

**DEVELOPING AN ONLINE STUDENT ACCOMMODATION
REGISTRATION IN UUM**

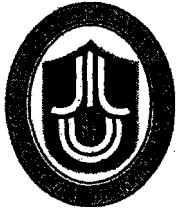
A project submitted to Dean of Awang Had Salleh Graduate School in
Partial Fulfilment of the requirement for the degree
Master of Science of Information Technology
University Utara Malaysia

By

ZAIDON ABAS, MUHSEN

2011

2011
2011
2011



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, certifies that)

ZAIDON ABAS MUHSEN
(803230)

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

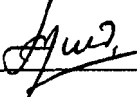
telah mengemukakan kertas projek yang bertajuk
(has presented his/her project of the following title)

DEVELOPING AN ONLINE STUDENT
ACCOMMODATION REGISTRATION IN UUM

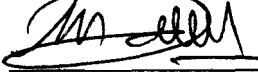
seperti yang tercatat di muka surat tajuk dan kulit kertas projek
(as it appears on the title page and front cover of project)

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

Nama Penyelia
(Name of Supervisor) : **MRS. YUSSALITA YUSSOP**

Tandatangan
(Signature) :  Tarikh (Date) : 26/6/2011

Nama Penilai
(Name of Evaluator) : **MR. MOHD ZABIDIN HUSIN**

Tandatangan
(Signature) :  Tarikh (Date) : 23/6/2011

PERMISSION TO USE

In presenting this project of the requirements for a Master of Science in Information Technology (MSc. IT) 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 project paper in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor or in their absence, by the Dean Awang Had Salleh Graduate School. It is understood that any copying or publication or use of this project 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 project paper.

Request for permission to copy or make other use of materials in this project, in whole or in part, should be addressed to:

Dean Awang Had Salleh Graduate School
College of Arts And Sciences
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman
Malaysia

ABSTRACT (ENGLISH)

The online reservation services allow persons to employ Information Technology without being tied to a single location; it provides greater flexibility than what is possible with desktop. This technology enables users to access the Internet at any time in any location. Different issues have been raised due to the limit of adopting technology to provide flexible techniques, such as UUM accommodation booking system. Hence, this study aimed to develop an online accommodation registration in UUM for managing and organizing UUM accommodation facilities for new postgraduate students. The study adopted the use of System Development Lifecycle methodology for designing and developing the proposed system. In addition, an evaluation was also conducted with 50 post graduate student from UUM to indicate their opinion about the proposed system. The result showed that online accommodation booking system was ease, useful, and satisfies the user's perspectives.

ABSTRAK (MALAYU)

Perkhidmatan tempahan dalam talian membolehkan seseorang untuk menggunakan Teknologi Maklumat tanpa terikat pada lokasi tunggal, seperti di pejabat pendaftaran penginapan, tetapi memberikan fleksibiliti yang lebih besar daripada apa yang tersedia. Teknologi ini membolehkan pengguna untuk mencapai Internet pada bila-bila masa walau di mana mereka berada. Beberapa isu yang berbeza telah diajukan kerana terdapat had untuk menerap Teknologi Maklumat bagi menyediakan teknik yang lebih fleksibel, seperti sistem tempahan penginapan pelajar di UUM . Oleh kerana itu, kajian ini bertujuan untuk mengembangkan teknik pendaftaran dan tempahan penginapan dengan menyediakan satu talian di UUM untuk mengurus dan mengatur kemudahan penginapan bagi mahasiswa pasca-siswazah baru. Penyelidikan ini mengguna-pakai penggunaan metodologi Kitaran Hayat Pembangunan Sistem (SDLC) untuk merancang dan membangunkan sistem yang dicadangkan. Selain itu, penilaian juga dilakukan menerusi 50 orang mahasiswa pasca-siswazah dari UUM untuk mengambil kira pendapat mereka tentang sistem yang dibangunkan. Keputusan kajian menunjukkan bahawa sistem tempahan penginapan dalam talian adalah mudah dan memenuhi perspektif pengguna.

