SPORT RESERVATION SYSTEM WITH DECISION SUPPORT SYSTEM FEATURES FOR SPORT COMPLEX OF UNIVERSITI UTARA MALAYSIA

TALAL TALIB JAMEEL AL-HABEEB

UNIVERSITI UTARA MALAYSIA 2008

A THESIS SUBMITTED TO THE FACULTY OF ARTS AND SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE (INFORMATION AND COMMUNICATION TECHNOLOGY)
UNIVERSITI UTARA MALAYSIA

TALAL TALIB JAMEE AL-HABEEB

KOLEJ SASTERA DAN SAINS
(College of Arts and Sciences)
Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK
(Certificate of Project Paper)

Saya, yang bertandatangan, memperakukan bahawa
(I, the undersigned, certify that)

TALAL TALIB JAMEEL
(89298)

calon untuk Ijazah
(candidate for the degree of) **MSc. (Information Communication Technology)**

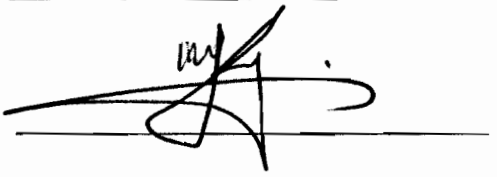
telah mengemukakan kertas projek yang bertajuk
(has presented his/her project paper of the following title)

SPORT RESERVATION SYSTEM WITH DECISION SUPPORT SYSTEM FEATURES FOR SPORT COMPLEX OF UNIVERSITI UTARA MALAYSIA

seperti yang tercatat di muka surat tajuk dan kulit kertas projek
(as it appears on the title page and front cover of project paper)

bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan.
(that the project paper acceptable in form and content, and that a satisfactory knowledge of the field is covered by the project paper).

Nama Penyelia Utama
(Name of Main Supervisor): **DR. KANG ENG THYE**

Tandatangan
(Signature) : 

Tarikh
(Date) : 9/11/2008

PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the University Library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence by the Dean of the Graduate School. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis. Requests for permission to copy or to make other use of materials in this thesis, in whole or in part, should be addressed to

Dean of Graduate School

Universiti Utara Malaysia

06010 UUM Sintok

Kedah Darul Aman.

ABSTRACT

This project presents a web based study highlighting the best practices in designing and building a prototype. It used web-based application in a system which includes both an online reservation system for the sport activities, and DSS to help the manager of the sport complex. This project used object-oriented analysis and design (OOAD) methodology, and UML in designing and developing a prototype. JSP and MYSQL etc. provided adequate support for building a prototype. After developing the prototype, evaluation of it has been done by using usability testing through the distribution of questionnaires on a sample of users including the students and staff. An interview has been held also with the manager of the sport complex in UUM. The responds from the users show that our objectives have been met in this study. We concluded that online sport reservation system provides an opportunity to the users to be familiar with the web applications, and provides enhancement to the management of the sport complex through the use of a data-driven decision support system.

ACKNOWLEDGEMENT

Firstly, I would like to express my deepest sense of gratitude to my supervisor Dr. Kang Eng Thye for his patient guidance, encouragement, understanding, and excellent advice throughout this study. I am also thankful to all my colleagues and friends at UUM, especially from the applied science department for their help and support, with whom I shared pleasant times. My thanks and gratitude goes to my wife, I am deeply and forever indebted to the people in my life that touched my heart and gave me strength to move forward to something better. The people who inspire me to breathe, who encourage me to understand who I am, and who believe in me when no one else does. To my loving Mother, to my only sister, and brother Finally, I would like to dedicate this work to the memory of my father Talib Jameel AL-Habeeb.

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

With the increasing popularity of the Internet many organizations are now looking to create Web-based applications capable of collating, processing and distributing information central to the organizations needs. Applications that not only provide services to the organizations staff, but also to their customers via the Web [26].

Web-based applications are becoming so traditional in our every day life in the sense that it would not go a single day without using them. These applications range from simple to complex ones, where thousands of dollars in revenue are generated. Developing, testing and quality assuring these applications become a challenging job [1].

The University Utara Malaysia was officially integrated on February 16, 1984 with the exclusive mission to give academic quality in the areas of business management education, information technology and quality management. The UUM is an open campus, where both the public and even tourists are welcomed to use the activities available, such as sports and recreation complex.

The Sport and Recreation Complex in UUM is an active student group, where individuals motivated by a common interest and wish to share in a favorite game activity. The sports and recreation complex is has an Olympic-sized swimming pool, a small stadium, an archery range, a badminton hall, a gymnasium, tennis, squash, basketball and volleyball courts, rugby, hockey, softball, handball and football fields and a nine-hole

The contents of the thesis is for internal user only

iv. Add also functionality for the manager that allows him/her to block certain facilities wherever there are any sport tournaments held in the sport complex.

v. Also propose other new DSS feature that will help the manager managing the resources better.

vi. To provide descriptive statistics for different report such as relationship between different games related to time, sport equipment maintenance related to type of games, etc.

