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RESTAURANT RESERVATION SYSTEM USING ELECTRONIC CUSTOMER RELATIONSHIP MANAGEMENT

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Abstract

In this era of technology, online reservation system has been applied in many organizations to reserve many type of appointments. Makette Restaurant, a restaurant with steamboat and grill concept is currently using manual process to handle their reservation process. Customer is required to come to the restaurant in order to reserve table in the restaurant which is inefficient. To overcome the problem, a system name Makette Steamboat & Grill Reservation System (E-MASTERS) is developed using System Development Life Cycle (SDLC) methodology with Adapted Waterfall Model. Electronic Customer Relationship Management (eCRM) is implemented in E-MASTERS to improve customer satisfaction while using the system. The prototype of E-MASTERS is tested and evaluated in term of functionality and usability by three (3) expert evaluators from different background and thirty (30) respondents. Respondents deemed the system is easy to use based on the result. Future work involves more implementation of eCRM to improve the system from customer satisfaction aspect.

Keywords: eCRM, restaurant reservation system, SDLC

1.0 BACKGROUND OF THE STUDY

The development of online reservation system has stimulated the growth on restaurant services. Many restaurants have replaced the manual procedures of handling the business with an online restaurant reservation system. It is important to improve revenue management, real time processing, reservation management and reduce administrative time and expense. Online restaurant reservation system helps to estimate demand from its customers in a more accurate way and therefore, to improve sourcing and staffing, and to manage profit more productively. A survey by Kimes (2009) shows that one third out of 696 restaurant customers had made online reservation. By using online reservation system, customers can reduce the transaction cost as opposed to other approach (Mushtaq et. al., 2010).

Makette Restaurant offered manual process to customers that intended to make a reservation. The reservation business process for the restaurant starts when a customer makes a reservation via phone call. The staff that is responsible to collect information will respond to them. Specific information is needed

when making a restaurant reservation. The customer will ask for time and date availability when making a reservation. The staff will check for table availability in order to the continue reservation process. If the reservation is not available, the customer may request for another date and time. If there is availability, the staff asks the customer's name, phone number, and number of people (adult or children). The customer will provide the information requested. The staff will record and store customer information and reservation details in a logbook.

An investigation has been made on current business process of Makette Restaurant. Based on investigation and interview result, there are a few issues appear such as communication misunderstanding when taking a reservation, lack of information and data inconsistency of manual record keeping. The restaurant needs to discard those unwanted problems in order to improve current system. These problems have affected business performance. By applying reservation online, customer could feel the sense of security and having more personal connection with the restaurant (Kimes, 2009).

This paper is divided into the following sections: Section 1 introduce on background study of the work followed by Section 2 where review on literature related to this work are discussed. Section 3 discussed on methodology chosen in order to execute the work. Section 4 discusses on the result and findings. Section 5 finally concluded on works that had been done and recommendations on future works.

2.0 LITERATURE STUDY

2.1 Online Reservation System

Online reservation system is very crucial for every business. The development of online reservation system has been applied to hotel industry, air tickets, car rental and other related services (Ivanov, 2008). It is important for any organization to identify the newest technology that can maximize their sales and profit. Uses of online reservation system may improve the efficiency of business process.

An online reservation system should provide these phases in reservation process. The reservation's phases consist of information availability, allow customer to make a reservation, confirm reservation and make online payment (Rus & Negruşa, 2014). Ivanov (2008) highlights that view the changes in reservation status, proper website design, information completeness, customization, ease of update, online payment and interactivity concept are the characteristic that should be included in reservation system. Kimes and Kies (2012) state in their study the benefits of using online sites which are adding new distribution channel, increased reservation consistency, reservation electronic books, table management tools and improved customer data.

Based on article wrote by Ivanov (2008), changes in reservation status indicate the outcome when users finished the reservation process. The system should provide the information about reservation availability and users will able to make reservation online. Update from users' action will be published in the system. Building a proper design for reservation system can improve user satisfaction.

The system's characteristic which is information availability stated by Rus and Negruşa (2014) stated that information availability is a system's characteristic, whereas Ivanov (2008). Rus & Negruşa (2014) proposed criteria for online reservation system which are confirmation or instant conformation in their articles. Online payment can be inserted in system's feature (Rus & Negruşa, 2014; Ivanov, 2008). Ivanov (2008) apply similar criteria which is customization for reservation system. Table 2.1 shows the characteristics and compilation of online reservation system.

