ONLINE UTM STUDENT FINANCIAL SYSTEM

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ONLINE UTM STUDENT FINANCIAL SYSTEM

OLFAT ABDULQAWI GHALEB

A master project submitted in partial fulfillment of the
requirements for the award of the degree of
Master of Software Engineering

Advanced Informatics School
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JULY 2012

I declare that this master project entitled *"Online UTM Student Financial System"* is the result of my own research except as cited in references. The master project has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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To my beloved parents and family

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ABSTRACT

The online student finance system is widely used in this knowledge century. It is one of the web-based systems that used in university for any financial transactions among staffs and students. Various types of university online financial systems are able to set the tuition fees, financial statement, invoices and make payment. The UTM online finance system is one of the financial portals that promise a new, convenient and safe finance environment. It attends to financing needs, along with providing a simple online system for Invoice, balance and payment. The current UTM online finance system has some drawbacks such as the system is not able to send any email notification to the student when a new invoice is issued, students are not able to check their financial statements, refund, payment, student financial status and invoices in details, the staff issues manual receipt of the payment that the student made and if the students have a problem they need to go manually to the finance department to solve their problem. Furthermore, the current system does not have online payment by visa card. The methodology used in this project is a waterfall model methodology which is a series of phases which are planning, requirements analysis, system design implementation and testing. According to the explained drawbacks for the current system, this project proposes new features solve the problems in current online UTM student finance system such as making online payments, sending an email to the student whenever a new invoice is issued. Furthermore, issuing electronic receipts for the payments that are made by the students, communicating with staff by sending messages, uploading student's payment transfer fund or payment receipt and keeping and tracing the receipt . Future work can be done by redesigning the online UTM student financial system to be additionally incorporated with extra features such as sending phone SMS when the new invoice is issued.

ABSTRAK

Sistem kewangan pelajar dalam talian digunakan secara meluas pada abad pengetahuan ini. Ia merupakan salah satu sistem berasaskan web yang digunakan di universiti bagi mana-mana transaksi kewangan di kalangan staf dan pelajar. Pelbagai jenis sistem kewangan universiti dalam talian dapat menetapkan yuran, penyata kewangan, invois dan membuat bayaran. Sistem kewangan dalam talian UTM adalah salah satu portal kewangan yang menjanjikan persekitaran kewangan yang baru, mudah dan selamat. Ia hadir dengan keperluan pembiayaan, bersama-sama dengan menyediakan sistem mudah dalam talian bagi Invois, baki dan pembayaran. UTM semasa sistem kewangan dalam talian mempunyai beberapa kelemahan seperti sistem tidak mampu untuk menghantar apa-apa pemberitahuan e-mel kepada pelajar apabila invois baru dikeluarkan, pelajar tidak mampu untuk memeriksa penyata kewangan mereka, bayaran balik, pembayaran, status pelajar kewangan dan invois secara terperinci, isu-isu kakitangan resit manual pembayaran bahawa pelajar yang dibuat dan jika pelajar mempunyai masalah mereka perlu pergi secara manual kepada jabatan kewangan untuk menyelesaikan masalah mereka. Tambahan pula, sistem sedia ada tidak mempunyai pembayaran dalam talian oleh kad visa. Metodologi yang digunakan dalam projek ini adalah satu metodologi air terjun model yang merupakan satu siri fasa iaitu perancangan, analisis keperluan, sistem pelaksanaan reka bentuk dan ujian. Menurut kelemahan yang dijelaskan bagi sistem semasa, projek ini mencadangkan ciri-ciri baru menyelesaikan masalah dalam semasa talian UTM sistem kewangan pelajar seperti membuat pembayaran online, menghantar e-mel kepada pelajar apabila invois baru dikeluarkan. Tambahan pula, mengeluarkan resit elektronik untuk pembayaran yang dibuat oleh pelajar, berkomunikasi dengan kakitangan dengan menghantar mesej, memuat naik pemindahan dana pembayaran pelajar atau resit bayaran dan menyimpan dan mengesan resit. Kerja masa depan yang boleh dilakukan oleh mereka bentuk semula pelajar UTM sistem dalam talian kewangan tambahan digabungkan dengan ciri-ciri tambahan seperti menghantar SMS telefon apabila invois baru dikeluarkan.