REFERENCE

[1]Abdesselam, R., (2002) "Guidelines for Improving the Development of Web-Based Applications" Proceedings of the Fourth International Workshop on Web Site Evolution (WSE'02) 2002 IEEE, pp. 1-2.

[2]University Utara Malaysia, Sport Center (n.d). Retrieved on 11 July 2008, from http://www.uum.my.

[3]History of the World Wide Web in encyclopedia (n.d), Retrieved on 11 July 2008, from http://www.tutorgig.com/ed/History_of_the_World_Wide_Web.

[4]Murugesanugn S., and Ginige A., (2005) Web Engineering: Introduction and Perspectives. Idea Group Inc. Australia

[5]Hobbes' Internet Timeline. (n.d). Retrieved on 4 July 2008, from www.zakon.org/robert/internet/timeline/.

[6]Microsoft, "Internet Information Services," Retrieved on 4 July 2008, from http://www.microsoft.com/windowsserver2003/iis/default.mspx

[7]Netcraft. "Web Server Survey," Retrieved on 11 July 2008, from http://news.netcraft.com/archives/2008/03/26/march_2008_web_server_survey.html

[8] wikipedia, "Internet Information Services," . Retrieved on 6 July 2008, from http://en.wikipedia.org/wiki/Internet_Information_Services

[9] Nielsen, J. and Landauer, T. (2003). A mathematical model of the finding of usability problems. In ACM INTERCHI. Amsterdam, the Netherlands, April. 206-213.

[10] Del, A. (2004). Service oriented web application. Retrieved on 11 July 2008 from http://www.sun.com

[11]Roy T., and Richard N., (2002). Principled Design of the Modern Web Architecture. ACM Transactions on Internet Technology, Vol. 2, No. 2, May 2002, Pages 115–150.

[12]"jessett.com", (n.d). Usability. Retrieved on 4 July 2008, from http://www.jessett.com/index.shtml

[13]Jokela, T. (2000). Modeling Usability Capability: Introducing the Dimension.ACM, Lecture Notes In Computer Science; Vol. 1840. Pages: 73 - 87 .

[14]James B., Walid G., Arif G., and Eugene H. (2001) Security Models for Web-based Applications using traditional and emerging access control approaches to develop secure applications for the Web. Communications of the ACM, Feb. 2001/vol.44,page.2.

[15]Ventures Education Systems Corporation (n.d) "Specialized high efficiency: management web sites for school systems". Retrieved on 6 July 2008, from http://www.vesc-education.com/.

[16]Gorry G., and Michael S. (1971) "A Framework for Management Information Systems," Sloan Management Review, Volume 13, Number 1, Fall 1971, p. 55-70.

[17]Keen, P. G. W. and M. S. Scott Morton (1978). Decision support systems: an organizational perspective. Reading, Mass., (1978) Addison-Wesley Pub. Co.

[18]Sprague, R. H., Jr., and Watson, H. J. (1989). Decision Support Systems: Putting Theory into Practice (2nd ed.). Englewood Cliffs, (1989) NJ: Prentice Hall.

[19]Matrix Controls Pte Ltd.(n.d). "Matrix iS21 System Level Software". Retrieved on 6 July 2008, from http//www.matrix-controls.com.

[20]Konicek K., Hyzny L., and Allegra R. (2003) "Electronic Reserves: the Promise and Challenge to increase accessibility," Library Hi Techi, vol. 21, pp. 102-108, 2003.

[21]Goliath Business Knowledge.(n.d). On demand "Internet hotel reservations: the terms and conditions trap.". Retrieved on 6 July 2008, from http://goliath.ecnext.com.

[22]University of Hong Kong, (n.d). Facility Booking for Internal Hirer. Retrieved on 11 July 2008, from http://www3.hku.hk/iohp/facilities/booking_fac.php.

[23]Philip J., (1973). CSI. Campus Recreation Management Software Allows You to Efficiently Manage all Aspects of Campus Recreation. Retrieved on 1 July 2008, from http://www.csisoftwareusa.com/our_company/CampRecwhitepaper.php /.

[24]Liverpool University. (n.d). Online bookings for members. Retrieved on 3 July 2008, from http://www.liv.ac.uk/sports/book-facilities/book-online.htm.

[25]Warwick District Council. (n.d). Online sports bookings. Retrieved on 5 July 2008, from http://www.warwickdc.gov.uk/wdc.

