STUDENT MENTORING SYSTEM (SMS)

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ACKNOWLEDGEMENT

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ABSTRACT

Student Mentoring System (SMS) is a computerized system that is intended for use by universities that implement the mentor-mentee concept such as “Universiti Malaysia Sarawak” (UNIMAS). The idea to develop the SMS came after seeing the scenario in local universities especially in UNIMAS where the mentor-mentee concept did not running as it is suppose to be. The main purpose of the SMS is to help the mentors to mentor the mentees with effectively, efficiently, systematically and productively.

This report will discuss about the background of the SMS, methodology used, system analysis and design, the system implementation, system testing and evaluation and also the further work of the system. This system was implemented by using Java and PHP as the core programming language, MySQL as the database manager and Apache Web Server as the web server.
ABSTRAK

“Student Mentoring System” (SMS) adalah sistem berkomputer yang ditujukan khas untuk penggunaan di universiti-universiti yang menjalankan konsep mentor-mentee seperti Universiti Malaysia Sarawak (UNIMAS). Idea untuk membangunkan sistem ini dating selepas melihat sendiri senario di universiti-universiti tempatan terutamanya UNIMAS dimana konsep mentor-mentee tidak berjalan seperti yang sepatutnya. Tujuan utama sistem ini adalah untuk menolong mentor-mentor untuk membimbing mentee-mentee dengan berkesan, efisien, teratur dan produktif.

Laporan ini akan membincangkan mengenai latar helakah SMS, metodologi yang digunakan, analisa dan rekabentuk system, perlaksanaan system, percubaan dan penilaian sistem dan lanjutan kerja ke atas sistem. Sistem ini dibangunkan menggunakan Java dan PHP sebagai bahasa pengaturcaraan teras, MySQL sebagai pengurus pangkalan data dan Apache Web Server sebagai pelayan web.
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CHAPTER 1.0: INTRODUCTION

1.1 Background Study

Most of the universities including the “Universiti Malaysia Sarawak” (UNIMAS) implement the mentor-mentee concept. For UNIMAS, the purposes of the mentor-mentee concept are to help the students to achieve the excellent in the academics and in the personal development by providing helpful and close services to the students.

In UNIMAS, the mentor’s role is to help the universities by hearing and responding to the mentees problem. The mentors also must guide the mentees to go through the entire obstacles not only as a student but as a teenager that need help in the changing of the psychology and identity.

In Malaysia’s universities right now, there is no computerized mentor and mentee system. There is only the conventional and traditional manual mentoring system that has a lot of weakness such as ineffective, inefficient, not systematic and not productive.

For example in UNIMAS, most of the students only see their mentors when they are taking their semester result and this is once every semester. Worse, some of the students even did not do this.
1.2 Project Report Purpose

The main objective of this report is to fulfill the Final Year Project (TMP 3012) requirement. Beside that, this report is to propose an idea of developing a new system that is called “Student Mentoring System (SMS)”.

1.3 Problem Statement

The current functionalities of the mentor to their mentee in the university are not efficient, systematic, effective, productive and in some cases, not functional. It is caused by these major factors that are time, location, number of the students in the university and the commitment of the mentors and the mentees.

The mentors are busy with the classes, meetings, grading and lectures preparation while the mentees also are busy with the classes, assignments and tests. This left no time for the mentors and the students to meet and communicate and even if there is time, it is difficult to find a perfect time where both of them are free.

The house or hostel locations between the mentors and the mentees are almost likely very far. This makes it hard for the mentors and the mentees to meet or communicate among each other outside office hour or outside class time.

With the increasing number of the university students each year, the ratio of the mentee per mentor is become bigger. It is become more difficult for the mentors to coupe with it making it harder for the mentors to do mentoring activities towards the mentees.
Lack of commitment from both of the participant whether from the mentors or the mentees did not help either. They often did not give sufficient cooperation in helping the university to make sure the mentor-mentee concept can be done successfully. The mentor-mentee concept often not been taken seriously by them.

1.4 Project Objectives

The “Student Mentoring System (SMS)” project generally has three main objectives. These objectives are to fulfill the requirement for the Final Year Project (TMP 3012), to come up with the SMS and to learn about how to conduct an IT based project administratively and technically.

