

**ONLINE SERVICE QUALITY EVALUATION SYSTEM FOR RESIDENTIAL
HALL IN UNIVERSITI UTARA MALAYSIA**

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**ONLINE SERVICE QUALITY EVALUATION SYSTEM FOR RESIDENTIAL
HALL IN UNIVERSITI UTARA MALAYSIA**

**A project submitted to Dean of Research and Postgraduate Studies office in partial
fulfillment of the requirement for the degree Master of Science (Information
Technology) Universiti Utara Malaysia**

By

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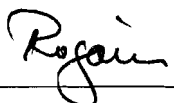
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ABSTRAK (BAHASA MALAYSIA)

Kelebihan dari perkhidmatan internet tidak boleh terlalu menekankan terutamanya dalam persekitaran akademik di mana terutama digunakan untuk e-learning sebagai perkhidmatan dalam talian. Universiti-universiti yang dikenali untuk menyediakan bagi pelajar mereka dengan memberi mereka tempat penampungan, yang dikenali sebagai Mahasiswa Hall of Residence. Maybank Hall pegawai Residence menyediakan banyak perkhidmatan untuk penghuni mereka di lorong. Namun, perkhidmatan ini masih harus dinilai untuk mengetahui kualiti perkhidmatan mereka memberi kepada penghuninya. Projek ini desain model keperluan dan mengembangkan suatu prototaip untuk membolehkan Kualiti Perkhidmatan bagi penghuni dari Maybank Mahasiswa Hall of Residence untuk menilai perkhidmatan menggunakan borang on-line. Keputusan yang dihasilkan selama fasa implantasi projek ini menunjukkan bahawa sistem ini berkesan dan mudah untuk belajar.

ABSTRACT (ENGLISH)

The advantages of internet services cannot be overemphasized especially in the academic environment where it is mainly used for e-learning as online services. The universities are known to provide for their students by giving them shelters, known as Student Hall of Residence. Maybank Hall of Residence officers provide many services for their occupants in the hall. However, these services are yet to be evaluated in order to know the services quality they are giving to their occupants. This project designs a requirement model and developed a prototype to allow the Service Quality for the occupants of the Maybank Student Hall of Residence to evaluate the services using the on-line evaluation system. The result generated during the implantation phase of this project shows that the system is effective and easy to learn.

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CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

Management needs to explain and imbibe its culture in its employees; this will enable the employees to get familiar with the organizational system. During this process of explanation, the employees learn about the organizational culture and decide whether he can cope with it or not. This means that each organization is a learning environment and it is the proper understanding of the organizational culture to check the performance of the employee in the organization. Performance is the extent to which an individual is carrying out assignment or task. It refers to the degree of accomplishment of the task that makes up an employee's job (Cascio, 2006). Job performance is the net effect of an employee's effort as modified by abilities and roles or task perceptions (Terrence, 1985).

Universiti Utara Malaysia (UUM) at Northern part of Malaysia is a public university which is located in a small town called Sintok, Kedah State. The university was officially established on February 16th, 1984 and its mission is to play leadership role in developing the country by providing high quality

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REFERENCES

- Amany, S., & Marcia, L. (2007). *Designing a Summative Evaluation Tool for the Online Class*. Proceedings of the 6th conference on IASTED Conference Web-Based Education, Vol. 2.
- Archieved information, URL: www2.ed.gov/pubs/EdTechGuide/ retrieved on 04/03/2011
- Baggott, G., & Rayne, R. (2001). Learning Support for Mature, Part-time, Evening Students: Providing Feedback via Frequent, Computer-Based Assessments. Proceedings of the Fifth International Computer Assisted Assessment Conference, Loughborough University.
- Barclay, K., & Savage, J. (2004). *Object-Oriented Design with UML and Java*.
- Belcadhi, L.C., & Braham, R. (2005). Knowledge Evaluation in Online Educational Systems. IEEE Explore, p. 114.
- Bennett, S., McRobb, S., & farmer, R. (2002). *Object-Oriented System Analysis And Design*. 2nd Edition. UK, McGraw Hill.
- Berry, J., & Parasuraman, K. (1997). *Listening To the Customer: The Concept of a Service-Quality. Information System*, www.dialnet.unirioja.es/servlet/

