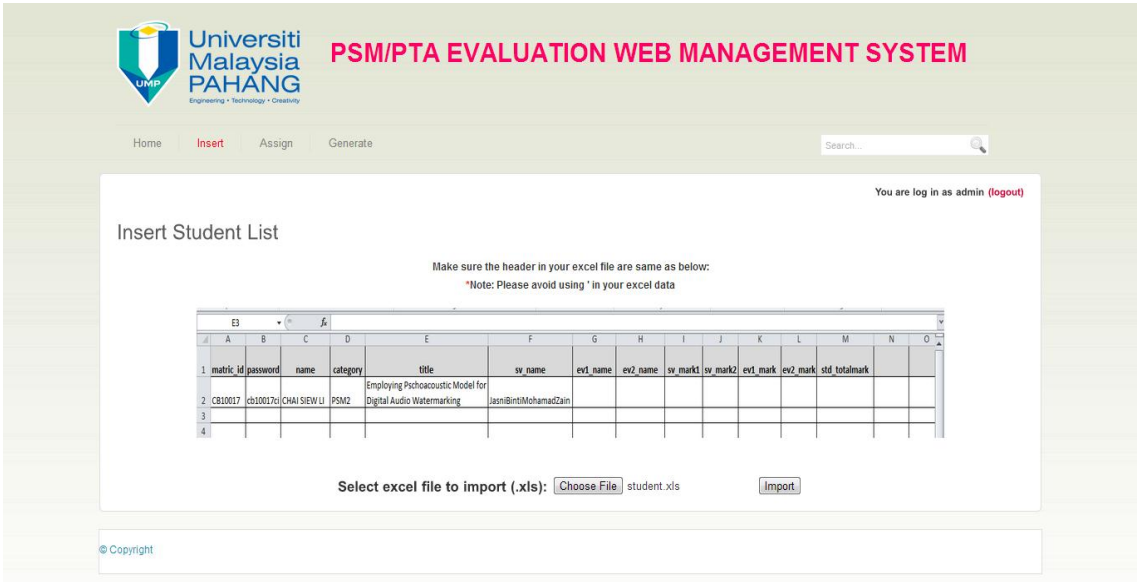
These are the step by step guidelines for using PEMS. These guidelines will describe each task for different module of user. All categories of user can refer to these guidelines in order to process their tasks. Figure below shows the home page of PEMS.



Coordinator / Admin Module:

1. Login: Username = admin; Password = admin2013; Categories = Admin
2. Insert student list menu

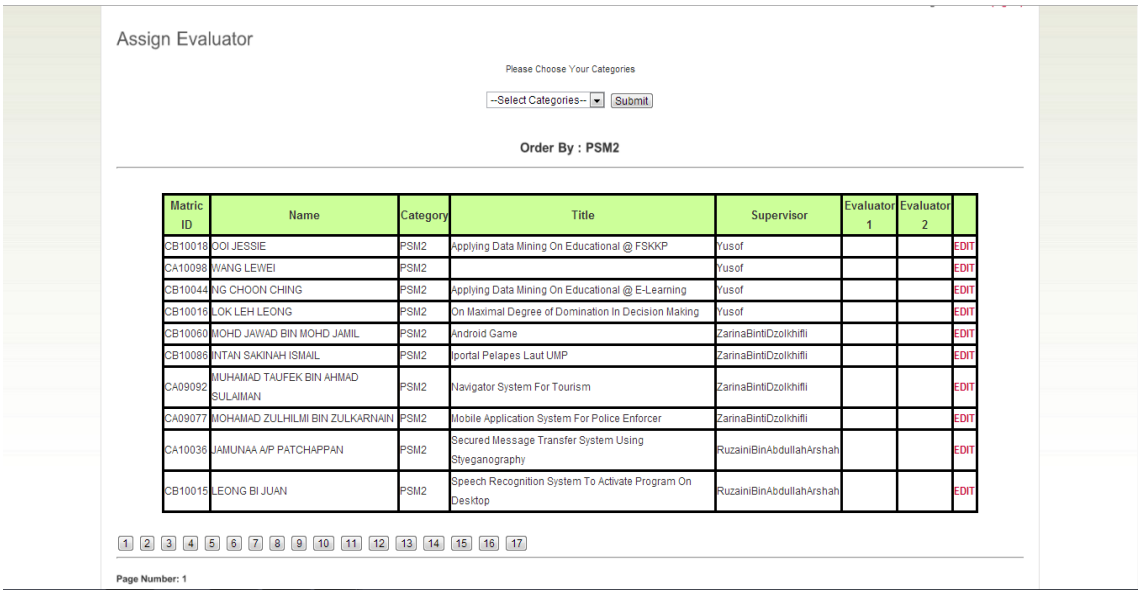
2.1 Click on Insert Student's list, click 'Choose File' to select an excel file which contains all student's information. Click 'Import' to insert the student list into the database. Note that only extension (.xls) can be accepted and must be formatted correctly.



3. Assign Evaluator menu

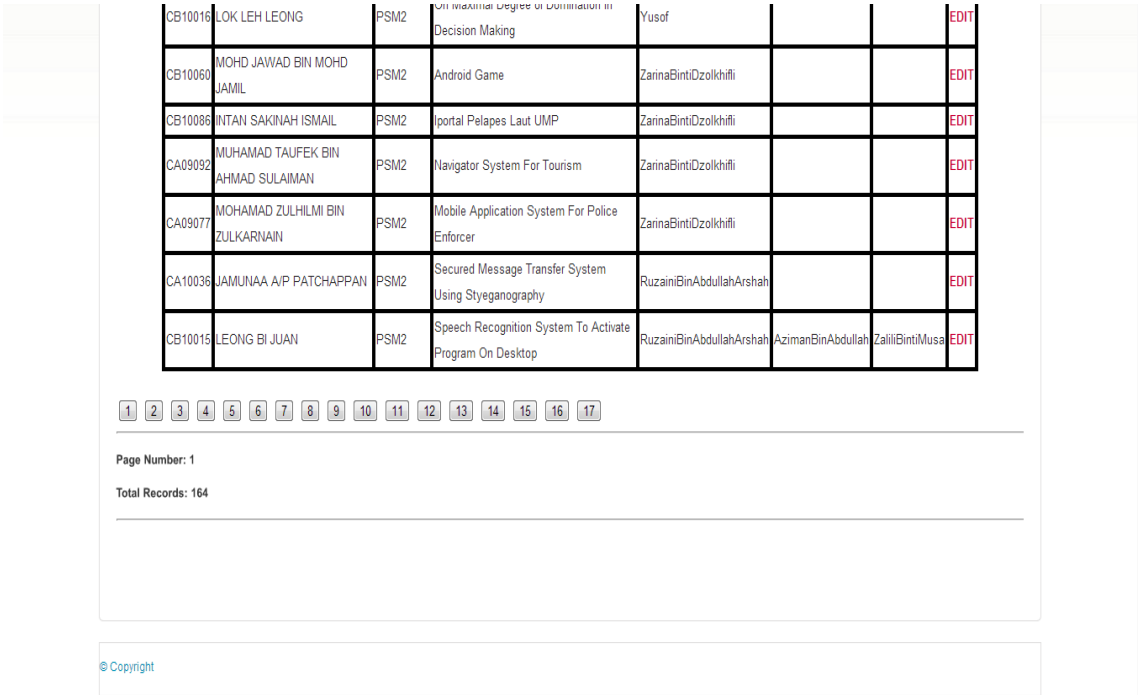
3.1 Select Categories from the drop-down list to display the student list and then click 'Submit'.

