

Designing a Tourist Attractions Information System Using the Design Thinking Method (Case Study: Maimoon Palace)

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ABSTRACT

Maimoon Palace is one of the tourist attractions and cultural heritages that has high potential, both in Medan and Indonesia. However, in the digital era, Maimoon Palace does not have an Information System which can give information about its availability, while it does not provide online ticketing as well. This underlies the writer to create Web Based Tourism Information System of Maimoon Palace. This research uses direct observation method, interview with related parties, and literature studies related to the issues. Web Based Tourism Information System of Maimoon Palace is generated by PHP and HTML programming language and MySQL database. This system uses design thinking system development method. Design Thinking is the method utilized by the writer to solve the problem with user-centered approach to define the problem, thenceforth to conceptualize ideas as a solution to produce a system. This information systems can be used to give the information about Maimoon Palace availability to the visitors and can be used to book the ticket online. This system is expected to be useful as information and media promotion for tourism potential in Medan. The more tourists visit Maimoon Palace, the more income will be gained by the people surround Maimoon Palace.

Keyword: Information System, Tourist Attractions, Design Thinking, Maimoon Palace



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1. INTRODUCTION

Tourism is travel from one place to another, temporary, carried by individual or groups, as an effort to find balance or harmony and happiness with the environment in the social, cultural, natural, and scientific dimensions (Spillane, 2015). One of the tourist attractions in Medan is Maimoon Palace. Maimoon Palace is the Palace of Deli's Sultan which is being the pride of Malaysians and also be an icon of cultural heritages in Medan located at Jalan Brigadir Jenderal Katamso, Aur sub-district, Medan Maimun districts, Medan. This palace was built by 9th Deli's Sultan, Sultan Ma'moen Al Rasyid Perkasa Alamshyah who is on the throne from 1879 to 1924. This palace was built from August, 26th 1888 and finished at May, 18th 1891. This palace was designed by Dutch architect called Capt. Theodore Van Erp (Irwansyah, 2015). This palace is frequently visited by entourage from out of town, abroad either from a school, college or travel group. However, Maimoon Palace can be closed suddenly if there is a wedding ceremony of the heirs being held at the Palace or there is a Maimoon Palace's family who died and want to be buried in the Palace and the tourists who want to visit do not know about this. According this situation, the authors are interested in further research to solve this problem.

So the author will build an information system that can inform to the public and be specific at a tourist attractions that can open and close suddenly without prior notice. The author will build a website-based information system. Information system is a combination of people, hardware, software, communication web, data resources, policy, and procedure of saving, regaining, editing, and disseminate information in an organization (Marakas & O'Brien, 2016). Website is a set of pages that used to display an information as a text, picture, motion picture, sound or a combination all of them, both static and dynamic, and become a linked chain and its connected with page networks (Bekti, 2015).

One of the concepts that will be used in solving problems faced by Maimoon Palace is to help visitors who want to visit to know the status of Maimoon Palace which is open or close and at the same

time introduce Maimoon Palace to public in order to help preserve the cultural heritages by using the design thinking concept approach. Design Thinking is a creative strategy process used by designers in the design process (Oxman, 2017). This is a problem solving concept developed by Brown and Wyatt. Design Thinking is used as a new method in the design process. This problem solving is considered effective because it can produce solutions according to the user needs.

The Design Thinking method has 5 stages; Emphatize, Define, Ideate, Prototype, and Test. So in this method, participation of the user is very important because the design results will be used by the user. The purpose of this study was to research and explain the results of the application of Design Thinking method at Maimoon Palace.

2. RESEARCH METHOD

The author uses software development method for develop the system to solve problems and explain the steps inside the method. The author uses the Design Thinking system development method. The author uses the Design Thinking method because the process is systematically starts from empathy, define, ideate, prototype and test, in appropriate for development the Tourist Attraction Information System.

A. Design Thinking Method

The Design Thinking method is a method that provides a solution-based approach to solving a problem. Design Thinking was used as a new method in a design process. This problem solving is considered effective because can produce a solution which suitable with the user needs (Zaki & Sukoco, 2019). Design Thinking is a discipline that used a designer's method and sensibility to match community needs with something technologically feasible and what is feasible according to the business strategy can changed into customer value and market opportunities (Kelley & Brown, 2018). These are the steps in the Design Thinking method:

1. First step, Empathy which means looking for problems and collect information from Maimoon Palace environment such as asking questions to the visitors around Maimoon Palace and Maimoon Palace's employees. From the questions, the author has got the answer that Maimoon Palace's needs an information system which can giving information to the people who wants to visit Maimoon Palace especially from the distant location.
2. Second step, define which means to determine the problems that have been obtained from the previous steps, which is Maimoon Palace requires a web-based information system that provide information about its availability, while it does not provide online ticketing as well.
3. Third step, Ideate, which means designing idea, concept and system structure to produce a solution and solve the problem from previous steps.
4. Fourth step, Prototype, create the database structure, create the PHP source code for the program and designing the system interface for admin and the user.
5. Last step, Test, after the program has been created, the program should be tested to find the bugs/errors that may occur in the system.

