

ONLINE LAB REGISTRATION SYSTEM

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DECLARATION

No portion of the work referred to in this report has been submitted in support of an application for another degree or qualification of this or any other university or institution of higher learning.

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Date

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Abstract

With the significant use of web-based systems nowadays, almost all universities manage their course registration online. Development of an Online Lab Registration System (OLRS) is based on the similar concept of the online course registration and similar concept used in an online hotel reservation system. Currently, the Faculty of Computer Science and Information Technology has planned to move to the new campus, which will indirectly cause the manual lab registration more difficult to manage. So, OLRS is expected to bring benefits to the Faculty of Computer Science and Information Technology in managing lecturer's booking/canceling lab slot process and student registering/dropping their course's lab slot process as well as to minimize the redundant workload of the lecturers. Simple but yet effective and easy to learn interface of the OLRS will definitely make the system pleasant to use.

Abstrak

Pada masa kini, hampir semua universiti mengendalikan pendaftaran kursus mereka secara dalam talian dengan adanya penggunaan sistem berasaskan Web. Pembangunan Online Lab Registration System (OLRS) ini adalah berdasarkan konsep yang serupa dengan pendaftaran kursus dalam talian and konsep yang serupa dengan konsep sistem penempahan hotel secara dalam talian. Kebelakangan ini, Fakulti Sains Komputer dan Teknologi Maklumat akan berpindah ke kampus baru yang jauh lebih besar berbanding kampus lama. Secara tidak langsung, akan menyebabkan pengurusan pendaftaran makmal secara manual yang sedia ada kurang cekap dijalankan. Oleh itu, OLRs dijangkakan akan membawa kebaikan kepada Fakulti Sains Komputer dan Teknologi Maklumat dalam pengurusan proses penempahan/pembatalan slot makmal bagi pensyarah-pensyarah dan pendaftaran/pengguguran slot makmal untuk kursus-kursus tertentu yang memerlukan makmal bagi pelajar-pelajar serta mengurangkan kerja-kerja pensyarah. Antaramuka yang ringkas tetapi berkesan dan mudah untuk belajar bagi OLRs ini sudah tentunya akan menyenangkan penggunaan sistem ini.

CHAPTER 1.0

INTRODUCTION

1.1 Introduction

Since a decade ago, computers had played an important role in organizing and managing daily management operation. University is one of the places which highly utilized the computers in order to have a systematic management for all operations and processes.

For IT students, they are learning about the computers. Hence, computer labs are important place for them to do their practical practice. With the rapid development of the use of the computers, an interactive and effective approach should be applied to build a system using the online approach to manage the lab registration tasks. The system will response in real-time and easy to be managed.

Every semester, lab staffs and lecturers will arrange and book the lab slots manually for students. Students have to register by filling the form for the lab slots that are convenient for them to attend. If most of the students could not attend a certain lab slots, the lecturers will have to rebook another new lab slots manually for their students. Then, the students will reregister for that lab slots.

1.2 Problem Statement

For Faculty of Computer Science and Information Technology in UNIMAS, all lab registration is done manually. This brings a lot of inconveniences for the lecturers and students who want to register for the lab. Some of the inconveniences are:

- i. Lecturers spend a lot of time to book and rebook the lab for their students manually.
- ii. Lecturers cannot view the available lab slots easily as the lab slots are not arranged in a systematic way.
- iii. Lack of space to keep all the documents and records.
- iv. Frequent misplaced and lost of documents and records.
- v. Lack of manpower in booking, arranging and managing the lab slots.
- vi. High levels of redundant work as the lecturers have to key in the student info from the student's registration form into the computer and print it out.
- vii. Unsystematic way of lab registration for different courses, so the students have to queue up at the SHOP to register the lab slot.

1.3 Objectives

The objectives of the proposed system are:

- i. To replace the paper-based manual system in arranging and managing all the lab slots and the booking procedures.
- ii. To enable the students to register/drop for the lab slots of each courses online.
- iii. To assist the lecturer viewing all the available lab slots and books/cancels the lab slots online.