3.2 A list of student will display.



3.3 Click on ‘EDIT’ to assign evaluator to the particular student.

3.4 Select evaluator from the drop-down list and click on ‘Update’ button, the evaluator's name will be added into the student database.

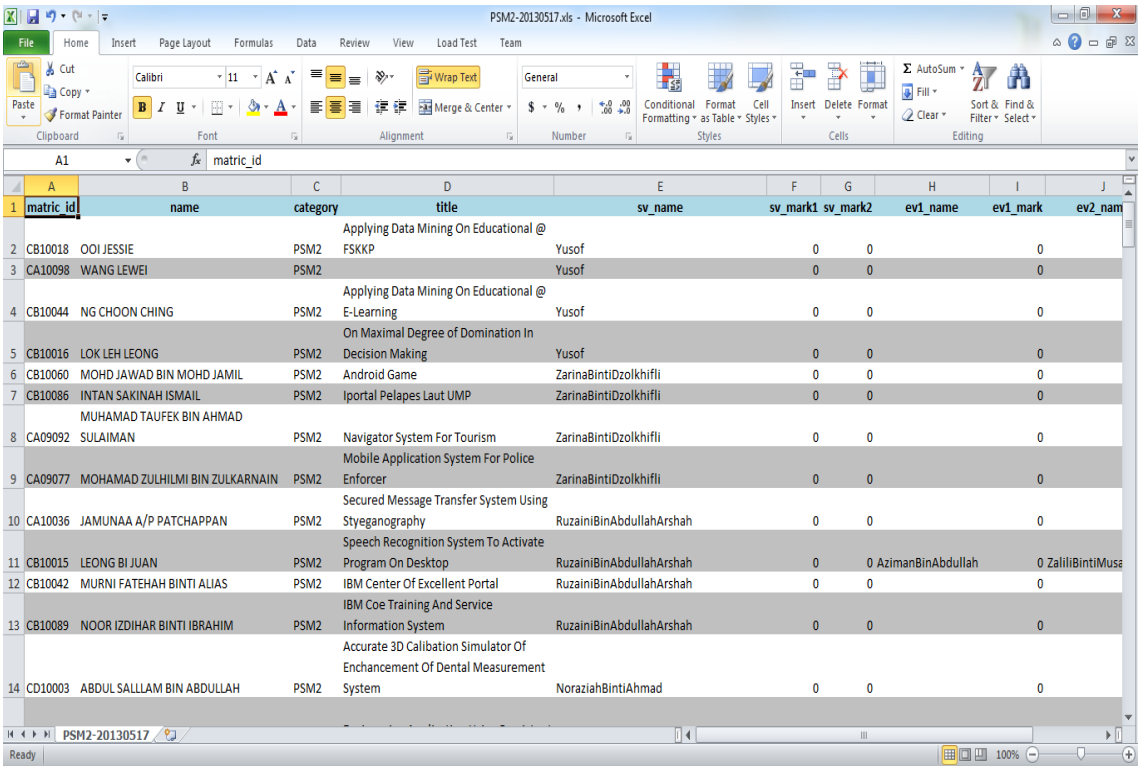


CB10016	LOK LEH LEONG	PSM2	On Maximal Degree of Domination in Decision Making	Yusof			EDIT
CB10060	MOHD JAWAD BIN MOHD JAMIL	PSM2	Android Game	ZarinaBintiDzolkhifli			EDIT
CB10086	INTAN SAKINAH ISMAIL	PSM2	Iportal Pelapes Laut UMP	ZarinaBintiDzolkhifli			EDIT
CA09092	MUHAMAD TAUFEK BIN AHMAD SULAIMAN	PSM2	Navigator System For Tourism	ZarinaBintiDzolkhifli			EDIT
CA09077	MOHAMAD ZULHILMI BIN ZULKARNAIN	PSM2	Mobile Application System For Police Enforcer	ZarinaBintiDzolkhifli			EDIT
CA10036	JAMUNAA A/P PATCHAPPAN	PSM2	Secured Message Transfer System Using Styeganography	RuzainiBinAbdullahArshah			EDIT
CB10015	LEONG BI JUAN	PSM2	Speech Recognition System To Activate Program On Desktop	RuzainiBinAbdullahArshah	AzimanBinAbdullah	ZaliliBintiMusa	EDIT