The picture of the Design Thinking Implementation shall be as follows:

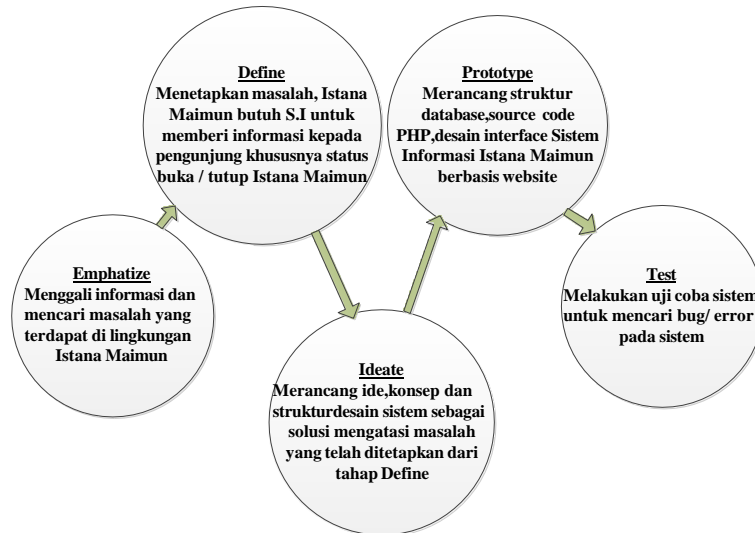


Fig 1. Design Thinking Implementation

B. Systems Design

The author uses Data Flow Diagram (DFD) system modeling concept. DFD was originally developed by Chris Gane and Trish Sarson in 1979 which included in Structured System Analysis and Design Methodology (SSADM) written by Chris Gane and Trish Sarson. This developed system is based on the functional decomposition of a system (Rosa A.S & M.Shalahuddin, 2018). The DFD method used in the design of the web-based Maimoon Palace information system application includes Context Diagram and Level 0 Diagram.

1. Context Diagram

Context diagram gives a broad overview of an information system and the way it interacts with the other entities. The illustration of the Context diagram appears as follows:

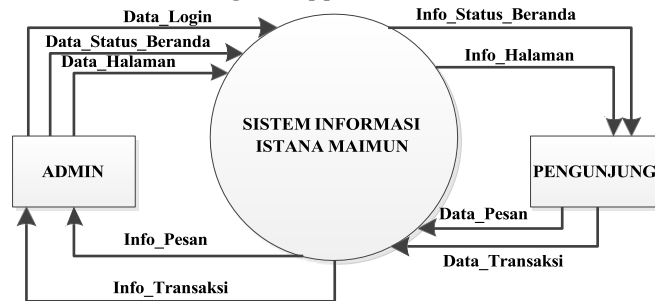


Fig 2. Context Diagram

2. Level 0 Diagram

Level 0 diagram shows a data system as a whole and emphasizes the way it interacts with external entities. The illustration of the Level 0 diagram appears as follows:

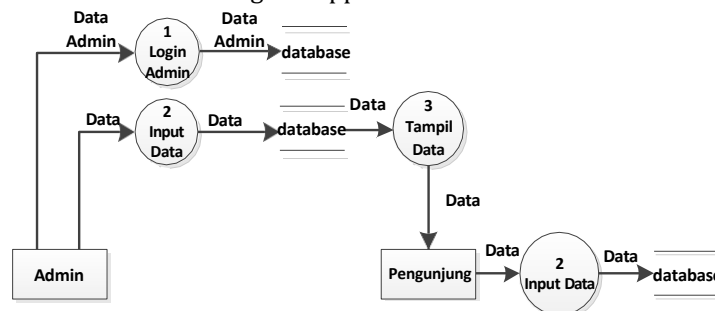


Fig 3. Level 0 Diagram

3. RESULTS AND DISCUSSION

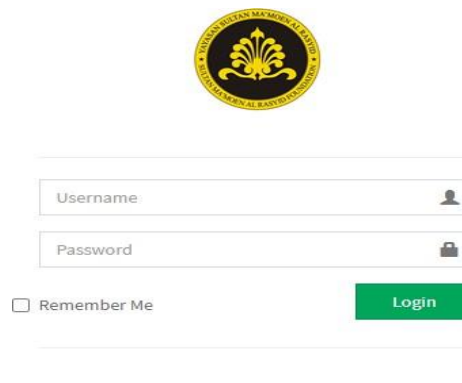
A. Research result

In the results of this study, the authors implemented the program code and tested the application after the system design was done. In its implementation, it includes a design that has been built in the system design. Then, tested the system, if there is a weakness in the system, the system will be fixed soon. This system has been built with XAMPP. XAMPP is a free software which is support to a lot of operating system and compilation of several programs (Bay Haqi, 2017). XAMPP is used as a stand-alone server (localhost) consisting of several program such as Apache HTTP Server, MySQL databases, and language translator that written with PHP and Perl (Eri Mardiani et al., 2016). PHP is Hypertext Preprocessor and was created by Rasmus Lerdorf in 1994 (Achmad Solichin, 2016). Moreover, this system has been built with Sublime Text Editor which is a text editor sotfware that used to create or editing an application (Supono & Putratama, 2016) and the website pages was designed with Bootstrap which is a tools for create a website page interfaces and can help a website developers or web-page designers to finish their job faster (Khadafi, 2015). Bootstrap can be integrated easily with CodeIgniter. CodeIgniter is a web framework that designed for PHP programming language which is made by Rick Ellis, founder of EllisLab in 2006 (Raharjo, 2015). CodeIgniter is the fastest way to build an web-based information system and application (Yenda Purbadian, 2016).

The results of the research is Maimoon Palace web-based tourist attraction information system, this system can give information about Maimoon Palace availability, provide online ticketing and introduced Maimoon Palace to the public.

1. Admin Login View

On the admin login menu, there is a username and password input form, which is used to be input by the admin to enter the administrator page, the view of the admin login menu appears as follows:



The image shows a login form for an administrator. At the top center is a circular logo with a yellow background and a black emblem. Below the logo is a form with two input fields: 'Username' and 'Password'. The 'Username' field has a person icon on the right, and the 'Password' field has a lock icon. Below these fields is a checkbox labeled 'Remember Me' and a green 'Login' button.

Fig 4. Login Admin

2. Administrator Page View

In the administrator page view, there are several menus that can be managed by the admin such as Data Status, Admin, Article, Inbox, Ticket and Logout, the view of the administrator page appears as follows:



Fig 5. Administrator Page

3. Status Data

In Status menu, there is a pencil button, if admin clicked it, input form will appear at the screen and admin can update the status of Maimoon Palace availability between OPEN or CLOSED, the view of the Status data menu appears as follows:

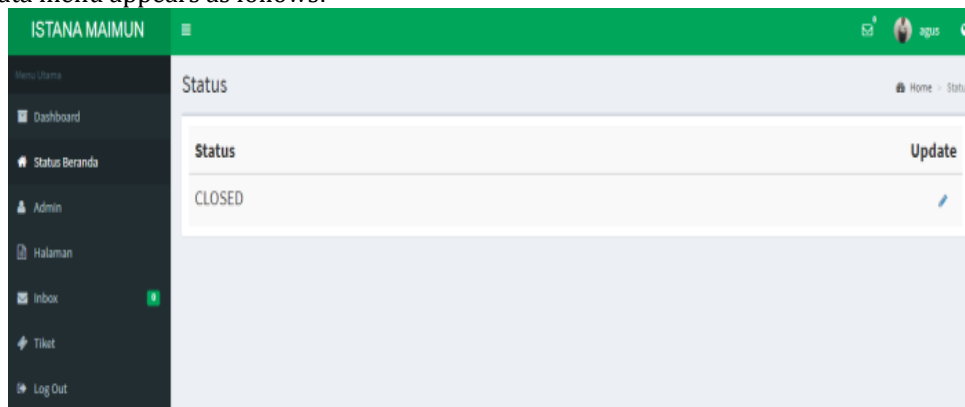


Fig 6. Data Status Page

4. Admin Data

In Admin data menu, there is a list of all the admins. The admin can add a new admin data, delete selected admin data, or edit the admins data, the view of the admin data menu appears as follows:

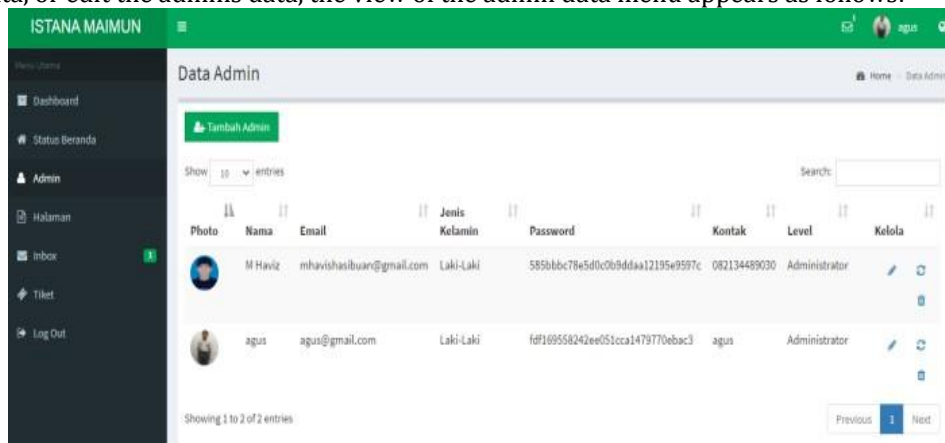


Fig 7. Admin data page

5. Ticket Transaction Data

In Ticket Transaction data menu, there is a list of all the online ticket sales data. If the admins clicked the "Download dan Cetak Laporan" button then the reports will appear on the screen. the view of the Ticket Transaction page and online ticket sales data reports appears as follows:

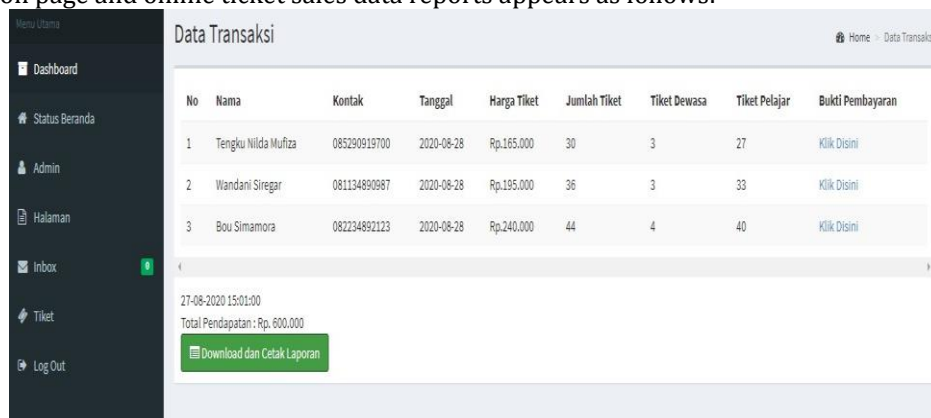


Fig 8. Transaction data page

DATA PENJUALAN ONLINE TIKET MASUK ISTANA MAIMUN

Jl.Brigiend Katamso No.66 Kelurahan Aur Kecamatan Medan Maimun

Kota Medan

Tanggal: 28/Aug/2020

No	Nama	Kontak	Tanggal	Harga Tiket	Jumlah Tiket	Tiket Dewasa	Tiket Pelajar
1	Tengku Nilda Mufiza	085290919700	2020-08-28	165000	30	3	27
2	Wandani Siregar	081134890987	2020-08-28	195000	36	3	33
3	Bou Simamora	082234892123	2020-08-28	240000	44	4	40

Fig 9. Online ticket sales data reports

6. Visitor Home Page

In visitor home page, there are several menus that can be accessed by the visitor such as Home, Articles, Contact and Ticket. The availability status of Maimoon Palace which was updated by the admin is appear at the header of the page. The admin also can login from the LOGIN button at the right side of the page. the view of the visitor home page appears as follows:



Fig 10. Visitor home page

7. Visitor Ticket Page

In visitor ticket page, the visitor can buy the ticket by online from this page, fill the input form that requires and pay it with the method provided. Then the visitor can go to Maimoon Palace and confirm to the ticket keeper by showing the receipt. the view of the visitor ticket page menu appears as follows:

Fig 11. Visitor tiket page

B. Discussion

The Maimoon Palace web-based tourist attraction information system has been tested and there is no errors and bugs identified on the system. The system successfully works online and can be accessed by people who want to visit Maimoon Palace. This system can give the information about Maimoon Palace's availability. This application can be used by the user for buying tickets online, and the admin can control ticket sales that sold by online and print the reports. Moreover, this system can introduce to public a little information about Maimoon Palace from articles menu that display the picture of Maimoon Palace and the description about it. The visitors also can send direct messages to the admin to give suggestion, asking question or make an agreement. At least, this system has been solved the problems around Maimoon Palace environment and help to improve the quality of tourism at North Sumatera especially at Maimoon Palace.

4. CONCLUSION

The following are some of the conclusions that have been concluded by the author according from Maimoon Palace web-based tourist attraction information system:

1. The Maimoon Palace web-based tourist attraction information system has been built that can properly manage admin data, inbox data, ticket data, status data, and articles page data through the administrator page.
2. The Maimoon Palace web-based tourist attraction information system can be used to inform the availability of Maimoon Palace to the visitor efficiently.
3. The Maimoon Palace web-based tourist attraction information system can also be used to buy the ticket and send messages directly to the admin.
4. With the Maimoon Palace web-based tourist attraction information system, the author expects can be increase the visitor at Maimoon Palace and improve the quality of tourism at North Sumatera especially at Medan.

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