Table 2.1 Characteristic of Online Reservation System

Characteristic	Availability of Characteristic		
	Rus & Negruşa(2014)	Ivanov (2008)	Kimes & Kies (2012)
Information availability	/	/	/
Make a reservation	/		/
Confirmation	/		
Online payment	/	/	
See the changes in reservation status		/	/
Proper website design		/	
Customization		/	
Ease of update		/	/
Interactivity concept		/	
User friendliness			

2.2 Electronic Customer Relationship Management (eCRM)

The emergence of internet has changes the behavior of people towards business strategies. Customer relationship management (CRM) is the process to identifying business strategy that companies use to manage and personalize the needs of an organization's current and potential customers. Electronic Customer Relationship Management (eCRM) is derived from adaptation of CRM methodology in internet environment that provide the solution that help and improve customer relationship using net (Farooqi & Dusia, 2011). The use of eCRM can increase the probability that other unknown services offered by organisation to get promoted to customer (Aldaihani, 2018).

eCRM refers to the marketing activities, techniques and tools through the Internet with a specific aim to identify, build and enhance long term relationship, improve customer service and retain valuable customer (Kennedy, 2006). It is important to understand that eCRM can be applied in restaurant environment. It is important to understand that eCRM can be applied in restaurant environment. Table 2.2 shows the comparison on dimension of eCRM suggested by past literatures.

Table 2.2 Comparison on Dimension of eCRM

No.	Dimension of eCRM	Availability of Features	
		Ab Hamid et al. (2011)	Aldaihani(2018)
1	Quality of information	/	
2	Quality of customer service	/	
3	Ease of navigation	/	/
4	Fulfillment of orders	/	/
5	Integration marketing channel	/	
6	Online community	/	
7	Reward	/	

8	Site security	/	/
9	Trust	/	/
10	Value-added services	/	
11	Personalized service	/	
12	Price attractiveness	/	

3.0 METHODOLOGY

The Project Development Methodology of Makette Steamboat & Grill Reservation System (E-MASTERS) consists of 3 phases which are System Planning, System Development and System Documentation. Firstly, system planning explained about the planning activity during the implementation. Planning indicates the act or process of thinking and carrying out the activities required to achieve a specific goal. Second phase is system development which covers analysis, design, development and testing & evaluation activities. Third phase indicates system documentation which is collecting information, evidence and project report for E-MASTERS final report. This methodology helps to track each progress successfully. Table 3.1 shows the framework for project development methodology.

Table 3.1 Project Development Methodology

Phase	Activity	Technique	Deliverable
Phase 1: System Planning (Plan)	❖ Discussing title of proposed system with supervisor. ❖ Conduct an interview with branch manager of Makette Restaurant. ❖ Identify business flow process of current system. ❖ Identify problem statement that related to current system.	❖ Brainstorming. ❖ Face-to-face interview.	❖ Title of proposed system (Makette Steamboat & Grill Reservation System). ❖ Business process flow chart. ❖ Problem statement. ❖ Chapter 1.
Phase 2: System Development (Analysis, Design, Development and Testing & Evaluation)	❖ Defining user requirement for proposed system. ❖ Finding a theory for proposed system.	❖ Research. ❖ Analysis and fact-finding of journals and articles.	❖ User requirement. ❖ Chapter 2. ❖ Theory (Dimension of eCRM).
	❖ Design Entity Relationship Diagram. ❖ Design Context Diagram. ❖ Design Data Flow Diagram. ❖ Design Site Map. ❖ Design User Interface. ❖ Design test plan and questionnaire.	❖ Draw.io ❖ Adobe Photoshop CS6	❖ Entity Relationship Diagram (ERD). ❖ Context Diagram. ❖ Data Flow Diagram (DFD). ❖ Site Map. ❖ User Interface Design. ❖ Test Plan and Questionnaire.
	❖ Develop Makette Steamboat & Grill Reservation System (E-MASTERS).	❖ Xampp ❖ Notepad++ ❖ Google Chrome.	❖ A complete system for (E-MASTERS).

	❖ Distribution of questionnaire. ❖ Conduct system and user testing.	❖ System Testing.	❖ Questionnaire. ❖ Questionnaire analysis result.
Phase 3: System Documentation	❖ Documenting project report. ❖ Collecting source for appendix.	❖ Microsoft Word 2010.	❖ A complete project report.

