WEB BASED SYSTEM FOR PLANNING AND MANAGING VACATION AT PANGKOR ISLAND

[1]Vaishnavi Gunasegaran, [2]Wan Hussain Wan Ishak & [3]Fadhilah Mat Yamin
[1,2]School of Computing, Universiti Utara Malaysia, 06010, Sintok, Kedah
[3]School of Technology Management and Logistics, Universiti Utara Malaysia, 06010, Sintok, Kedah
[3]Institute for Management & Business Research (IMBRe), Universiti Utara Malaysia, 06010, Sintok, Kedah

[2]hussain@uum.edu.my

ABSTRACT

The tourism sector is important because of the benefits it provides, as well as its position as a commercial activity that generates demand and growth for a variety of other businesses. Furthermore, traveling is the most effective way to enlarge our minds and hearts. Tourists, on the other hand, confront a slew of issues when planning their vacation. As a result, there are a few things people should consider before planning their trip. Budget, time, and location are just a few examples. The goal of this research is to design a web application that tourists may use to plan their vacation according to their budget and time. The application focuses on Pangkor Island, located in Perak. The web application is written in PhP, and the database is mySql. The ADDIE prototyping method was used in this project. Following that, a prototype was created based on the specifications acquired. The evaluation was conducted to assess the prototype's usability and the frequency analysis was performed on the respondents' feedback. The findings show that the website is quite useful and beneficial to tourists. The functions for arranging a trip to Pangkor Island were likewise rated as satisfactory by the respondents. The design serves as a model for developers and academics in the area who want to create comparable websites or improve their skills in designing and planning relevant tourist websites.

Keywords: Web-Based System, Recommender system, Vacation Planning, Tourism, Pangkor Island

INTRODUCTION

Tourism is when people spend time away from home in search of recreation, relaxation, and pleasure. Tourism has attracted a lot of attention on a global basis over the years. Tourism has evolved from a one-dimensional economic and social activity to a diverse economic and social activity. It is a significant source of foreign exchange for a number of advanced and emerging economies.

In tourism, trip planning is one of the most significant aspects, which requires deciding on various key concerns such as where to go, how long to stay, how much to spend, and how to get there. Many people, on the other hand, found it difficult to arrange their trip (Qiang & Ishak, 2018; Muhammad & Usman, 2010). This is related to the information overload problem, which occurs when there is an abundance of data but not all of it can be used to make decisions. As a result, smart systems or procedures have emerged that allow for quick access to relevant content on the Internet (Borras et al, 2014).

Tourists can access to numerous websites that are freely available on the Internet. These websites provide information such as locations, activities that may be done at the location, costs or ticket fees, and many other things. These websites, on the other hand, are mostly instructional and will not be able to assist in tourism planning and decision-making (Esmaeili et al., 2020). As a result, there is a need to study and develop web application that can save time and effort, especially for busy and working tourists planning their vacation.

The aim of this paper is to design and develop a website that will aid users in planning their visit to Pulau Pangkor. Pangkor Island is the third biggest tropical island in Malaysia, with immense natural resources and a fascinating history. It is located in the state of Perak. Dutch City, Inscriptions, Princess Goddess Beach, Bogak Sand Beach, and Nipah Bay are example of the popular tourist destinations. Every year Pulau Pangkor has been visited by thousands of local and international visitors.

RELATED WORKS

The tourism business now has a significant economic influence. As a result, the tourism business is becoming increasingly demanding and complex, with multiple aspirations and needs. As a result, tourist offers should include a variety of high-quality possibilities. Furthermore, tourist demand more flexible service changes with shorter service lifetimes.

In today's competitive world, information and communication technology (ICT) has been introduced to the tourism business, bringing the idea known as "smart tourism" (Yang et al., 1999). Smart tourism refers to the use of ICT to build new tourism solutions. It major goal is to increase the service quality in tourism business (Buhalis & Amaranggana, 2015). With the utilization of ICT, it makes tourism services more accessible by providing customer-friendly services (Labanauskaitė et al., 2020). Furthermore, it is projected that ICT, particularly creative applications, will be one of the driving forces behind tourism (Yunus & Indrasari, 2017).