- Cascio, W. F. (2006). *Managing Human Resources: Productivity, Quality of Life, Profits*. McGraw-Hill Irwin.
- Chung, L., Nixon, B. A., Yu, E., & Mylopoulos, J. (1999). *Non-Functional Requirements in Software Engineering*. Kluwer Academic Publishing.
- Conallen, M. (2000). *Testing Processes of Web Applications*. *Annals of Software Engineering*, Vol. 14, No. 1- 4, pp. 93-114.
- Crosby, P.B. (1979). *Quality is Free: The Art of Making Quality Certain*. McGraw-Hill, New York, NY.
- Dale, B., & White, I. (2007). *Proceedings of the Workshop on Shared Tasks and Comparative Evaluation in Natural*.
- Dan, C., & Morris, S. (1999). *A Survey of Quality of Service in Mobile Computing Environment*. *IEEE Communications Survey*, pp. 2-10.
- Dang, Q. et al. (2009). *Implementation and Performance Evaluation of a Quality of Service Support for OLSR in A Real MANET, icst. Simutool*.
- Dennis, A., Wixom, B.H., & Tegarden, D. (2005). *System Analysis And Design With Uml Version 2.0: An Object-Oriented Approach With Uml*, 2nd edition. Hoboken, NJ: John Wiley and Sons, Inc

- Denver, E. et al. (2007). *A Qualitative Assessment of the Service Encounter*, *Advances in Hospitality and Leisure*. Vol. 3, Emerald Group Publishing Limited, pp. 105-127.
- Deora, V. et al. (2006). *Modeling Quality Of Service In Service Oriented Computing*. IEEE Explore, pp. 1- 7.
- Derren, S., & Barry, H. (2004). *An Evaluation of Customer Perception of Fm Service Delivery*. Vol. 22 Iss: 7/8, pp. 170-177.
- Germaine, S. (2001). *Strategic Performance Evaluation: Descriptive and Prescriptive Analysis, Industrial Management and Data Systems*. Vol. 101 Iss: 8, pp. 390-399.
- Gibbs, G., & Simpson, C. (2002). *How Assessment Influences Student Learning, A Literature Review And Technical Report*. Center for Higher Education Practice Open University, pp. 2-26.
- Graham, P. (2001). *The Other Road Ahead*. www.paulgraham.com/road.html, Retrieved On 23/11/2010.
- Gronroos, C. (2001). *The Perceived Service Quality Concept – A Mistake?* *Managing Service Quality*, Vol. 11, No. 3, pp. 150 – 152.
- Hoffer, J. A., George, J., & Valacich, J. (2002). *Modern Systems Analysis and Design*. New Jersey: Prentice Hall.

- Hoyle, D. (2001). *ISO 9000 Quality System Handbook*. Elsevier Science Publisher, Boston. 4th Edition.
- Huba, M.E., & Freed, J.E (2000). *Learned-Centered Assessment on College Campuses*. Allyn & Bacon Needman Height, MA., p. 34
- IEE Std 830. (1998). *IEEE Recommended Practice For Software Requirements Specifications*.
- Irvine, M. (1998). Net Knowledge: The Coming Revolution in Higher Education. *The Journal of Georgetown's Communication, Culture and Technology Programme*, pp. 23-46.
- Johan, k. (2004). *Information System Analysis And Design Retrieved: October 2005*, available from: <http://www.cs.toronto.edu/~jm/3405/slides2/sequenceD.pdf>.
- Jokinen, K. 1996. *Adequacy and Evaluation. Procs of the ECAI-96 workshop "Gaps and Bridges: New Directions in Planning and Natural Language Generation"*. Budapest, Hungary. pp. 105-107.
- Jorge, C. et al. (2004). *Quality of Service for Workflows and Web Service Processes*. *Journal of Web Semantics*, pp. 1- 40.
- Juran, J.M. (1988). *Juran's Quality Control Handbook*. McGraw-Hill, New York. 4th Edition.