[26]Neil T. (2001).Online Booking Application: a partial fulfillment of the requirements for the degree of bachelor of engineering in software engineering. School of computing. Napier University

[27]Huabin, C., Xiaodong, Z. and Tianhe C. (2007). An Architecture for Web-based DSS. 6th WSEAS Int. Conf. on Software Engineering, Parallel and Distributed Systems, Corfu Island, Greece, World Scientific and Engineering Academy and Society (WSEAS). Pages 75-79

[28]Articles and Glossary. (n.d). Decision Support Systems. Retrieved on 5 September 2008. From http://www.bestpricecomputers.co.uk/glossary/decision-support-systems.htm.

[29]Dursun, D., Ramesh, S., and Prajeeb, K.(2007). Movie Forecast Guru: A Web-based DSS for Hollywood managers, Special Issue Clusters 43 (4) (2007), Pages 1151-1170

[30]Kohli, R., Piontek, F., Ellington, T., VanOsdol, T. Shepard, M., and Brazel, G. (2001).Managing customer relationships through e-business decision support applications: a case of hospital-physician collaboration, Decision Support Systems 32 (2) (2001), pp. 171–179.

[31]Zeleznikow, J.(2002). Using Web-based decision support systems to improve access to justice, Information and Communications Technology Law 11 (1) (2002), pp. 16–24.

[32]Hemant, K. and Daniel, J.(2001). Decision Support Systems and Web Technologies: A status Report. Pennsylvania State University and University of Northern Iowa. pages: 1-7

[33]Kothari, C.(1995). Research Methodology, Methods and Techniques. Delhi: Wiley Eastern Limited, 1995.

[34]Bahrami, (1999).Software Usability Model and Product Evaluation. United Kingdom: Addison Wesley Longman.

[35]Colbert, (1993). The object-oriented approach: concepts, modeling, and system development. UK: Addison Wesley Longman.

[36]Bennett S., McRobb S., and Farmer R., (2002).Object-oriented systems analysis and design using UML. London: McGraw-Hill.

[37]Ravden S., and Johnson G.(1989). Evaluating Usability of Human Computer Interfaces: a Practical Methods. UK: Ellies Horwood Ltd Chicheste.

[38]Nielsen J., and Landauer T.(1993). A mathematical model of the Finding of usability problems. Netherlands: Amsterdam.

[39]LeBozec, C. and Jaulent, M.(2002)."Unified Modelling Langage and Design of acase-bused retrival System in medical imuging," .Retrieved on Oct 12, 2008, from http://www.amia.org/pubs/symposia/D004957.pdf

[40]Casecomplete, by Serlio Software (2008). "How Use Cases Make Projects More Successful". Retrieved on Oct 17, 2008 from http://www.casecomplete.com/UseCaseBenefits.aspx.

[41]Grgee, M. and Muzer, R. (2007). Role Of UML Sequence Diagram Constructs In Object Lifecycle Concept. Journal of information and organizational sciences, vol. 31 No 1 pages: 63-74.

[42]Spiros, K., Sotiris, K., Constantina, C. and Nikos, L. (2003). A Decision Support System for Wildfire Damage Reduction with UML. EFITA 2003 Conference 5-9. July 2003, Debrecen, Hungary.

[43]Matzko, S. and James, F. (2000), Reveal: A Tool to Reverse Engineer Class Diagrams, Computer Science Department Clemson University.

[44]Booch, G., Rumbaugh, J. and Jacobson, I. (1999), The Unified Modeling Language User Guide, Object Technology Series, Addison-Wesley.

[45]Lynch, P. (2004). A Guidelines to Design a Web Page. Canada: Wrox Press.

[46]Chin, P. and Diehl, A. (1988). Development of an Instrument Measuring User Satisfaction of the Human-Computer Interface Interface Evaluations. Proceedings of ACM CHI'88 Conference on Human Factors in Computing Systems 1988 p.213-218.

[47]Lewis, J.R.(1995) IBM Computer Usability Satisfaction Questionnaires: Psychometric Evaluation and Instructions for Use International Journal of Human-Computer Interaction 1995 v.7 n.1 p.57-78.

[48]Yamamoto, J., Ohsuga, A.and Honiden, S. (1994). Object-Oriented Analysis And Design Support System Using Algebraic Specification Techniques. Software Engineering Conference, 1994. Proceedings., 1994 First Asia-Pacific , 7-9 Dec 1994.

[49]Chan, E.and Bloor, C. (1995). Experience In The Design And Implementation Of An Object-Oriented Network Management System. Computers and Communications, Proceedings. IEEE Symposium. IEEE Computer Society .page: 64.

[50]Xie, Z., Jun Yu, J.and Liu, J. (1999). Applying UML To Gas Turbine Engine Simulation. Technology Of Object-Oriented Languages And Systems. TOOLS 31. Proceedings . Page(s):458 - 464.