

**Online Course Registration System for Faculty of Law in Timor Lorosa'e  
National University**

By

Machel Sebastião Gonçalves Silveira

Dissertation submitted in partial fulfillment of  
the requirement for the  
Bachelor of Technology (Hons)  
(Business Information System)

JULY 2009

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CERTIFICATION OF APPROVAL

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Approved by,

  
\_\_\_\_\_  
(Mrs. Foong Oi Mean)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

JULY 2009

## CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons



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Machel Sebastião Gonçalves Silveira

## ABSTRACT

Online course registration system is now commonplace at many Universities around the world for students to register their courses every semester. Yet, since Timor-Leste gained its restoration of Independence Day in 2002, manual registration has been used in every University around the country.

Every semester, the course registration process for Faculty of Law in Timor Lororsa'e National University has been carried out under manual system of paper-based - which is time-consuming and frustrating for both students and the staff. With this new online course registration system, in hopes, will give students a better option of registering via Internet from home, day or night, avoiding tedious paper-based registration of courses.

The objective for chosen this project entitled *online course registration system* is to facilitate the staff of the Timor Lorosa'e National University (TLNU) and its students a reliable and ease of use of course registration for Faculty of Law.

Methodology used in this project is Rapid Application Development of prototyping approach. Tools used to develop this project are html and PHP, and the evaluation technique for this new system will be preliminary survey on user friendliness, ease of use and reliability as the system's properties.

Findings of the project is the degree of satisfaction of the current registration service, the response and acceptance level of the users towards the development of an automate course registration system, the extent usage of online course registration, and the importance of the future system's properties.

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## TABLE OF CONTENTS

CERTIFICATION .....	i
ABSTRACT .....	ii
ACKNOWLEDGEMENT .....	iii
CHAPTER 1: INTRODUCTION .....	1
1.1 Project Work Background.....	2
1.2 Problem Statement .....	2
1.3 Objective .....	3
1.4 Scope of Study .....	3
CHAPTER 2: LITERATURE REVIEW .....	4
2.1 Overview of UNTL .....	4
2.2 The evolution of the Web.....	5
2.3 Categorization of the Web Applications.....	6
2.4 System Architecture.....	7
CHAPTER 3: METHODOLOGY .....	9
3.1 Planning .....	10
3.2 Analysis.....	10
3.2.1: UML Design Diagram of New System.....	12
3.2.2: Flow Chart Diagram.....	13

3.2.3: Class Diagram .....	14
3.2.4: User Login Sequence Diagram .....	15
3.2.5: Course Registration Sequence Diagram .....	16
3.3 Design .....	17
3.3.1: Design Module 1 .....	17
3.3.2: Design Module 2 .....	18
3.3.3: Design Module 3 .....	19
3.3.4: Design Module 4 .....	20
3.3.5: User Interface (UI) Design .....	21
3.4 Testing and Implementation .....	22
CHAPTER 4: RESULT AND DISCUSSION .....	23
4.1 Preliminary Result .....	23
4.2 GUI for the Online Course Registration System .....	26
4.2.1: User Registration Page .....	26
4.2.2: Member Page .....	27
4.2.3 Account Page .....	28
4.3 Problems and Challenges Faced .....	29
CHAPTER 5: CONCLUSION AND RECOMMENDATION .....	30
5.1 Conclusion .....	30
5.2 Recommendation .....	31

5.3 Future Works.....	32
REFERENCES.....	33
APENDIXES .....	35
APENDIX 1: Tables .....	35
APENDIX 2: Project Milestones .....	37
APENDIX 3: Survey Questionnaires.....	39
APENDIX 4: Faculty of Law Informal Interview Questions .....	43
APENDIX 5: How to Set Up Server with Apache, PHP, MySql, & phpMyAdmin .....	44



## LIST OF FIGURES

Figure 2.1: Liceu Campus, (TLNU).....	5
Figure 2.2: The Three Tier Application .....	8
Figure 3.1: Prototyping Approach.....	9
Figure 3.2: Use Case Diagram .....	12
Figure 3.3: Flow Chart Diagram .....	13
Figure 3.4: Class Diagram.....	14
Figure 3.5: User Login Sequence Diagram.....	15
Figure 3.6: Course Registration Sequence Diagram .....	16
Figure 3.7: Snap-shot of Login Interface .....	21
Figure 3.8: Snap-shot of Navigation Menu.....	21
Figure 4.1: Questionnaire result of question 1 .....	23
Figure 4.2: Questionnaire result of question 2 .....	24
Figure 4.3: Questionnaire result of question 3 .....	24
Figure 4.4: Questionnaire result of question 4 .....	25
Figure 4.5: Snap-shot of User Registration Page .....	26
Figure 4.6: Snap-shot of Member Page .....	27
Figure 4.7: Snap-shot of Account Page .....	28

## **LIST OF TABLE(S)**

Table 1: Tools and Technology.....	36
Table 2: Categories of Web Applications based on Functionality.....	36

## CHAPTER 1

### INTRODUCTION

In today's world, with the advancement in technology, most of the organizations particularly Academic Institutions, used electronic system to replace the old system of paper-based for their registration process. Many of them using online system with the objectives to reduce cost and time-consuming, a better serve their client and enhance their operational efficiency. On the other hand, Timor Lorosa'e National University (TLNU) or so called Universidade Nasional de Timor Lorosa'e (UNTL) which is the biggest University in Timor-Leste, still left behind since its country's restoration of independence in 2002.

With the total number of students increase every year, means a workload for the staff in the registration office to handle not only prospective student, but also undergraduate students from different faculties who comes to register for courses before the semester begins. It's time-consuming for students and a problem for the staff of TLNU.

This all happen because Timor Lorosa'e National University does not have automated registration system to help with their work, especially, to handle undergraduate students who turns up for registering their courses every semester.

Thus, in the following paragraphs, a background study of the project work is given, followed by the statement of the problem to be addressed and lastly the objectives and the scope of the works are pointed out in order to understand the need for online course registration in Timor Lorosa'e National University.

## **1.1 Project Work Background**

This project aims to develop an *online course registration system* by using Rapid Application Development (RAD) methodology of prototyping approach. Since it is required to build the prototype at the earlier stage, therefore, a clear plan, requirement analysis and design needed to be thoroughly analyzed and tested before the actual system is deployed.

For this project, the focus properties of the system will be on usability and reliability as the main system requirement. The goal of developing this online course registration system is that, if not better, similar to those online course registration systems that have already been deployed in other Universities around the world. This project will be implemented with the following criteria:

1. User friendly
2. Ease of use
3. Reliable

In the next section you will be able to understand why it is necessary to develop an online course registration system for a National University of Timor-Leste.

## **1.2 Problem Statement**

Online course registration system is now commonplace at many Universities around the world for students to register their courses every semester. Yet, Timor Lorosa'e National University (UNTL) which was re-instated in 2000 is still using traditional paper-based manual system for their course registration every semester. It has given the staff and students problems. The issues that have been faced by the TLNU are formulated bellow:

- Inconvenience issue:

For every commencement of the semester, undergraduate students must collect courses catalog, fill in the forms with their academic information and courses selection and then return the forms to the registrar – required the physical presence of the students.

- Time-consuming issue:

While, staff in charge for the registration then entering student information with courses selection into the student record and a process then executed. This registration process takes from two to three weeks to complete with long queues of students who have to turn up at the specific times.

It has been time consuming and frustrating for both students and the staff especially if there is any error in entering the data.

### **1.3 Objectives**

- i. To design a mock of Online Course Registration System for Faculty of Law in Timor Lorosa'e National University.
- ii. To create an integrated database containing students record and allow access to the record.
- iii. To develop an Online Course Registration System that is easy to use and reliable for Faculty of Law undergraduate students in Timor Lorosa'e National University.

### **1.4 Scope of Study**

The aim of this project is to develop an online course registration system on the context of University environment, particularly for Faculty of Law undergraduate students of Timor Lorosa'e National University (UNTL).

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Overview of UNTL

The new Timor Lorosa'e National University (TLNU) is an amalgamation of the old Universitas Timor- Timur (UNTIM) under Indonesian administration. A number of buildings have been renovated by local firms, funded by International Agencies such as the US Agency for International Development (USAID), The Camara Municipal Lisbon, the Australian Centre for International Agricultural Research (ACIAR) and the Japanese government. Many of the former UNTIM and Polytechnic staff and students worked hard for a year with no pay to establish the University.

Good planning and active lobbying of donors by Dr Armindo Maia the then Minister for Education, Father Filomeno Jacob, despite its serious lack of resources, was able to commence teaching classes for 5,000 students and 1,500 bridging course students in November 2000 (The non-hub story 2009).

The University opened for classes on Nov 27<sup>th</sup>, 2000 - two months later than originally planned due to reconstruction activities and the lack of resources. Most of the buildings are still being rebuilt.

Timor Lorosa'e National University (UNTL) now has about 280 academic staff, about 130 of them are of East Timorese and the rest from Cuba and Portugal and there are about 8000 students (O'Keefe 2005).

The university has seven faculties and more than 20 departments:

- Agriculture has departments of agronomy, agribusiness and animal husbandry.
- The faculty of social and political science has three departments: public administration, government sciences and community development.

- The faculty of education has departments of English, Portuguese, mathematics, biology, chemistry, physics and teacher training for kindergarten and primary school.
- Economics has departments of management and development studies.
- Engineering has departments of civil, mechanical, electrical and electro-technical engineering and information technology.
- Law and Medicine were introduced in 2005.