The SMS project major objective is to fulfill the requirement for the Final Year Project (TMP 3012). The project consists of two main elements that are this report and the working system of SMS. These two elements are important to make sure the success of the Final Year Project.

The SMS is a major deliverable from the project. It is a system that will assist the mentors to mentor the mentees efficiently, effectively, systematically and productively.

Throughout the SMS project, knowledge and experience about how to manage an information technology project can be gained. The project management is done by applying the knowledge, skills, tools, and techniques to manage activities in the project. This is done in order to meet or exceed stakeholder needs and expectations from the project.
On the technical side, more understanding and experience on Object Oriented Software Development (OOSD) methodology can be gained after applying it throughout the project. The implementation phase of the SMS project also will improve the ability to code some of the programming language, the ability to create and maintain the database and web server and the ability to use the system development software and tools.

These knowledge, experiences and skills are very important when venturing into the real world system development.

1.5 Project Scope

The project scope is the project work boundaries and deliverables of the project so that only what are needed to be done are done [1]. The SMS is only intended for the mentors and mentees in the university. SMS also only contain the general, contact, guardian and academic information of the mentees. The communication between the mentor and mentee only limit to three ways that are through email, message board and private message. The SMS only can be used within university network or via Internet, which means the mentor or the mentee must be connected to the local university network or the Internet in order to use SMS. The work boundaries of the SMS project will be based on these scopes. The deliverables from the SMS project are the project report and the SMS itself.

1.6 Project Methodology

Throughout the project, the System Development Life Cycle (SDLC) is used as a guides, rules and procedures for the development of the SMS.
To use the SDLC, the object oriented software development (OOSD) methodology will be applied. The lifecycle of OOSD will include three main phases that are object oriented analysis, object oriented design and object oriented implementation.

The activities in the object oriented analysis are identifying the actors, develop the business process model, develop the use cases, prepare the interaction diagrams and do the classification. These steps are to perform iteratively until the analysis phase complete.

The activities in object oriented design phase are design and refine the class for the business layer, access layer and the view layer. Like the analysis phase activities, activities in the object oriented design phase also done iteratively.

In the object oriented implementation, the activities that will be done are prototyping and testing. From the system design, the prototype of the SMS will be build. Using the domain prototyping approach, the prototype will be evolved into the final information system which is SMS through series of prototyping and testing.

The application of the OOSD methodology is essential because it can higher the level of abstraction of SMS making the development process easier. Next, it can encourage good programming technique and can make the SMS code easy to be maintained and reuse later.
1.7 Project Expected Outcome

The major deliverable from the SMS project is the SMS itself. The SMS is a system that the functionality is to assist the mentors that are lecturers in a university to mentor his/her mentees, which are students in the university. It will help the mentors to mentor with efficiency and effectiveness so that the mentees will gain benefit from it.

A mentor who will be using the SMS can perform a lot of tasks. First, the mentor can add any student to his/her mentee list in the system as long as the student is in the university student database. After that, the mentor also can edit the information of the mentee and can remove the mentee from the system anytime that he/she want.

Using the SMS, detail information about the mentee can be viewed. This includes information about the mentee’s general details, contact details, guardian details and academic details. The information can be used by the mentor to better know and understand the mentee academically or personally. Beside that, the mentee’s guardians contact information can be used by the mentor to contact the mentee’s guardians, whether to discuss with the guardians about the mentee or to contact the mentee’s guardians during emergency.

Communications with the mentor are important to make sure that all the problems of the mentee can be heard by the mentor. Some features in SMS will allow the mentor to interact with the mentee. The mentor can exchange e-mail and discuss in a message board with the mentee or the mentor and mentee can exchange message privately.
1.8 Project Significant

The project of the SMS will come out with the system that has many significant to the mentor-mentee concept in the university. First, it will help the mentors to monitor the academic progress of the mentees. Based on it, the mentors can help the mentees if the mentees have a problem in particular subjects or if the mentors see declining in the mentees academic results.

