

rat

QA76.9.D37 .N68 2006



0000039126

Projek Sarjana Muda data warehouse (front end) / Nik
Nurkartinie Kamaruddin.

BORANG PENGESAHAN STATUS TESIS

JUDUL: **PROJEK SARJANA MUDA DATA WAREHOUSE (FRONT END)**

SESI PENGAJIAN: **2006/2007**

Saya **NIK NURKARTINIE BINTI KAMARUDDIN**
(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 dan projek 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)



(TANDATANGAN PENYELIA)
AMIR SYARIFUDDIN KASIM
Nama Penyelia

Alamat tetap : **92 LORONG MELOR 3,**
TAMAN MELOR 08000 SUNGAI PETANI
KEDAH

Tarikh : 20/11/06

Tarikh : 27/11/2006

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

^ Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM)

Projek Sarjana Muda Data Warehouse (Front End)

NIK NURKARTINIE BINTI KAMARUDDIN

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

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2006

DECLARATION

I hereby declare that this project report entitled

PROJEK SARJANA MUDA DATA WAREHOUSE (FRONT END)

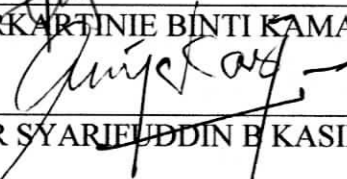
is written by me and is my own effort and that no part has been plagiarized
without citations.

STUDENT

: 
(NIK NURKARTINIE BINTI KAMARUDDIN)

Date : 21/11/2006

SUPERVISOR

: 
(AMIR SYARIEUDDIN B KASIM)

Date : 27/11/2006 .

DEDICATION

To my beloved parents, Kamaruddin Mohammad and Rokiah Mat Nordin, my sisters and brothers, KUTKM lecturer and all my friends. Thanks for the support and courage I got throughout completing my Project Sarjana Muda (PSM)

ACKNOWLEDGEMENT

First and foremost, I thank to Allah for giving me strength and opportunity to completed my Projek Sarjana Muda (PSM). I would like appreciation to the management of the Faculty of Information and Communication Technology of Kolej Universiti Teknikal Kebangsaan Malaysia for their precious efforts in setting up the bachelor program to include *Project Sarjana Muda* (PSM) as a pre-condition in order to graduate in Bachelor of Computer Science. Besides, I would like to thanks the PSM Committee for their hard work in giving the briefing and preparing the PSM report guidebook. Furthermore, a special thank goes to my project supervisor, Mr. Amir Syarifuddin b Kasim for his consultation, advice, comment and support during this period.

Last but not least, I would like to express thanks to my beloved parents and friends that constantly giving me support and motivation until the end of my project. I also owe a great gratitude to my entire course mate whose visions are to implement PSM successfully. Thanks to their willingness to share ideas and concern with me.

ABSTRACT

Projek Sarjana Muda (PSM) is a compulsory subject for the final year Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM) student to develop an individual project that related to the industry problem. PSM for Bachelor in Computer Science is designed to give students an opportunity to make use of the expertise and knowledge in software development that they have gained in their first three years of study. Projek Sarjana Muda Warehouse (Front End) is to be done for Student, Lecturer and PSM Admin at Faculty of Information and Communication Technology (FTMK). This project aims to ease the way to submission report and to simplify the way information being shared by Student, Supervisors and PSM Admin. This means that the develop system will be a tool for the admin to publish information about PSM and to make easy submission and download process. Thus, the user is managed to access the information and making transaction to submission report, to give comment or suggestion and to know about PSM. Apart from that, the functions that included in the system will cater the need of the admin can updated, delete, save and upload the information.

ABSTRAK

Projek Sarjana Muda (PSM) adalah subjek wajib kepada pelajar tahun akhir Kolej Universiti Teknikal Kebangsaan Malaysia untuk membangunkan projek individu yang berkaitan dengan masalah Industri atau masalah semasa.PSM untuk Ijazah Sarjana Muda Sains Komputer memberi peluang kepada pelajar untuk mengaplikasikan kemahiran dan pengetahuan pembangunan perisian yang diperolehi dalam pembelajaran tiga tahun yang pertama. Projek Sarjana Muda

Data Warehouse (Front End) ini adalah untuk kegunaan pelajar, pensyarah dan Ahli Jawatankuasa (AJK) PSM di Fakulti Teknologi Maklumat dan Komunikasi. Projek ini bertujuan untuk memudahkan proses menghantar kerja kursus dan untuk memudahkan informasi yang dikongsi bersama oleh pelajar, pensyarah dan Ajk PSM.Sistem yang dibina membolehkan AJK PSM memdedahkan maklumat mengenai PSM dan untuk memudahkan penghantaran kerja kursus. Dengan sedemikian, pengguna boleh mendapatkan maklumat dan melaksanakan transaksi seperti menghantar kerja kursus, membuat cadangan atau aduan dan mengetahui maklumat mengenai PSM melalui sistem ini Ahli Jawatankuasa PSM boleh mengemaskini maklumat, menyimpan maklumat, menambah maklumat dan menghapuskan maklumat.

