

NET-SMART ONLINE APPLICATION

MASLEZA MUHAMMAD

This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Software Development)

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2005**

TESIS APPROVAL STATUS FORM

JUDUL: NETSMART ONLINE APPLICATION

SESI PENGAJIAN: 2004/2005

Saya MASLEZA MUHAMMAD

(HURUF BESAR)

mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis adalah hakmilik Kolej Universiti Teknikal Kebangsaan Malaysia.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)

 SULIT (Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

 TERHAD (Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

 √ TIDAK TERHAD


(TANDATANGAN PENULIS)

Alamat tetap : 40, Kg Kubang Kacang,
15100 Kota Bharu, Kelantan.

Tarikh : 24 OCTOBER 2005


(TANDATANGAN PENYELIA)

CIK NOR MAS AINA MD BOHARI
Nama Penyelia

Tarikh : 24 OCTOBER 2005

CATATAN: ** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

^ Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM)

ADMISSION

I admitted that this project title name of
NETSMART ONLINE APPLICATION

is written by me and is my own effort and that no part has been plagiarized without
citations.

STUDENT: _____
(MASLEZA MUHAMMAD)

Date : 24 NOVEMBER 2004

SUPERVISOR : _____
(CIK NOR MAS AINA MD BOHARI)

Date : 25 NOVEMBER 2005

DEDICATION

I wish to dedicate this tesis to my beloved parents. I thank them for performing this difficult task, and the journey does not end here.

ABSTRACT

Net-Smart Online Registration (NSO) which has been suggested to manage the online registration, the scheduling of the class, the fee status, class auto scheduling, registration status and the website of Netserv Solution Consultancy Sdn. Bhd. From the research that have been done on the current system, I have found that the course registration for Majlis Latihan Vokasional Kebangsaan (MLVK), Skim Latihan Penganggur(SLP), Skim Latihan Graduan and open courses are not in schedule system. Besides, the current system which is done in the manual way cannot store the student's data in the proper way which is sometimes the profile is missing. The students or user who wants to register course with the company sometimes cannot have the update information about the course. Here, NSO will solve the problem and produce one complete system and useful. NSO will use a sharing database to communicate with one or more computer.

ACKNOWLEDGEMENTS

First of all, I would like to thanks to Kolej Universiti Teknikal Kebangsaan Malaysia because give me an opportunity to go through my Project Sarjana Muda. The Kolej Universiti Teknikal Kebangsaan Malaysia provides lab facility for online searching source from internet.

In here I would to thanks from Cik Nor Mas Aina Md. Bohari who is my PSM supervisor. She is playing an important role in areas of encouragement, instructions and inspiration.

I would like to convey my deepest appreciation and gratitude to my course mates because they are willing to help me.

In addition, I would also like to thanks for my dearest family and friends for their encouragement and support. Without their helps, I believe that I cannot perform well during this PSM II. I strongly believed that those wonderful moments would become an unforgettable valuable memory and precious experience in my whole life.

LIST OF APPENDICES

NO.	TITLE	PAGE
APPENDIX A	GANTT CHART	141
APPENDIX B	ACTIVITY DIAGRAM	142
APPENDIX C	USE CASE DIAGRAM	145
APPENDIX D	SEQUENCE DIAGRAM	146
APPENDIX E	HIGH LEVEL CLASS DIAGRAM	148
APPENDIX F	USER MANUAL	149

LIST OF ABBREVIATIONS

KUTKM – Kolej Universiti Teknikal Kebangsaan Malaysia

NSO – Net-Smart Online

NSC – Netserv Solution Consultancy

MLVK – Majlis Latihan Vokasional Kebangsaan

SLG – Skim Latihan Graduan

SLP – Skim Latihan Penganggur

OOAD – Object Oriented Activity Diagram

UML – Unified Modeling Language

4.13	Update Student's Profile Interface	81
4.14	Search full student's profile interface	82
4.15	Update Registration Status Interface	83
4.16	Student Login Interface	84
4.17	Course Registration Interface	85
4.18	Check Registration Interface	86
4.19	Seduction Interface	87
4.20	Password Registration Interface	88
4.21	Search Full Student Profile Interface	89
4.22	Student Full Profile Interface	89
4.23	Search Student Profile Interface	90
4.24	Registration Status Interface	90
4.25	Entity Relationship Diagram (ERD) for NSO application	91
4.26	Login Application Layer	93
4.27	Administrator Application Layer	94
4.28	User Application Layer	95
5.1	Three tier architecture	95

