ONLINE JOB APPLICATION AND E-SELECTION SYSTEM

NUR ANNA AMIRIAH BINTI AMIR

KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA

© Universiti Teknikal Malaysia Melaka

BORANG PENGESAHAN STATUS TESIS

JUDUL: ONLINE JOB APPLICATION AND E-SELECTION SYSTEM

SESI PENGAJIAN: SEMESTER 1 TAHUN 4 (2006/2007)

Saya NUR ANNA AMIRIAH BINTI AMIR
(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)

Alamat tetap :
946-1 Jalan Sidang Hassan,
Bukit Katil,
75450 Melaka.

Nama Penyelia: Pn Safiza Suhana Kamal Baharin

Tarikh : 26 Oktober 2006 Tarikh : 22/11/2006

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

^ Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM)

© Universiti Teknikal Malaysia Melaka

ONLINE JOB APPLICATION AND E-SELECTION SYSTEM

NUR ANNA AMIRIAH BINTI AMIR

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

FACULTY OF INFORMATION AND COMMUNICATION TEECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA
2007

© Universiti Teknikal Malaysia Melaka

DECLARATION

I hereby this project entitle

ONLINE JOB APPLICATION AND E-SELECTION SYSTEM

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

STUDENT : _____ Date : 22/11/2006
(NUR ANNA AMIRIAH BINTI AMIR)

SUPERVISOR: _____ Date : 22/11/2006
(PN SAFIZA SUHANA KAMAL BAHARIN)

© Universiti Teknikal Malaysia Melaka

ACKNOWLEDGEMENTS

First of all, I would like to thank Allah for His blessings for me to complete this Projek Sarjana Muda (PSM). I would also like to give out my greatest thanks to all people who hed helped me greatly in finishing this Projek Sarjana Muda (PSM) successfully.

I would also like to express my thanks to my Supervisor, Pn Safiza Suhana Kamal Baharin for her guidance, assistance and supports during the development process of Projek Sarjana Muda.

I would also like to thanks the Human Resource Department in KUTKM for giving me an opportunity to have an interview and assist me in giving much information to develop the Projek Sarjana Muda II.

Finally, I like to thank all my friends who had been thoriugh PSM I and PSM II with me from start till the end. And to all people that have contributed directly or indirectly during my Projek Sarjana Muda.

© Universiti Teknikal Malaysia Melaka

ABSTRACT

Most company had started to do their works and business via web-based applications. It is because Internet acts as a medium to promote their products and services to the customers out there. With the assistance of Internet and web-based applications, it may widen their customers and make their jobs much easier than before. Human Resource Department is one of the important department in any organization to organize and responsible to the personnel issues. Therefore, this Online Job Application and E-Selection System was developed for the Human Resource Department in KUTKM to make a recruitment process. This system can be used by the jobseekers and staffs in HR Department. The Online JAES serves two main purposes, to apply job in KUTKM via online and to provide a computerized system of employee selection. The jobseeker needs to be registered to the system before he/she can make the job application. On the other side, all staffs in HR Department are registered by the Chief of Registrar Assistant, who has all restrictions on the applications. Besides of the registration and online job application, this Online JAES serves 3 other modules which are Login, Matching Job and Filtering. The Login module is responsible to authenticate the user. The Matching Job is used to set the criteria for each job and Filtering is used by the staffs of HR Department to check and filter all the received applications. The basis for developing the whole system was driven by the RUP methodology while the UML technique is used for system's design modeling. This system is implemented by using PHP and MySQL as its database.