The SMS will also help to improve the communication between mentors and mentees. It will allow for the mentors and the mentees to discuss about the academic, the mentees problem or anything.

Mentors also can easily inform the guardians of the mentees about the mentee’s academics, discipline or problems easily. If an emergency happened to the mentees, the mentors can quickly contact the mentor’s guardian.

Taken as a whole, the project significant is to help the mentors to mentor the mentees efficiently, effectively, systematically and productively so that the mentees will gain a lot of benefits from it.

1.9 Project Report Outlines

This report contains eight chapters that are the introduction, the literature review, the methodology, the analysis, the design, the implementation, the testing and evaluation and the conclusion.
Chapter 1 (Introduction) is this chapter. It focused on the overview and brief description of the SMS project generally. It also contains the report outlines.

Chapter 2 (Literature Review) contain the comparison of the existing system that is very much like the SMS and the comparison of the implementation tools. From the comparisons, the feature and tools that is the best for the SMS project will be chosen.

Chapter 3 (Methodology) describe about the system development methodology that was applied throughout the development of the SMS.

Chapter 4 (Analysis) shows how the analysis applied to the development of the SMS by using the object oriented analysis.

Chapter 5 (Design) shows how design applied to the development of the SMS by using the object oriented design.

Chapter 6 (Implementation) focused on how the implementation is done for the entire component in the SMS.

Chapter 7 (Testing and Evaluation) discuss about the series off different testing done for the SMS and the evaluation of the SMS project in the project closing phase

Chapter 8 (Conclusion) includes all the resources for the references to the project are credited. Future work also stated for improvement of the SMS. Conclusion of the project also included in this chapter.
CHAPTER 2.0: LITERATURE REVIEW

2.1 Introduction

In doing the literature review, four existing systems have been identified to have some similarity to the “Student Mentoring System (SMS)” functionally. All of the systems are reviewed and compared among each other. From the comparisons, the best feature in the systems will be taken and included in the SMS.

2.2 Review of Similar Systems

The four similar systems to the SMS are reviewed base on theirs functionalities, implementation tools and user interface.

2.2.1 Student Information Record System (SIRS) 3 Basic

The SIRS 3 Basic is an information management system that the function are to allows a school or district to input, manage, track and report on all of its vital information [3].

The open database compliant system is used by the SIRS 3 enable the school to manage the school data on a wide variety of network solutions, including a fully functional web interface for parents and students.

The SIRS 3 Basic manages the information about the student personal, the medical notes and the enrollment history. All the state reporting and funding information for extraction can be tracked in report form. Student photos also can be imported from
image files that allow for quick identification. Custom fields for the school's unique demographic tracking also can be created to suit the user needs.

SIRS 3 Basic was implemented using the C++ language, Hypertext Preprocessor (PHP) language and Hypertext Markup Language. C++ is for the school and district interface while PHP and HTML is for the parents and students interface. For the database of the SIRS 3 Basic, it uses the Oracle database management system (DBMS).

The SIRS 3 Basic uses both windowed graphical user interface (GUI) and web as it interface. The windowed interface is for the school and district while the web interface is for the parents and students. Below are the sample screenshot of the SIRS 3 Basic user interface.

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**Figure 2.1: Screenshot of SIRS 3 Basic Interface**
2.2.2 School Minder

The School Minder is a private school administration software program and can be used in the school's office [4]. The School Minder has four main functions that are manages student’s records, manages faculty’s records, manages grading and transcripts, manages tuition and manages billing.

The student’s records function manages include student’s activities and sports, attendance, disciplines and merits, medical records, photographs and student’s schedules. Quick access to student’s related function can be done through a few mouse clicks.

Faculty records management function allow the school to maintain complete records on the faculty and staff.

For the grades and transcripts management functions, grades for the current school year can be entered by student or by class. Many different grade scales that the school needs can be defined. Academic grades can be entered by the school as well as conduct/effort grades and comments. Term grades also can be automatically averaged for the users. Grades for prior school years are maintained in the transcript module, along with ACT & SAT test scores.

Beside that, School Minder can prints report cards and transcripts and the pre-printed transcript and report card forms are available through the School Minder forms department.