The objectives of this thesis are:

- i. To fulfill the requirement of Final Year Project (TMP 3012 & TMP3034) subject
- ii. Learn how to apply the knowledge gained from theories into real practices

1.4 Methodology

This proposed system is developed by using the Object-Oriented System Development methodology (OOSD). (Bahrami, A., 1999) OOSD methodology is divided into Object-oriented analysis, Object-oriented design, prototyping/implementation, and testing (p. 44).

i. Object-oriented Analysis

In this phase, the system requirement is been determined. Classes that are needed for the system based on the user's requirements and their relationships in the problem domain that make up an application are been identified. The users or the actors are needed to be identified for better understanding of the system requirements. User requirement's can be gathered by interviewing the users, surveying the users by using questionnaire, and direct observation over the user's behaviour. In this phase, problem statements and information are been collected to analyze the proposed system.

ii. Object-oriented Design

In this phase, the existing system is been studied. The classes that have been identified during the Object-Oriented Analysis phase are been designed and refined. In addition, methods, structures, and associations are also been designed and refined. The User Interface or View Layer classes and data Access Layer classes are also designed in this phase. The proposed system is been criticized for improvement.

iii. Prototyping

In this phase, the prototype of the proposed system are been built. The level of the difficulties to implement some of the features of the system can be fully understood. The users are given the chance to comment on the usability and the effectiveness of the design by testing the prototype of the proposed system. The unsatisfied prototype is been refined repeatedly.

iv. **Implementation**

In this phase, the system design is written into a real coding that is realized as a set of programs. The coding is been modified repeatedly in this phase until the users are satisfy with the system.

v. **Incremental Testing**

It is an iterative process, each stage of the implementation is tested to find the problems that occurred in the programs and rectified any problems occurred. White box testing and black box testing will be used to test the complete system. The system also been tested for validation and verification.

1.5 Project Scope

The Online Lab Registration System is developed to be used in Faculty of Computer Science and Information Technology in UNIMAS. It's roles in viewing, booking, canceling, registering, dropping the lab slots online as well as allow the students create their account online.

1.6 Significant of Project

Online Lab Registration System will significantly to bring more convenient and more efficiency in term of shorter time taken in booking and registering lab slots, systematic way in managing the lab registration process, and less physical storage space is needed.

1.7 Project Plan

This proposed project was initially started with analysis phase on the 6th of April, 2005. This analysis phase was then followed by design phase, prototyping phase, implementation phase, and testing phase. Each phase of the project contained some sub-activities. This proposed system is estimated to be completed around March of years 2006. Please refer Appendix A for detail.

1.8 Outline of Project Report

This project report will give details about the system that is proposed and will be developed. It is consists of five chapters.

Chapter 1: An Introduction

This chapter presents the introduction of the proposed Lab Registration System. The problem statements, objectives, methodology, project scopes, the significant of the project, project plan, and outline of the project report are all defined under this chapter.

Chapter 2: Literature Review

This chapter consists of the findings of the researches that have been presented, which are similar to the proposed system. Comparison will be made on this chapter between the proposed systems with other similar systems. In addition, the comparison also made between the programming, the system interface, system features, and implementation tools.

Chapter 3: Requirement Analysis and Design

This chapter explains the details requirements specification for the proposed system, such as user's requirements, software and hardware requirements. It indicates the ways of which the requirements have been obtained. The design of the system also will be explained in this chapter. It included all the programming codes, interface design and features. The reason of the system is designed will be mentioned in this chapter as well as the user's requirements is an important factor.

Chapter 4: Implementation and Testing

This chapter will explain how the system is implemented. The system implementation shows exactly the way that the system should function and the examples of data input and output. In addition, testing process is been showed and been analyzed in this chapter. The results and feedback are recorded in this chapter.

Chapter 5: Conclusion & Future Work

This chapter concludes the strength and weakness of the system by determine whether all the objectives and project scopes have been achieved and covered. Some of the suggestions will be made for further works to the Lab Registration System.

CHAPTER 2.0

LITERATURE REVIEW

2.1 Introduction

This chapter describes the literature review of the existing system of the Online Lab Registration System. Standard and technology that used on the system and database of the system will be described in this chapter too.