LIST OF FIGURES

NO.	TITLE	PAGE
2.1	Flow of the GMUETOR	11
2.2	Traditional v/s RAD Lifecycle	19
3.1	Background System Activity Diagram	34
3.2	Module Diagram	38
3.3	To Be System Activity Diagram for user	39
3.4	To Be System Activity Diagram for Administrator	42
3.5	Use Case Diagram	44
3.6	Registration Password and ID	46
3.7	Login Interface	47
3.8	Register Course Interface	48
3.9	Administrator Login	50
3.10	Check Student's Profile Interface	51
3.11	Update Student's Profile Interface	52
3.12	Delete Student's Profile Interface	53
3.13	Search Student's Profile Interface	54
3.14	Check Fee Status Interface	55
3.15	Check the approve application status Interface	56
3.16	NSO system Sequence Diagram	58
3.17	Student Registration Password Sequence Diagram	59
4.1	NSO software architecture overview	66
4.2	Architecture Layer of NSO	68
4.3	The CSCI NSO Packages	70
4.4	High Level Class Diagram	72
4.5	The Deployment view of NSO application	74
4.6	Netserv Solution's Website.	76
4.7	About Netserv Solution	76
4.8	Admin Main Page	77
4.9	Administrator Navigation Design	77
4.10	User or Student Navigation Design	78
4.11	Administrator Login Interface	79
4.12	Student's Profile Search Interface	80

6.35	Test Data Student Profile	136
6.36	Test Data for Update Student Profile	137
6.37	Test Data for Delete Student Profile	137
6.38	Test Data for Search Student Profile.	137
6.39	Unit Test for Administrator Login	138
6.40	Unit Test for Student Login	138
6.41	Unit Test for Student Password Registration	139
6.42	Unit Test for Administrator Password Registration	139
6.43	Unit Test for Student Course Registration	139
6.44	Unit Test for User Seduction	140
6.45	Unit Test for Check Registration Status	140
6.46	Unit Test for Student Profile	140
6.47	Unit Test for Update Profile	141
6.48	Unit Test for Delete Profile	141
6.49	Unit Test for Search Profile	141
6.50	Unit Test for New Student	142
6.51	Unit Test for Chat Room	142

6.1	Server and Client	113
6.2	Unit test for Administration / Staff Login (TEST_NSO_001)	113
6.3	Unit Test for Login Outside user / student (TEST_NSO_002)	114
6.4	Unit Test for User Registration Password (TEST_NSO_003)	115
6.5	Unit Test for Admin Registration Password (TEST_NSO_004).	116
6.6	Unit Test for Student Course Registration (TEST_NSO_005).	117
6.7	Unit Test for User Seduction (TEST_NSO_006).	118
6.8	Unit Test for Check Registration Status (TEST_NSO_007).	119
6.9	Unit Test for Student Profile (TEST_NSO_008).	120
6.10	Test Unit of Update Profile (TEST_NSO_008).	121
6.11	Unit Test for Delete Profile (TEST_NSO_009).	122
6.12	Unit Test for Search Profile (TEST_NSO_010).	123
6.13	Test Unit of New Student (TEST_NSO_011).	124
6.14	Test Unit of Chat Room (TEST_NSO_012).	125
6.15	Administration Login Function	128
6.16	Student Login Function	128
6.17	Student Registration Password Function	128
6.18	Administrator Registration Password Function	129
6.19	Student Course Registration Function	129
6.20	Student Seduction Function	129
6.21	Check Registration Status Function	130
6.22	Student Profile Function	130
6.23	Update Profile Function	130
6.24	Delete Profile Function	131
6.25	Search Profile Function	131
6.26	New User Function	131
6.27	Chat Function	132
6.28	Test Data for Administrator Login	133
6.29	Test Data for Student Login	133
6.30	Test Data for Student Registration Password	133
6.31	Test Data for Administration Registration Password	134
6.32	Test Data for Student Course Registration	135
6.33	Test Data for User Seduction	136
6.34	Test Data for Check Registration Status	136