4.0 RESULT AND DISCUSSION

User evaluation has been conducted to identify the response of users regarding Makette Steamboat & Grill Reservation System (E-MASTERS). 30 respondents were selected to conduct the user evaluation. For user evaluation, 30 respondents selected from Universiti Teknologi MARA Terengganu students are selected to answer the questionnaire. The questionnaire of user evaluation comprises of 2 parts which are demographic information and 6 constructs of questions. The 6 construct of question consist of perceived usefulness, perceived ease of use, satisfaction, efficiency, consistency and E-CRM. For 6 construct of question, user need to rate the scale given 1 to 5 which determine Strongly Disagree (1), Disagree (2), Natural (3), Agree (4) and Strongly Agree (5). Figure 4.1 shows the average result of mean and mode values. It shows that the average mode value for 6 questions is 4 while average mean value are 4.04, 4.07, 4.08, 4.10, 4.06 and 4.09 respectively. From the result, it is clear that majority of users have approved the E-MASTERS based on 6 constructs. This suggests that E-MASTERS is compatible to use in future.

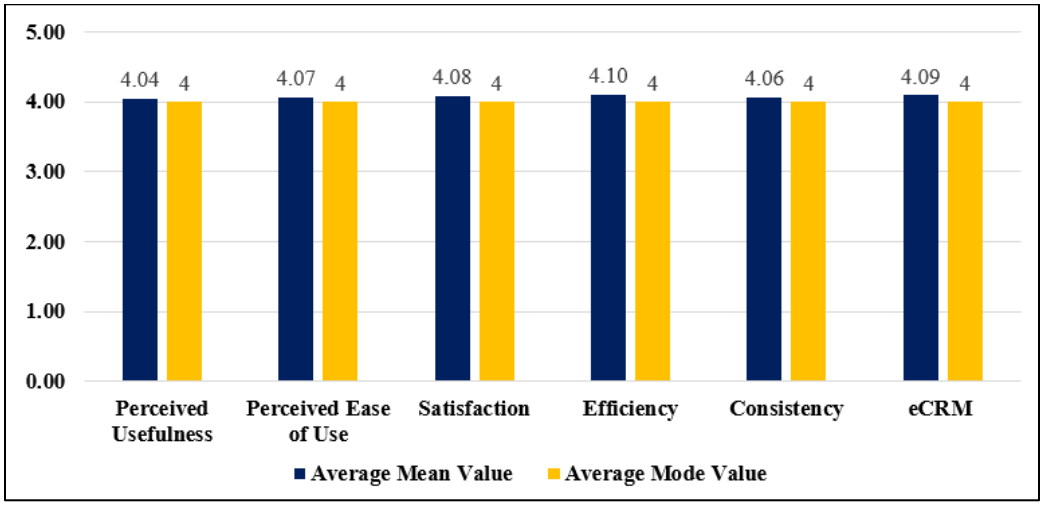

Figure 4.1 User evaluation analysis

5.0 CONCLUSION

Makette Steamboat & Grill Reservation System (E-MASTERS) contributes to Makette Restaurant by replacing manual business process to computerized system. With E-MASTERS, customer can make a reservation via online without having a problem with unavailable table reservation or staff did not picked up the call. E-MASTERS will help to minimize the staff's workload. Manager will get the benefit which

the system helps to manage all activities effectively. Overall, the implementation of eCRM features improved the functionality and usability of E-MASTERS. The result of this thesis shows that E-MASTERS would be a good mechanism for enhance restaurant current and future needs. Ultimately, the goal is to encourage any businesses to execute eCRM so that they can understand customers better.

References

Aldaihani, F. M. F., & Ali, N. A. B. (2018). Effect of Electronic Customer Relationship Management on Electronic Service Quality Provided by the Commercial Banks in Kuwait. International Journal of Academic Research in Accounting, Finance and Management Sciences, 8(2), 143-154.

Ab Hamid, N., Cheng, A., & Akhir, R. (2011). Dimensions of E-CRM: An Empirical Study on Hotels' Web Sites. The Journal of Southeast Asian Research, 2011, 1–15. https://doi.org/10.5171/2011.820820

Farooqi, R., & Dusia, D. K. (2011). A Comparative Study of CRM and eCRM Technologies. Indian Journal of Computer Science and Engineering, 2(4), 624–627.

Ivanov, S. (2008). Conceptual Marketing Framework for Online Hotel Reservation System Design. Social Science Research Network, pp. 1-15. https://doi.org/10.2139/ssrn.1296040

Kimes, S. E., & Kies, K. (2012). Th role of multi-restaurant reservation sites in restaurant distribution management [Electronic article].Cornell Hospitality Report, 12(3), 6-13.

Kennedy, A. (2006). Electronic Customer Relationship Management (eCRM): Opportunities and Challenges in a Digital World. Irish Marketing Review, 18(1), 58–69.

Rus, R. V., & Negruşa, A. L. (2014). Online Hotel Booking Systems in Romania. Procedia Economics and Finance, 15(14), 1235–1242. https://doi.org/10.1016/S2212-5671(14)00583-8