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LIST OF ABBREVIATION

UTM	Universiti Technologi Malaysia
ICT	Information and Communication Technology
SPACE	School of Professional and Continuing Education
AIS	Advanced Informatics School
CASE	Centre for Advanced Software Engineering
MSc	Computer Systems Engineering
SDP	Software Development Plan
SRS	Software Requirement Specification
SDD	Software Requirement Specification
STD	Software Test Description
STR	Software Test Report
IT	Information Technology
HTML	hypertext Markup Language
PHP	Personal Hypertext Process
ID	Identity
ACID	Academic computing ID
SPS	School Of Graduate Studies
SDLC	Software Development Life Cycle
RAD	Rapid Applications Development
UML	Unified Modeling Language
DoD	Department of Defense
RDBMS	Relational Database Management System

CHAPTER 1

INTRODUCTION

1.1 Introduction

The internet has become one of the most fundamental areas for communication and the exchange of information, goods, and services. The online finance system offers a great transaction speed and convenience for such customers who are in need for that. Therefore, E-financial system comes out to let the user to search for the service in an easier way and just required a short period of time (Sato et al, 2002).

The advent of online electronic finance brought with it the promise to provide faster, convenient and more widely available finance for universities and to find for them better solutions than the cash based payment. Various types of university online financial systems are able to set the tuition fees, financial statement, invoices and make payment (Indjikian, 2003) .

In this project the researcher will develop a web based application that allows the students to check their financial information using different devices. This project will help UTM students to check the fees for all registered and to update student financial records. The finance staff will be responsible for student financial activities.

1.2 Background of UTM AIS

Universiti Technologi Malaysia (UTM) is the largest engineering-based university in Malaysia offering a variety of programs for all levels of education. UTM has a significant share of the most competitive Postgraduate and Undergraduate programs in engineering, bio-medical engineering, ICT, bio-science, built-environment, Geo-information, education and management. Other than that, UTM provides programs for part-time education through the School of Professional and Continuing Education (SPACE).

Of its more than 20,000 students, over 25% are postgraduates. Since the 1990s, the number of foreign students, particularly from neighboring Asian countries, the Middle East, and Africa, has been increasing, especially in postgraduate programs. UTM graduates have gone on to many academic and professional institutions across the world (UTM, 2012).

Universiti Technologi Malaysia , Advanced Informatics School (UTM AIS) is part of UTM .It is established in 1996, the Advanced Informatics School (AIS) formerly known as the Centre for Advanced Software Engineering (CASE) started as a collaboration project between Universiti Teknologi Malaysia and Université Thales (formerly known as Campus Thompson), France. A group of academic staff was sent to Université Thales, France for several intensive courses in real-time software engineering. This Transfer-of-Technology has led to the establishment of CASE (AIS, 2012).

AIS is the only center of excellence in UTM focusing on the Software Engineering & Information Security. The first program offered was Computer Systems Engineering (MSc). It was offered to fresh graduates and experienced industry workers. This program was to fulfill the needs of the growing industries and the nation (AIS, 2012). For software engineering students are required to involve in industrial training during their last eight months of study. In order to pass the industrial training, the research has been attached the industrial training in UTM AIS for eight months. The research will propose new features and services for UTM

student finance online system during these eight months. The structure of UTM (AIS) is shown in Figure 1.1