4. Generate student's record menu

4.1 Select Categories from the drop-down list to generate student's record in excel and then click 'Submit'.

4.2 Based on the categories selected, an excel file which contains students information will be created.

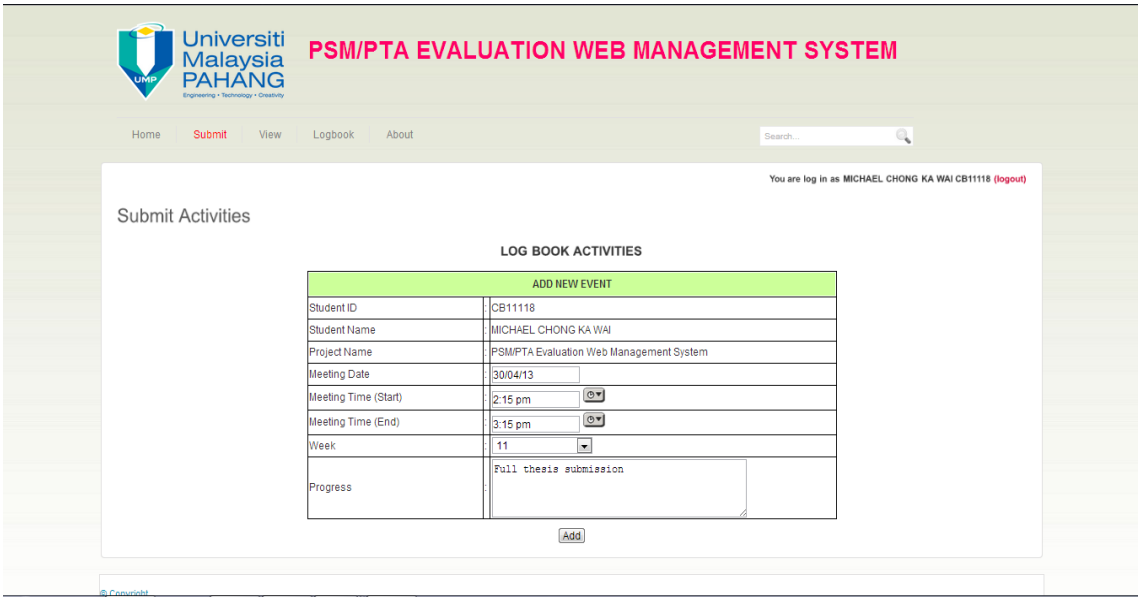


matric_id	name	category	title	sv_name	sv_mark1	sv_mark2	ev1_name	ev1_mark	ev2_nam
CB10018	OOI JESSIE	PSM2	Applying Data Mining On Educational @ FSKKP	Yusof	0	0		0	
CA10098	WANG LEWEI	PSM2		Yusof	0	0		0	
CB10044	NG CHOON CHING	PSM2	Applying Data Mining On Educational @ E-Learning	Yusof	0	0		0	
CB10016	LOK LEH LEONG	PSM2	On Maximal Degree of Domination In Decision Making	Yusof	0	0		0	
CB10060	MOHD JAWAD BIN MOHD JAMIL	PSM2	Android Game	ZarinaBintiDzolkhifli	0	0		0	
CB10086	INTAN SAKINAH ISMAIL	PSM2	Iportal Pelapes Laut UMP	ZarinaBintiDzolkhifli	0	0		0	
CA09092	MUHAMAD TAUFEK BIN AHMAD SULAIMAN	PSM2	Navigator System For Tourism	ZarinaBintiDzolkhifli	0	0		0	
CA09077	MOHAMAD ZULHILMI BIN ZULKARNAIN	PSM2	Mobile Application System For Police Enforcer	ZarinaBintiDzolkhifli	0	0		0	
CA10036	JAMUNAA A/P PATCHAPPAN	PSM2	Secured Message Transfer System Using Styeganography	RuzainiBinAbdullahArshah	0	0		0	
CB10015	LEONG BI JUAN	PSM2	Speech Recognition System To Activate Program On Desktop	RuzainiBinAbdullahArshah	0	0	AzimanBinAbdullah	0	ZaliliBintiMusa
CB10042	MURNI FATEHAH BINTI ALIAS	PSM2	IBM Center Of Excellent Portal	RuzainiBinAbdullahArshah	0	0		0	
CB10089	NOOR IZDIHAR BINTI IBRAHIM	PSM2	IBM Coe Training And Service Information System	RuzainiBinAbdullahArshah	0	0		0	
CD10003	ABDUL SALLLAM BIN ABDULLAH	PSM2	Accurate 3D Calibation Simulator Of Enchancement Of Dental Measurement System	NoraziahBintiAhmad	0	0		0	

Student Module:

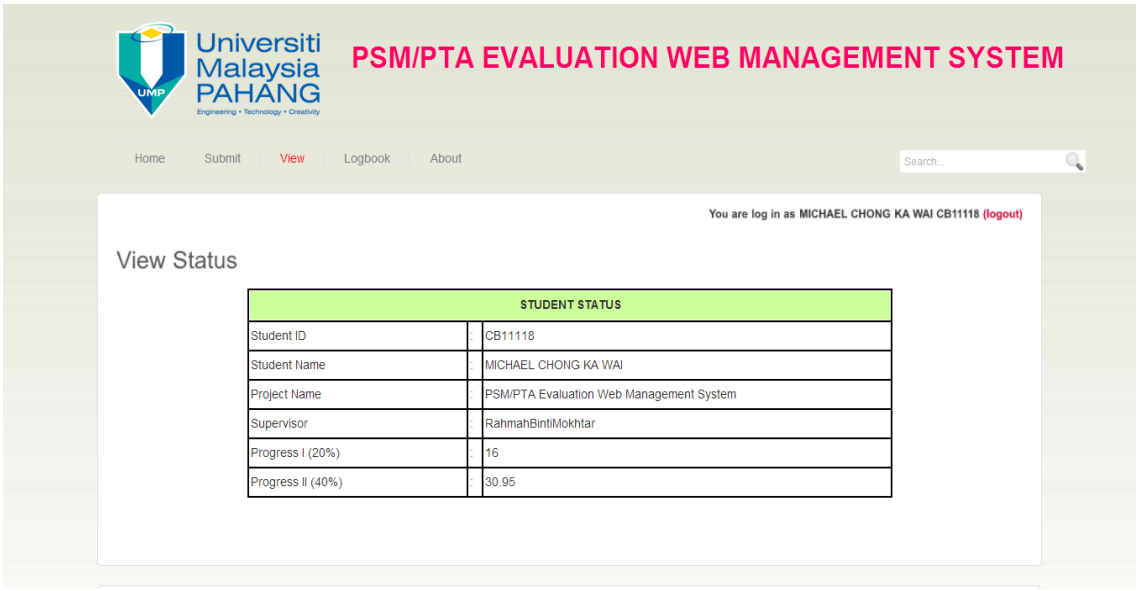
1. Login: Username = cb11118; Password = cb11118mi; Categories = Student
2. Submit activities menu