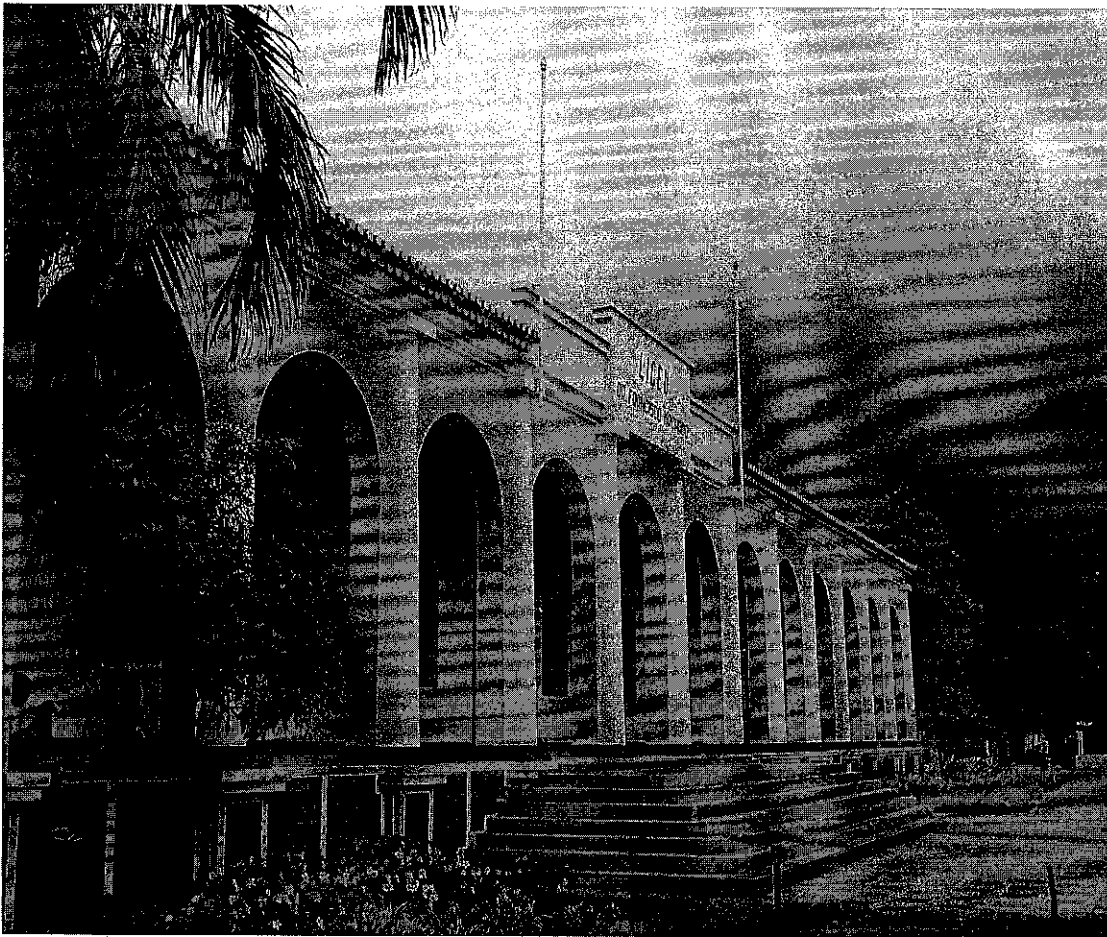


Figure 2.1: Liceu Campus, (TLNU), Avenida Cidade de Lisboa, Dili, Timor-Leste

## 2.2 The Evolution of the Web

Within a decade, the World Wide Web has continues to grow at exponential rate since it's first opened to public. Since the beginning of its initial objective for facilitating easy creation and sharing of information among only few scientists at that time, the web has grown very rapidly in its scope and extent of its use as we can see

nowadays. A web application has enabled us to distribute documents over the World Wide Web (Stobart & Parsons, 2008). Many enterprises, travel and hospitality industries, banks, educational and training institutions, entertainment business and governments and non-governmental organizations use large-scale of Web-based systems and applications to improve, enhance and/or extend their operations.

In the recent time, the web has changed our lives and works at every day level, and this trend will continue for the foreseeable future as we can see nowadays that many organizations such as government, non-governmental organization and many more depend heavily on Web systems and applications to enhance and improve their business operations.

Not only that, different disciplines has been brought together since the existence of the Web until today, such as, media, information science, information and communication technology for facilitating easy of creation, maintenance, sharing, and use of different types of information across the globe. This all information sharing are mostly done by using variety of devices such as desktop, notebook, pocket PC and mobile phones and many more.

In additional, Web based-systems and applications have also deliver a complex array of varied contents and functionalities to a large number of users around the world. Hence, today's applications can be written to communicate with hundreds of millions of computers, thus making information instantly and conveniently accessible worldwide (Deitel et al. 2004).

### **2.3 Categorization of the Web Applications**

In today's world, Web applications offer rich interfaces, are interactive, and support collaboration among users compared with earlier Web applications where offered mostly textual user interfaces and limited interactivity.

Web applications now present greatly varied functionality and have different characteristics and requirements from different users around the world for different usage. Thus, it is important for a developer to know which categorization the application will be built and who are target users.



It can be categorized in many ways, for example, categorization of Web applications based on functionality (Appendix 1 - table 2) is useful in understanding their requirements and for developing and deploying Web-based systems and applications to the target users.

Web applications' scope and complexities are also varying widely depending on the scales, such as from small, short-lived (few weeks) applications to a large-scale enterprise applications distributed across the Internet. Ginige and Murugesan (2001) group web applications into the following categories: informational, interactive, transactional, workflow-based, collaborative work environments, online communities, marketplaces, and web portals.

One of the reasons for the popularity of Web applications among developers is the ability to release a version without having to distribute and install the new version on client computers (Mehdi Jazayeri 2007). Among others, some of the common web applications include: webmail, online retail sales, online auctions, wikis and many other functions.

## **2.4 System Architecture**

Architecture gives the rules and regulations by which the software has to be constructed and has profound impact on the development of the rest of the system (Moh'd A. Radaideh & Hayder Al-Ameed 2007).

Applications usually are broken into logical chunks called "tiers", where every tier is assigned a role (Petersen 2009). On the traditional applications, it consist only of 1 tier which resides on the client machine, however modern web applications lend themselves to an n-tiered approach by nature. Three-tier applications have been common used since the growth of the database (Malveau & Mowbray 2004).

In software engineering, multi-tier architecture (often referred to as n-tier architecture) is a client-server architecture in which, *the presentation (GUI)*, *the application processing (Business rules)* and *the data management (Business data)* are logically separate processes. Hence, for this project of online course registration system, it will be designed under the 3-tier architecture model as depicted from the sample figure bellow.

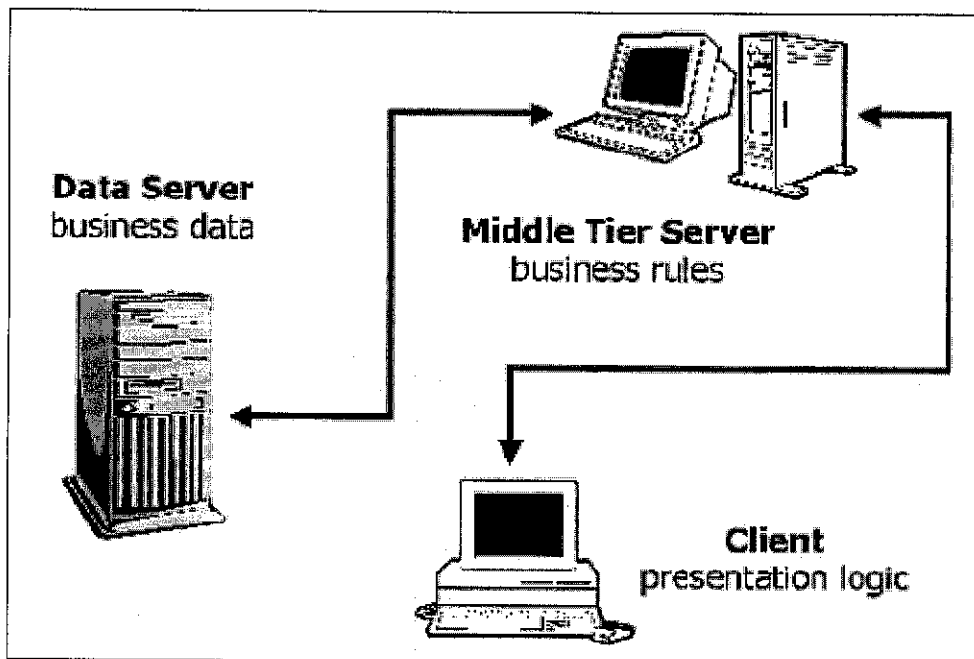


Figure 2.2: The Three Tier Application  
 (Source: <http://m.linuxjournal.com/article/3508>)

From above figure, the client, which is the student, uses Web browser to request the information about their personal details by submitting their request via Web browser to the middle layer (business rules), which some called application tier that reside on the server, which holds rules to access the data written in programming language. When the person access the system is authorized then the middle tier server will request the information that resides to the data tier which is the database. Data server then gathers information requested by the middle server and passes back to application tier before it sends back to client side.

The advantage of designing under 3-tier architecture is that each layer can be deployed in geographically separated computers in a network. System architecture affects the performance, robustness, distributability and maintainability of a system (Bosch 2000).

## CHAPTER 3

### METHODOLOGY

For the whole duration of this project of two semesters, a Rapid Application Development (RAD) methodology of prototyping approach (Figure 3.1) will be used for developing the system. Provided that this research and design project activities will consist of conducting a study of analyzing other universities existing online course registration system and reading publications such journals, articles and text books in order to gain a better understanding on developing an online course registration system for Faculty of Law in Timor Lorosa'e National University that if not better, similar. The approach is intended to take advantages of the flexibility in phases and speed of delivering the prototype.

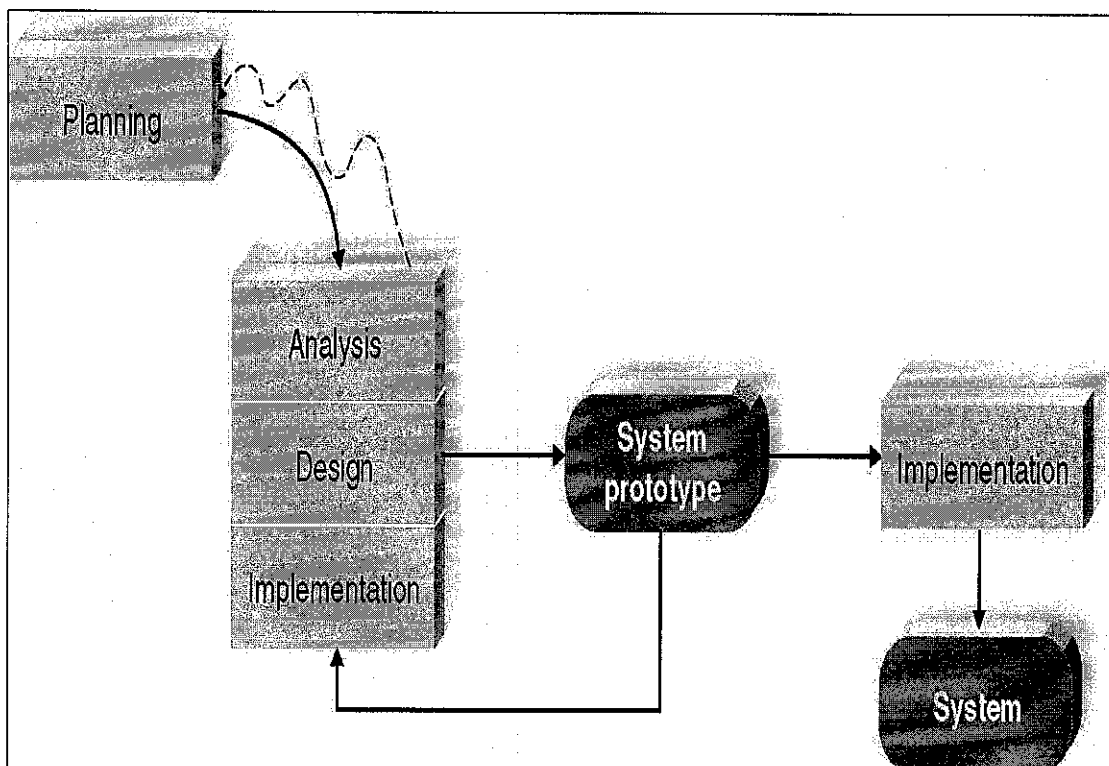


Figure 3.1: Prototyping Approach

(Source: Dennis, A, Wixom, BH, & Teagarden, D 2005, pg. 12)

### **3.1. Planning**

As for the planning phase of the first semester of this project, there are numerous activities have been conducted. Firstly, planning on what to do in order to develop the system and set important milestone. Then will be looking at the problem and feasibility of developing the system. In order to improve the knowledge, researches on existing online registration system were being done with the objective to identify the various methods that other developers used in developing such system. Lastly a survey questioner was distributed in order to find out whether such system will be used by the target users and what their requirement is.