Smart tourism encourages integrated efforts at a destination to develop new ways to collect and use data from tourist sectors, social connections, and customers, as well as modern technologies, to improve efficiency, sustainability, and experiences (Buhalis & Amaranggana, 2015; Etaati & Sundaram, 2015). For instance, the website might be established to collect information about tourists' experiences that other tourist could use to plan their visits (Mirza et al., 2020). Other ICT tools such as Internet of things, mobile communication, cloud computing, and artificial intelligence (AI) can also be employed in smart tourism. For example, AI methods such as neural networks have been shown to be effective in assisting decision-making (Ishak et al., 2011).

Recommender system is another application that was design and develop to assist tourist in planning and making decision (Esmaeili et al., 2020; Etaati & Sundaram, 2015; Borràs et al., 2014). Recommender system utilize user's background and other tourists experience to generate recommendation to its user. Thus, it can better understand what the user wants. Others can benefit from the recommender system by contributing extra information, such as tourist evaluations (ratings), which will help the community (Ricci et al., 2015).

There are numerous tourism-related applications available, such as My Tourism, Tourism Management Klook, Vigan City Tourism App, and others. These tourist applications merely provide information about the tour destination, lodging, and ticket prices. These applications lack the functionality to assist tourists in planning their vacations on a budget and in a restricted amount of time.

METHODOLOGY

In this study, the prototype was designed and developed based on the ADDIE Instructional Design (ID) process, which stands for Analyze, Design, Develop, Implement, and Evaluate (Figure 1). Obtaining the needs of the application for tourist is part of the requirements planning step. Unified Modelling Language (UML) diagrams, such as use case, activity, and class diagrams, are used to document and depict the requirements. UML diagrams are often used to describe system requirements. The user interface of the website is built concurrently with the user design and development phases. Users are active in the design and building process, providing comments to help improve the website's user interface and information flow as they plan their trip to Pulau Pangkor. Finally, during the evaluation phase, a usability test is carried out to determine the website's usability.

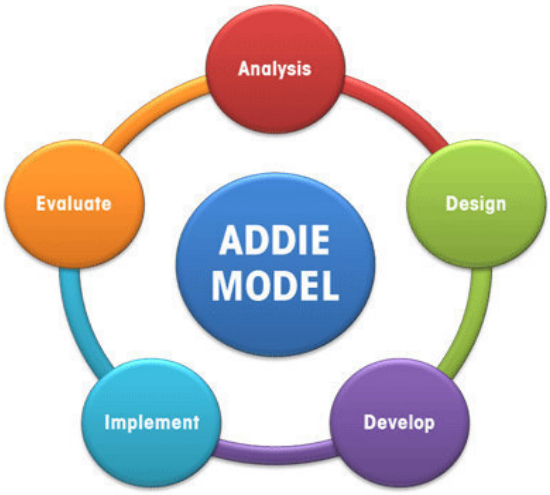

Figure 1
The phases of ADDIE

Travelers, students, and other Malaysians who enjoy travelling are among the respondents for the usability test. The respondents were contacted by submitting a google form over the WhatsApp social media platform. The questionnaire asks about the respondents' backgrounds, as well as the website's usefulness and respondents' satisfaction. The questions about the website's usefulness and respondents' satisfaction are on a five-point Likert scale, with one indicating strong disagreement and five indicating strong agreement. For the evaluation, the respondents followed the steps: (1) read and signed a consent form, (2) interacted with the website according to the experiment technique, and (3) completed the questionnaire.

DESIGN AND DEVELOPMENT

Based on the phases in ADDIE (Figure 1), this part explains the design and development of a website for generating, maintaining, and arranging vacations for tourists. The website's criteria were acquired through a survey and analysis of data from other tourist-oriented websites. The survey was performed among potential tourists who want to visit Pangkor Island, as well as those who have already visited Pangkor Island.

