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GEOGRAPHICAL INFORMATION SYSTEM DESIGN WEB-BASED MAPPING OF HOSPITALS IN PADANG CITY

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ABSTRACT

Along with the rapid development of information technology, which can help the processing and reporting of data, it is very helpful for humans in completing work. Every aspect of life is attached to technology, the system does not have human activities that are separated from the role of technology. Information system is a system within an organization which is a combination of users, facilities, technology, media, procedures and controls aimed at obtaining complex information.The diverse hospitality sector with its uniqueness and supported by facilities and transportation facilities available in tourist areas can provide a very large government income. The Padang City Government has carried out promotions through mass media such as newspapers and pamphlets. However, this method is not enough to inform hospitality widely to local and foreign tourists. The tourists will have difficulty in determining the planning of the selection of lodging. Therefore, through the design and manufacture of a hospitality GIS, it is hoped that it can display an overview of the Padang City hospitality map so that it is more attractive and can be enjoyed by the wider community. Presentation of information in web form will make it easier for the public to access it.Geographic Information System (GIS) technology has developed rapidly. GIS is created using information derived from processing a number of data, namely geographic data or data relating to the position of objects on the earth's surface. GIS technology integrates database-based data processing operations that are commonly used today, such as capturing unique visualizations and the various advantages that geographic analysis can offer through map images. GIS can be presented in the form of a web-based application.

1. INTRODUCTION

According to James Havery quoted in the journal [1] The system is a logical and rational procedure for designing a series of components that relate to one another with a view to functioning as a unit in an effort to achieve a predetermined goal. According to Abdul Kadir quoted in the journal [2] The system is a collection of elements that interact to achieve a certain goal. These elements do not stand alone, but are interconnected to form a unity, so that the goals or objectives of the system can be achieved. [3]. According to Maniah and Dini Hamidini (2017:1), said that "The system is a collection of elements in the form of data, a network of interconnected procedures, human resources, technology both hardware and software that interact with each other as a unit to achieve the same certain goals/goals" [4]. Understanding the system according to Winarno (2006) is as follows: "A collection of components that work together to achieve certain goals. The definition of the system according to McLeod as quoted by [5] is as follows: "A system is a group of elements that are integrated with the common porpose of achieving an objective". The system is a group of elements that are integrated with the same intent to achieve a goal. (MACHMUD, 2013) Based on some of the opinions expressed above, it can be concluded that "The system is a collection of components or subsystems that are interrelated and work together to achieve a goal [6]

Information systems can be analogous to a demand (demand) from the industrial community, when the need for data processing and communication facilities is fast and cheap (Indrajit, 2000). Information system is a system that can be defined by collecting, processing, storing, analyzing, disseminating, information for a particular purpose. Like other systems, an information system consists of inputs (data, instructions) and outputs (reports, calculations). In addition "Information System is a set

of formal procedures by which data is collected, processed into information and distributed to users". Another understanding also says "Information systems are a collection of sub-systems that are integrated and collaborate to solve certain problems by processing data with a tool called a computer so that it has added value and is useful for users". From the four definitions put forward by the experts above, it can be concluded that an information system is data that is collected, categorized, and processed until it becomes a single unit of information that is mutually sustainable and mutually supportive until it becomes useful information for the recipient [7]

Input data analysis is an analysis conducted on data from external entities that are entered into the system. With the aim of getting an understanding of the system as a whole, about the current system so that problems can be solved and the needs of system users can be identified correctly. At this stage of analysis using several tools to be able to describe the system as a whole. The tools used are Flowcharts, Context Diagrams, DFD (Data Flow Diagrams) and ERD (Entity Relationship Diagrams). Unified Modeling Language (UML) is a tool to visualize and document the results of analysis and design that contains the syntax for modeling the system visually [8] It is also a set of modeling conventions used to define or describe a software system associated with objects [9].