On the second phase of second semester, testing and refining of the whole system should be performed and evaluated by the Faculty of Law undergraduate students of Timor Lorosa'e National University as the users. During this second phase of this project also, a survey will be distributed and changes will be made based on the feedback and survey result of this propose online course registration system.

At the end of this project duration, the system should be able to deliver and perform its main feature of online course registration and can used by Faculty of Law undergraduate students in Timor Lorosa'e National University (TLNU).

The project milestones for these two semesters is shown in the Appendix 2.1 and 2.2 where both follow the University's milestones

### **3.2. Analysis**

For this phase, all data and knowledge that is acquired in the planning phase will be gathered and analyzed. Analyzing was being done to the knowledge based methods and figuring out the advantages and disadvantages of each method with the objective to choose the best method to be use in developing the propose system. In this phase, collection of the requirement from distributing questionnaire to the users-undergraduate students was done in order to know what the users require from the new system.

System requirements are expanded versions of the user requirements that are used by software engineers as the starting point for the system design (Sommerville 2007). Theoretically, requirements analysis includes three types of activity: (1) Requirement specification, (2) Requirement elicitation and (3) Requirement validation. For further reading on the concept of the three types of activity in the requirements analysis, please refer to the original site (Sommerville 2007, p.144).

For this project purpose, the main requirement of the system is formalized as follows after analyzing other present online course registration systems and data collected from the questionnaire:

- Authentication and Authorization of users;
- Student should be able to view their records;
- Student should be able to register and view registered courses;
- Administrator should be able to enter required data into the database system such as courses and students details.

In this phase, the use case, class diagram and sequence diagram are also being developed to have a better analysis about the system. The system modeling is as follows:

### 3.2.1: UML Design Diagram of the New System

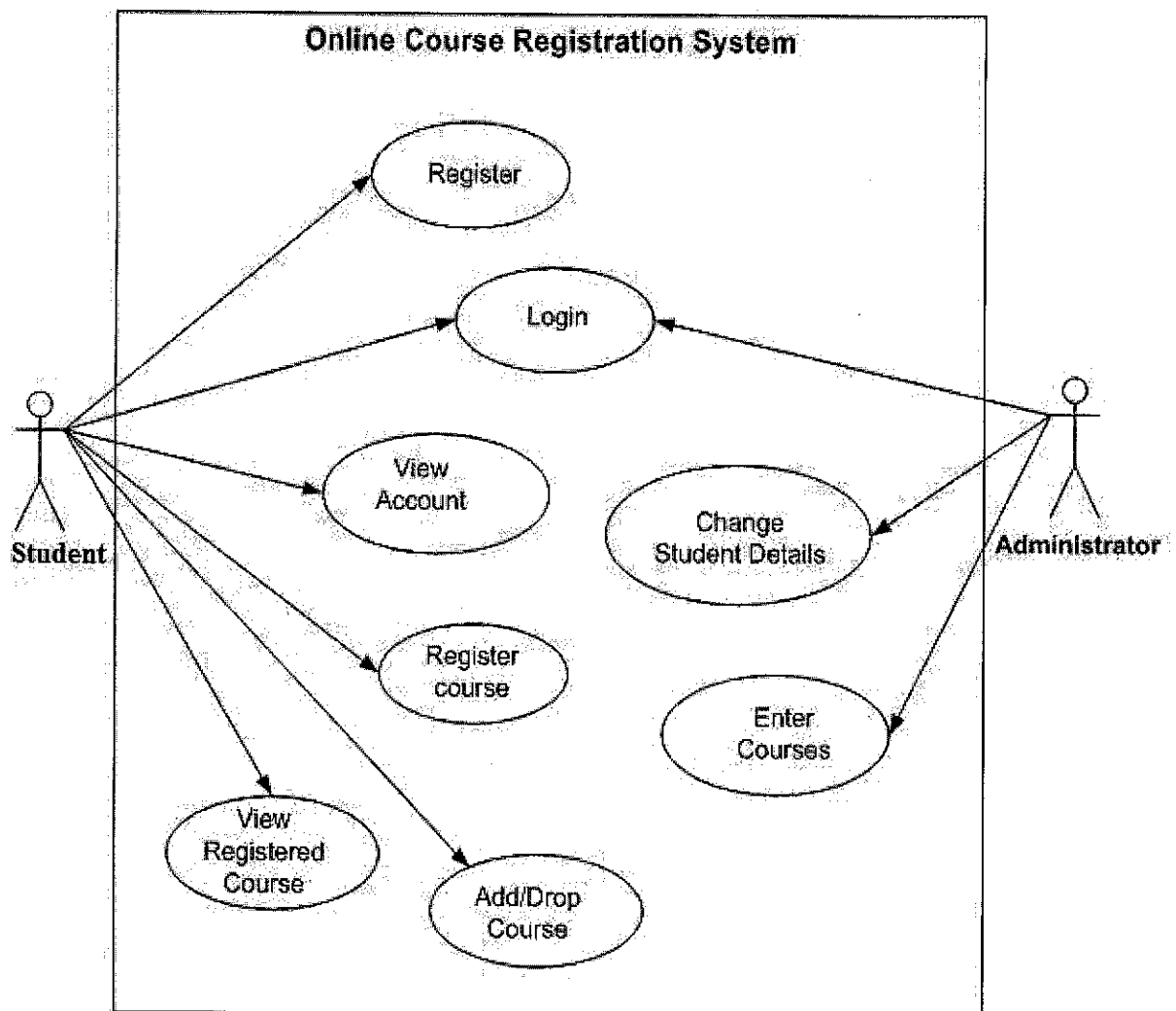


Figure 3.2: Use Case Diagram

Description: From the above figure, **Administrator**, who is the staff officer that responsible for course registration, will need ID and a password to access the database system. He or she may add or change student's personal details, enter and update courses to the system, and maintain the overall system. **Student** on the other hand, will need to register before gaining access to the system. After login, he or she has the ability to view account, register for the courses before final submission is submitted, performs add/drop courses and view registered courses.

### 3.2.2: Flow chart diagram

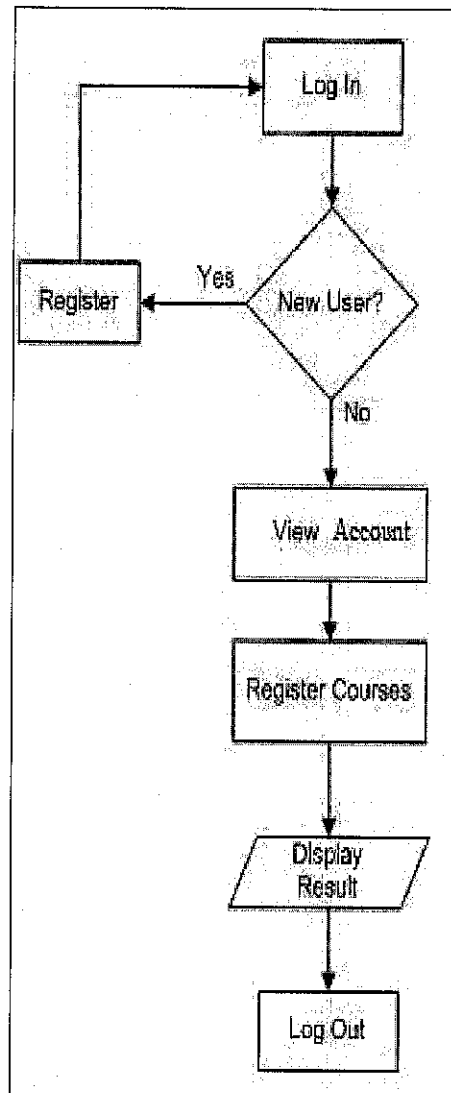


Figure 3.3: Flow Chart Diagram

Description: From the flow chart above, a student starts with login; the system will check whether he/she is a new user or not. If he/she is a new user, then the system will ask the student to register in registration page, otherwise he/she can register for courses, and the system will display the result of registered courses and the process ends by log off of the system.

### 3.2.3: Class Diagram

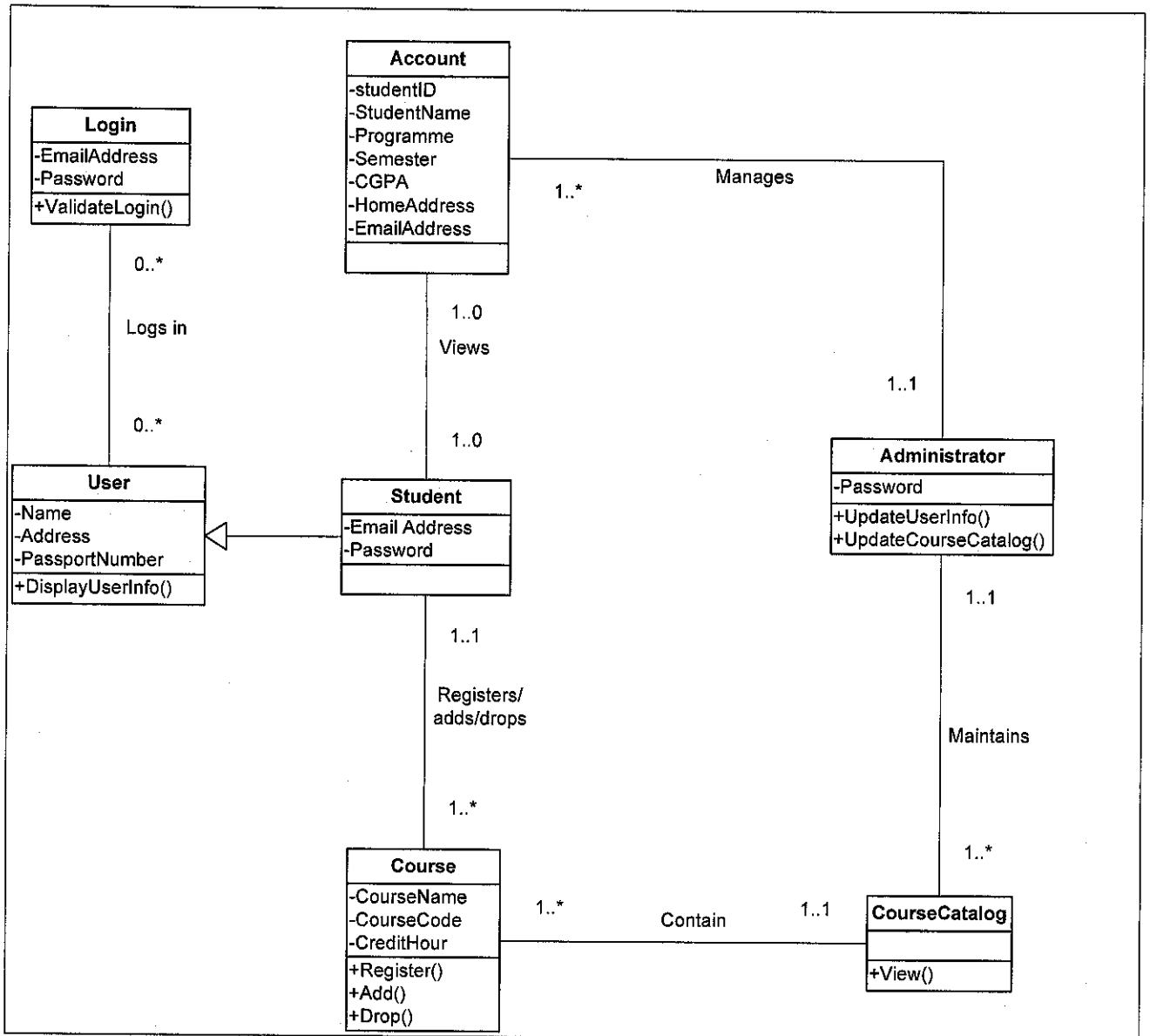


Figure 3.4: Class Diagram

Description: From the above class diagram, user (**student**) has the User Attributes of name, address, phone number and passport number. The relationship of user class and login class is that no user (student) can login to the system or many users at a time. Students can “view” their profile which contains of their name, programme, semester, CGPA, home address and email address. The relationship of student class and account class is that one (1) student can view only one (1) profile only. The relationship of student class and course class is that one (1) student can register or add/drop one (1) course or many courses at a time. Course class has



relationship with Course Catalog. One (1) course contains in one (1) course catalog and can be many courses contain in course catalog which is maintains by administrator. Administrator class relationship with course catalog class is that one (1) administrator can maintain one (1) course catalog or many courses catalog maintains by one (1) administrator. And administrator also manages one (1) account or many accounts.