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	PROJECT TITLE	i
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	viii
	LIST OF TABLES	xi
	LIST OF FIGURES	xiv
	LIST OF ABBREVIATIONS	xvii
	LIST OF APPENDICES	xviii
CHAPTER I	INTRODUCTION	
	1.1 Project Background	1
	1.2 Problem Statement	2
	1.3 Objectives	3
	1.4 Scopes	4
	1.5 Project Significance	6
	1.6 Expected output	7
	1.7 Conclusion	8
CHAPTER II	LITERATURE REVIEW	
	2.1 Introduction	9
	2.2 Fact and Finding	10

2.2.1	About “Projek Sarjana Muda”	10
2.2.2	Tasks Scope	11
2.2.3	AJK Project for PSM	11
2.2.4	Evolution Bureau task Scope	12
2.2.5	Proceeding Bureau tasks scope	12
2.2.6	Communication Bureau tasks scope	12
2.2.7	Faculty Target	12
2.2.8	Commitee Targets	12
2.2.9	Data Warehousing	13
2.2.10	Queries	19
2.2.11	Client-server	22
2.2.12	Data Storage	27
2.2.13	PHP Programming Language	29
2.2.14	Store Procedure	32
2.2.15	Other research for other case study	35
2.3	Project Methodology	36
2.4	Project Requirements	40
2.4.1	Software Requirement	41
2.4.2	Hardware Requirement	42
2.5	Project Milestones and Schedules	42
2.5.1	Project Planning	44
2.5.2	Projek Sarjana Muda Milestone	44
2.5.3	Gantt Chart	45
2.6	Conclusion	46
CHAPTER III ANALYSIS		
3.1	Introduction	47
3.2	Problem Analysis	48
3.2.1	Analysis of Current System	48
3.2.2	Business Modeling	49
3.2.3	Context Diagram	50
3.2.4	DFD Level 0	51

	3.2.5 Entity Relationship Diagram (ERD)	52
3.3	Requirement Analysis	55
	3.3.1 Functional Requirements	55
	3.3.2 Software Requirement	56
	3.3.3 Hardware Requirement	57
	3.3.4 Network Requirement	58
3.4	Data Analysis	59
	3.4.1 Current system	59
	3.4.2 Projek Sarjana Muda Data Warehouse	60
3.5	Conclusion	61
CHAPTER IV	DESIGN	
4.1	Introduction	62
4.2	High-Level Design	63
	4.2.1 System Architecture	63
	4.2.2 User Interface Design	64
	4.2.3 Database Design	78
4.3	Detail Design	88
	4.3.1 Software Specification	88
	4.3.2 Physical Database design	96
4.4	Conclusion	103
CHAPTER V	IMPLEMENTATION	
5.1	Introduction	104
5.2	Software Development Environment Setup	105
5.3	Database Implementation	110
	5.3.1 Restricting and Sorting Data	110
	5.3.2 Joins	113
5.4	Software Configuration Management	114
	5.4.1 Configuration Environment Setup	115
	5.4.2 Version Control Procedure	116

5.5	Implementation Status	117
5.6	Conclusion	119
CHAPTER VI	TESTING	
6.1	Introduction	120
6.2	Test Plan	121
	6.2.1 Test Organization	121
	6.2.2 Test Environment	122
	6.2.3 Test Schedule	124
6.3	Test Strategy	124
	6.3.1 Classes of test	126
6.4	Test Design	127
	6.4.1 Test Description	127
	6.4.2 Test Data	141
6.5	Test Result and Analysis	143
6.6	Conclusion	146
CHAPTER VII	CONCLUSION	
7.1	Observation on Weaknesses and Strength	147
7.2	Propositions for Improvement	148
7.3	Contribution	148
7.4	Conclusion	149
	REFERENCES	150
	APPENDICES	151