2.1 Click on Submit Activities, fill in the empty details. Click 'Add' to insert the activities to the database.



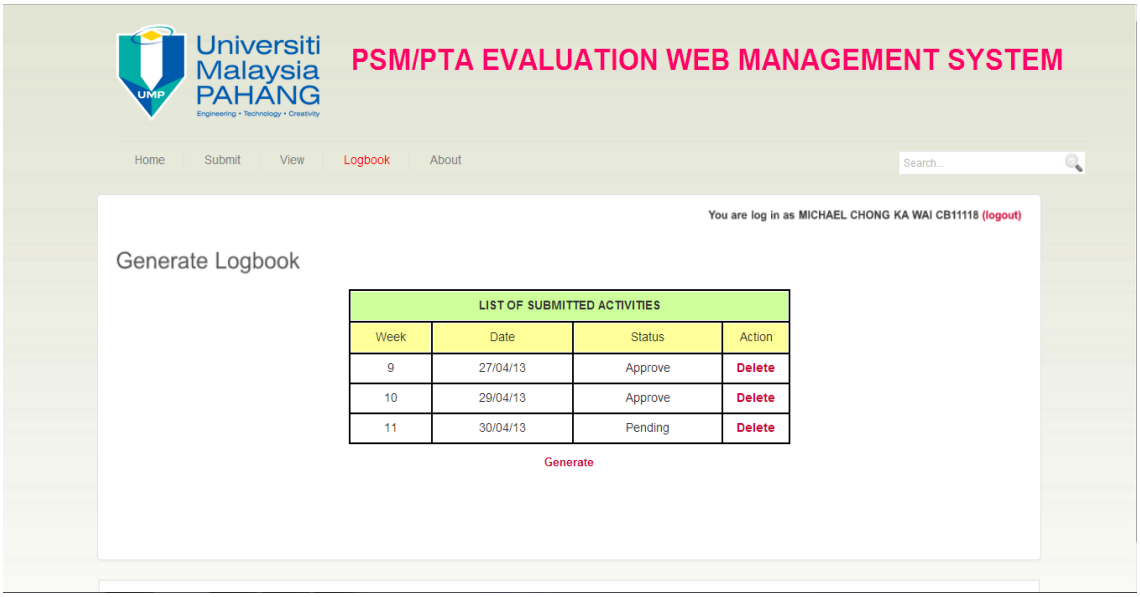
3. View status menu

3.1 Click on View Status, this page is just to display information of student and marks given by their supervisor only.

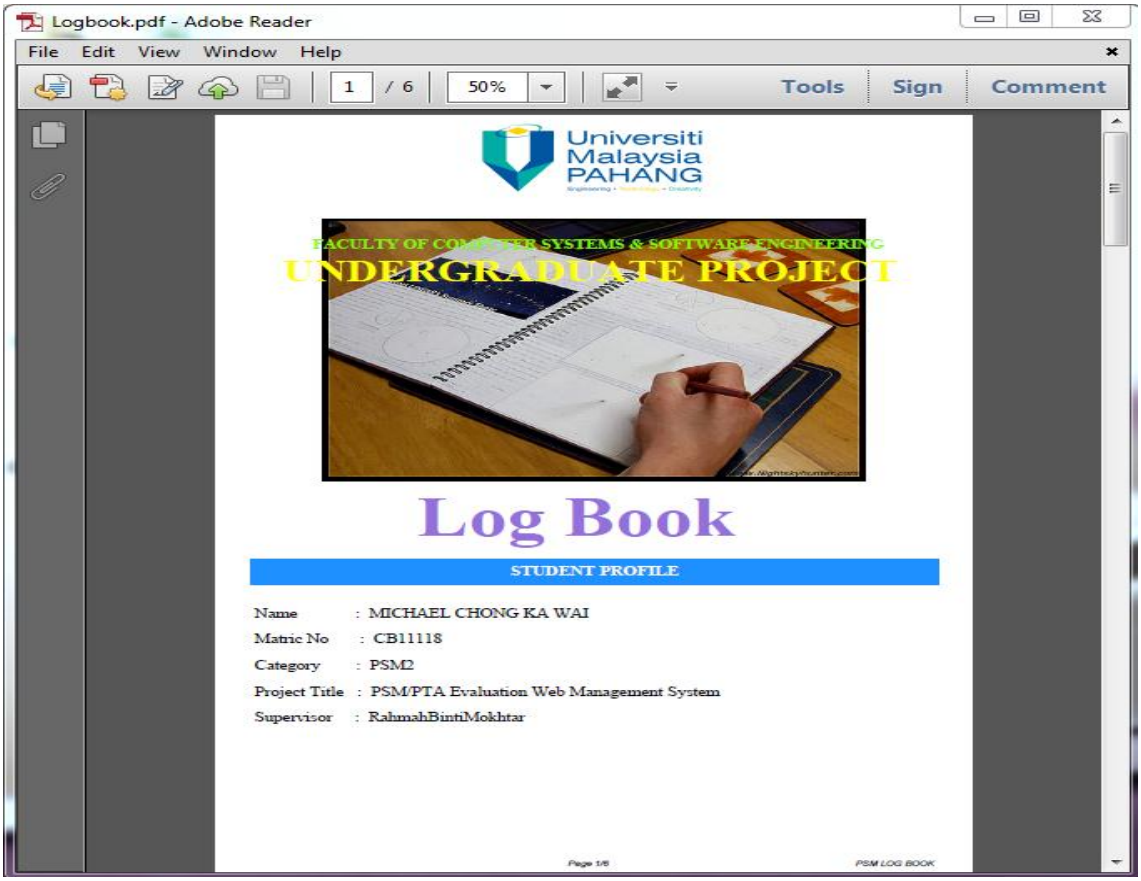


4. Generate logbook menu

4.1 Click on Generate Logbook, this page displayed all activities submitted to the supervisor. Status of the activities shows pending in default.



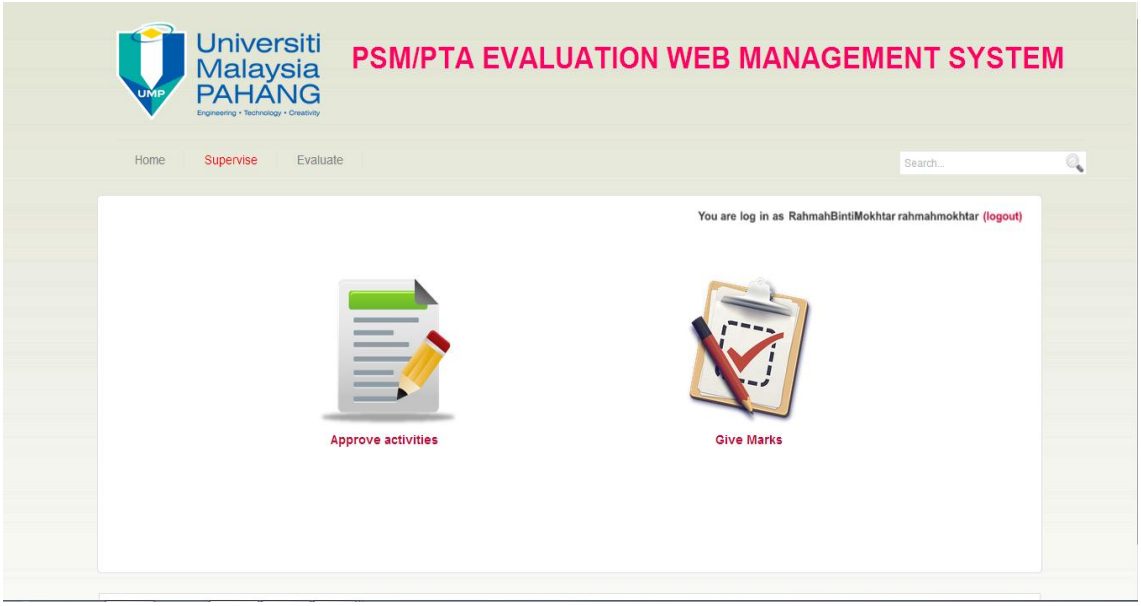
4.2 Click on 'Generate' button, the activities which in the status of 'Approve' will transfer into a logbook and can be downloaded as .pdf file.



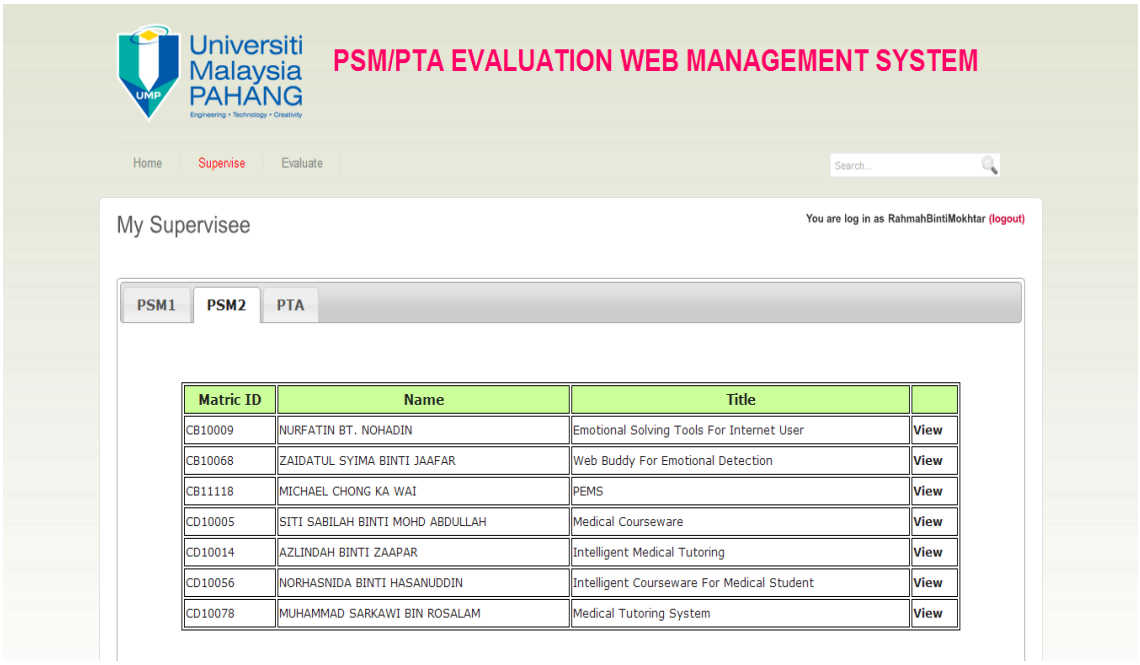
Lecturer Module:

1. Login: Username = rahmahmokhtar; Password = 12345; Categories = Lecturer
2. Supervise student menu

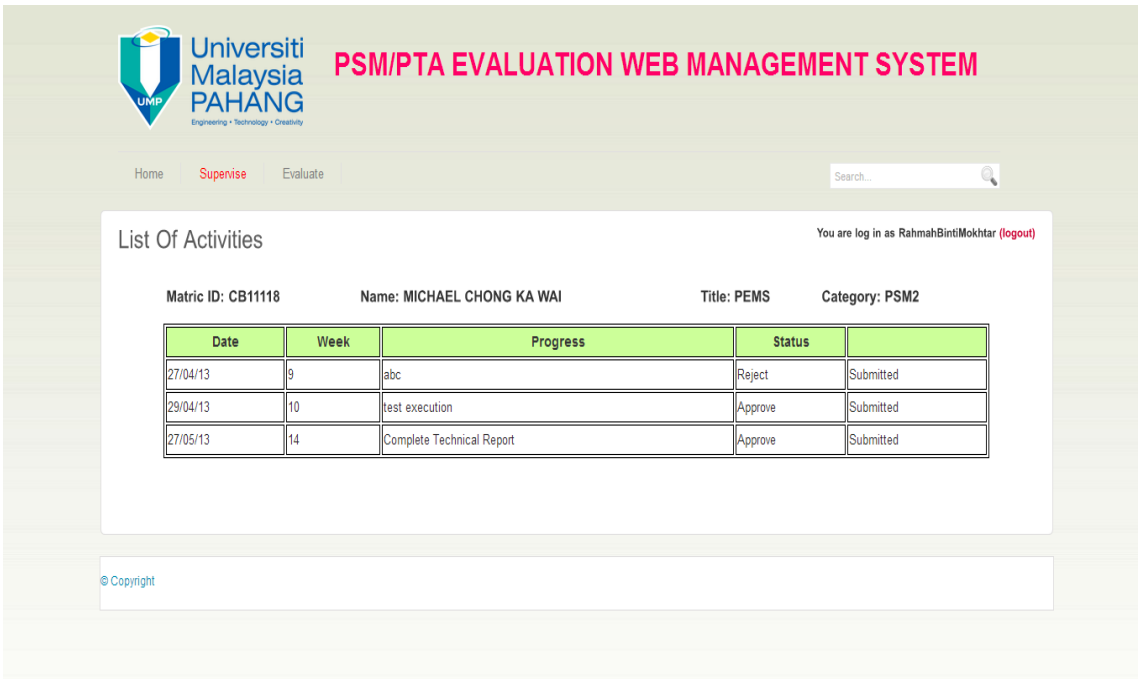
2.1 Click on Supervise student, choose whether approve activities or give marks.



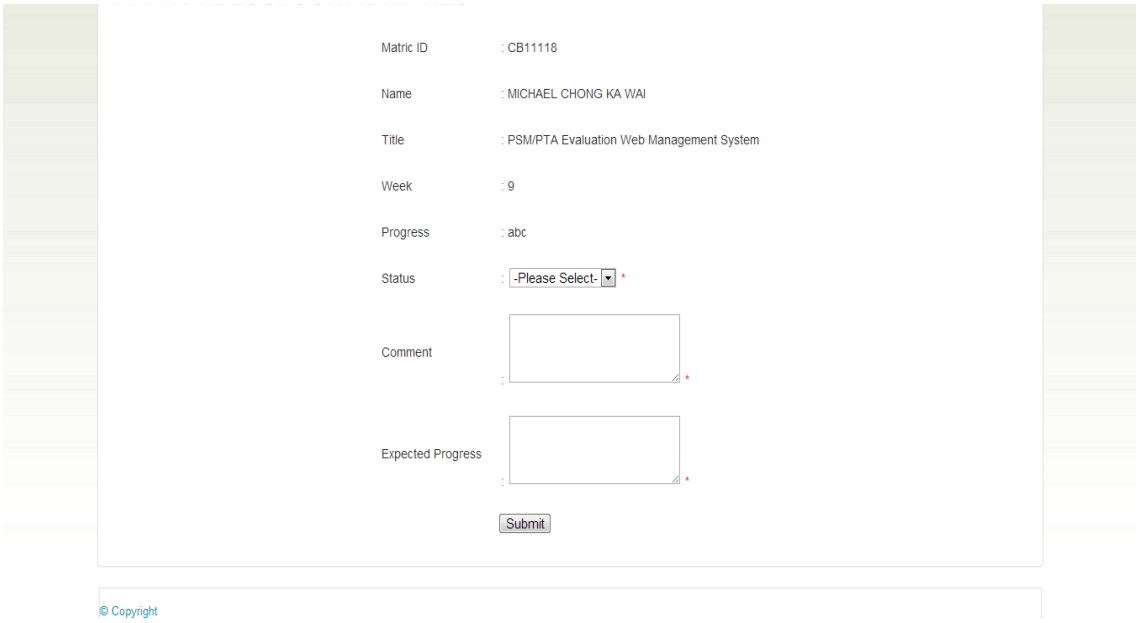
2.2 Click on 'Approve activities', a list of the students who supervise by the lecturer will display. Click 'View' to check the activities submitted by a single student.



2.3 Click ‘Action’ to verify the approval.



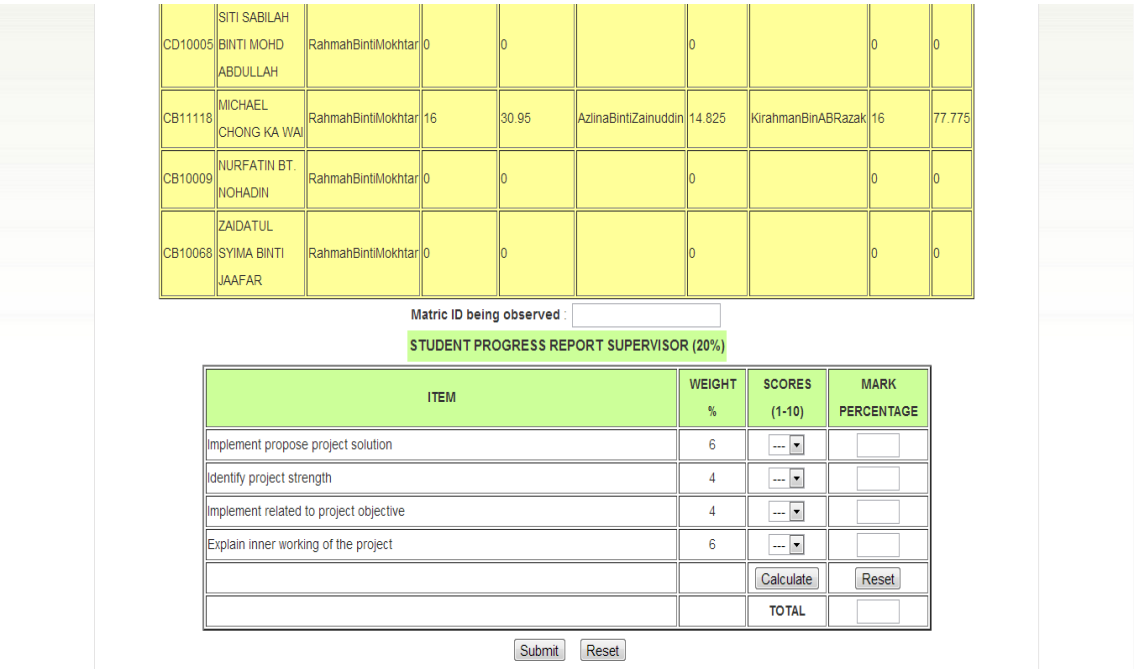
2.4 Select the status from drop-down list whether is to approve or reject the activity; and insert the empty field before click the ‘Submit’ button.