### 3.2.4: User login sequence diagram

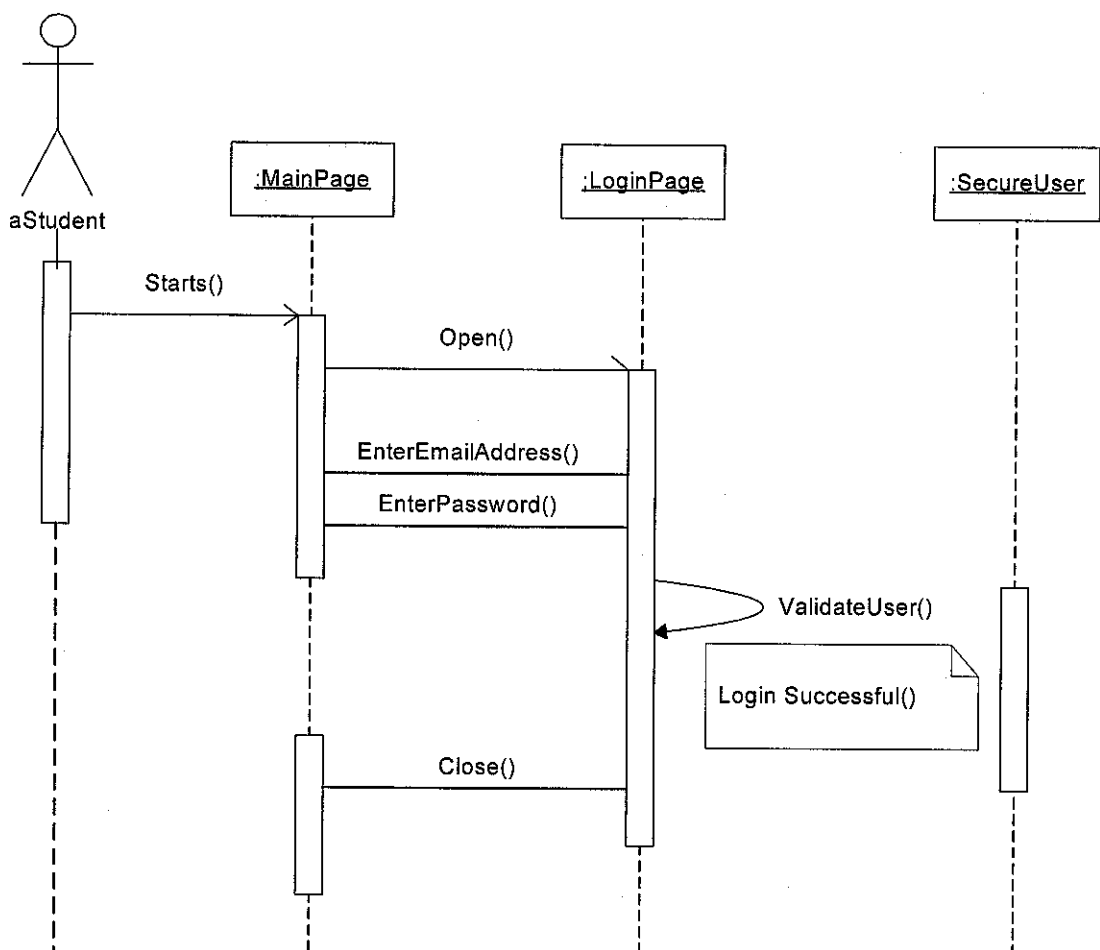


Figure 3.5: User Login Sequence Diagram

Description: Login sequence diagram above shows how the process of a student logs-in into the system. It starts from the online course registration page of the University's and then student enters the information required in order to login to

the system, which are Email address with password and the system will check the validation of the information entered.

### 3.2.5: Course registration sequence diagram

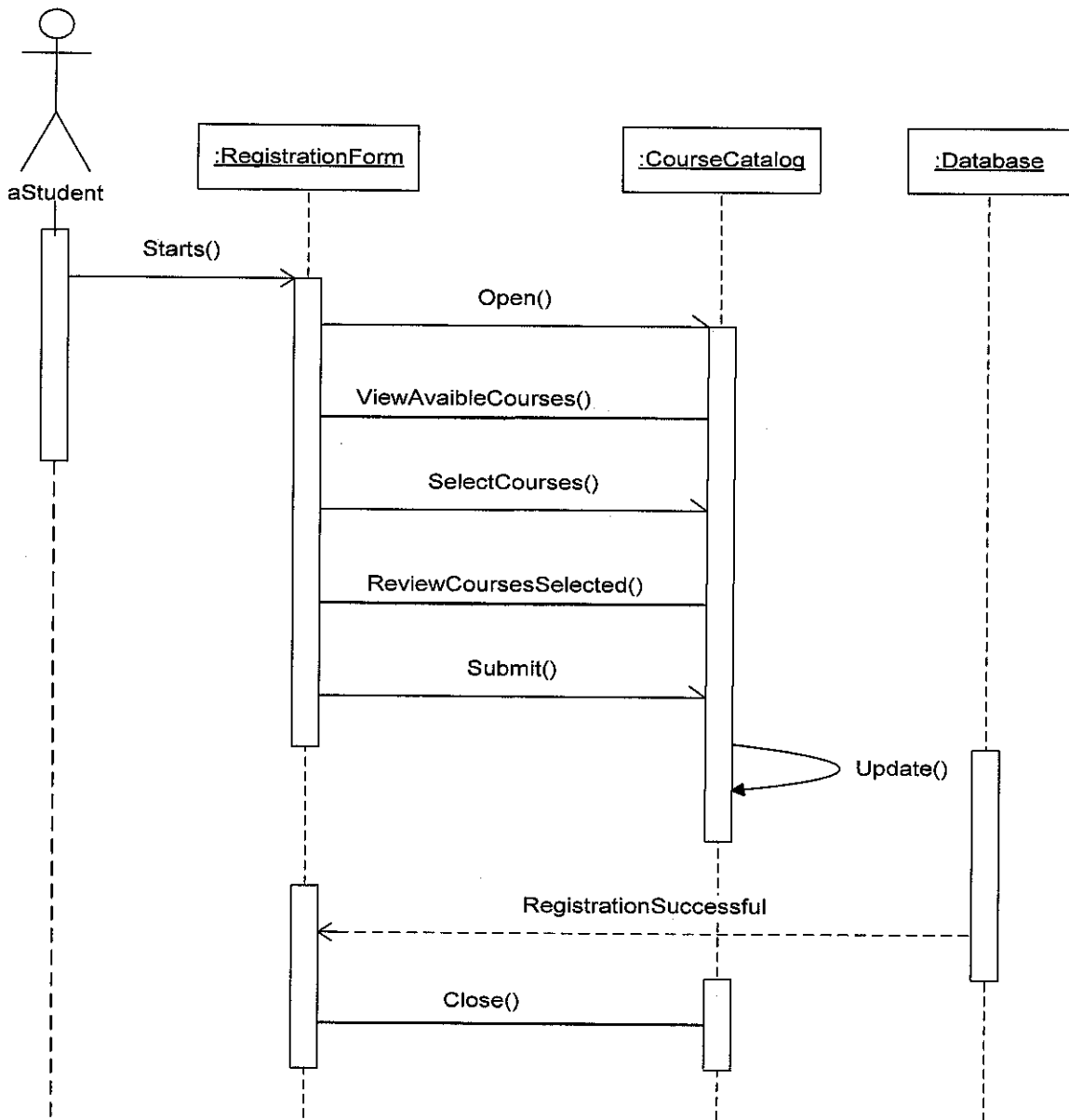


Figure 3.6: Course Registration Sequence Diagram

Description: From the above course registration sequence diagram, it shows how the process of a student registering for a course online. Student starts from the

registration form, she/he opens course catalog (list of courses), views the available courses, then select the courses offered by the faculty for the particular semester, reviews it and submits the form. The courses selections will be updated in the database and a message of registration successful will be sent back to the student.

### **3.3. Design**

In this phase, the documentation of the requirements must be thoroughly analyzed to get a clear picture of designing the new system. Works done were, started coding and programming of the system and the database. For this project, the system is designed into four (4) modules with each module corresponds to each other. The four (4) main modules of the system are as follow:

#### **3.3.1: Design Module 1**

- *Function:*
  - View Account
- *Description:*
  - This module will allow the students to view their academic details recorded in the current database
- *Inputs:*
  - none
- *Outputs:*
  - Student details:
    - Student ID
    - Name
    - Year and Semester
    - Programme
    - Cumulative Grade Point Average (CGPA)
    - Home Address
    - Email Address
    - Contact Number
- *Sources:*
  - Database server

- *Processes:*
  1. Sign in to the system
  2. Click on “Account”
- *Requirements:*
  - Students need to register with the system first before can view his/her records in the system.
- *Pre-condition:*
  - Administrator must enter all student details before the student can view his/her academic records.