ACKNOWLEDGEMENTS

Praise to Allah for his guidance and blessing for giving me the strength and perseverance to complete this project. I would foremost like to thank my parents, for providing me with the opportunity to pursue my goals and for their love and affection, which has helped me through the most trying times. Equal gratitude goes out to my siblings and brothers. I would like to thank my supervisor: Yussalita bte Md. Yussop for her guidance and constant motivation that has enabled me to complete my project work. Moreover, I would also like to thank her for the opportunities that she has made available to me.

TABLE OF CONTENTS

PERMISSION TO USE	I
ABSTRACT (ENGLISH)	II
ABSTRACT (MELAYU)	III
ACKNOWLEDGMENTS	IV
CHAPTER ONE INTRODACTION	1
1.0 Introduction	1
1.1 Problem Statement	3
1.2 Research Questions	4
1.3 Research Objectives	4
1.4 Research Scope	5
1.5 Research Significance	6
1.6 Research Structure	6
1.7 Summary	7
CHAPTER TWO LITERATURE REVIEW	8
2.1 Web-based Technology	8
2.1.1 Web Applications and their definition	8
2.2 Webs-Based and Communication	9
2.2.1 Advantages of Web-based Applications	10
2.2.2 Principled Design of the Web Architecture	10
2.3 On-line Registration and Booking System	12
2.4 Internet Payment Systems	14

2.5	Related Works	15
2.6	Summary	20
CHAPTER THREE RESEARCH METHODOLOGY		22
3.1	System Development Process	22
3.1.1	Requirement Definition	23
3.1.2	Analysis	23
3.1.3	Design	25
3.1.4	Development	26
3.1.5	Integration and Testing	27
3.1.6	Development and Acceptance	27
3.2	Research Population and Sample	27
3.3	Instrumentation	28
3.4	Pilot Study	29
3.5	Reliability	29
3.6	Validity	29
3.7	Data Collection	30
3.8	Data Analysis	30
3.9	Summary	31
CHAPTER FOUR ANALYSIS AND DESIGN		32
4.1	Introduction	32
4.2	OSRA Requirements	32
4.2.1	Functional Requirements	32
4.2.2	Nonfunctional Requirements	36

4.3	Use Case Diagram	37
4.4	Sequence and Collaborative Diagram	38
4.4.1	Sequence and Collaborative Diagram for Register	39
4.4.2	Sequence and Collaborative Diagram for Login	40
4.4.3	Sequence and Collaborative Diagram for Search	42
4.4.4	Sequence and Collaborative Diagram for Booking	45
4.4.5	Sequence and Collaborative Diagram for Manage Account	47
4.4.6	Sequence and Collaborative Diagram for Send Email	49
4.4.7	Sequence and Collaborative Diagram for Manage Booking	50
4.4.8	Sequence and Collaborative Diagram for Manage Rooms	52
4.5	User Interface	55
4.5.1	Home Page	55
4.6	Summary	61
	CHAPTER FIVE EVALUATION	62
5.1	Reliability	62
5.2	Descriptive Statistic	62
5.3	Correlation Test	64
5.4	Summary	65
	CHAPTER SIX CONCLUSION	66
6.1	Introduction	66
6.2	Problems and Limitations	67
6.3	Recommendations	67
6.4	Conclusion	68

Appendix

69

References

71

LIST OF TABLES

Table 4.1: OSAR Functional Requirement	32
Table 4.2: Non-Functional Requirements	36
Table 5.1: Reliability Statistic for all OSAR	62
Table 5.2: Descriptive Statistic for OSAR	63
Table 5.3: Correlation Test Result	64