© Universiti Teknikal Malaysia Melaka

ABSTRAK

Kebanyakan syarikat telah mula bekerja dan menjalankan perniagannya berasaskan aplikasi berasaskan web. Ini kerana Internet bertindak sebagai medium untuk mempromosikan produk dan servis mereka kepada pelanggan. Dengan bantuan Internet dan aplikasi berasaskan web, ia akan menarik lebih ramai pelanggan dan lebih memudahkan kerja mereka daripada sebelumnya. Jabatan Sumber Manusia merupakan salah satu jabatan yang terpenting dalam mana-mana organisasi untuk mengurus dan bertanggungjawab dalam hal-hal yang melibatkan pekerja. Oleh itu, Online Job Application and E-Selection System ini dibangunkan bagi kegunaan Jabatan Sumber Manusia KUTKM untuk melakukan proses pengambilan pekerja. Sistem ini boleh digunakan oleh pencari kerja dan pekerja dalam Jabatan Sumber Manusia. Online JAES ini mempunyai dua tujuan utama iaitu untuk memohon kerja di KUTKM secara *online* dan mengkomputerkan proses pemilihan kerja. Pencari kerja perlu berdaftar terlebih dahulu sebelum memohon pekerjaan. Manakala para pekerja dalam Jabatan Sumber Manusia akan didaftarkan oleh Ketua Penolong Pendaftar yang mempunyai kebenaran capaian ke atas semua permohonan. Selain dari *Registration* dan *Online Job Application*, Online JAES juga mempunyai 3 modul lain iaitu *Login, Matching Job* dan *Filtering*. Modul *Login* bertanggungjawab dalam pengesahan pengguna. *Matching Job* digunakan untuk menetapka criteria-kriteria bagi setiap kerja dan *Filtering* digunakan oleh staf di Jabatan Sumber Manusia untuk memeriksa dan menapis semua permohonan yang diterima. Asas pembangunan keseluruhan sistem ini menggunakan kaedah RUP dan teknik UML digunakan bagi merekabentuk model sistem. Sistem ini dibangunkankan dengan menggunakan PHP dan MySQL sebagai pangakalan data.

© Universiti Teknikal Malaysia Melaka

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE
	PROJECT TITLE	i
	DECLARATION	ii
	ACKNOWLEDGEMENTS	iii
	ABSTRACT	iv
	ABSTRAK	v
	TABLE OF CONTENTS	vi
	LIST OF TABLES	xi
	LIST OF FIGURES	xiii
	LIST OF ACRONYMS	xvii
	LIST OF ATTACHMENTS	xviii
CHAPTER I	**INTRODUCTION**	
	1.1 Project Background	1
	1.2 Problem Statements	2
	1.3 Objectives	3
	1.4 Scopes	4
	1.4.1 Limitation View	4
	1.4.2 Function View	5
	1.5 Project Significance	6
	1.6 Expected Output	8
	1.7 Conclusion	9

© Universiti Teknikal Malaysia Melaka

CHAPTER II LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction 10
2.2 Fact and Finding 11
2.2.1 JobStreet.com Malaysia 14
2.2.2 JobsDB.com.my 16
2.3 Project Methodology 19
2.4 Project Requirements 23
2.4.1 Software Requirements 23
2.4.2 Hardware Requirements 24
2.4.2.1 Memory (RAM) 24
2.4.2.2 Hard Drives 24
2.4.2.3 Web Server 24
2.4.2.4 Internet Connection 25
2.4.2.5 Processor 25
2.5 Project Schedule and Milestones 25
2.6 Conclusion 26

CHAPTER III ANALYSIS

3.1 Introduction 27
3.2 Problem Analysis 28
3.2.1 Understanding Manual Process 28
3.2.1.1 Apply Job 28
3.2.1.2 Filtering 28
3.2.1.3 Call for Interview 29
3.2.2 Manual Process Problems 32
3.2.3 To-Be SystemFunctionality 33
3.2.3.1 Online Registration 34
3.2.3.2 Authorization 34

© Universiti Teknikal Malaysia Melaka

3.2.3.3 Online Job Application 34
3.2.3.4 Email Notification 34
3.2.3.5 Matching Job 34
3.2.3.6 Filtering 34
3.2.4 Use Case Diagram 35
3.2.4.1 Use Case Description 36
3.3 System Architecture 52
3.4 System Requirements 53
3.5 Conclusion 55

CHAPTER IV DESIGN

4.1 Introduction 56
4.2 High-level Design 57
4.2.1 Raw Data 57
4.2.2 System Architecture 60
4.2.3 Static Organization 62
4.2.4 Deployment View 64
4.2.5 Navigation Design 65
4.2.5.1 User Interface Design 66
4.2.5.2 Input Design 73
4.2.5.3 Output Design 79
4.2.6 Database Design 81
4.2.6.1 Logical Database Design 81
4.3 Detailed Design 84
4.3.1 Pseudocode 84
4.3.1.1 Algorithm for Registration 84
4.3.1.2 Algorithm for Login 86
4.3.1.3 Algorithm to Apply Job 87
4.3.1.4 Algorithm to Select Employee 87
4.3.2 Detailed Class Diagram 91