Table 1 shows the requirements (and their priority) for both user/tourist and admin produced from the requirements gathering process. The requirements include new user registration, login to the website, manage place, manage transportation, manage activities, manage hotel, budget, days and mange images.

Table 1
List of Requirements

NO	ID	Requirement Description	Priority (M-Mandatory 0-Optional)
1.	**STA_01**	**REGISTER**	M
2.	STA_01_01	A new tourist/user and admin must register before logging into the web-based system.	M
3.	STA_01_02	The system must display a page that allows users/tourists to key in their site login details: a) User ID b) Password	M
4.	STA_01_03	The system must display a page that allows users/tourists to key in their details: a) First name b) Last name c) Email d) Password	M
5.	**STA_02**	**LOGIN**	M
6.	STA_02_01	User/tourist or admin must login using their userID and password.	M
7.	STA_02_02	The system must verify the ID and password of the user/tourist.	M
8.	STA_02_03	If the user forgets their password, they have to key in their email user ID to recover their ID or password.	M
9.	**STA_03**	**MANAGE RECOMMENDED PLACE**	M
10.	STA_03_01	The system should display all the recommended places according to the user/tourist budget.	M
11.	STA_03_02	Users/tourists can select their favourite recommended place from their list.	O
12.	STA_03_03	Users/tourists shall remove their favourite recommended places from their list.	O
13.	**STA_04**	**MANAGE RECOMMENDED HOTEL**	M
14.	STA_04_01	The system will display the recommended hotels according to user/tourist budget and time.	M
15.	STA_04_02	Users/tourists shall select their favourite hotel from their list.	O
16.	STA_04_03	Users/tourists shall remove their favourite hotels from their list.	O
17.	**STA_05**	**MANAGE RECOMMENDED ACTIVITY**	M
18.	STA_05_01	The system will display the recommended activities in those places according to their budget and interests.	M
19.	STA_05_02	Users/tourists shall select their favourite activity from their list.	O
20.	STA_05_03	Users/tourists shall remove their favourite activity from their list.	O
21.	**STA_06**	**MANAGE RECOMMENDED TRANSPORTATION**	**M**

22.	STA_06_01	The system will display all the transportation possibilities in that place.	M
23.	STA_06_02	Users/tourists shall select the transportation from their list.	O
24.	STA_06_03	Users/tourists shall remove the transportation from their list.	O
25.	**STA_07**	**MANAGE BUDGET**	M
26.	STA_07_01	Users/tourists shall select their budget.	M
27.	STA_07_02	Users/tourists shall remove their budget.	O
28.	**STA_08**	**MANAGE PLACE**	M
29.	STA_08_01	The admin should add tourist places to the system.	M
30.	STA_08_02	The admin shall update the tourism places in the system.	O
31.	STA_08_03	The admin shall delete the tourism places in the system.	O
32.	**STA_09**	**MANAGE DAYS**	M
33.	STA_09_01	Users/tourists shall select their vacation days.	M
34.	STA_09_02	Users/tourists shall remove their vacation days.	M
35.	**STA_10**	**MANAGE HOTEL**	M
36.	STA_10_01	The admin should add all the hotels in Pulau Pangkor	M
37.	STA_10_02	The admin shall update all the hotels at Pulau Pangkor in the system.	M
38.	STA_10_03	The admin shall delete all the hotels at Pulau Pangkor in the system.	M
39.	**STA_11**	**MANAGE ACTIVITIES**	M
40.	STA_11_01	The admin should add all the activities that can be done at Pulau Pangkor to the system.	M
41.	STA_11_02	The admin shall update all the activities that can be done on Pulau Pangkor in the system.	M
42.	STA_11_03	The admin shall delete all the activities that can be done on Pulau Pangkor from the system.	M
43.	**STA_12**	**MANAGE TRANSPORTATION**	**M**
44.	STA_12_01	The admin should add the transportation details to the system.	M
45.	STA_12_02	The admin shall update the transportation details in the system.	M
46.	STA_12_03	The admin shall delete the transportation details in the system.	M
47.	**STA_13**	**MANAGE IMAGE**	M
48.	STA_13_01	The admin should add images in the system	M
49.	STA_13_02	The admin shall update images in the system.	M
50.	STA_13_03	The admin shall delete images in the system.	M