### **3.3.2: Design Module 2**

- *Function:*
  - Register Course
- *Description:*
  - This module allows students to register their courses online. The registered courses are the courses that he/she will be taking for the next semester.
- *Inputs:*
  - Selected courses
  - Confirmation of courses registered
- *Outputs:*
  - Display :
    - Courses selected
    - Total number of credit hours registered
    - Confirm successful registration process
- *Sources:*
  - Students
  - Database server
- *Processes:*
  1. Sign in to the system => Click on “Register Course”
  2. Select courses based on the year and semester
  3. Confirm selection then click “submit” button

- *Requirements:*
  - Students are required to register within the given period of time and ensure all course codes are correct before the final submission is made
- *Pre-condition:*
  - Academic announcement that the Online Course Registration period has started.
- *Pre-condition:*
  - Module 3 and 4

### **3.3.3: Design Module 3**

- *Function:*
  - View Registered Courses
- *Description:*
  - This module allows students to view their pre-registered courses once the registration period has ended. Any changes in here can be done during the Add/drop period announcement has started.
- *Inputs:*
  - none
- *Outputs:*
  - Display pre-registered courses
- *Sources:*
  - Database server
- *Processes:*
  1. Sign in to the system
  2. Click “Account”
  3. Click” Course Registered”
- *Requirements:*
  - Students should see all pre booked courses, or else any corrections required can be done during the week add/drop period
- *Pre-condition:*
  - After module 2 has been completed.
  -

### 3.3.4: Design Module 4

- *Function:*
  - Add/Drop
- *Description:*
  - This module is only activated if the add/drop process has started. It will allow the students to make any changes on their registered courses and will then be the final of their semester course registered for that particular semester.
- *Input:*
  - Selected courses (if any)
- *Outputs:*
  - Student's final registered courses taken
- *Sources:*
  - Students
  - Database server
- *Processes:*
  1. Log in.
  2. Click on "Add/Drop"
  3. View confirmed registered courses taken and the total number of credit hours registered.
  4. Make final amendment of courses for the semester (if any).
- *Requirements:*
  - Any correction should be done within this period of time as the courses registered (if any) after this period will be considered final made by the student.
- *Pre-condition:*
  - Module 2, 3

### 3.3.5: USER INTERFACE (UI) DESIGN

#### A. LOGIN Interface:

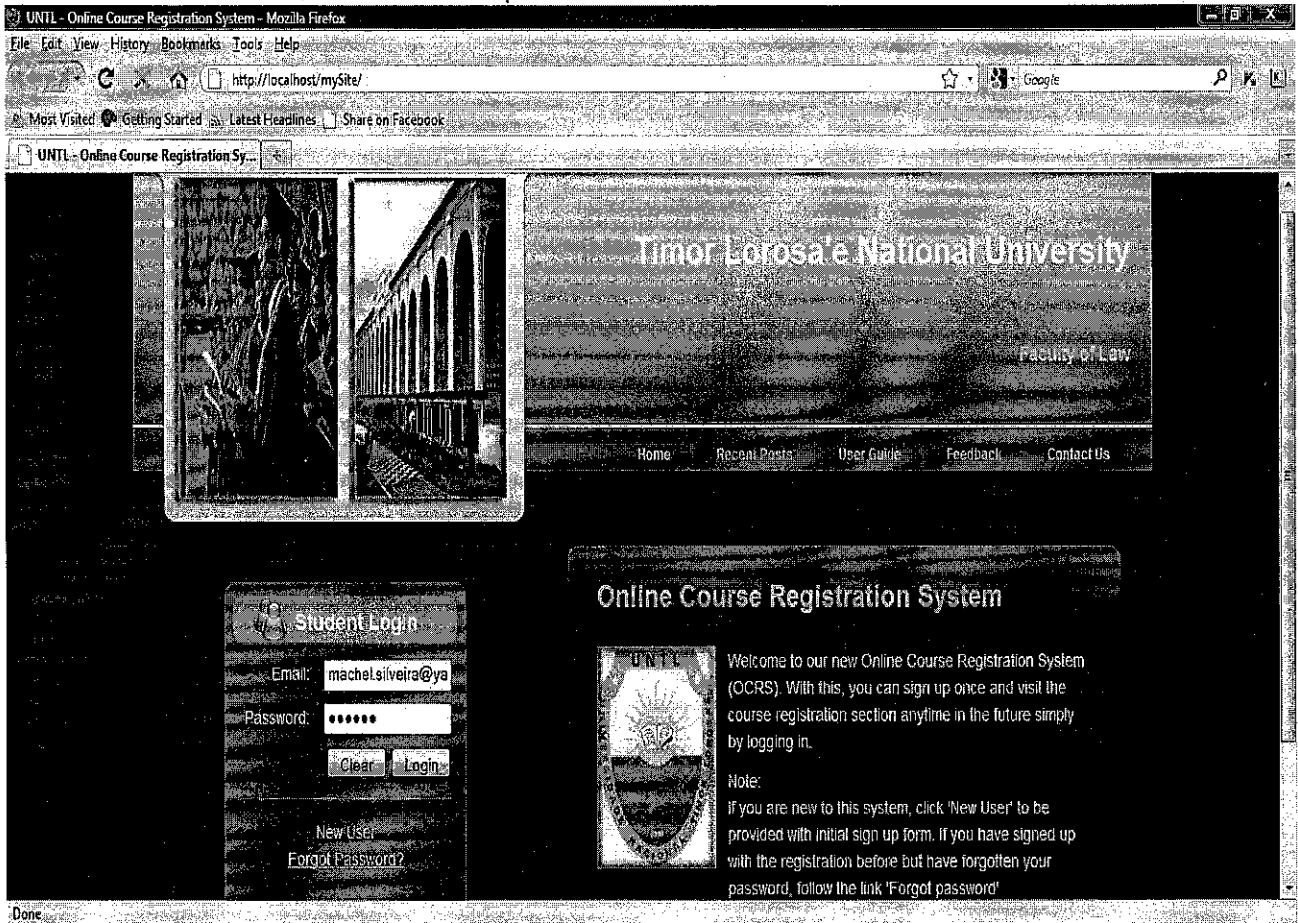


Figure: 3.7: Snap-shot of Login Interface

#### B. Navigation Menu:

#### Description:



Allows student to check their Academic records

Allow student to perform course registration

Allows student to perform Add/Drop of courses

Allows student to Log/Sign Out

Figure 3.8: Snap-shot of Navigation Menu

### **3.4. Testing & Implementation**

This is where the testing phase takes place; system prototype will be tested based on each of each module before the implementation of the final system. This testing phase will be taken place on the second semester after the system prototype is ready for release. During this phase, 20-30 Faculty of Law undergraduate students of Timor Lorosa'e National University will be asked to perform hands-on-experience to test the system or can used University Teknologi PTERONAS (UTP) students as a benchmark and a survey questioner will be distributed to them in order to evaluate the system. Necessary changes will be made based on the result in order to meet the objectives.

Technology used to develop the system is shown in the Appendix 1 (table 1) and the hardware required to run the system is listed below:

- Personal Computer / Desktop or Laptop
- Window XP/Vista
- Pentium 4 processor 1.4GHz or higher
- 128MB RAM or higher
- 1GB hard disk and above



## CHAPTER 4

### RESULT AND DISCUSSION

#### 4.1 Preliminary Result

In order to find out the needs for the system and data gathering from the users, survey questionnaire had been distributed to total numbers of twenty four (24) undergraduate students of Faculty of Law in Timor Lorosa'e National University based in Dili via email and the result are shown in the figures bellow. The questionnaire is found in Appendix 3.1

**Before starting this survey, how satisfied are you with the current course registration service provided by your University?**

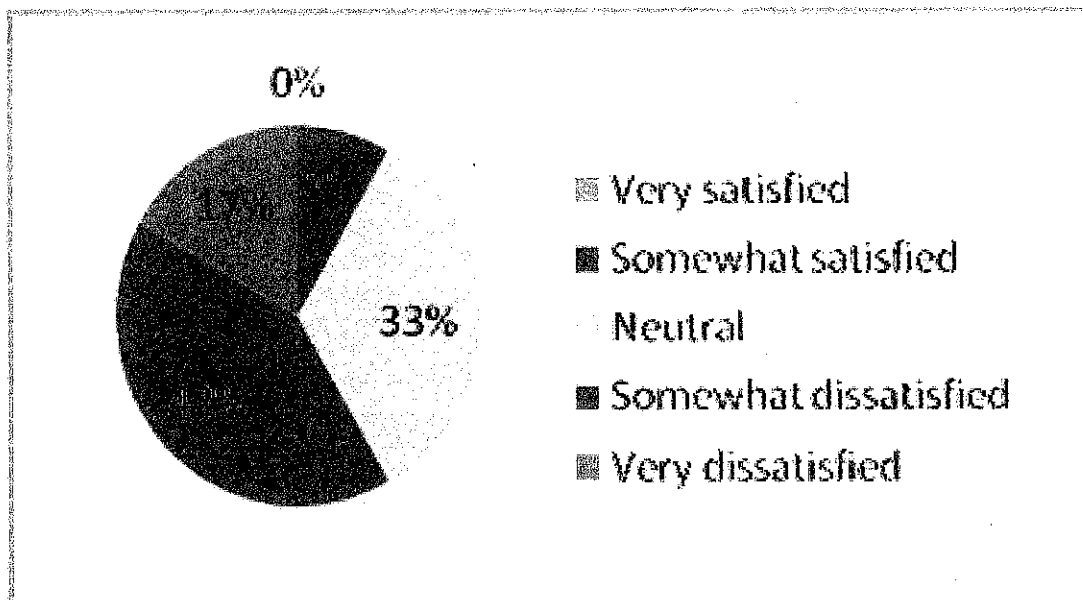


Figure 4.1: Result for user satisfaction with the current registration service

From the result above, it shows that with the current registration service provided by the University of Timor-Leste, it has not met the satisfaction of the students. From the total number of 24 responses, 43% or 10 students answered somewhat dissatisfied as the highest result of others, followed by neutral of 33%. While only 8% students answered somewhat satisfied with the current course registration service, 17% students answered very dissatisfied.

This result also shows that the University needs to apply online course registration as the new course registration method in order to improve their service that could meet the satisfaction of the students.

**Have you ever using any “online course registration system” before?**

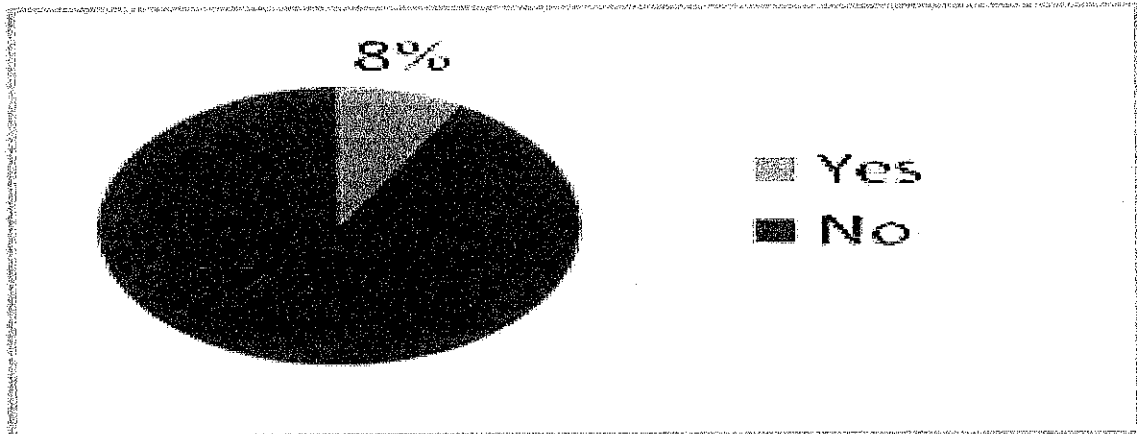


Figure 4.2: Result for user’s knowledge of online course registration system

The objective of the above question is to find out whether necessary presentation needed to be conducted before the testing of the prototype takes place and to know the knowledge of the users on online course registration system. And from the response of 24 students that had been questioned, 92% or 22 out of total respondent answered no to the question. This result shows that from the developer’s point of view, the system needs to be presented in demo before asking the students to test the prototype.