LIST OF TABLES

NO.	TITLE	PAGE
2.1	Table of SRMA Hardware Requirement	14
2.2	Table of end user.	16
2.3	The responsibilities for the various deliverables have been assigned to these participants	20
2.4	Table for Software Requirement	21
2.5	Table for Hardware Requirement	23
2.6	Project Milestones	27
3.1	Software Requirements	60
3.2	Hardware Requirements	61
4.1	Raw Data for NSO system	64
4.2	Architecture Layer for NSO Description	69
4.3	Administrator Login-Input Design Field	79
4.4	Student's Profile Search Interface-Input Field Search	80
4.5	Update Student Design Field	81
4.6	Search Full Student's Profile Design Field	82
4.7	Update Registration Status Design Field	83
4.8	Student Login Design Field	84
4.9	Course Registration Design Field	85
4.10	Check Registration Design Field	86
4.11	Seduction Design Field	87
4.12	Password Registration Interface-Input Design Field	88
4.13	Data Dictionary	96
4.14	Class Attribute for login	97
4.15	Class Attribute for student	97
4.16	Class Attribute for staff password	99
4.17	Class Attribute for student password	99
5.1	Server	103
5.2	Client	103
5.3	Personal Computer	103
5.4	Browser	103

TESTING	111
6.1 Introduction	111
6.2 Test Plan	111
6.2.1 Test Organization	112
6.2.2 Test Environment	113
6.2.3 Test Schedule	113
6.3 Test Strategy	126
6.3.1 Classes of Test	127
6.4 Test Design	127
6.4.1 Test Description	127
6.4.2 Test Data	133
6.5 Test Result and Analysis	138
6.6 Conclusions	142
PROJECT CONCLUSION	144
7.1 Observation on Weaknesses and Strengths	144
7.1.1 Weakness	144
7.1.2 Strengths	145
7.2 Propositions for Improvement	145
7.3 Conclusions	146
REFERENCES	147
APPENDIX	148

3.6	Conclusion	61
DESIGN		62
4.1	Introduction	62
4.2	High Level Design	63
4.2.1	Raw Input/Data	63
4.2.2	System of Architecture	65
4.2.2.1	Architecture Layer of Net-Smart Online Registration	67
4.2.2.2	Static Organization	69
4.2.2.3	High Level Class Diagram	72
4.2.2.4	Deployment View	73
4.2.3	User Interface Design	75
4.2.3.1	Navigation Design	76
4.2.3.2	Input Design	79
4.2.3.3	Output Design	89
4.2.4	Database Design	91
4.3	Detailed Design	93
4.3.1	Software Specification	93
4.3.2	Physical Database Design	96
4.3.2.1	Data Dictionary	96
4.3.2.1	Class Attribute	97
4.4	Conclusion	100
IMPLEMENTATION		101
5.1	Introduction	101
5.2	Software Development Environment	102
5.2.1	Environment Setup	102
5.3	Software Configuration Management	103
5.3.1	Configuration Software Setup	104
5.3.2	Implementation Status	105
5.4	Conclusion	110