LIST OF TABLES

TABLE	TITLE	PAGE
1.1	Project Scope	4
2.1	Software Requirement	41
2.2	Hardware Requirement	42
3.1	Software Requirement	56
3.2	Hardware Requirement	57
3.3	Data for Projek Sarjana Muda Data Warehouse	60
4.1	Input Design for table user login	66
4.2	Input Design for table Report	67
4.3	Input Design for table Topic	68
4.4	Input Design for table CAS	69
4.5	Input Design for table Report, Student and Lecturer	70
4.6	Input Design for table PSM Update	71
4.7	Input Design for table <i>E-panduan</i>	72
4.8	Input Design for table PSM Topic	73
4.9	Input Design for table CAS	74
4.10	Input Design for table Student and Lecturer	75
4.11	Output Design for about information PSM and <i>E-panduan</i>	76
4.12	Output Design for List	77
4.13	Output Design for Status Report	77
4.14	Table student	85
4.15	Table Lecturer	86
4.16	Table Report	86
4.17	Table CAS	87

4.18 Table Topic	87
4.19 Table PSM Update	87
4.20 Function description for request login process	88
4.21 Function description for request E-Report process	90
4.22 Function description for request About PSM process	92
4.23 Function description for request list process	93
4.24 Function description for request E-panduan process.	93
4.25 Function description for request check status process	94
4.26 Function description for request CAS process	95
5.1 Configuration environment setup	115
5.2 Numbering of product version	116
5.3 Implementation Status Projek Sarjana Muda Data Warehousing	117
6.1 Roles and Responsibility of individual involved in testing	122
6.2 PSMDW System	123
6.3 Test Schedule for Projek Sarjana Muda Data Warehouse	124
6.4 Functional Testing Technique	126
6.5 Non-functional Testing Technique	127
6.6 Unit Test Description for Sign In function	128
6.7 Integration / Reliability Testing Description for Sign In function	129
6.8 Unit Test Description for View Information function	130
6.9 Integration / Reliability Testing Description for View Information function	130
6.10 Unit Test Description for Check Status function	132
6.11 Integration / Reliability Testing Description for Check Status function	132
6.12 Unit Test Description for View CAS function	133
6.13 Integration / Reliability Testing Description for View CAS function	133
6.14 Unit Test Description for Submit Report function	134

6.15 Integration / Reliability Testing Description for Submit Report function	135
6.16 Unit Test Description for Submit CAS function	136
6.17 Integration / Reliability Testing Description for Submit CAS function	137
6.18 Unit Test Description for Submit System function	137
6.19 Integration / Reliability Testing Description for Submit System function	138
6.20 Unit Test Description for Change Password function	139
6.21 Integration / Reliability Testing Description for Change Password function	140
6.22 Unit Test Description for Sign out function	140
6.23 Sample Test Data for TEST_PSM_01 Sign In	141
6.24 Sample Test Data for TEST_PSM_05 Submit Report	141
6.25 Sample Test Data for TEST_PSM_06 Submit CAS	142
6.26 Sample Test Data for TEST_PSM_07 Submit system	142
6.27 Sample Test Data for TEST_PSM_08 Change Password	143
6.28 Test Result and Analysis	143

LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	Organization Chart	11
2.2	Query Processing	20
2.3	Two tier software architecture	27
2.4	Waterfall Model	38
2.5	PSM 1 Milestone	44
2.6	PSM 2 Milestone	45
3.1	Business modeling process for current system.	49
3.2	Context diagram	50
3.3	DFD Level 0	51
3.4	Entity Relationship Diagram (ERD)	52
3.5	Decomposition Diagram	55
4. 1	Architecture User Interaction	63
4.2	Navigation Design For Projek Sarjana Muda Data Warehouse (front end)	65
4.3	Interface for login	66
4.4	Interface Report	67
4.5	Interface for topic	68
4.6	Interface for CAS	68
4.7	Interface for Status Report	69
4.8	Interface for Update	70
4.9	Interface for admin <i>E-panduan</i>	71
4.10	Interface for Title	72

4.11	Interface admin for receive CAS	73
4.12	Interface for Change Password	74
4.13	Interface about information PSM and E-panduan	76
4.14	Interface for List	76
4.15	Interface for admin for Status Report	77
4.16	3NF for Table Lecturer	81
4.17	3NF for Table Student	81
4.18	3NF for Table Area_Of_Interest	81
4.19	3NF for Table Interest	81
4.20	3NF for Table Department	82
4.21	3NF for Table Proposal	82
4.22	3NF for Table Keyword	82
4.23	3NF for Table Course	82
4.24	3NF for Table Topic	82
4.25	3NF for Table Report	82
4.26	3NF for Table KeywordInventory	83
4.27	3NF for Table PSM_UPDATE	83
4.28	ERD of Project Sarjana Muda Data Warehouse	84
4.29	SQL Server Enterprise Manager	98
4.30	Step create new database	98
4.31	Database Properties	99
4.32	PSM database	99
5.1	Software Development Environment Setup	105
5.2	Start the Database Services Setup	106
5.3	To login the system	107
5.4	DSN wizard	107
5.5	Selecting a data source name	108
5.6	Security settings	109