2.5 Choose Give marks in Supervise Student menu.

2.6 Select project category and the progress to give marks to the supervise students.

2.7 Click 'Progress I' below PSM2. A list of supervise students will display; evaluation form will display below the student's table. Lecturer has to insert all marks and calculate the total before click on the 'Submit' button. The marks will save into the database.



CD10005	SITI SABILAH BINTI MOHD ABDULLAH	RahmahBintiMokhtar	0	0		0		0	0
CB11118	MICHAEL CHONG KA WAI	RahmahBintiMokhtar	16	30.95	AzlinaBintiZainuddin	14.825	KirahmanBinABRazak	16	77.775
CB10009	NURFATIN BT. NOHADIN	RahmahBintiMokhtar	0	0		0		0	0
CB10068	ZAIDATUL SYIMA BINTI JAAFAR	RahmahBintiMokhtar	0	0		0		0	0

Matric ID being observed :

STUDENT PROGRESS REPORT SUPERVISOR (20%)

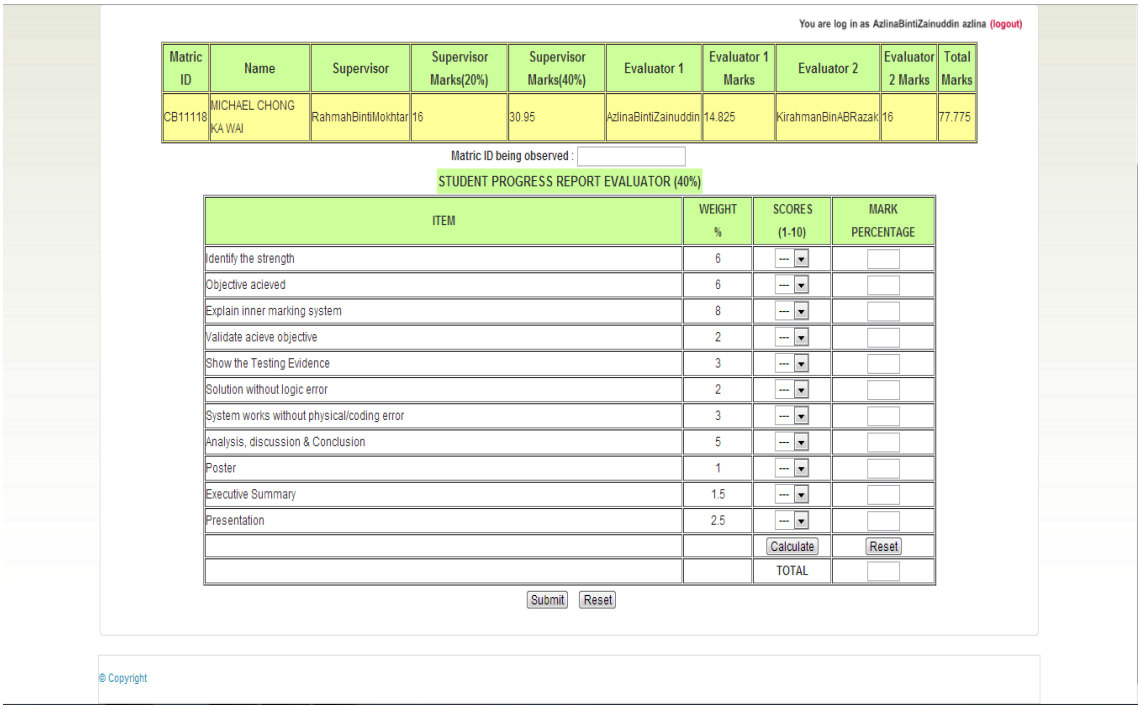
ITEM	WEIGHT %	SCORES (1-10)	MARK PERCENTAGE
Implement propose project solution	6	---	
Identify project strength	4	---	
Implement related to project objective	4	---	
Explain inner working of the project	6	---	
		Calculate	Reset
		TOTAL	

Submit Reset

3. Evaluate Student menu.

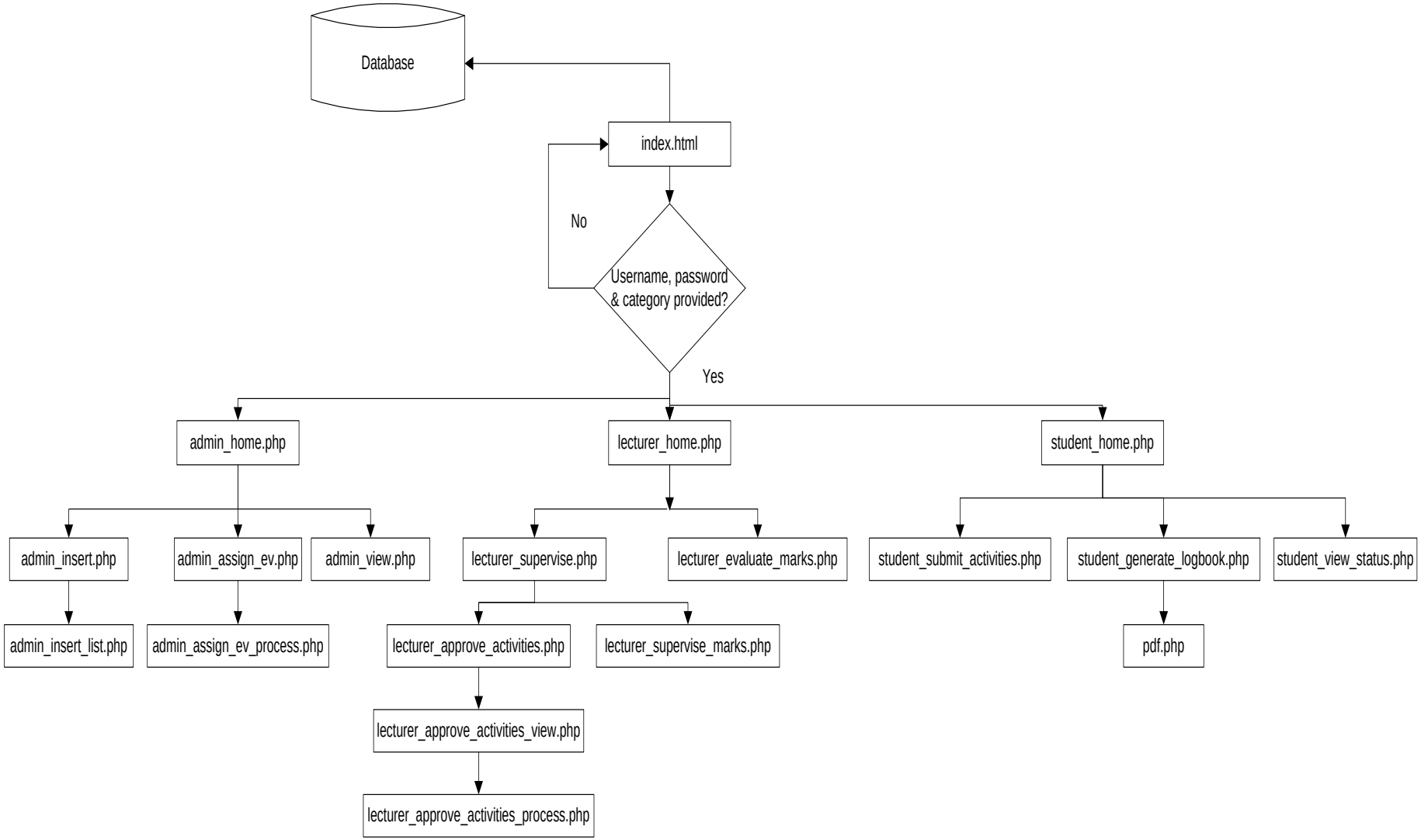
3.1 Click Evaluate Student, select project category to give marks to the students.