- Kem, R. (2010). *Service Quality in Academia: A South African Experience*. IEEE Explore, pp. 1- 8.
- Kevin, A., & Denis, G. (2004). *A Near Optimal Approach to Quality of Service Data Replication Scheduling*. Proceedings of the 2004 Winter Simulation Conference. pp. 1847 – 1855.
- Kling, A. (1994). *The Economic Consequences of the World Wide Web*. Paper Presented At The Second World Wide Web Conference: Mosaic and the Web, Geneva, Switzerland.
- Konick, K., Hyzny L., & Allegra, R. (2003). Electronic Reserved: The Promise And Challenge To Increase Accessibility. *Library Hi Tech* 21 (1), pp. 102-108.
- Kristiina, J. (2007). *Quality of Service and Communicative Competence in NLG Evaluation*, ACM Journal, pp. 3-6.
- Mait, J. (2008). *e-Government in Malaysia [Electronic Version]*, 96. Retrieved on 06/12/2010.
- Martin, F., & Kendall, S. (2000). *UML Distilled: brief guide to the standard object modeling language* (2nd ed.). Boston, USA: Addison-Wesley Longman Publishing Co.
- Mary Beth et al. (2000). *Exploratory Analysis of Factors Influencing Performance Dynamics of Telecommuters and Traditional Office Workers*.

- Journal of IEEE, Transactions on Systems, Man and Cybernetics, pp 239-252.
- McAlpine, M., & Higgison, C. (2001). Online Tutorial E-Book, Online Tutorial Skills Project. URL: www.otis.scotcit.ac.uk
- Nijaz, B. (2006). *Information Systems for E-Business Continuance: A Systems Approach*. Kybernetes, Vol. 35 Iss: 5, pp.632 – 652.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). *SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions*. Journal of Retailing, 64(1), 12.
- Pedro, et al. (2007). *A User Perspective for End-To-End Quality of Service Evaluation in Multimedia Networks*, ACM journal, pp133-138.
- Rajasekar, S., & Philominathan, P. (2000). *Research and Development Management and Stock Diagram: An Exploratory Study*. Journal of Technology Management and Innovation, pp. 1-15.
- Rohit, A. and Mohammed, I. (2008). *Analysis of Quality of Service (QoS) in WiMAX Network*. 16th IEEE Conference on Digital Object Identifier, pp. 1-8.

- Samuel, K. (2007). *Autonomic QoS-Aware Resource Management in Grid Computing using Online Performance Models*. Proceedings of the 2nd International Conference on Performance Evaluation Methodologies and Tools.
- Stomgren, O. (2007). *Analyzing Service Quality: A Study among Peruvian Resort Hotels*. pp. 25-26.
- Terrence, E.D. (1985). *The Symbolism of Effective Schools*. The Elementary School Journal, pp. 601-620.
- Uebersax, J. S. (2006). *Likert Scales: Dispelling the Confusion*. p. 26.
- Valentina, L., Angela, P.A, Amir, D., Jose, P.K., & Neil, A.M.M. (2009). *An Online Forum as a User Diary for Remote Workplace Evaluation of a Work-Integrated Learning System*. Proceedings of 27th International Conference Extended Abstracts on Human Factors in Computing System.
- Xiaohong, W., Yilie, P., & Liwei, L. (2010). *Research on the Value of Business Information Online Based on Fuzzy Comprehensive Evaluation*. Proceedings of 2010 International Conference on Web Information System and Mining.
- Yutu, Liu et al. (2004). *QoS Computation and Policing In Dynamic Web Service Selection*. ACM, pp. 66-73.

Zeithaml, V.A., Berry, L.L., & Parasuraman, A. (1988). *Communication And Control Processes in the Delivery of Service Quality*. *Journal of Marketing*, Vol. 52, pp. 35-48.

Zhu, F. (2004). *A Framework to Develop a University Information Portal*. *IEEE Explores*, pp. 506-509.