**Will you use it if your University has “online course registration system”?**

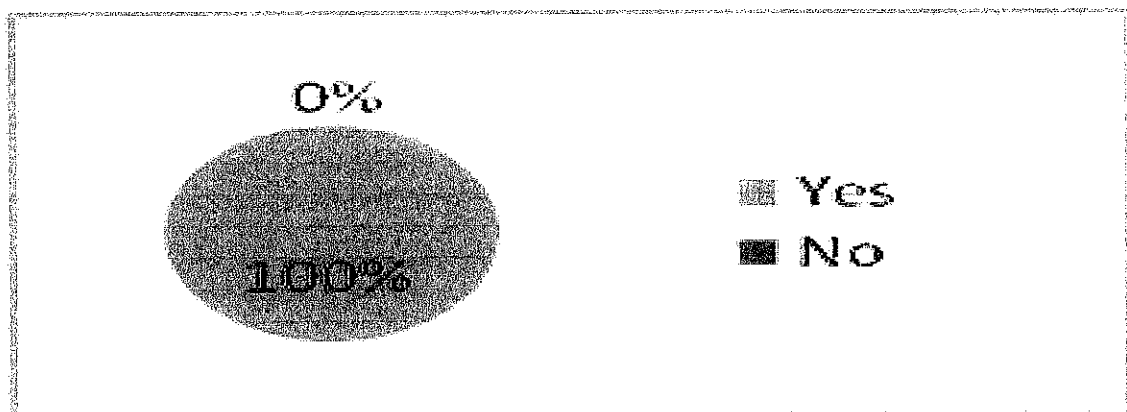


Figure 4.3: Result for the users’ acceptance of online course registration system

The objective of the question above was meant to find out how interested are the students if such online course registration exist in their University and will they use it if they are to have one. Based on the questionnaire result, 24 questionnaires distributed, 100% of them answered yes, making it clear that online system is needed by Timor Lorosa'e National University.

#### What are the important criteria when using "online registration system"?

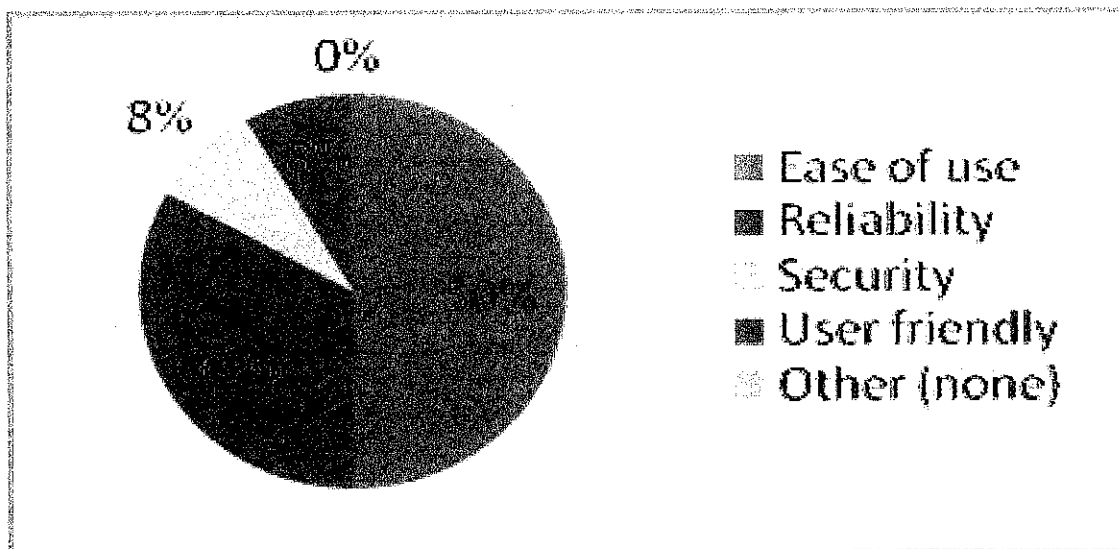


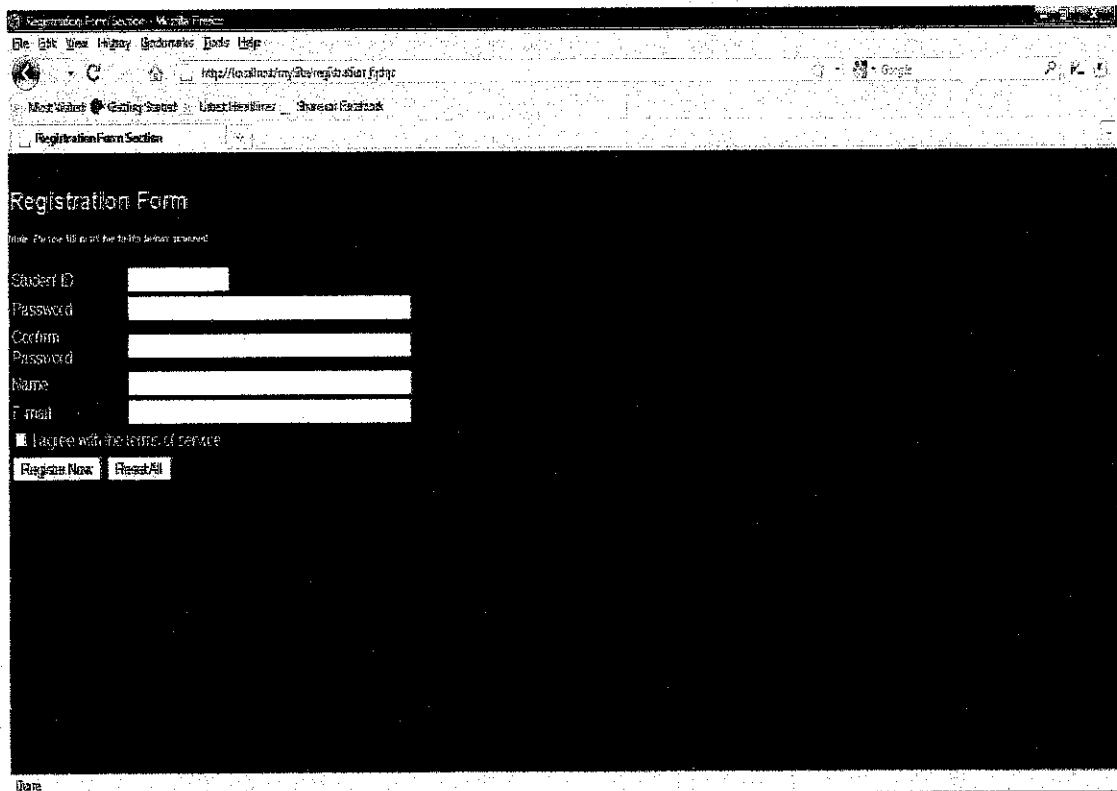
Figure 4.4: Result of important criteria for online course registration system

The last question is to find out what they expected from their system to be in terms of the system's properties. From the 24 questionnaire that have been distributed, 50% of them voted for ease of use, followed 34% students answered for reliability. While both security and user friendly on the 3<sup>rd</sup> category for their system preference. This result shows that students value most ease of use with reliability as the second most important system requirements that developers should take as the highest priority when developing the new system.

## 4.2 GUI for the Online Course Registration System

### 4.2.1: User Registration Page

In this registration form page, new users are required to enter or fill in all the blank fields with their Student ID, password plus confirmation password their full name and the email address that will be used later to sign in to the system and must tick on “I agree to the terms of service” before can submit the form. The process will then display successful message with all the information entered to the database if no errors is found. Upon finished this user registration page, the students can log in to the system in order to have access to other areas in the system.



The screenshot shows a web browser window with the title "Registration Form Section". The address bar displays "http://localhost/mySite/registration/rdp". The page content includes a "Registration Form" section with the following fields and elements:

- Student ID:
- Password:
- Confirm Password:
- Name:
- Email:
- I agree with the terms of service
- Buttons: Register Now, Reset All

Figure 4.5: Snap-shot of User Registration Page

## 4.2.2: Member Page

After logged in to the system, users will be directed to this Member Page. This member page has four functionalities for user to continue with the system by either click on “Account” which allows user to see his/her information stored in the database, or “Register Course” which allows the users to register the course, or “Add/Drop Course” which then allow the users to perform add or drop the subjects during the period of add or drop subjects and lastly “Log Out” which then allows the users to log off of the system. Bellow is the snapshot of the navigation menu in the member page.

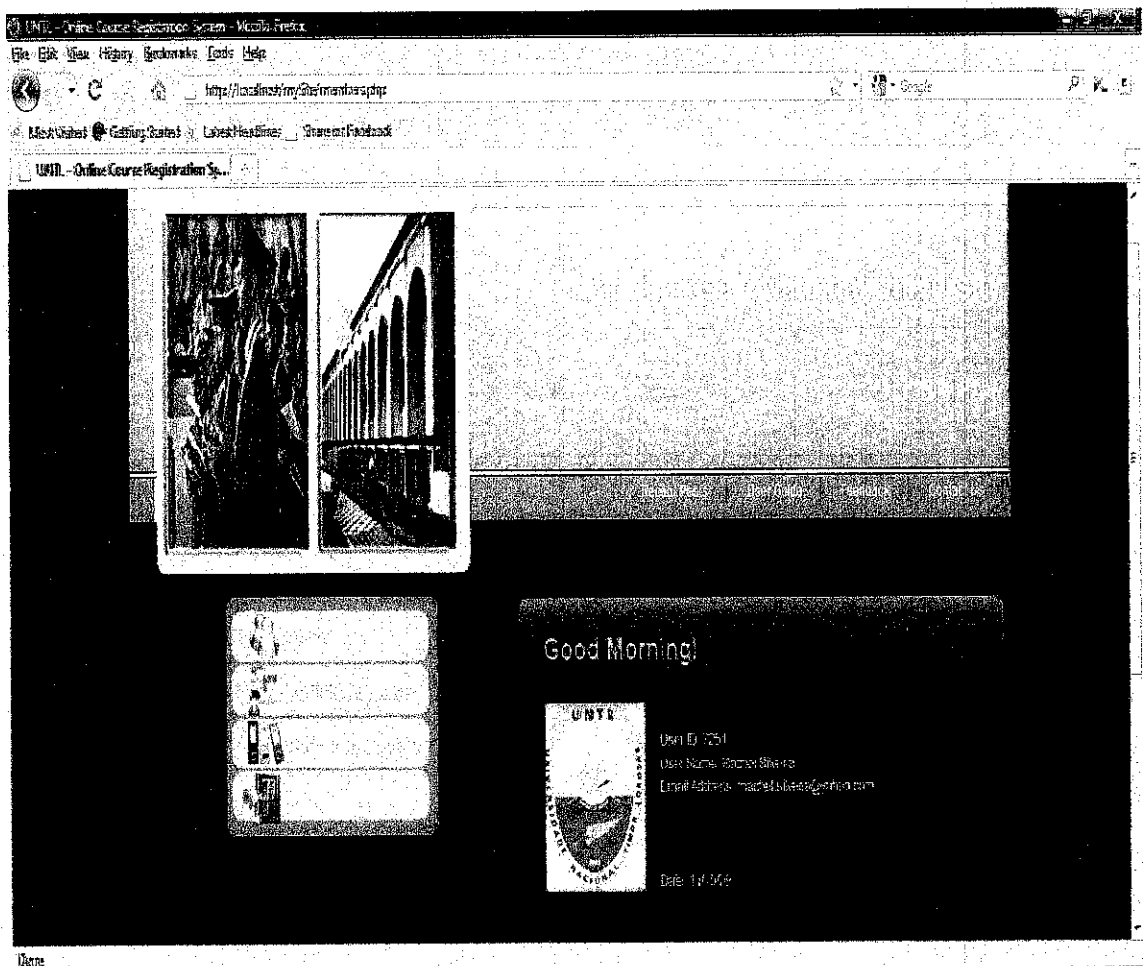


Figure: 4.6: Snap-shot of Member Page

### 4.2.3: Account Page

In this Account page, the users can view his /her student record that has been stored in the database by the staff in charge. Only student with their information stored in the database can view this page. Bellow is the snapshot of the “Account” page of the system.

