Replacement Teacher Job portal Southern Aghwar Directorate Ministry of Education Jordan

OSAMA AHMAD SULEIMAN MARADAT

UNIVERSITI UTARA MALAYSIA 2010



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(Name of Main Supervisor): DR. KANG ENG THYE

Tarikh (Date)

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> > I

ABSTRACT

A web-based online job application becomes the most useful tool to access the information about the applicant, and applicant information is accessible at the press of a button immediately. Graduates need to work hard to get job that may require cost and time, using Internet technology significantly will reduces the cost and time of transferring information over distance. The purpose of this study was to develop a job portal for South Aghwar Directorate in order to replace the old system, which give job seeker a flexible way to access jobs and give them the capability to register, search, and receive information and Enable them to obtain vacancy as a replacement teacher via online services.

Replacement Teacher Job Portal system comprises of a database that is built using MySQL database application software, Apache server as the web server and JSP as its application server. The methodology used is General Methodology using the Unified Modeling Language-UA Approach.

DEDICATION

I dedicate this humble work to my father and mother; the spring of loyalty, affection, and dedication. They raised me on the principles of virtue, to my beloved waif, brothers, sisters, and my daughter; who spared no effort helping me during my school years. I dedicate this work also for my brother Suleiman who shared my journey to study in Malaysia.

I am also expressing my great thankful to all my colleagues and friends at UUM, especially from the Applied Science, College of Arts and Sciences for their help and support, with whom I shared pleasant times, My thanks and gratitude goes to my brother Dr. Eissa Al-kotaba "Abo Amr", "My Uncle", Omer Al-Oshibat "Abo baraa", Reda Al- Oshibat"Abo Razan", Soud Alshamalat "Abo Remass, and my best friend in Malaysia Ali Arhoma and all my family members for their encouragement and support all the period of my studying, and to my AL-MARADAT family.

ACHNOWLEDGEMENT

Praise is to ALLAH for helping me to accomplish this humble study. Also, my thanks to ALLAH who has seen me through to this level in my academic achievement, I would like to seize this opportunity to extend my gratitude to DR. Kang Eng Thye for kindly supervising this study, his priceless instruction and valuable directions had great role in the accomplishment of this report, my evaluator Mrs. Noor Izzah for her suggestions and help, and Mrs. Azizah Bt Haji Ahmad for her suggestions. I would like also to thank all my instructors in the College of Arts and Sciences in the University Utara Malaysia (UUM) for their support.

Thank you UUM.

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CHAPTER ONE INTRODUCTION

1.1 BACKGROUND

Today's competitive business environment has motivated the need for organizations to have the best workforce on their payroll. Employers often receive a large number of applications for an open position due to the strained situation of the labor market. The costs of manually selecting potential candidates have risen and employers are searching for means to automate the selection of candidates (Bizer et al., 2005).

Human resources management, like many business transactions, is increasingly taking place on the Internet (Mochol et al., 2007). An Internet based job recruitment portal is one of the conventional means through which job seekers apply for vacant jobs (Ho, 2002). Using this approach, the job seeker registers and submits his/her Curriculum Vitae (CV) to a web site, while the applicants are expected to periodically check the portal for vacancies that suit the submitted CV. In some cases, a notification is sent by the portal to the email address of the applicant once a vacancy appears.

A portal is a web system with functionalities to authenticate and identify users as well as provide them with an easy, intuitive, personalized and self-customizable web-interface for facilitating access to information and services that are of primary relevance and interests to the users (Ho, 2002).

Ever since the creation of the Hashemite Kingdom of Jordan, its leadership has constant commitment to human resources development through the provision of quality education