LIST OF FIGURES

Figure 1.1: Flowchart of Web	5
Figure 2.1: Web Based Architecture	11
Figure 2.2: Online Booking System Architecture	12
Figure 2.3: Online Booking System	13
Figure 2.4: Online Payment System	15
Figure 2.5: Online booking system based services	16
Figure 2.6: Cambridge online booking system	16
Figure 2.7: Comparison of old system and new system	19
Figure 2.8: System Functionalities	20
Figure 3.1: System Development Lifecycle	22
Figure 3.2: Context Diagram of the Study	24
Figure 3.3: Level-0 Diagram of the Study	25
Figure 4.1: Use Case Diagram for OSRA	38
Figure 4.2: Sequence Diagram for Register	39
Figure 4.3: Collaborative Diagram for Register	40
Figure 4.4: Sequence Diagram for Login	41
Figure 4.5: Collaborative Diagram for Login	42
Figure 4.6: Sequence Diagram for Search	43
Figure 4.7: Collaborative Diagram for Search	44
Figure 4.8: Sequence Diagram for Booking	45
Figure 4.9: Collaborative Diagram for Booking	46
Figure 4.10: Sequence Diagram for Manage Account	47

Figure 4.11: Collaborative Diagram for Manage Account	48
Figure 4.12: Sequence Diagram for Send Email	49
Figure 4.13: Collaborative Diagram for Send Email	50
Figure 4.14: Sequence Diagram for Manage Booking	51
Figure 4.15: Collaborative Diagram for Manage Booking	52
Figure 4.16: Sequence Diagram for Manage Rooms	53
Figure 4.17: Collaborative Diagram for Manage Rooms	54
Figure 4.18: Home Page	55
Figure 4.19: Login Page	55
Figure 4.20: Registration Page	56
Figure 4.21: Booking Page	56
Figure 4.22: Booking Page 2	57
Figure 4.23: Admin Login Page	57
Figure 4.24: Admin Home Page	58
Figure 4.25: Manage Room Page	58
Figure 4.26: Manage Booking Page	59
Figure 4.27: Manage User Page	59
Figure 4.28: Email Page	60
Figure 4.29: Booking Report Page	60
Figure 4.30: Room Report Page	61

CHAPTER ONE

INTRODUCTION

This chapter briefly elaborates the main idea of this work, providing answer of the question why the study was conducted and what is the main element involved in the study. The first sub-topic describes the overall idea in this study through the scenario and motivation that lead to the implementation of the whole project. This is followed by the problem statement, research question, and objectives of the study, significance of the study and scope of the study. The last sub-topic elaborates the way this project is organized.

1.0 Introduction

The student accommodation and reservation services vary from the traditional mode in the capability to set services regardless of worldly and special confinements (Stewart & Shen, 2005). They are also unlike from traditional interpersonal services that are delivered face-to-face or from other types of e-services for example e-solution. Where the service delivery is connected to a definite settled local area network (Carter & Bélanger, 2005).

A suitable use of the online accommodation or reservation services has given a new application for managing and processing the information given through online services. The ability of online services is mainly focuses on reducing the effort and the time of the users, otherwise improves client services and improves the services validation efficiency (Wright, 2005). Web-based applications are becoming so traditional in our everyday life in the sense that it would not go a single day without using them. These applications range from simple to complex ones.