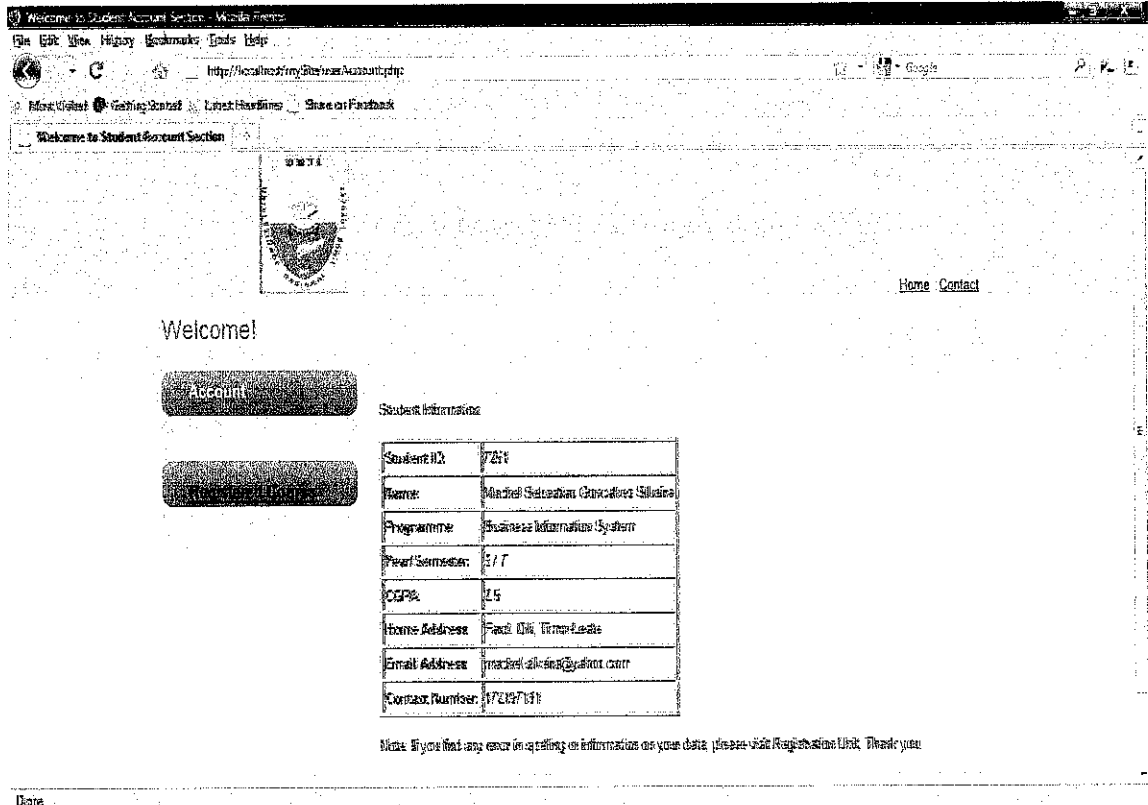


Figure: 4.7: Snap-shot of Account Page

### **4.3 Problems and Challenges Faced**

With little knowledge on PHP coding, the author has managed to finish the PHP program from scratch, the design of the user interface and other functionalities such as user registration, sign in, sign out, feedback form, and also one (1) module of “Account” which gives the access to the authorized members, to view their academic records upon the data has been updated by the administrator in the database as one of the objectives for this whole project.

Although the system analysis and design parts have been well understood, the coding of the other modules of the whole system could not be completed due to the unforeseen great difficulties in PHP script coding (with no help) to manipulate the data and the time constrain.

## CHAPTER 5

### CONCLUSION AND RECOMMENDATION

#### 5.1. CONCLUSION

As a conclusion it can be said that Web systems or applications have played vital role in our everyday life. For this project of “Online Course Registration System”, it can be safely said that it has completed 75 percent. The author has met some of the objectives, such as the completed design mock of online course registration system that met 8 percent of the user friendliness and has created 34 percent reliable integrated database with MySQL containing student’s record and also allowing access to the record with 50 percent ease of use for the Faculty of Law undergraduate students in Timor Lorosa’e National University.

Besides that, this system has a database using PHP MyAdmin that link directly from the user sign in page allowing the administrator with login ID and password access the database and change the records such as, add new course, update data and delete.

In addition, the benefits that the author has acquired are also enormous. The author has gained in-depth knowledge on how to plan, organizes, do a research, analyze and write down report about a project on his own. In addition, the author has also benefit in terms of gaining more technical knowledge on PHP programming language and MySQL that will help the author in his future endeavor.



## 5.2. RECOMMENDATION

In addition to complete the system, some suggestions have been identified. Firstly, the coding of module 2 “Register Course” and module 3 “Add/Drop” functionalities.

Upon completion, the system prototype could be tested by the Faculty of Law undergraduate students in Timor Lorosa’e National University or can have University Teknologi PETRONAS students as a benchmark. The survey for usability and reliability system testing’s questioner can be seeing in Appendix 3.2.

Some new functions should be added to enhance the system to make it more useful to reduce the works of the registration unit and its students. Such as, in the “Account” module, for example, “Edit” functionality may be added to allow the students to update their details in the database.

The system can also be improved by adding “Timetable” functionality that allows the students to set their timetable and therefore avoiding last minute clash for classes’ timetable.

There also need to design the administration site to allow the administrator or staff in charge to easily maintain the data in database.

### **5.3. FUTURE WORKS**

The scope of this project only focused on specific faculty. In the future, if any student wants to continue this project they can try to overcome all the recommendations and can upgrade the system to cover all faculties in Timor Lorosa'e National University (TLNU). With the large coverage scope, this system will not only be set of example for other universities in Timor-Leste but eventually others will deploy the same system to help them promote their services as well as providing better services to the users.

Besides that, more new functionalities can be built to make the system more effective and benefit for the organization as a whole.

For example, can create lecturers account with a function that allows the lecturers to manage the courses and post timetable that can be viewed by the students so that the students are aware in advance of the timetable and who are the lecturers for each registered courses.

## REFERENCES

- Bosch, J 2000, *Design and Use of Software Architectures*, Harlow: Addison-Wesley, London.
- Deitel, MH, Deitel, PJ & Goldberg, AB 2004, *Internet and World Wide Web: How to Program*, 3rd edn, Prantice Hall, New Jersey
- Dennis, A, Wixom, BH, & Teagarden, D 2005, *Systems Analysis and Design with UML Version 2.0: An Object Oriented Approach*, 2nd edn, John Wiley & Son, New Jersey.
- Ginige A, Murugesan S, Guest Editors' Introduction: The Essence of Web Engineering— Managing the Diversity and Complexity of Web Application Development, *IEEE MultiMedia*, v.8 n.2, p.22-25
- Jazayeri, M 2007, 'Some Trends in Web Application Development', *Future of Software Engineering (FOSE'07)*, Vol 0, pp. 6
- Moh'd A. Radaideh & Hayder Al-Ameed 2007, *Architecture of Reliable Web Applications Software*, Idea Group, United Arab Emirates.
- Malveau, R & Mowbray, TJ 2004, *Software Architect Bootcamp*, 2nd edn, Prentice Hall, New Jersey.
- O'Keefe, B 2007, *Rising from the ashes*, online, retrieved 22 July 2008, from <http://www.etan.org/et2005/november/21/23until.htm>
- Petersen, J 2009, 'Benefits of using the n-tiered approach for web applications', Adobe Systems Incorporated, viewed 16 February 2009

Stobart, S & Parsons, D 2008, *Dynamic Web Application Development using PHP & MySQL*, C & C Offset, China

Sommerville, I 2007, *Software Engineering*, 8th edn, Addison Wesley, Pennsylvania.

*The non-hub story* 2009, online, retrieved 22 July 2009, from

**[http://www.untl.labor.net.au/university\\_history/post\\_independence.html](http://www.untl.labor.net.au/university_history/post_independence.html)**

# APPENDIXES

## APPENDIX 1:

Table 1: Tools and Technology

<b>Adobe Dreamweaver CS4, Photoshop CS3</b>	GUI design
<b>HTML, PHP</b>	Programming language
<b>MySQL</b>	Database
<b>Apache (Xampp Lite 1.7.2)</b>	Server

Table 2: Categories of Web Applications based on Functionality

<b>Functionality/Category</b>	<b>Examples</b>
Informational	Online newspaper, product catalog, online books etc.
Interactive	Registration forms, online games etc.
Transactional	Online shopping, online banking, online payment of bills, online airline reservation etc.
Workflow oriented	Online planning and scheduling, inventory management, status monitoring, supply chain management etc.

Suggested Milestone for the First Semester of 2-Semester Final Year Project

No.	Detail/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Selection of Project Topic	█													
2	Preliminary Research Work		█	█	█	█	█	█							
3	Submission of Preliminary Report				●										
4	Seminar 1 (optional)					█	█	█							
5	Project Work					█	█	█							
6	Submission of Progress Report								●						
7	Seminar 2 (compulsory)									█	█	█	█		
8	Project work continues									█	█	█	█		
9	Submission of Interim Report Final Draft													●	
10	Oral Presentation														●

Mid-semester break

● Suggested milestone  
 █ Process

**Suggested Milestone for the Second Semester of 2-Semester Final Year Project**

No.	Detail/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Project Work Continue	■	■	■											
2	Submission of Progress Report 1				●										
3	Project Work Continue		■	■	■	■	■	■							
4	Submission of Progress Report 2								●						
5	Seminar (compulsory)								■	■	■	■			
5	Project work continue								■	■	■	■			
6	Poster Exhibition										●				
7	Submission of Dissertation (soft bound)												●		
8	Oral Presentation													●	
9	Submission of Project Dissertation (Hard Bound)														●

Mid-Semester Break

● Suggested milestone  
 ■ Process



APPENDIX 3.1

Survey Questionnaires of “Online Course Registration System for Faculty of Law in Timor Lorosa’e National University”



Note: Please answer all questions below by tick it.

Name:

Sem/Year:

Program:

University:

Date:

\*\*\*\*\*

1. Before starting this survey, how satisfied are you with the current course registration service provided by your University?

- Very satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied
- Very dissatisfied

2. Have you ever using any “online course registration system” before?

- Yes
- No

3. Will you use it if your University has “online course registration system”?

- Yes
- No

# Survey Questionnaires of “Online Course Registration System for Faculty of Law in Timor Lorosa’e National University”

---



4. What are the important criteria when using “online registration system”?

- Ease of Use
- Convenience
- Security
- Reliability
- Others: (please provide details) \_\_\_\_\_

Thank you for your cooperation!



# Online Course Registration System for Faculty of Law in Timor Lorosa'e National University

## *Usability & Reliability Satisfaction Questionnaires*

Name:

Sem/Year:

Programme:

Nationality:

Date:

\*\*\*\*\*

Please rate the usability of the system so we can further develop this system to be more usable & reliable.