© Universiti Teknikal Malaysia Melaka

4.3.3 Data Dictionary 92
4.4 Conclusion 97

CHAPTER V IMPLEMENTATION

5.1 Introduction 98
5.2 Development Environment Setup 99
5.2.1 Applicant Screen 99
5.2.1.1 Login 99
5.2.1.2 Registration 100
5.2.1.3 Online Job Application 102
5.2.1.4 Check Status 110
5.2.2 Staff/Administrator Screen 112
5.2.2.1 Login 112
5.2.2.2 Main Menu 113
5.2.2.3 Registration 114
5.2.2.4 Registration Staff Success 116
5.2.2.5 Document Checking 117
5.2.2.6 Filtering Process 120
5.2.2.7 Management Setting 124
5.3 Software Configuration Management 126
5.3.1 AppServ Installation 126
5.3.2 MySQL Installation 130
5.4 Conclusion 136

CHAPTER VI TESTING

6.1 Introduction 137
6.2 Test Plan 137
6.2.1 Test Organization 138
6.2.2 Test Environment 138

© Universiti Teknikal Malaysia Melaka

6.2.3 Test Schedule 139
6.3 Test Strategy 139
6.3.1 Classes of Test 140
6.3.1.1 Unit Testing 140
6.3.1.2 Integration Testing 140
6.3.1.3 System Testing 141
6.3.1.4 Validation/User Acceptance Test 141
6.4 Test Case Result 141
6.5 Conclusion 142

CHAPTER VII PROJECT CONCLUSION

7.1 Introduction 143
7.2 Observation on Weaknesses and Strengths 144
7.3 Proposition for Improvement 144
7.4 Contribution 145
7.5 Conclusion 146

REFERENCES

APPENDIXES

© Universiti Teknikal Malaysia Melaka

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Comparison between JAES, JobStreet and JobsDB	19
4.1	Raw Data of the Applicant Profiles	57
4.2	Raw Data of the School Qualification Information	59
4.3	Raw Data of University Qualification	59
4.4	Online JAES Packages Descriptions	63
4.5	Input Design for Registration Form (Applicant)	73
4.6	Input Design for Registration Form	74
4.7	Login Interface (Staff)	74
4.8	Login Interface (Applicant)	75
4.9	Input Design for the Jobs Applied	75
4.10	Input Design for Application Form (Applicant's Details)	75
4.11	Input Design for Application Form (School Qualifications)	76
4.12	Input Design for View Qualification (Schools) Form	77
4.13	Input Design for Application Form (IPT Qualification)	77
4.14	Input Design for Upload Document Forms	78
4.15	Input Design for Experience Form	78
4.16	Input Design for Course/Workshop and Other Information Form	78
4.17	Data dictionary for Registration.	92
4.18	Data dictionary for Application.	92
4.19	Data Dictionary for Kod_Negeri	93

© Universiti Teknikal Malaysia Melaka

4.20	Data Dictionary for Kod_Agama	93
4.21	Data Dictionary for Kod_Jawatan	93
4.22	Data Dictionary for Kod_Bangsa	93
4.23	Data Dictionary for Daftar_Pengalaman	94
4.24	Data Dictionary for Daftar_IPT	94
4.25	Data Dictionary for Daftar_Kelulusan	94
4.26	Data Dictionary for Daftar_MP	95
4.27	Data Dictionary for Daftar_Kegiatan_Luar	95
4.28	Data Dictionary for Kod_IPT	95
4.29	Data Dictionary for Kod_Pengkhususan	95
4.30	Data Dictionary for Kod_Status	96
4.31	Data Dictionary for Had_pemilihan	96
4.32	Data Dictionary for permohonan_lulus	96
4.33	Data Dictionary for lulus_temuduga	96
5.1	Login Screen for Applicants	99
5.2	Registration Screen for Applicants	100
5.3	Job Application Forms for Applicants	104
5.4	Job Application Forms for Applicants	105
5.5	Job Application Forms for Applicants	106
5.6	Job Application Forms for Applicants	107
5.7	Job Application Forms for Applicants	109
5.8	Login Screen for Staff/Administrator	112
5.9	Registration Screen for Staff/Administrator	115
5.10	Set Parameter for Administrator	125
6.1	Test Organization	138
6.2	Test Environment Specifications	138
6.3	Test Schedule	139