5.7	Selecting a default database	109
5.8	Interface PSM update	111
5.9	Interface Login	112
5.10	Interface PSM Update Information	113
5.11	Interface Comment and suggestion	114

LIST OF ABBREVIATIONS

KUTKM	Kolej Universiti Teknikal Kebangsaan Malaysia
FTMK	Faculty of Information and Communication Technology
PSM	Projek Sarjana Muda
PSMDW	Project Sarjana Muda Data Warehouse
DBLC	Database Life Cycle
ERD	Entity Relationship Diagram
DDL	Data Definition Language
DBMS	Database Management System
DFD	Data Flow Diagram
LAN	Local Area Network
CAS	Comment and Suggestion
AJK	Ahli Jawatankuasa
WWW	World Wide Web
PHP	Hypertext preprocessor
HTML	Hyper Text Markup Language
SQL	Structural Query Language
ER	Entity Relational
MSSQL	Microsoft Structural Query Language

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	Gantt Chart	141
B	Log Book	142
C	User Manual	143

CHAPTER 1

INTRODUCTION

1.1 Project Background

PSM Data Warehousing (Front end) is the project for Projek Sarjana Muda (PSM). The implementation of this project is to meet the requirement of Faculty of Information and Communication Technology (FTMK). Besides, it helps to solve the business problem and enhance the business performance of FTMK.

This will be running internally by using local host or server. The user for this system is admin, students and supervisors. Admin is the one who carry out the assign of maintaining the PSM information, he or she can do the update, add, delete, and also check the status of submission of the student's PSM. The admin can also see and reply the comment and suggestion from students. For the students, they can access this system to know senior's report title, to get information about PSM, to know supervisors department and area of interest. The students can submit report in PDF format and softcopy of the system in WINZIP format by online and also can give comment and suggestion on PSM's project. As for the supervisor, they can access this system to get informations on PSM, to know the list of interest, to check the status of submission of the students 's PSM and also can submit comment and suggestion.

Therefore, this application will be built by using standard English language but yet simple and can be easily understood. The interface will follow KUTKM standard in terms of screen layout, background color, font size and font color for headings and contents.

1.2 Problem Statement

- No systematic system for PSM project storage.
 - No systematic system to keep PSM projects, where the submission of all report will be kept in one room with diploma projects. If there is no space to keep all the reports. AJK must find another room to keep the new reports.
- No indexing
 - To find a student report, the AJK must search one by one as there is no indexing method that can fasten searching process.
- Limited space
 - For one room the space is limited so, they have to find another room to keep all the new reports. While FTMK alone needs a lot of spaces,
so there will be much need for spaces.
- review mechanism for previous project title
 - Difficult to search whether the student's PSM purposed title is already done by student before or not.

- difficult to download information manually
 - cannot download softcopy because there is no source
 - if a student want more information on PSM, the student have to see supervisor or PSM's AJK

1.3 Objective

- To decrease time, work force, errors and increasing the work quality in PSM management.
- To create one indexing method to make easy on data information process.
- To replace current method of PSM report storage (save space).
- To make easy on browsing to previous topic for report PSM
- To make easy submission and download process.

1.4 Scope

PSM DW administrator (AJK PSM), student and supervisor are the specific users of PSM DW. For the administrator, the system is a tool to handle all the data, contain and security management. Through this system, the student and supervisor is able to retrieve information from the web site, make online registration, to submit report, can access information about PSM and can viewing. The overall system can be divided into three different modules, administrator's modules, supervisor's modules and student's modules.

Table 1.1: Project Scope

User	Modules	Description
Administrator (secretary)	Maintain system and activity information Check Status Submission Change Password	<ul style="list-style-type: none"> • Allows the administrator to delete information for the specific period. • To clean up the database • Provides functionalities for staff and student to add new, update upload and delete information. • Admin can check status submission student. • Admin can change password • The password will be processed automatically and the information is stored in the database.
Supervisor	View and access Information Check status submission Comment and Suggestion Change Password	<ul style="list-style-type: none"> • Retrieving information about PSM, area of interest, lecturer department, and E-panduan and task supervisor in web base application. • Supervisor check the status of submission of the student's PSM • Supervisor can comment and suggest about PSM. • Supervisor can change password • The password will be processed automatically and the information is stored in the database.
Student	View and access Information	<ul style="list-style-type: none"> • Retrieving information about