Note:

- Try to respond to all the items.
- The rate 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree
- For items that are not applicable, use: NA

	1	2	3	4	5	NA
--	---	---	---	---	---	----

- |                                                                             |                   |                       |                       |                       |                       |                       |                |                       |
|-----------------------------------------------------------------------------|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------|-----------------------|
| 1. It was simple to use this system                                         | strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | strongly agree | <input type="radio"/> |
| 2. I can effectively complete my work using this system                     | strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | strongly agree | <input type="radio"/> |
| 3. I am able to complete my work quickly using this system                  | strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | strongly agree | <input type="radio"/> |
| 4. I am able to efficiently complete my work using this system              | strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | strongly agree | <input type="radio"/> |
| 5. I believe I became productive quickly using this system                  | strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | strongly agree | <input type="radio"/> |
| 6. The system gives error messages that clearly tell me how to fix problems | strongly disagree | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | strongly agree | <input type="radio"/> |

# Online Course Registration System for Faculty of Law in Timor Lorosa'e National University

## *Usability & Reliability Satisfaction Questionnaires*



UNIVERSITI  
TEKNOLOGI  
PETRONAS

7. It is easy to find the information I needed      strongly disagree      strongly agree
8. The information provided for the system is easy to understand      strongly disagree      strongly agree
9. The information is effective in helping me complete the tasks and scenarios      strongly disagree      strongly agree
10. The interface of this system is pleasant      strongly disagree      strongly agree
11. This system has all the functions and capabilities I expect it to have      strongly disagree      strongly agree
12. Overall, I am satisfied with how easy it is to use & the reliability of this system      strongly disagree      strongly agree

	1	2	3	4	5	NA
--	---	---	---	---	---	----

List the most **negative** aspect(s):

1.
2.
3.

List the most **positive** aspect(s):

1.
2.
3.

## APPENDIX 4

### Faculty of Law TLNU Informal Interview Questions

Name: \_\_\_\_\_

Position: \_\_\_\_\_

Dept: \_\_\_\_\_

#### General Info:

1. Can you tell me a little bit about your Faculty itself.....such as faculty's mission and objective?
2. Total number of students registers every semester and total number so far for your faculty?
3. What is the current course registration system used in your faculty?
4. How long does it take to finish the process for course registration in your faculty?
5. What are the issues that have been faced by your faculty during the registration process from beginning to an end of the period?
6. What do you think of online course registration system (in terms of the benefits your faculty could have) in your faculty?
7. Do you agree to that, your faculty needs online registration system?

#### System functionalities:

1. If you are to have online course registration system, how do you want your system to be in terms of functionalities?
  - log in
  - register course
  - add/drop
  - log out
2. What is the most important consideration for your system properties to have (security, reliability, user friendly, ease of use) if you are to use one in your faculty?
3. Any Other comments or suggestions?

Thank you so much for your help with this survey. Your responses will be valuable in helping me to develop the new online registration system to meet the standard.

## APPENDIX 5

### How to set up a server with Apache, PHP, MySQL, and phpMyAdmin

=====

Let's start by installing apache (http server). You can download the apache installer on [www.apache.org](http://www.apache.org) . Download the version you like, even though, in win systems i recommend version 2 (this tutorials is for apache 2). Here is a link for it:

Code:

[http://apache.mirror.nedlinux.nl/dist/httpd/binaries/win32/apache\\_2.0.52-win32-x86-no\\_ssl.msi](http://apache.mirror.nedlinux.nl/dist/httpd/binaries/win32/apache_2.0.52-win32-x86-no_ssl.msi)

For a faster mirror, visit <http://httpd.apache.org/download.cgi>

After downloading the file (.msi installer), run it. The installation wizard is a next, next, finish 'work'...

The installer will ask you some details like your server name, your server address and the admin's email address . If you have a domain name or a hostname, enter the info's like this:

Code:

Server Name : your\_domain.org

Server Adress : www.your-domain.org

Admin Email : admin@yourdomain.org

If you don't have one, you should get on e free at:

Code:

<http://www.no-ip.org/>

Check the 'Run as a service for all users on port 8080' option and click next, finish to finish the installation. Advice: Install it in c: (he creates a folder for it, don't worry) to make sure you configure it easier.

If you are finished, open up a browser and write in the address bar:

Code:

<http://localhost/>

Note: you will see a 'Test Page for Apache Installation, everything works.

=====

Let's install PHP. Download the archives from [www.php.net](http://www.php.net). Here is a direct link for version 4.3.9 or latest:

Code:

```
http://nl.php.net/get/php-4.3.9-Win32.zip/from/this/mirror
```

Make sure you download the archive and not the installer. Ok! After downloading it, extract the archive in `c:/php` (this is to simplify paths).

Now, open up `c:/apache/conf/httpd.conf` and search for this line:

Code:

```
#LoadModule ssl_module modules/mod_ssl.so
```

Under that line, add this:

Code:

```
LoadModule rewrite_module modules/mod_rewrite.so
```

```
LoadModule php4_module "c:/php/sapi/php4apache2.dll"
```

```
AddType application/x-httpd-php .php
```

```
AddType application/x-httpd-php .php3
```

```
AddType application/x-httpd-php .php4
```

Now search for this line:

Code:

```
<Directory "C:/Apache2/htdocs">
```

Change:

Code:

```
Options Indexes FollowSymLinks
```

```
#
```

```
# AllowOverride controls what directives may be placed in .htaccess files.
```

```
# It can be "All", "None", or any combination of the keywords:
```

```
# Options FileInfo AuthConfig Limit
```

```
#
```

```
    AllowOverride None
```

Into Code:

```
Options Indexes Includes FollowSymLinks MultiViews ExecCGI
```

```
#
```

```
# AllowOverride controls what directives may be placed in .htaccess files.
```

```
# It can be "All", "None", or any combination of the keywords:  
# Options FileInfo AuthConfig Limit  
#  
AllowOverride All
```

This will allow .htaccess support on your server and make sure you can see the content of a folder without getting a 403 forbidden error .

Now search for:

```
Code:  
DirectoryIndex index.html index.var.html
```

And change it into:

```
Code:  
DirectoryIndex index.html index.php
```

Save the file and restart apache. (you can restart it by pressing the Restart apache server shortcut in the start menu or by writing:

```
Code:  
net apache restart
```

In a command prompt window.

Ok! You have php working for your server icon\_wink.gif. Now let's configure php and make sure it really works!

Open up c:/php/php.ini (php.ini-dist renamed) and search for this paragraph:

```
Code:  
max_execution_time = 60 ; Maximum execution time of each script, in seconds  
max_input_time = 60 ; Maximum amount of time each script may spend parsing request data  
memory_limit = 5M ; Maximum amount of memory a script may consume (8MB)
```

You should change this to whatever you want. Here is an option i use:

```
Code:  
max_execution_time = 300 ; Maximum execution time of each script, in seconds  
max_input_time = 300 ; Maximum amount of time each script may spend parsing request data  
memory_limit = 5M ; Maximum amount of memory a script may consume (8MB)
```



Now search for:

Code:  
register\_globals = Off

And change it into:

Code:  
register\_globals = On

Search for:

Code:  
extension\_dir = "\

And change it into:

Code:  
extension\_dir = "c:/php/extensions"

Assuming you have installed php in c: ...

Search for:

Code:  
;Windows Extensions  
;Note that MySQL and ODBC support is now built in, so no dll is needed for it.

And uncomment (delete the; in the front) the following modules:

Code:  
extension=php\_bz2.dll  
extension=php\_db.dll  
extension=php\_gd2.dll  
extension=php\_java.dll  
extension=php\_mysql.dll  
extension=php\_pdf.dll  
extension=php\_pgsql.dll  
extension=php\_sockets.dll

Ok! Now let's change the smtp settings (this is good icon\_smile.gif for you mail() function. you need this !!!) Search for:

Code:

```
[mail function]
; For Win32 only.
SMTP =
smtp_port = 25
```

```
; For Win32 only.
;sendmail_from =
```

and change to :

Code:

```
[mail function]
; For Win32 only.
SMTP = mail.isp.org
smtp_port = 25
```

```
; For Win32 only.
sendmail_from = mail@your_domain.org
```

if you don't have a mail server or :

Code:

```
[mail function]
; For Win32 only.
SMTP = localhost
smtp_port = 25
```

```
; For Win32 only.
sendmail_from = mail@your_domain.org
```

if you have a mail server ...

Save the files. Now let's finalize the php installation.

Copy all the dll's from c:/php/dlls into c:/windows/system32 . Copy c:/php/php4ts.dll into c:/windows/system32/ and copy php.ini from your folder php into windows and system32 folder .

Restart apache. Open up notepad and add this into the file:

Code:

```
<?php
    phpinfo();
?>
```

Save this file in your htdocs folder (c:/apache/htdocs) as info.php and open up a browser . In the address bar write:

Code:

```
http://localhost/info.php
```

You should see php's configuration in a table. A long file icon\_smile.gif you can optionally install zend optimizer . i am using it ... it doesn't needs a tutorial . to install the PEAR modules for php , just run the go-pear batch from the php folder and 2click the reg file to finish the instillation.

=====

Let's install mysql . Download mysql from <http://www.mysql.com/> . this tutorial applies to verion 4.0.\* ... i don't recomand using mysql 4.1 . here is a direct link :

Code:

```
http://dev.mysql.com/get/Downloads/MySQL-4.0/mysql-4.0.22-win.zip/from/http://mysql.proserve.nl/
```

After downloading , extract the arhive somewhere and run the setup.exe . Install mysql in c:/mysql and complete the installation.

Open up command prompt and write this :

Code:

```
cd mysql
cd bin
mysqld-max-nt --install
```

This will install mysql as a service recommended . Now you would probably consider downloading mysql control center . a gui tool to administrate the server in a graphical mode . Here is a link :

Code:

```
http://dev.mysql.com/get/Downloads/MySQLCC/mysqlcc-0.9.4-win32.zip/from/http://mysql.proserve.nl/
```

Install it like any other program and run the shortcut in the desktop. a window will pop-up . It will ask you to add a new connection. Here are the info's you need to fill in :

Code:

```
name : localhost or main or whatever :)
host : localhost
user : root
pass : anypassword
```

Click add , expand the databases menu and delete database text . Now expand the users menu and delete all users except root@localhost . right click it and select edit user . Change its password to whatever you want icon\_smile.gif

Now right click the server and select edit. Change the password to the pass you chosed for user root . as easy as that . mysql is installed !

=====

phpMyADmin . you can download it from <http://www.phpmyadmin.net/> .  
i recommend using verion 2.5.1 pl1 . the last verion is still buggy icon\_smile.gif  
download , unzip the contecnt into a folder in htdocs (phpMyAdmin) and open up config.inc.php  
with a text editor .

search for :

Code:  
`$cfg['PmaAbsoluteUri'] = '';`

change it to your phpmyadmin url . eg. :

Code:  
`$cfg['PmaAbsoluteUri'] = http://www.your_domain.org/phpMyAdmin/';`

now search for :

Code:  
`$cfg['blowfish_secret'] = '';`

and change it to your mysql root password like this :

Code:  
`$cfg['blowfish_secret'] = 'password';`

now search for :

Code:  
`$cfg['Servers'][$i]['auth_type'] = 'config';`

and change it to :

Code:  
`$cfg['Servers'][$i]['auth_type'] = 'cookie';`

Save and exit. That's it! phpMyAdmin works icon\_wink.gif

=====