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REFERENCES

- Albany. (1998). Models for Action Project: Developing Practical Approaches to Electronic Rescored Management and Preservation, A survey of System Development Process Models.
- Alrai, official web site. (2010)."Jordan Government Daley Newspaper "retrieved in January
 - 2010. <u>http://www.alrai.com/</u>
- Auckland .(2004). Web Applications: What are they? What of them? Retrieved Jan 14, 2010 form <u>http://www.acunetix.com</u>
- Barker, D. (2000). Requirements Modeling Technology: A vision for Better Faster, and Cheaper System. <u>http://www.ittc.ku.edu</u>
- Baxly, B. (2003). what is a web Application?. Boxes and Arrows. http://events.boxesandarrows.com/events/672
- Beins, B. (2004). Research Methods: A Tool for Life. Boston: Allyn & Bacon.
- Bennet, J. Beneventano, S., and Bergamaschi, A. (2002, 2007). Object Oriented Approach methodology, accessed on 10 Feb 2010.
- Bennett, S., McRobb, S. & Farmer R. (2002). Object-oriented Systems Analysis and Design using UML. United Kingdom: McGraw-Hill.
- Bizer C., Ralf Heese, Mochol M., Oldakowski R., Tolksdorf R. and Eckstein R. (2005). *The Impact of Semantic Web Technologies on Job Recruitment Processes*. Available online at: <u>http://wissensnetze.ag-nbi.de/publ/WI2005.pdf</u>
- Bowie, Nolan. (1996). Voting, Campaigns, and Elections in the Future. In Elections in Cyberspace: Toward a New Era in American Politic. edited by Anthony Corrado and Charles.Firestone, 69–96. Queenstown, MD: Aspen Institute.

- Brad bingham, sherrie llg, neil Davidson. (2002). Great Candidates Fast : online Job Application and Electronic processing. Public personal managmenet voleume 31 No. 1 spring 2002
- Casal, D.P. (2005). Advance Software Development For Web Application, Retrived on 10 feb 2010, form <u>http://www.jisc.ac.uk/uploaded_documents/jisctsw_05_05pdf.pdf</u>.

Cem, Kanner. (2003). D. H. What Is a Good Test Case? Department of Computer Sciences. <u>http://www.google.com</u>

Chadwick, Andrew, with Christopher May. (2001). Interaction between States and Citizens in the Age of the Internet: *E-Government in the United States, Britain and the European Union*. Paper presented at the annual meeting of the American Political Science Association, August 30–September 2, San Francisco, CA.

Clark University, Worcester, MA 01610, USA; http://scholar.google.com/scholar

- Cohen, L. and Manion. L. (1994). Research Methods in Education (4th Ed.). London: Routledge.
- Collard. R. (1999). Test Design, Stqemagazine: Software Testing and Quality Engineering. <u>http://www.kiberle.com/STQE1/featured.htm</u>.
- Comet Requirement model, (2007). Retrieved on 21 Feb 2010 from <u>http://www.modelbased.net/comet/requirments_modelling/3b_Requirments_model_html</u>. <u>.html</u>
- Conallen, J.(2000). Builed web application with UML. The Addison-Wesley Object Technology Series
- Creswell, R. (2009). Educational Research, Planning, Conducting and Evaluating Quantitative and Qualitative Research (Third Edition). Pearson International Edition. USA.

- Darrell M. West (2004). E-Government and the Transformation of Service Delivery and Citizen Attitudes. <u>http://scholar.google.com/scholar</u>
- David Nunan. (1992) qualitative research in second language http://books.google.jo/books
- Davis, Richard. (1999). The Web of Politics: The Internet's Impact on the American Political System. New York: Oxford University Press.
- Elliott, R., & Tevavichulada, S. (1999). Computer Literacy and Human Resource Management: A Public/Private Sector Comparison. Public Personnel Management, 28, 259-274.; Ibid. <u>http://www.questia.com</u>
- Farooq, (2006). Public Job Application, <u>http://www.publicjobs.ie/downloads/e-recruitment%20report.pdf</u>
- Foster, (2005). Online Job Application. <u>http://www.get.hobsons.co.uk/advice/job-application-online</u>.
- Fountain, Jane. (1999). The Virtual State: Toward a Theory of Federal Bureaucracy in the 21st Century. In Democracy.com
- Fraenkel. J. and Wallen, N. (1993). How to Design and Evaluate Research in Education. London. McGraw-Hill INC.
- Gay, L. and Airasian, P. (2003). Educational Research: Competencies for Analysis and Applications. (Seventh Edition). Pearson International Edition.
- Gore, Al. (1993). From Red Tape to Results: Creating a Government That Works Better and Costs Less. New York: Times Books.
- Gubrium, J. and Holstein, J.A (Eds). (2002): Handbook of Interview Research: Context and Method. Thousand Oaks, CA: Sage.