2.2 Reviewing of Current System

As the number of the student grows every year, the Faculty of Computer Science and Information System in UNIMAS is considering building an online lab registration system for their faculty student. Students can register online for the lab session for each course taken that required a lab practice. There are many factors need to be taken into account in building the new lab registration system, for example, system reliability, security and network.

The existing lab registration system used is based on manual system. For each starting semester, staffs of the faculty will arrange the lab slot time. Then, each course lecturer will look for the available lab slot time and book the convenient lab slot time. After the lecturer booked the lab slot time, students then need to register manually for the lab slot time that they wanted. If there is any clash between the lab slot time and the other lecture time, then, the lecturer will need to rebook for another available and convenient lab slot time. This manual system has been done over the past 10 years since the faculty established.

The major problems that occur in this existing manual system are:

- I. Time wasted in waiting for the staffs to arrange the lab slot time and waiting for the lecturer to book the convenient lab slot time.
- II. The lecturer cannot view the available lab slots easily as the lab slots are not arranged in the systematic way.
- III. Students have to go to SHOP at the faculty to check the availability of the lab slots list.
- IV. Students have to write their name and matric number on the convenient lab slot at the SHOP.
- V. This may lead to double registration for the same person, as some students may ask their friend to register for them.
- VI. Lecturer need to do redundant work, as they need to reenter the student registration information into the computer system.

2.3 Comparison of the Reviewed System

Online Lab Registration System of FSKTM in UNIMAS is system that provides online facility for lab slot registration. The idea of this system is get-together all the faculty students under one systematic management system. There are some existing systems on the Internet with the similar concept but for different purpose.

2.3.1 Similar Concept System Review

a) Hotel Management System (The Paradise Hotel)



Figure 2.1: Interface for Paradise Hotel Management System (Sameer, M. H.)

(Sameer, M. H.) The Paradise Hotel Management System is one of the systems that is proposed by one student in Informatics College for the Paradise Hotel to assist the management of hotel daily. This system provides a lot of features with the similar purpose to the proposed system. This system required the customer to login the system by the username and password provided.

Customer can make a reservation, check in, and check out through the system by looking through the room status that is available in the system. Management also can get the statistics of the hotel daily, which showed the details of the total

customers make a reservation, check in, and check out. Besides, it also automatic generates the reports for a reservation, check in, check out, employee's status such as employee details, and their working department listing.

This system was written using Microsoft Visual Basic 6.0 and oracle (SQL Plus 8.0). The database must be created first in SQL before running the system. The limitation of this system is that it cannot be used as online system because Microsoft Visual Basic 6.0 does not provide an online connection services. The customers can use this system only when they are in the hotel.

b) Online Hostel Registration System (UNIMAS)

UNIMAS Online Hostel Registration System is proposed by Amin, B. J. (2003) in his Final Year Project. This system also contains some features that are quite similar to the proposed system. It is written in Scripting Languages, which is ASP (Active Server Page) and its database is built with Microsoft Access. The user can access the system wherever they are because ASP is a technology used to create powerful and dynamic web pages, and sophisticated web application.

There are three types of users in this system, which are guest, student and administrators. Username and password are provided to the students and administrators. The user can find a preferable roommate or available room through the query function by selecting the criteria given. Besides, they can view each hostel's room environment, (in 3D). There is interactive map provided that

enables the students to view the location of the room and hostel. The student also can know the status of their application for the registration through the system.

However, there are some limitations to this system. This system is lack in site access tracking system and file access tracking system. Besides, it's also poor in adding student list function and notice board for display news and information to the users.

2.3.2 Comparison of System Features

It is important to let the users know how the proposed system works. The booking function and registration function of the system enable the users, lecturer of FSKTM in UNIMAS to book available and convenient lab slot for their student and the student for each course will register for that available slot. The existing system with similar concept to the proposed system have features such as security, booking function, check in and check out function, registration function, status identification (whether rooms or lab slots are available or not) and cancellation function. There are some additional features that added into the proposed system, such as:

a. User Mode

There are three categories of users for the system; they are the administrators, lecturers, and students. All of them will be provided with username and password to login the system.