The Unified Modelling Language (UML) was used to view and model the requirements in Table 1. Two behavioral diagrams, namely the use case (Figure 2 and Figure 3) and a class diagram (Figure 4) that illustrates the website's structural components, were employed in this study. Figure 2 shows the use case diagram for the admin, while Figure 3 shows the use case diagram for the user/tourist.

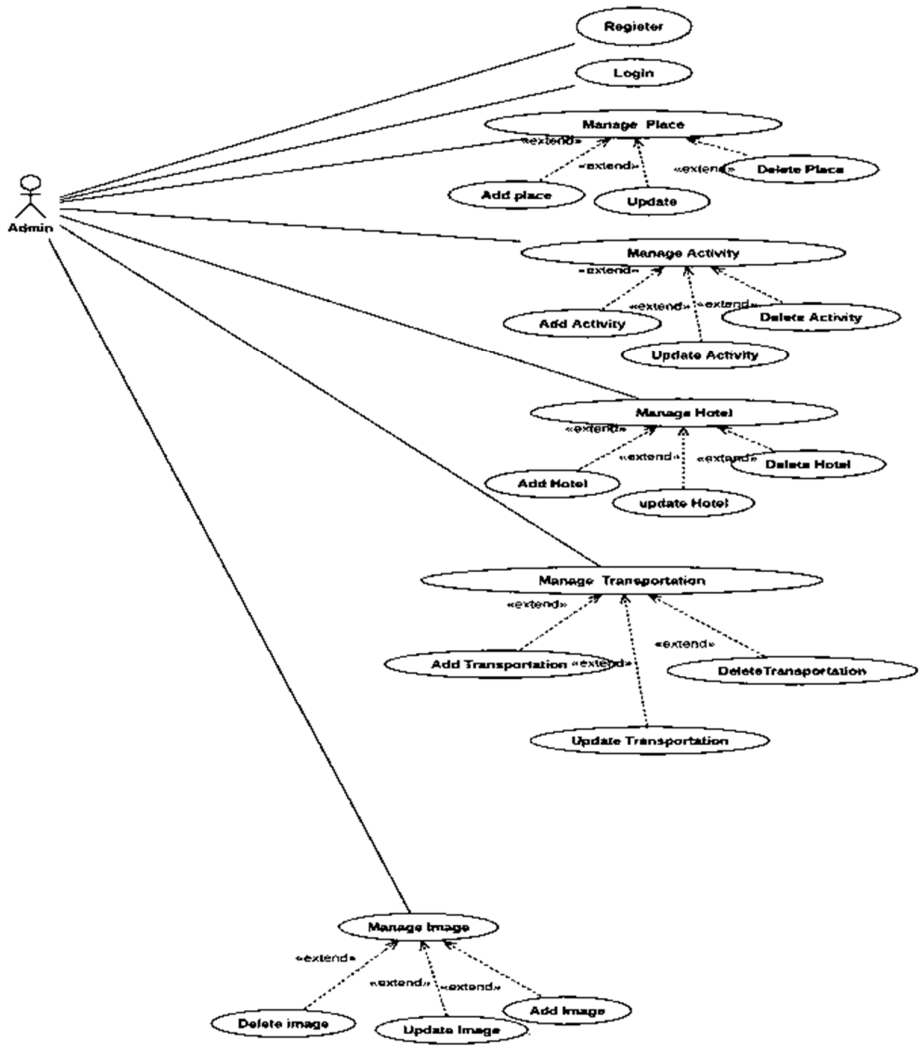

Figure 2
Use Case Diagram for Admin

As shown in Figure 2 and Figure 3, managing user profile, login, transportation, hotel, images, activity, places, budget, and days are the nine key activities depicted in the use cases. For instance, manage places allows users to do things like "create a location," "edit a place," and "remove a place". Manage transportation allows users to conduct sub-functions such as "add transportation," "update transportation," and "remove transportation". Figure 4 depicts the class diagram that illustrates