SEATROBS: Development of Sealife Travel & Tour Online Booking System Using Usability Theory.

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ABSTRACT: The travel and tour industry is one of the world's largest industries in Malaysia, where businesses in this industry always seek advanced technology to face intense competition. Sealife Travel and Tour Sdn. Bhd. is one of them, where the owner of this company is seeking a system that can cater to their problems due to the implementation of a manual system in the customers' booking process. Therefore, this research aims to develop a Sealife Travel Online Booking System (SEATROBS) for the company. The Adapted Waterfall model has been used as a methodology, and usability heuristics had been used as a theory to guide the development of this system. The system has been tested using usability testing and heuristic evaluation. The result of the usability testing is very satisfying, as it shows 71.51% of efficiency, 83.33% of effectiveness and most of the users are very satisfied with the system. The result of heuristic evaluation also come out as successfully implemented. The details of the result that is expected to meet the specification of the users are being discussed in this paper.

Keywords: *online booking system; travel agency; usability theory*

1. INTRODUCTION

As the world becomes more technologically advanced, thousands of travel agencies have transformed the conventional booking process by shifting it to be more consumer and technology-focused than ever. The technology's focus has brought out online technology platforms such as websites that fully leverages the online booking system functionality, from booking full-scale tours to the active development of Internet Commerce within the tourism industry [1].

Eventually, Sealife Travel and Tour Sdn. Bhd., a travel agency that operates at Kampung Pulau Perhentian, Terengganu, has acknowledged these emerging technology trends. Currently, this company still using a manual process, especially in processing and storing the customer's booking information. Based on the interview with the company owner, Mr Muhammad Syukri bin Abdul Wahab, as the number of customers keeps increasing, the current manual system becomes more cumbersome. The possibility of providing shoddy services to the customers might arise if they still using the system. Therefore, this company has shifted its priorities to an online booking system called Sealife Travel Online Booking System (SEATROBS).

SEATROBS is an online booking system that is developed to improve the booking process of Sealife Travel and Tour Sdn. Bhd. by managing their customer's booking. Usability theory is being used in developing this system because, according to [2], usability theory is applied to a system to fully utilise its ability to function effectively and efficiently while providing instinctive satisfaction to its users. Accordingly, implementing the usability theory into SEATROBS can be one of the elements that will enhance the system's functionality and help achieve the company's requirements, needs and interests.

2. METHODOLOGY

In developing SEATROBS, the methodology that is used is a waterfall model. This waterfall model is proposed by Winston W. Royce in 1970 [3]. Following the current trends in the software engineering field, the adapted waterfall model has been applied because this model is a suitable methodology that can guide the developers at various stages in the project [4]. This adapted waterfall model consists of six (6) phases, shown in the figure below (refer to Figure 1).
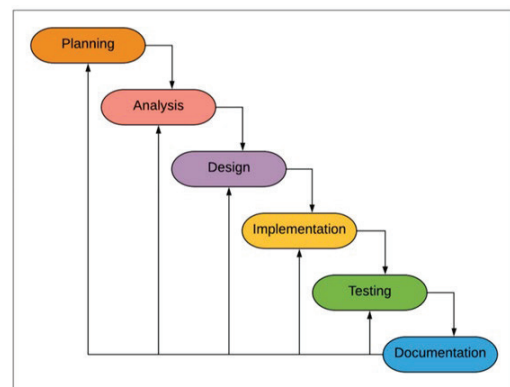

Figure 1 Adapted Waterfall Model.

The testing of SEATROBS is carried out by the two (2) experts using heuristic evaluation and four (4) end-users using the usability testing. With the recent rise of the ongoing worldwide COVID pandemic, the testing of this system is also affected, as this research cannot bring in more users to test the system. However, [5] stated that a few end-users in the range of three (3) to five (5) people is already appropriate to set and test the effectiveness or efficiency of the system and also validated through expert opinions.

3. RESULTS AND DISCUSSION

The result and discussion of SEATROBS are based on the usability testing and heuristic evaluation that have been carried out in the testing phase.

3.1 Heuristic Evaluation

The heuristic evaluation is carried out by the experts to gather their conformity on the six (6) principles of usability heuristic theory integrated into the system (refer to Table 1).

Table 1: Result of the Heuristic Evaluation.

No	Usability Principles	Expert 1	Expert 2
1.	User Control and Freedom	Agree	Agree
2.	Match between System and Real World	Agree	Agree
3.	Consistency and Standard	Disagree	Agree
4.	Error Prevention	Agree	Agree
5.	Help and Documentation	Agree	Disagree
6.	Aesthetic and Minimalist Design	Not sure	Agree

Based on the table above, all experts agree that this system fully utilises the usability principles of user control and freedom, the match between system and real-world, and error prevention. Overall, both experts said that the implementation of the usability principles is successfully but need to make some improvement before running in the real environment.

3.2 Usability Testing Using Metrics

The system was tested using three (3) usability metrics: efficiency, effectiveness, and satisfaction.

3.1.1 Efficiency

The efficiency can be calculated using two (2) ways which are time-based efficiency and overall relative efficiency based on formulae from [6]. Using the formulae to calculate the efficiency of SEATROBS, the result obtained is approximately 71.51%. Hence, it shows that SEATROBS has achieved the desired efficiency as it can support users in achieving the tasks and goals in minimal time without the users' need to think much and put more effort when using the system.

3.1.2 Effectiveness

Effectiveness can be calculated by measuring the completion rate. The completion rate is calculated by the number of tasks completed successfully and the total number of tasks undertaken by the user [6]. Based on the result obtained using formulae from [6], it is stated that the effectiveness of SEATROBS is approximately 83.33%. Therefore, it can be implied that SEATROBS is effective for users to achieve their goals and carry out their tasks.

3.1.3 Satisfaction

This paper uses the system usability scale (SUS) method for the users' satisfaction level, which provides a reliable tool for measuring user satisfaction. Based on the result obtained, it can be concluded that User 1 thinks that this system is the best imaginable system to satisfy users' requirements and needs. In contrast, User 2 and User 3 think this system falls into a good system that can satisfy users but needs to rethink for better improvement. Lastly, User 4 thinks that this system is still acceptable and can be implemented even though there are some existing pain points that need to cater.

4. CONCLUSION

In conclusion, the result of the usability testing shows that in terms of efficiency, this system has a percentage of 71.51%, which means it is efficient enough for the user. For effectiveness, this system has a percentage of 83.33%, which placed this system in the good category of effectiveness. Whereas for the users' satisfaction, three (3) out of four (4) users are fully satisfied with the systems. Besides, both experts agreed that this system clearly implemented all of the proposed usability principles for the heuristic evaluation, although some adjustment needs to be carried out later. There are some limitations when developing this system and the major limitation is this system cannot capture the progress of the booking process when the customers make the booking. Hence, it is recommended that this system provide a progress meter for the booking process so that the customers know the exact steps they need to successfully book the travel and tours packages. Hopefully, with the result obtained in this research, this system is expected to give enormous advantages to the Sealife Travel and Tour Sdn. Bhd. and also as a guide for future work.

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