© Universiti Teknikal Malaysia Melaka

LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	Manual Process	12
2.2	Front Page of Jobstreet.com Malaysia Website	14
2.3	Front Page of www.jobsdb.com.my Website	16
2.4	RUP	22
2.5	RUP	22
3.1	Apply Job (manual)	29
3.2	Filtering application forms (manual)	30
3.3	Set Interview (manual)	31
3.4	Use Case of Online JAES	35
3.5	Activity Diagram of Online Registration	37
3.6	Sequence Diagram of Online Registration	38
3.7	Activity Diagram of Authorization	40
3.8	Sequence Diagram of Authorization	41
3.9	Activity Diagram of Online Job Application	43
3.10	Sequence Diagram of Online Job Application	44
3.11	Activity Diagram of Filter Application	46
3.12	Sequence Diagram of Filter Application	47
3.13	Activity Diagram of Email Notification	48
3.14	Sequence Diagram of Email Notification	49
3.15	Activity Diagram of Matching Job	50

© Universiti Teknikal Malaysia Melaka

3.16	Sequence Diagram of Matching Job	51
3.17	System Architecture	52
4.1	System software architecture overview based on layers architecture	60
4.2	Online Job Application and E-Selection System packages	62
4.3	Deployment Diagram for Online JAES	64
4.4	Overview of Navigation Design of Online JAES	65
4.5	Registration Interface (Staff)	66
4.6	Registration Interface (Applicant)	67
4.7	Login Interface (Staff)	67
4.8	Login Interface (Applicant)	68
4.9	Applied Job Interface	68
4.10	Applicant's Details Interface	69
4.11	School's Qualification Interface	70
4.12	University's Qualification Interface	71
4.13	Experience Interface	71
4.14	Course/Workshop and Other Information Interface	72
4.15	Upload Documents Interface	72
4.16	Email Notification Interface	79
4.17	Example of Output Design from Email	80
4.18	Class Diagram for Online Job Application and E-Selection System (Applicant)	82
4.19	Class Diagram for Online Job Application and E-Selection System (Staff)	83
4.20	Detailed Class Diagram for Online JAES	91
5.1	Login Screen for Applicants	99
5.2	Registration Screen for Applicants	100
5.3	Success Registration Screen for Applicants	101
5.4	Main Menu for Applicants – Apply Job	102
5.5	Job Application Forms for Applicants	103

© Universiti Teknikal Malaysia Melaka

5.6	Job Application Forms for Applicants	104
5.7	Job Application Forms for Applicants	105
5.8	Job Application Forms for Applicants	106
5.9	Job Application Forms for Applicants	108
5.10	Acknowledgement Screen of Registration	109
5.11	Main Menu of Applicants – Check Status	110
5.12	Example Screen of Checking Application Status	111
5.13	Login Screen for Staff/Administrators	112
5.14	Main Menu for Staff/Administrators	113
5.15	Main Menu for Staff/Administrators – Staff Registration	114
5.16	Registration Screen for Staff/Administrators	115
5.17	Success Registration Screen for Staff/Administrators	116
5.18	Main Menu for Staff/Administrators – Checking Documents	117
5.19	Checking Documents Screen for Staff/Administrators	118
5.20	Checking Documents Screen for Staff/Administrators	118
5.21	Checking Documents Screen for Staff/Administrators	119
5.22	Main Menu Screen for Staff/Administrators – First Selection	120
5.23	First Selection Screen for Staff/Administrators	120
5.24	Main Menu for Staff/Administrators – View the First Selection Result	121
5.25	View Result Screen for Staff/Administrators	121
5.26	Main Menu for Staff/Administrators – Final Selection	122
5.27	Example Screen to make the Final Selection	122
5.28	Main Menu for Staff/Administrators – View Final Result	123
5.29	Example Screen of View Final Result for Staff/Administrator	123
5.30	Main Menu for Staff – Set Parameter	124
5.31	Set Parameter Screen for Administrators	125
5.32	Appserv Installation (1)	126

© Universiti Teknikal Malaysia Melaka

5.33	Appserv Installation (2)	127
5.34	Appserv Installation (3)	127
5.35	Appserv Installation (4)	128
5.36	Appserv Installation (5)	128
5.37	Appserv Installation (6)	129
5.38	Appserv Installation (7)	129
5.39	MySQL-Front Installation (1)	130
5.40	MySQL-Front Installation (2)	131
5.41	MySQL-Front Installation (3)	131
5.42	MySQL-Front Installation (4)	132
5.43	MySQL-Front Installation (5)	133
5.44	MySQL-Front Installation (6)	133
5.45	MySQL-Front Installation (7)	134
5.46	MySQL-Front Installation (8)	134
5.47	MySQL-Front Installation (9)	135
6.1	Top-Down Approach	140