3.2 Click 'PSM2'. A list of students will display; evaluation form will display below the student's table. Lecturer has to insert all marks and calculate the total before click on the 'Submit' button. The marks will save into the database.



APPENDIX C

DIALOGUE


Database
index.html
No
Username, password & category provided?
Yes
admin_home.php
lecturer_home.php
student_home.php
admin_insert.php
admin_assign_ev.php
admin_view.php
lecturer_supervise.php
lecturer_evaluate_marks.php
student_submit_activities.php
student_generate_logbook.php
student_view_status.php
admin_insert_list.php
admin_assign_ev_process.php
lecturer_approve_activities.php
lecturer_supervise_marks.php
pdf.php
lecturer_approve_activities_view.php
lecturer_approve_activities_process.php

APPENDIX D

SAMPLE CODING

Admin insert list:

```
<?php
include("admin_auth.php");
?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>PEMS</title>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
<link href="style.css" rel="stylesheet" type="text/css" />
<script type="text/javascript" src="js/jquery.js"></script>
<script type="text/javascript" src="js/cufon-yui.js"></script>
<script type="text/javascript" src="js/arial.js"></script>
<script type="text/javascript" src="js/cuf_run.js"></script>
<script type="text/javascript" src="js/radius.js"></script>
</head>
<body>
<div class="main">
  <div class="header">
    <div class="header_resize">
      <div class="logo">
      <img src="images/umplogo.png" alt="image" width="220" height="100" /><br />
      <center><span class="title">PSM/PTA EVALUATION WEB MANAGEMENT
SYSTEM</span></center>
      </div>
      <div class="clr"></div>
      <div class="menu_nav">
        <ul>
          <li><a href="admin_home.php">Home</a></li>
          <li class="active"><a href="admin_insert.php">Insert</a></li>
          <li><a href="admin_assign_ev.php">Assign</a></li>
          <li class="last"><a href="admin_view.php">Generate</a></li>
        </ul>
        <div class="search">
        <form id="form" name="form" method="post" action="">
          <span>
          <input name="q" type="text" class="keywords" id="textfield" maxlength="50"
value="Search..." />
          <input name="b" type="image" src="images/search.gif" class="button" />
          </span>
        </form>
```

```
    </div>
    <!--/search -->
    </div>
    <div class="clr"></div>


  </div>
 </div>
 <div class="clr"></div>
 <div class="content">
  <div class="content_resize">
  <h4 align="right">You are log in as <?php echo
$_SESSION['SESS_AD_USERNAME'];?> <a href="logout.php">(logout)</a></h4>
    <div class="mainbar2">
     <div class="article">
     <h2>Successfull Insert!</h2><div class="clr"></div>
      <?php
                        // menggunakan class phpExcelReader
                        include ("admin_insert_process.php");

                        // koneksi ke mysql
                        include ("dbase.php");

                        // membaca file excel yang diupload
                        $data = new
Spreadsheet_Excel_Reader($_FILES['userfile']['tmp_name']);

                        // membaca jumlah baris dari data excel
                        $baris = $data->rowcount($sheet_index=0);

                        // nilai awal counter untuk jumlah data yang sukses dan yang
gagal diimport
                        $sukses = 0;
                        $gagal = 0;

                        // import data excel mulai baris ke-2 (karena baris pertama adalah
nama kolom)
                        for ($i=2; $i<=$baris; $i++)
                        {
                                // membaca data dalam kolom
                                $matric_id = $data->val($i, 1);
                                $password = $data->val($i, 2);
                                $name = $data->val($i, 3);
```

```
                                $category = $data->val($i, 4);
                                $title = $data->val($i, 5);
                                $sv_name = $data->val($i, 6);
                                $ev1_name = $data->val($i, 7);
                                $ev2_name = $data->val($i, 8);
                                $sv_mark = $data->val($i, 9);
                                $ev1_mark = $data->val($i, 10);
                                $ev2_mark = $data->val($i, 11);
                                $std_totalmark = $data->val($i, 12);



                                $queryfind = "SELECT matric_id FROM student
WHERE matric_id= '$matric_id'";
                                $hasilfind = mysql_query($queryfind);
                                if (mysql_num_rows($hasilfind)==1){

                                $gagal++;
                        }
                        else
                        {
                                // setelah data dibaca, sisipkan ke dalam tabel student
                                $query = "INSERT INTO student VALUES ('$matric_id',
'$password', '$name', '$category', '$title', '$sv_name', '$ev1_name', '$ev2_name',
'$sv_mark', '$ev1_mark', '$ev2_mark', '$std_totalmark')";
                                $hasil = mysql_query($query);

                                // jika proses insert data sukses, maka counter $sukses
bertambah
                                // jika gagal, maka counter $gagal yang bertambah

                                        if ($hasil) $sukses++;
                                        else $gagal++;
                        }
                        }

                        // tampilan status sukses dan gagal
                        echo "<center><h3>Data had been saved into database.</h3>";
                        echo "<p>Data successfully import : ".$sukses."<br>";
                        echo "Data failed to import : ".$gagal."</p></center>";
                ?>
        </div>
        <p> </p><p> </p><p> </p><p> </p><p> </p>
```

```
    </div>
    <div class="clr"></div>
   </div>
  </div>

   <div class="footer">
    <p class="lr">© Copyright</p>
    <div class="clr"></div>
   </div>
  </div>
</div>
</body>
</html>
```

APPENDIX E

USER ACCEPTANCE TEST RESULT

Survey on PSM/PTA Evaluation Web Management System (PEMS)

* Required

Select *

- Lecturer
- Student
- PSM/PTA Coordinator

I am able to complete my work quickly using this system. *

	1	2	3	4	5	
Strongly Disagree						Strongly Agree

Overall, I am satisfied with how easy it is to use this system. *

	1	2	3	4	5	
Strongly Disagree						Strongly Agree

It was simple to use this system. *

	1	2	3	4	5	
Strongly Disagree						Strongly Agree

I was able to complete the tasks and scenarios quickly using this system. *

	1	2	3	4	5	
Strongly Disagree						Strongly Agree

I felt comfortable using this system. *

	1	2	3	4	5	
Strongly Disagree						Strongly Agree

It was easy to learn to use this system. *

	1	2	3	4	5	
Strongly Disagree						Strongly Agree

The system gave error messages that clearly told me how to fix problems. *

	1	2	3	4	5	
Strongly Disagree						Strongly Agree

Whenever I made a mistake using the system, I could recover easily and quickly. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

It was easy to find the information I needed. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The information was effective in helping me complete the tasks and scenarios. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The organization of information on the system screens was clear. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The interface of this system was pleasant. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