the website's structural components. The diagram clearly depicts the website's attributes and functions, which are divided into nine classes.

Figure 3
Use Case Diagram for User/Tourist

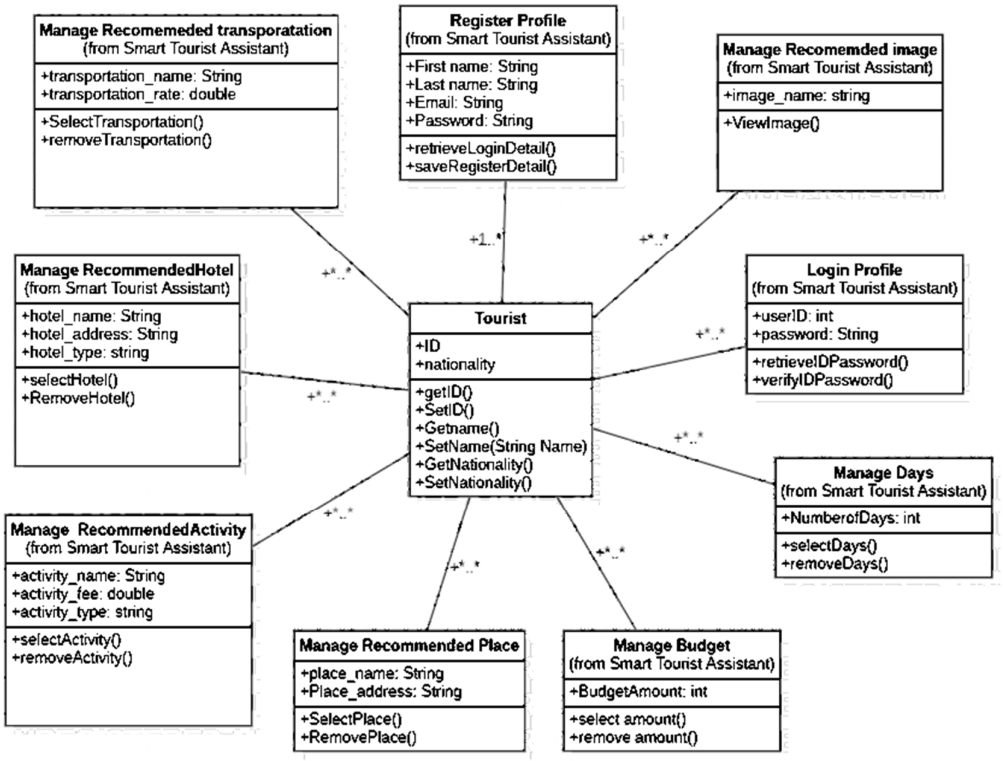

Figure 4
The class diagram

FINDINGS

A total of 35 respondents took part in the usability test. According to the demographic information provided by the respondents, male respondents account for around 34 percent of the total, while female respondents account for 66 percent (Figure 5). Respondents between the ages as shown in Figure 6 of 21 and 25 have the highest number of responses (43 percent). Second, the 25-31 age group (26 percent), followed by the 35-41 age group (20 percent), and finally, the 31-35 age group (11 percent). The biggest percentage of responders (77.1%) travel less than three times per year. Twenty percent of respondents travel more than five times every year, while only 2.9 percent go once per year.