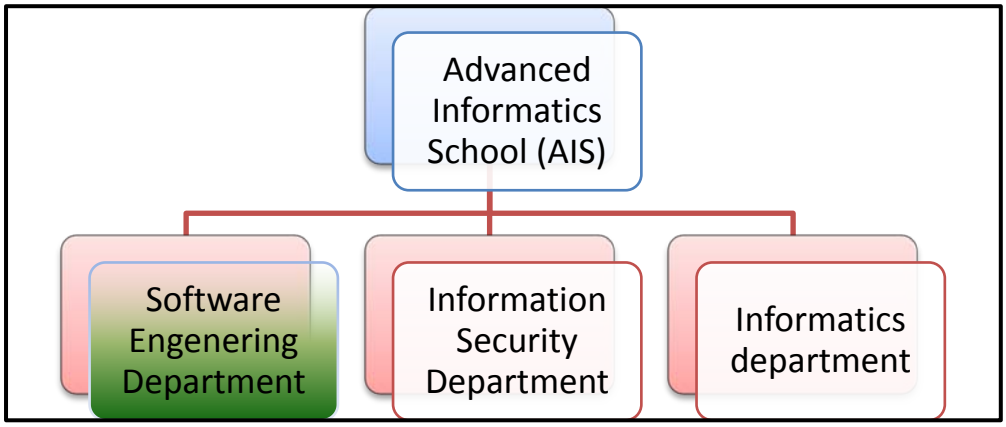

Figure 1.1: Structure of UTM AIS

1.3 Background of the Problem

A finance department with the only physical building would not expend their business globally in an easier way. Nowadays, most of the finance departments are using web based applications,. That is why most ofwell-known finance is doing the business process reengineering to adapt the change in the trend of the world (Harvery, 2007).

The UTM finance unit is using a basic online system which provides simple online services for Invoice, refund and payment. In the other hand, the UTM finance unit is also using physical building which required the students to go to the finance office (Bursar's Office) in order to check theirfinancial records, Invoice, student information, refund, student statement and allowance. Moreover, in case if the students have complains or doubt about any transactions, they required to go to the UTM finance office in order to solve their problems.

1.4 Problem Statement

With the rapid spread of information technologies, data processing and electronic transactions are needed for online UTM student finance system; the researcher has found some problem in the current online UTM finance system. The problems are as follows:

i Confusion in student financial record; Students are not able to check their financial statements, refunds, payments, and invoices in details.

ii Data lost; if the students want to send the proof of payment for CIMBClicks, he needs to go to the UTM finance department. This traditional way of saving proofs of payment for their tuition fees may lead to problems like data lost by losing the receipt or damage of the receipt.

iii Communication problem; students are not able to communicate with the staff online if they face any issue in payment and fees or if they have any inquiry, they need to visit the finance office.

iv The current system does not have the online payment feature by using a credit card.

v Lack of financial information; students have no knowledge about the payment methods, payment schedule and finance policies.

1.5 Project Objectives

The objectives of this project are as follows:

i. To investigate and to conduct analysis on existing Online Student Finance system.

ii. To propose new features and services for current online UTM student finance system.

iii. To develop a new system based on the proposed features and services.

iv. To test the proposed system.

1.6 Project Scopes

The project scopes defined the description of the work that required in delivering Online Student finance system. The following are the scopes of this project:

i Construct Software Development Plan (SDP)

ii Study and understands the requirement of the online student financial system by studying the existing system.

iii Construct Software Requirement Specification (SRS) document.

iv Construct Software Design Document (SDD)

v Develop an online UTM student finance system.

vi Test the system and construct Software Test Description (STD) and Software Test Report (STR).

1.7 Importance of Project

The importance of this project is to make the student life easier by developing a new system based on the proposed features to support the current online UTM finance system. Furthermore, the system will be available for the students to access anywhere and anytime.

1.8 Project Deliverables

The deliverables of this project are as follows:

i Software Development Plan (SDP)

ii Software Requirement Specification (SRS) document.

iii Software Design Document (SDD)

iv System prototype.

v Software Test Description (STD)

vi Software Test Report (STR).

vii Master project

viii Industrial attachment log book.

1.9 Chapter Summary

This chapter provides a background of the current online UTM student finance system. The concept of online financial activities includes all types of financial activities carried out over the cyberspace or other public networks. Nowadays most of university finance activities are done manually. These kinds of systems have a variety of problems such difficulty on checking their financial statements, refund, payment, and invoice with details, data lost and solving students complain. A quick overview about the online finance system is clarified. The problem statement is declared and the objectives of this project are stated.

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