2.3.1 Rapid Application Development (RAD)	17
2.3.1.1 Introduction	17
2.3.1.2 Phases of RAD lifecycle	19
2.3.1.3 RAD requirements	19
2.3.1.4 Activities and Deliverables	20
2.4 Project Requirements	21
2.4.1 Software Requirements	20
2.4.2 Hardware Requirements	23
2.5 Project Schedule and Milestones	23
2.5.1 Project Milestones	27
2.6 Conclusion	29
ANALYSIS	30
3.1 Introduction	30
3.2 Problem Analysis	30
3.2.1 Background of Current System	31
3.2.2 Business Process	31
3.2.3 Problem Statements	32
3.2.3.1 Background System Activity Diagram	34
3.2.4 Identify Problems	35
3.2.4.1 Business Process Prospective	35
3.2.4.2 Technology Process Prospective	36
3.3 Requirements Analysis	36
3.3.1 Functional Requirements	36
3.3.2 Business Flow	39
3.3.3 Use Case View	43
3.3.4 Actors	44
3.3.5 Use Case Description	45
3.3.5.1 User or Students	45
3.3.5.2 Administrator or Staff	49
3.3.6 Interaction Diagram	58
3.4 Software Requirements	60
3.5 Hardware Requirements	61

TABLE OF CONTENTS

TITLE	PAGE
ACKNOWLEDGEMENTS	i
ABSTRACT	ii
ABSTRAK	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xiii
LIST OF APPENDICES	xiv
INTRODUCTION	1
1.1 Overview	1
1.2 Problem Statements	2
1.3 Objectives	3
1.4 Scopes	4
1.5 Project Significance	6
1.6 Expected Output	6
1.7 Conclusion	8
LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Online Registration	10
2.2.1 Case Study 1 (Gajah Mada University Entry Test Online Registration)	10
2.2.2 Case Study 2 (IIUM Student Residential Management System (SRMS)).	13
2.2.3 Case Study 3 (e-Pendidikan Jarak Jauh Online Course Pre-Registration)	15
2.3 Project Methodology	17

ABSTRAK

Net-Smart Online Application (NSO) dicadangkan untuk menghasilkan dan menguruskan pendaftaran kursus secara talian, status pendaftaran, penjadualan automatic, status pendaftaran dan laman web kepada Syarikat Netserv Solution Consultancy Sdn.Bhd. Daripada kajian yang dilakukan ke atas sistem terdahulu didapati bahawa sistem pendaftaran kursus iaitu kursus Majlis Latihan Vokasional Kebangsaan (MLVK), Skim Latihan Penganggur (SLP), Skim Latihan Graduan) dan Kursus Terbuka dilakukan secara tidak tersusun. Di samping itu, sistem semasa yang dijalankan secara manual tidak dapat menyimpan data pelajar dengan sebaik mungkin di mana selalu berlaku kehilangan data peribadi pelajar. Pelajar-pelajar yang ingin mendaftar juga tidak mendapat maklumat yang terkini mengenai kursus. Disini, NSO akan menyelesaikan masalah dalam menghasilkan satu sistem yang lengkap dan serba guna. NSO akan menggunakan perkongsian pangkalan data untuk berhubung dengan beberapa komputer.

ABSTRACT

Net-Smart Online Registration (NSO) which has been suggested to manage the online registration, the scheduling of the class, the fee status, class auto scheduling, registration status and the website of Netserv Solution Consultancy Sdn. Bhd. From the research that have been done on the current system, I have found that the course registration for Majlis Latihan Vokasional Kebangsaan (MLVK), Skim Latihan Penganggur(SLP), Skim Latihan Graduan and open courses are not in schedule system. Besides, the current system which is done in the manual way cannot store the student's data in the proper way which is sometimes the profile is missing. The students or user who wants to register course with the company sometimes cannot have the update information about the course. Here, NSO will solve the problem and produce one complete system and useful. NSO will use a sharing database to communicate with one or more computer.

ACKNOWLEDGEMENTS

First of all, I would like to thanks to Kolej Universiti Teknikal Kebangsaan Malaysia because give me an opportunity to go through my Project Sarjana Muda. The Kolej Universiti Teknikal Kebangsaan Malaysia provides lab facility for online searching source from internet.

In here I would to thanks from Cik Nor Mas Aina Md. Bohari who is my PSM supervisor. She is playing an important role in areas of encouragement, instructions and inspiration.

I would like to convey my deepest appreciation and gratitude to my course mates because they are willing to help me.