The contents of
the thesis is for
internal user
only

References

- Accommodation Service. (2011). Retrieved 5-March-2011, 2011, from <http://www.accommodation.cam.ac.uk>.
- Ahmad, H., Udin, Z., & Yusoff, R. (2001). Integrated process design for e-learning: a case study. *Paper presented at the the Sixth International Conference on Computer Supported Cooperative Work in Design*, London, Ont. , Canada.
- Ahn, T., Ryu, S., & Han, I. (2004). The impact of the online and offline features on the user acceptance of Internet shopping malls. *Electronic Commerce Research and Applications*, 3(4), 405-420.
- Ahn, T., Ryu, S., & Han, I. (2007). The impact of Web quality and playfulness on user acceptance of online retailing. *Information & Management*, 44(3), 263-275.
- Bajgoric, N. (2000). Web-based information access for agile management. *International Journal of Agile Management Systems*, 2(2), 121-129.
- Capps, S. P. (2004). Online service registration system and method: US Patent 6,711,682.
- Cardoso, J., Sheth, A., Miller, J., Arnold, J., & Kochut, K. (2004). Quality of service for workflows and web service processes. *Web Semantics: Science, Services and Agents on the World Wide Web*, 1(3), 281-308.
- Carter, L., & Bélanger, F. (2005). The utilization of e government services: citizen trust, innovation and acceptance factors. *Information Systems Journal*, 15(1), 5-25.
- Chan, P. P. W., & Lyu, M. R. (2008). Dynamic Web service composition: a new approach in building reliable Web service. *Paper presented at the Conference on Advanced Computing*, US.
- Cohen, A. D. (1999). Strategies in learning and using a second language. *Strategies*, 3(4), 2-6.
- Cossentino, M., Burrafato, P., Lombardo, S., & Sabatucci, L. (2010). Introducing pattern reuse in the design of multi-agent systems. *Agent Technologies, Infrastructures, Tools, and Applications for E-Services*, London, 107-120.
- Fernández-Caballero, A., López-Jaquero, V., Montero, F., & González, P. (2003). Adaptive Interaction Multi-agent Systems in E-learning/E-teaching on the Web. *Web Engineering*, 359-366.
- Garro, A., & Palopoli, L. (2010). An xml multi-agent system for e-learning and skill management. *Agent Technologies, Infrastructures, Tools, and Applications for E-Services*, London, 283-294.
- Gay, L. R., & Airasian, P. W. (2000). *Educational research: Competencies for analysis and application*. Upper Saddle, NJ: prentice Hall.
- George, C., & Scerri, J. (2007). Web 2.0 and User-Generated Content: legal challenges in the new frontier. *Journal of Information, Law and Technology*, 2, 1-22.

Glasgow. (2011). Online application for accommodation. Retrieved 12-March-2011, 2011, from <https://onlineapps.accom.gla.ac.uk/>

Gregg, D. (2007). E-learning agents. *Learning Organization*, 14(4), 300-312.

Ha, S., & Stoel, L. (2009). Consumer e-shopping acceptance: Antecedents in a technology acceptance model. *Journal of Business Research*, 62(5), 565-571.

Hasibuan, Z. A., & Santoso, H. B. (2005). The Use of E-Learning towards New Learning Paradigm: Case Study Student Centered E-Learning Environment at Faculty of Computer Science-University of Indonesia.

Higaki, Y., Ayuha, T., & Tutiya, S. (2006). Construction and operation of a registration system in a university. *Systems and Computers in Japan*, 37(10), 69-80.

Carat, I. (2002). The Future of Wireless Marketing, Retrieved 26-April-2011, from http://www.ebusinessforum.gr/content/downloads.Wireless_WhitePaper.pdf.

Janda, S., Trocchia, P. J., & Gwinner, K. P. (2002). Consumer perceptions of Internet retail service quality. *International Journal of Service Industry Management*, 13(5), 412-431.

Järveläinen, J. (2007). Online purchase intentions: an empirical testing of a multiple-theory model. *Journal of Organizational Computing and Electronic Commerce*, 17(1), 53-74.

John, F., & Wallen, N. E. (1993). *How to design and evaluate research in education*: McGraw-Hill, New York.

Jureta, I. J., Faulkner, S., Achbany, Y., & Saerens, M. (2007). Dynamic web service composition within a service-oriented architecture. *International Conference on Web Services*, Salt Lake City, Utah, USA, 304-311.

Kim, M., Lee, J. W., Lee, Y. J., & Ryou, J. C. (2008). Cosmos: A middleware for integrated data processing over heterogeneous sensor networks. *ETRI journal*, 30(5), 696-706.

Klein, S., Kohne, F., & Oorni, A. (2005). Barriers to online booking of scheduled airline tickets. *Handbook of Consumer Behavior, Tourism, and the Internet*, 27-31.

Knight, A., & Dai, N. (2002). Objects and the Web. *IEEE Software*, 1 (2) 51-59.