© Universiti Teknikal Malaysia Melaka

LIST OF ACRONYMS

ACRONYMS	MEANINGS
JAES	Job Application And E-Selection
HR	Human Resource
KUTKM	Kolej Universiti Teknikal Kebangsaan Malaysia
PSM	Projek Sarjana Muda
RUP	Rational Unified Process
UML	Unified Modeling Language
PHP	Hypertext Preprocessor
IT	Information Technology
HTTP	Hypertext Transfer Protocol
SDLC	System Development Life Cycle
ASP	Active Server Page
GB	Gigabyte
RAM	Random Access Memory
SMS	Short Message Service

© Universiti Teknikal Malaysia Melaka

LIST OF ATTACHMENTS

ATTACHMENT	TITLE
Appendix A	Gantt Chart
Appendix B	Test Data
Appendix C	Test Description
Appendix D	Test Result

© Universiti Teknikal Malaysia Melaka

CHAPTER I

INTRODUCTION

1.1 Project Background

This is a project developed for a jobseeker who applies for the job in KUTKM and personnel of Human Resource Department in Registrar Office, KUTKM. This project will be developed by referring the manual process of job application in KUTKM and processes to select the candidate employee. This project will focus on two main activities, which are online job application and selection employees in KUTKM. It means that this project will provide a two way communications between jobseekers and HR Department. In the first activity, jobseekers will apply the job online. However, to apply for the job, jobseekers need to register first, and give their absolute email address so that any information or notification will directly send to their mail's inbox.

To gain the second activity, this system will provide a table of administrator codes to specify each of the characteristics for each of the position. Then, the system will compare the inserted information from the jobseekers with the table, whether it is fulfilling the needed characteristics or not. The system will only make the process of selection after the final date and time of the job application.

© Universiti Teknikal Malaysia Melaka

This system also provides a notification via email automatically. Once the jobseekers complete the registration, the system will automatically acknowledge that the registration has been received and ready to be processed. Then, after the selection of employee has done, the system will notify each of the jobseeker of their status whether they are approved or rejected. This system will also provide a notification via email of the status of interview session.

1.2 Problem Statements

An employee selection in KUTKM is done by Human Resource Department of Registrar Office. The process is still done by manual process which jobseekers have to come to Registrar Office or post an empty envelop with their postal address and stamp. However, this process may cause two problems. First, this process may cause a late delivery, lost or damage of the application. Second, it also may produce a problem to a jobseeker that lives far away to come to KUTKM to apply for the vacancies.

Besides, the selection done by human may cause an unfair result. It will happen due to a nature of humanity, kindness, or biased. In case of that, the HR personnel may choose their friends, families, or anyone who has supports from influential people, who are not qualified for the vacancies.

The existing online job application systems have no notification whether the jobseekers' applications have been delivered, undelivered, accepted, or unaccepted. The jobseeker will be wandering about the status of their applications.

The manual process needs a lot of files and application forms. It may cause a bulky of files in the Registrar Office. This may drive into a problem of applications' lost, damage, tear or unseen.

© Universiti Teknikal Malaysia Melaka

1.3 Objectives

a. **To provide a computerized system of employee selection**

Change the manual employee selection to be a computerized system

b. **To reduce time of jobs application delivery by an online system**

Time of delivery of application via online is less compared to the delivery via post

c. **To reduce works of HR staff to select a potential employee**

Works of selecting the employee is done by the system. The HR staffs only can see the applications' information and check the status of each application

d. **Add a medium to display result**

Give a notification of status of the applications, whether they have been received, accepted or rejected. It also tells about the date and venue of interview session if the application has been approved, and notifies the status of the interview session.

e. **Acts as a decision support system to select a potential employee**

The system will make the decision to select the potential employee

© Universiti Teknikal Malaysia Melaka

1.4 Scope

Scope is divided into 2 views which are the limitation of the project and the functions of the project.

1.4.1 Limitation View

a. User

Two types of user are registered jobseeker and registered personnel. . The jobseeker can be anyone who seeks for job. While the registered personnel comes from HR Department only.

b. Software

Can be used only on Windows platform

c. Process applied

An online application to seek job and select potential employee.

1.4.2 Function View

1.4.2.1 Online Registration

Jobseeker needs to register to apply for the vacancies via online. The registration will require username or employee ID, an accurate and active email address and a password. The password can only contains an alphabet (A-Z) or numeric characters.

1.4.2.2 Online Job Application

User can apply two types of vacancies, whether academic or non-academic position. Apart from that, user needs to fulfill all the important fields required and upload any important documents. It can be done by any person; fresh graduate or employed person.

© Universiti Teknikal Malaysia Melaka