In addition, I would also like to thanks for my dearest family and friends for their encouragement and support. Without their helps, I believe that I cannot perform well during this PSM II. I strongly believed that those wonderful moments would become an unforgettable valuable memory and precious experience in my whole life.

CHAPTER I

INTRODUCTION

1.1 Overview

Nowadays there are many graduated students or school leavers who do not have a job. The problem is because they either do not have a work skill or the work experience. The skill and experience are so important nowadays, because of that there are many companies which are provide the skill training to those who want to upgrade their skill or want to learn a new skill.

One of the companies which are provided the training is the Netserv Solution Consultancy (NSC) Sdn. Bhd. The company offered to the school leavers and also to the graduated students training courses. The courses are Majlis Latihan Vokasional Kebangsaan (MLVK), Skim Latihan Graduan (SLG), Skim Latihan Penganggur (SLP) and Computer class and Learn English language (Open Courses).

Traditionally the student's registration will be done by print out and fill the registration form. The NSC's Staff will collect the registration form and keep it in one file. The NSC's staff needs to spend much time to keep the form and analyze the form and divide the form to each course.

In order to solve the problem, Net-Smart Online \Application (NSO) for Projek Sarjana Muda is proposed. The Net-Smart Online application is a web based system which contains a portal and desktop application. The portal will allow the outside user or students to view the company website and make course registration. Besides this portal provide the details about course which offered by the company. The staff will receive the application. If the students have been accepted, the students will get the confirmation letter and Short messaging system. Then, the desktop application will automatically schedule the student to which class they will be in. This portal will help the staff to collect the registration form and save it in the database directly.

1.2 Problem Statement

Net-Smart Online application will be used in the Netserv Solution and consultancy Sdn. Bhd. This is situated in Kota Bharu. The company is a bumiputera company which conducts a MLVK, SLG, SLP and open courses. Before this Netserv never have an online system or a standard system to register and store the student's profile. Every student which is having interest to register in the courses must come to the company to fill in a registration form.

Besides, other problem that occurred is the address that the students write in the form are wrong. It is make the staff hard to send their confirmation letter to tell that they have been accepted and when they should start a class.

The students also do not have a review about the courses which is offered in the company clearly. Before this the company is depends on the pamphlet.

The staff also faces a problem when they have to schedule the entire student to their course and class. If the students are just 10 to 15 students it does not matter but the students who are register with the company are more than that.

1.3 Objectives

The objective was to highlight actions that will be taken to solve the problems occur in the existing system as has been mentioned in the problem statements. The following are the objectives of this project.

- i) To produce online registration.

The purpose of this project was to design and produce an online registration system by applying the latest technology and equipments. For example the system receive the application from the register, sending the conformation of the registration back to the user, keep and update the data, schedule the students to their class and etc. The students first can view their application form before they submit the application. This system can prevent the mistake before the students submit the form.

- ii) To display the company and course details in the website.

In additional, the portal also will be included by the company website which is the user can view the company's profile, the company's product, and also how to contact the company and etc. The user also can view the course details which are offered by the company. This will make the outside user know the company clearly before makes a decision to register with the company.

iii) To assist the outside user to communicate with the staff.

To help the students to understand more about the courses, the system will provide the chat function which is allow the user to communicate with the staff.

iv) To assist the staff to arrange the students data properly.

This project was designed just to help or assist the staff to arrange the student's data properly without filing the application in the file. This will help to prevent the losing data if the application form missing.

v) To assist the staff to classify the students.

The auto scheduling in the application can help the staff to schedule and classify the students to their class and courses.

1.4 Scope

NOS application is an application will be use in NSC to keep the students data and produce an online registration. This system allows the outside user (student) and staff of the NSC Sdn. Bhd but for the outside user who want to register the courses, the need to register for the password in the system. The scopes of the system are:

i) Login

The outside user (student) and administrator are required to login into NSO for security purpose. Administrator has given right to change password. On the other hand, outside user required to ask permission to get password from administrator once he/she forgot password.