- Harris, R., Bala, P., Songan, P., Khoo E., (2001). Chalnges and Opportuentities In Introducing Information and Comunication Technologies To the Kelabit Community of North Centerl Borneo, New Media and Society, Vol. 3, No. 3. September 2001.
- Ho P.T. (2002). Development of the HKU Campus Portal, University of Hong Kong. Available online at: <u>http://www.hku.hk/cc_news/ccnews100/portal.htm</u>
- Introduction to Project Management Principles (2003). Office of Learning Technologies Human Resources Development Canada (HRDC), Retrieved on 10 Jan 2010 from http://www.pmi.org/pages/default.aspx.
- Markoff, John. (2000). A Newer, Lonelier Crowd Emerges in Internet Study. New York Times, February 16, A1.
- Margolis, Michael, and David Resnick. (2000). Politics as Usual: The Cyberspace "Revolution." Thousand Oaks, CA: Sage Publications.
- Mochol M., Jentzsch A. and Wache H. (2007) *Suitable Employees Wanted? Find Them With Semantic Techniques*. Making Semantics Work for Business, European semantic Technology Conference 2007 (ESTC2007), Vienna, Austria, May 31 June 1, 2007. Available online at: <u>http://wissensnetze.ag-nbi.de/publ/mswfb2007.pdf</u>
- Murphy, C. (2000). Online Job Sites Try to Stand Out in the Crowd. Information Week, 779,184.
- New Zealand Ministry of Education Web site, accessed in 18 Feb 2010 . http://www.minedu.govt.nz/theMinistry/AboutUs/Careers.aspx
- Nielsen, J. (2006). *How Many Users to Test Alert box.* Retrieved from <u>http://www.useit.com/alertbox/quantitative_testing.html</u>

Nijaz. (2000). Dynamic web-based application development. New York: Prentice Hall

- Nonacademic Job Search for Graduate Student, (2006). Graduate College Career Services Office University of Illinois at urbana-Champaign.
- Pinaki Shah & Johnny Wong.(2003). Transaction management in an object-oriented system analyses. Journal of Systems and Software Volume 24, Issue 2, February 2003, Pages 115-124. <u>http://www.sciencedirect.com</u>
- Piturro, M. (2000). The Employer's Guide to Recruiting on the Internet, Manassas: Impact Publications . ob. cit.
- Pssuk.com. Advantages of Web Applications. Retrieved on 4 march 2010, from http://www.pssuk.com
- Raney, Rebecca. (2000). Study Finds Internet of Social Benefit to Users. New York Times, May 11, E7.
- Richard T. Cober, Douglas J. Brown, Alana J. Blumental, Dennis Doverspike, Paul Levy. (2003). The Quest for the Qualified Job Surfer: It's Time the Public Sector Catches the Wave. <u>http://scholar.google.com/scholar</u>
- Rosenthal, R. and Rosnow, R. (2008). Essentials of Behavioral Research Methods and Data Analysis, Third Edition, The McGraw-Hill, a business unit of the McGraw-Hill Companies., 1221 Avenue of the Americas, New York, NY, 10020.
- Sarah Niles, Susan Hanson, (2002). The geographies of online job search: preliminary findings from Worcester, MA. Graduate School of Geography,

Singapore Ministry of Education Web site accessed in 18 Feb 2010

http://www.moe.gov.sg/careers/

Singleton, R. and Straits, B. (2002). *Survey Interviewing*. In J.F.Gubrium & J.A Holstein (Eds.), Handbook of Interview Research (pp.59-82): Context and Method. Thousand Oaks, CA: Sage.

- Torchim, W. (2001). *The Research Methods Knowledge Base*. (2nd Ed.). Cincinnati, OH: Atomic Dog Publishing.
- Vaishnavi V & Kuechler B (2007), Design research in Information Systems.. From:<u>http://www.isworld.org/Researchdesign/drisISworld.htm</u>
- Web development knowledge (2008). What Are Active Pages (ASP). http://www.webwizguide.com.