Kotzab, H. (2005). The role and importance of survey research in the field of supply chain management. *Research Methodologies in Supply Chain Management*, 125-137.

Krohn, M. (2005). *Building fast and secure Web services with OKWS*. Citeseer.

Lankton, N. K., & Wilson, E. V. (2007). Antecedents and dimensions of online service expectations. *IEEE Transactions on Engineering Management*, 54(4), 776-788.

Louise, M., & Venter, I. (2011). Booking student accommodation on the go! Retrieved 3-04, 2011, from www.cs.uwc.ac.za/~ilouise/PaperML.pdf.

- Mukherjee, A., & Nath, P. (2003). A model of trust in online relationship banking. *International Journal of Bank Marketing*, 21(1), 5-15.
- Naini, V., Sadasivam, R. S., & Tanik, M. M. (2008). A Web-based interactive Student Advising system using Java frameworks. *Paper presented at the Southeastcon*, Huntsville, AL, 172 - 177.
- O'Neill, E. L. (2004). *Introduction to statistical optics*: Dover Pubns.
- O'Sullivan, E., Rassel, G. R., & Berner, M. (2003). *Research methods for public administrators*, Longman, New York.
- Olsen, K., & Malizia, A. (2005). Flexible User Interfaces for B2C Systems, Using Booking as a Case Study. *Paper presented at the Proceedings HCI 2005*, Las Vegas, USA.
- Oppenheim, A. N. (1998). *Questionnaire design, interviewing and attitude measurement*: Pinter Pub Ltd.
- Pedersen, C. B., Gøtzsche, H., Møller, J., & Mortensen, P. B. (2006). The Danish civil registration system. *Dan Med Bull*, 53(4), 441-449.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnla, S. (2004). Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet Research*, 14(3), 224-235.
- Rea, L. M., Parker, R. A., & Allen, R. (1997). *Designing and conducting survey research: A comprehensive guide*. Jossey-Bass Publishers: San Francisco, CA.
- Sajja, P. (2008). Multi-agent system for knowledge-based access to distributed databases. *Interdisciplinary Journal of Information, Knowledge, and Management*, 3, 1-9.
- Shah, N., Iqbal, R., James, A., & Iqbal, K. (2009). Exception representation and management in open multi-agent systems. *Information Sciences*, 179(15), 2555-2561.
- Shih, P., Muñoz, D., & Sánchez, F. (2006). The effect of previous experience with information and communication technologies on performance in a Web-based learning program. *Computers in Human Behavior*, 22(6), 962-970.
- Stewart, C., & Shen, K. (2005). Performance modeling and system management for multi-component online services. *Paper presented at the NSDI'05 Proceedings of the 2nd conference on Symposium on Networked Systems Design & Implementation*, CA, USA.
- System Development Life Cycle (2000). Retrieved 9-March-2011, 2011, from http://en.wikipedia.org/wiki/Systems_Development_Life_Cycle.
- Tseng, J., Chu, H., Hwang, G., & Tsai, C. (2008). Development of an adaptive learning system with two sources of personalization information. *Computers & Education*, 51(2), 776-786.
- Wright, K. B. (2005). Researching Internet Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services. *Journal of Computer Mediated Communication*, 10(3), 00-00.

Xiaoguang, W., & Junping, L. (2007). Risk Control and Estimation of Online Services Market Segmentation. *Paper presented at the Conference on Online Services*, US.

Zarantonello, L., & Schmitt, B. H. (2010). Using the brand experience scale to profile consumers and predict consumer behaviour. *Journal of Brand Management*, 17(7), 532-540.

Zeng, L., Benatallah, B., Ngu, A. H. H., Dumas, M., Kalagnanam, J., & Chang, H. (2004). QoS-aware middleware for web services composition. *IEEE Transactions on Software Engineering*, 30(5), 311-327.

Zikmund, W. (2000). *Business Research Methods*, 6th (ed) Dryden Press, USA.