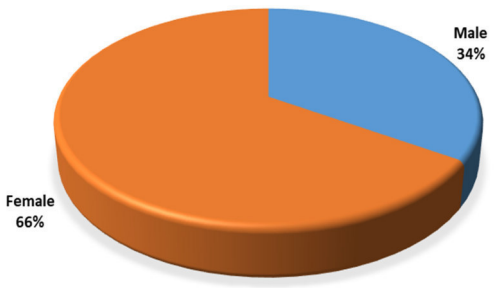

Figure 5
Gender

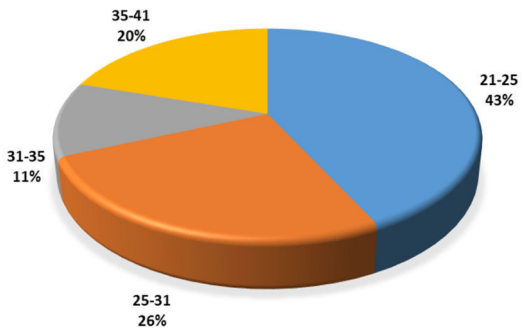

Figure 6
Age Group

The respondents' responses to the website's usefulness shows that they agree the website is very useful, with an average of higher than 4 for all questions. This indicates that the website has met its goal of providing information on the fascinating places on the island of Pulau Pangkor. Furthermore, the website's content and facilities fit the needs of tourists and can aid them in planning their trip to Pulau Pangkor.

Table 2
The usefulness

Questions	Scales					Average
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
1. The website help me to find the interesting places in Pulau Pangkor	0	0	0	32 (91.4%)	3 (8.6%)	4.09
2. The website give me accurate details about the places in Pulau Pangkor.	0	0	2 (5.7%)	25 (71.4%)	8 (22.9%)	4.17
3. The website help me to plan my vacation to Pulau Pangkor	0	0	0	28 (80%)	7 (20%)	4.20
4. The website give me the updated details about the pricing	0	0	1 (2.9%)	30 (85.7%)	4 (11.5%)	4.09
5. I can plan my budget to spend at Pulau Pangkor with this website.	0	0	0	30 (85.7%)	5 (14.3%)	4.14
6. This website give me a clear picture about the activities and the details.	0	0	0	31 (88.6%)	4 (11.4%)	4.11
7. I will access this website before plan my vacation to Pulau Pangkor	0	0	0	24 (68.6%)	11 (31.4%)	4.31

In terms of satisfaction, the respondents' average response for all questions is greater than 4 as well. Overall, respondents are satisfied with the website, agreeing to suggest it to their friends, and find it to be easy to use and user friendly, as shown in Table 3. They spend less time learning how to use and recall the website's features. They're also having a wonderful time interacting with the website, which makes them want to utilize it even more.

Table 3
Respondents' Satisfaction

Questions	Scales					Average
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
1. I would recommend the website to my other friends	0	0	0	23 (73.33%)	12 (23.33%)	4.34
2. The interface of this website is user friendly	0	0	2 (3.33%)	18 (70%)	17 (26.67%)	4.66
3. The website facilities/features are easy to use.	0	0	0	20 (66.67%)	15 (30%)	4.43
4. Are you satisfied with this website	0	0	0	20 (66.67%)	15 (30%)	4.43

CONCLUSION

The results of this study show that the proposed web application is extremely useful and advantageous to tourists. The tourists also agree that the website's features and functionality are satisfactory. The website was created and developed using the specifications acquired from a literature review and current applications.

We intend to expand the website's capabilities in the future by giving a direct link to an established ecommerce service provider, such as booking.com or trivago, where users may book rooms online. We also intend to add some more services, such as an auto-generated tourist schedule. Furthermore, we intend to enhance this website for all of Malaysia, rather than focusing on a single state. Pattern discovery (Ahmed et al., 2014) for example, is an Artificial Intelligence technique that may be used to improve the system's recommendation by extracting the pattern of past tourists' experiences.

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