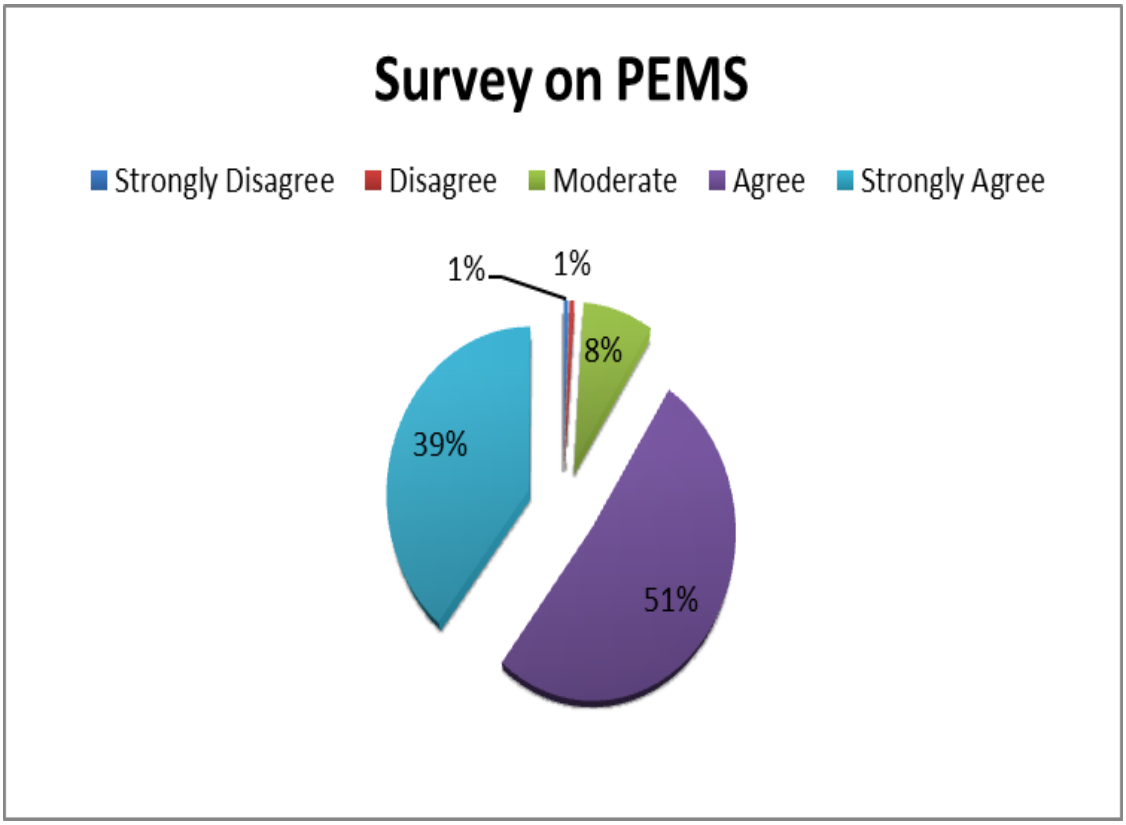
This system has all the functions and capabilities I expect it to have. *

	1	2	3	4	5	
Strongly Disgree	○	○	○	○	○	Strongly Agree

Overall, I am satisfied with this system. *

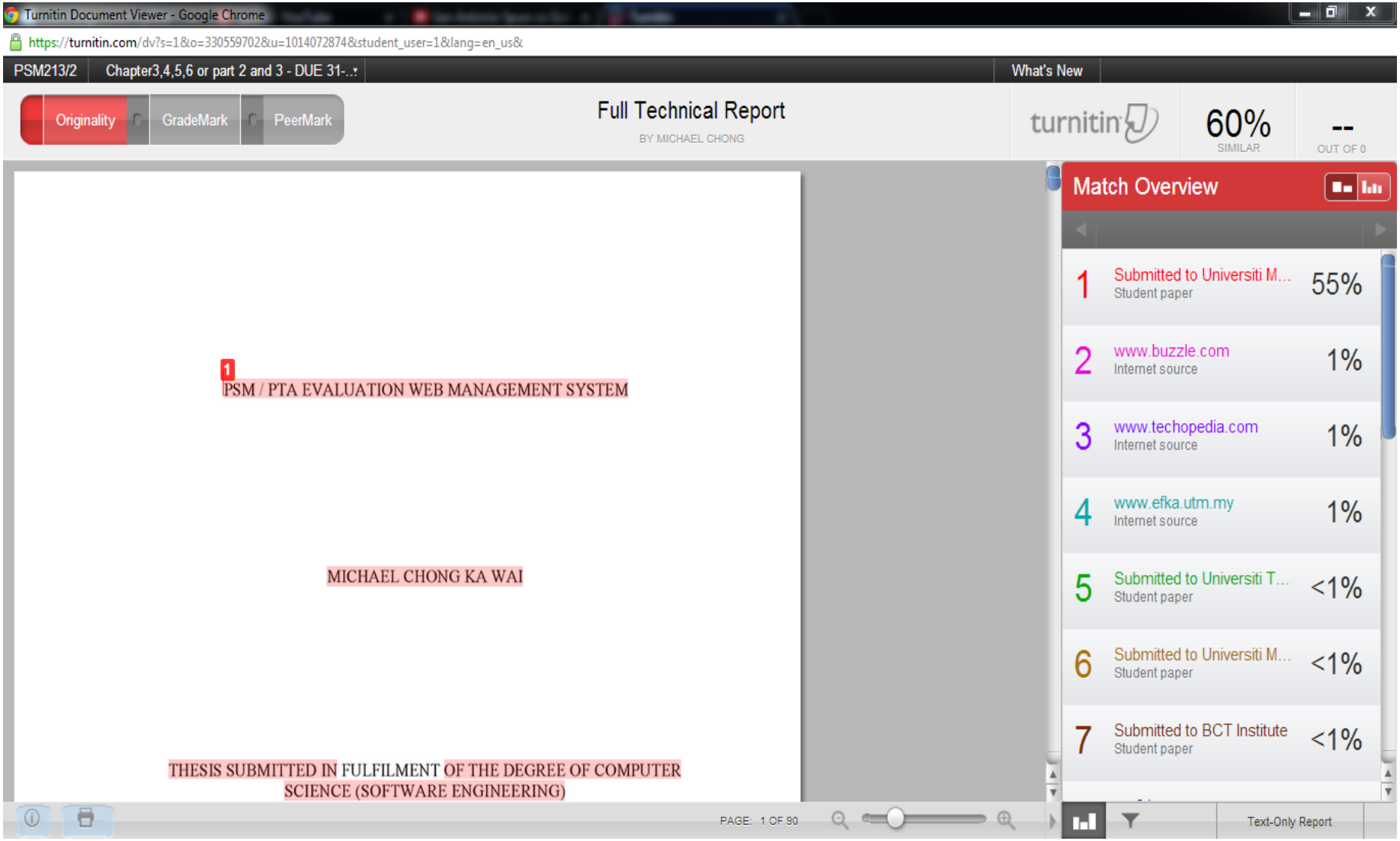
	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Submit


Survey on PEMS
Strongly Disagree
Disagree
Moderate
Agree
Strongly Agree
1%
1%
8%
39%
51%

APPENDIX E

TURN IT IN RESULT


Turnitin Document Viewer - Google Chrome
https://turnitin.com/dv?s=1&o=330559702&u=1014072874&student_user=1&lang=en_us&
PSM213/2
Chapter3,4,5,6 or part 2 and 3 - DUE 31-...
What's New
Originality
GradeMark
PeerMark
Full Technical Report
BY MICHAEL CHONG
turnitin
60%
SIMILAR
--
OUT OF 0
1
PSM / PTA EVALUATION WEB MANAGEMENT SYSTEM
MICHAEL CHONG KA WAI
THESIS SUBMITTED IN FULFILMENT OF THE DEGREE OF COMPUTER SCIENCE (SOFTWARE ENGINEERING)
PAGE: 1 OF 90
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7 Submitted to BCT Institute Student paper <1%
Text-Only Report