In the development of object-oriented programming techniques, a standardized modeling language emerged for software development that was built using object- oriented programming techniques. The Unified Modeling Language (UML) emerged because of the need for visual modeling to specify, describe, construct, and document software systems. Unified Modeling Language (UML) is a visual language for modeling and communicating about a system using diagrams and supporting texts. UML only serves to do the modeling. So the use of UML is not limited to a particular methodology, although in fact UML is most widely used in object-oriented methodologies [10].

2. MATERIALS AND METHODS

The research framework is a concept in interrelated research, where the depiction of variables with one another can be connected in detail and systematically. This is done so that the research can be more easily understood because later in the research report the submission can be coherent. The research framework must be made first before making the stages of research, this serves to make preparations in research more mature. In addition, the research framework can maintain the depth of research.

2.1. Research Framework

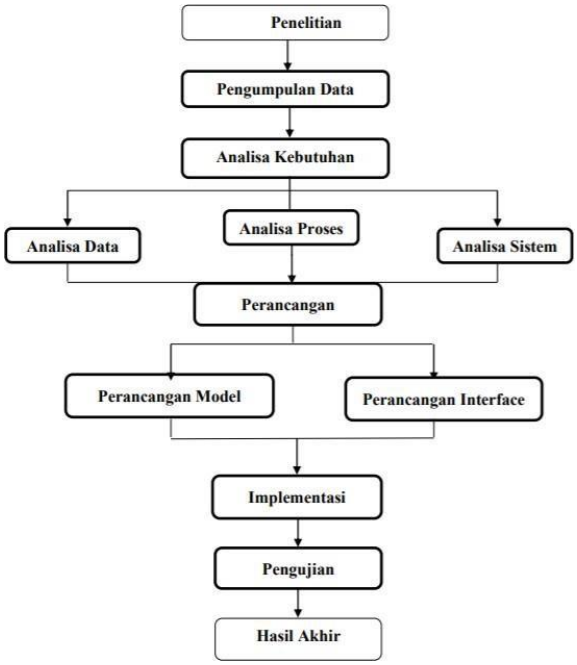

Figure 1. Research Flow

2.2. Method of collecting data

The method of data collection is in the form of a question about the nature, circumstances, certain activities and the like. Data collection is carried out to obtain information needed to achieve research objectives

2.2.1. Interview

Interview is a process of communication or interaction to collect information by means of questions and answers between researchers and informants or research subjects. With advances in information technology as it is today, interviews can be conducted without face to face, namely through telecommunications media. In essence, the interview is an activity to obtain in-depth information about an issue or theme raised in research. Or, it is a process of proving information or information that has been obtained through other techniques previously. Because it is a process of proof, it is possible that the results of the interview are in accordance with or different from the information that has been obtained previously. namely; 1). introduce yourself, Explain the purpose of arrival, 3). explain the interview material, and 4). ask questions (Yunus, 2010: 358). 2. Observation A data collection method that is carried out by observing directly, seeing and taking the data needed at the place where the research was carried out. Observation can also be interpreted as a complex process. Data collection was carried out at the Padang City Tourism Office. This observation was carried out on: Place: Padang City Tourism Office Time: April 29, 2021 Address: Jln Gandaria No. 56 Jati Baru, East Padang District, Padang City

2.2.2. Literature Study

Literature study is the first step in the data collection method. Literature study is a data collection method that is directed at searching for data and information through documents, both written documents, photographs, pictures, and electronic documents that can support the writing process. "Research results will also be more credible if supported by photographs. or existing academic and artistic writings." (Sugiyono, 2005:83). Literature study is So it can be said that literature study can affect the credibility of the results of the research carried out. Researchers get data related to program design sourced from the Padang city tourism System Design System design is designing or designing a good system whose contents are the operating steps in the data processing and process procedures to support system operations. The purpose of system design is to meet the needs of system users and provide a clear picture and complete design to programmers and experts involved in it. The purpose of this stage is to provide an overview of how the system looks and how the system works. The results from this system design stage include:

a) UML Design
   Unified Modeling Language (UML) is an image-based language for visualizing, specifying, constructing and documenting an Object-based software development system. The Unified Modeling Language (UML) is not a programming language but the models created are directly related to various programming languages, making it possible to directly map the models created with the Unified Modeling Language (UML) with other programming languages. object oriented
b) Interface Design
   User Interface (User Interface) is communication mechanism between the user (user) and the system. The user interface (User Interface) can receive information from the user (user) and provide information to the user (user) to help direct the flow of troubleshooting until a solution is found. User Interface, serves to input new knowledge into the knowledge base of expert systems (ES), displays an explanation of the system and provides guidance on using the system as a whole step by step so that the user understands what to do with a system. The most important thing in building a user interface is the ease of using/running the system, being interactive, communicative, while the difficulties in developing/building a program should not be shown too much.
c) Coding
   Encoding is the process of changing the character of the data to be sent from one point to another with a code that is known by each existing terminal, and making each character of the data in a digital information into binary form so that it can be transmitted. A different terminal uses a different binary code to represent each character. Each data has a different code from each other. Code is a collection of special symbols that are used to form data. A special set of symbols used to represent a data or data code is a set of numbers or numbers that have certain rules. The number system used on the computer is binary (2 symbols), octal (8 symbols), hexadecimal (16 symbols). The programming language used is PHP using the Visual Studio Code application and database processing using an open source version of the DBMS, namely MySQL.

2.2.3. System Implementation

Implementation is an action orimplementation of a plan that has been carefully and in detail. This implementation is usually completed after being considered permanent. This implementation is not only an activity, but an activity that is planned and carried out seriously with reference to certain norms to achieve the goal of the activity. Therefore, the implementation does not stand alone but is influenced by the next object. The software used to translate into machine language in designing this application, researchers use software: PHP, XAMPP, and MySQL Database System Test, System testing is the process of executing a software system to determine whether the software system matches the system specifications and runs in the desired environment. System testing is often associated with finding bugs, program imperfections, program line errors that cause system software execution failures. Al Fatta (2007: 170), In conducting tests, several test-cases must be carried out with several different strategies, transactions, queries or navigation paths that represent typical, critical or abnormal system usage. Testing should include unit testing, which checks the validation of procedures and functions independently of other system components. Then the testing module must follow, carried out to find out whether the merging of several units in one module has gone well, including the execution of several related modules, whether it is running according to the desired system characteristics. User Acceptance Test, testing the completed application. by the user. This is done to determine whether the application made can be understood and run easily by the user.

3. RESULTS AND DISCUSSION

Testing of the system is carried out to determine the extent to which the system that has been designed can overcome the problem, as well as to determine the relationship between system components.

1. Admin Login Page
   The admin login page is used to enter the system. As shown in Figure 2 below:

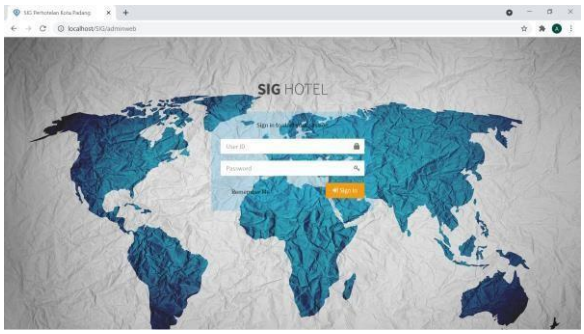

Figure 2 . Admin Login Page Display

2. Admin Dashboard Page

This page is the main screen after the admin logs in. As shown in Figure 3 below:

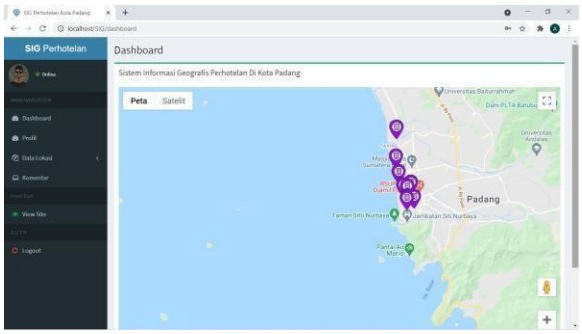

Figure 3 . Admin Dashboard Display

3. Admin Profile Edit Page
This page is a profile edit view that will be displayed on the user page as shown in Figure 4 below:

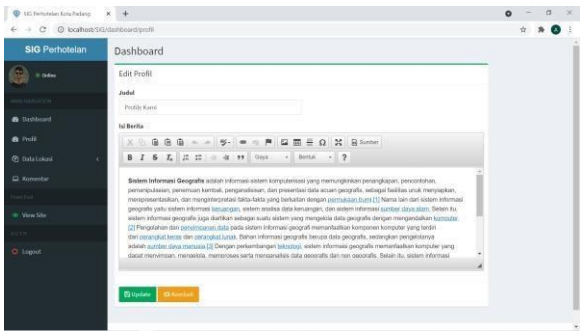

Figure 4 . Edit Profile Page View

4. Add Location Admin Page
This page is the page used by the admin to add hotel data that you want to input as shown in Figure 5 below:

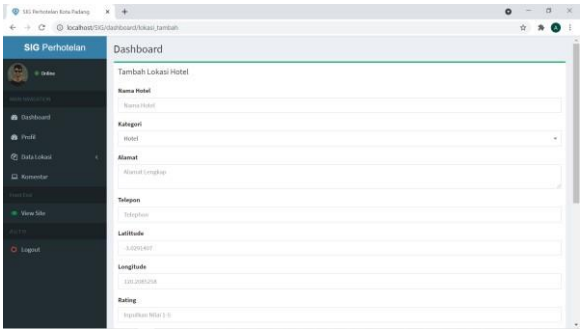

Figure 5 . Page Display Add Admin Location

5. Hotel Locaton List Page AdminThis page is a page that contains a list of hotel locations that the admin previously input as shown in Figure 5 below:

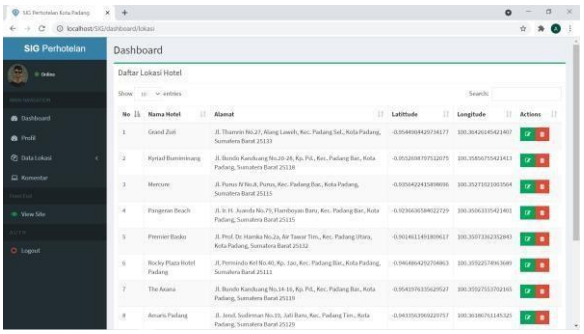

Figure 6 . Admin Location List Page Display

6. Comment List Page Halaman
This page is a page that contains comments from users on the application made as shown in Figure 6 below:

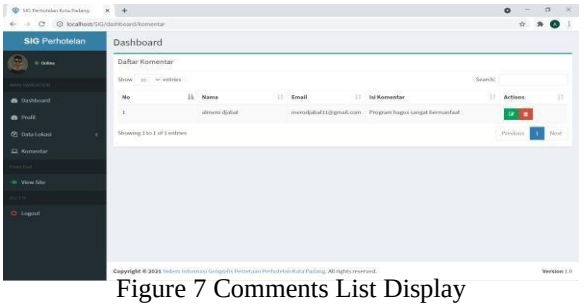

Figure 7 Comments List Display

7. User Main Page
This page is the main page used by the user, on this main page there are several menus such as home, profile, location, and comments as shown in Figure 7 below:

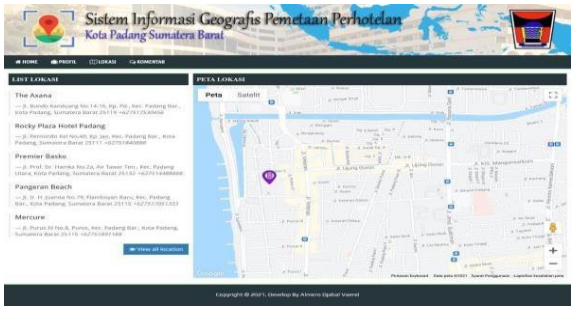

Figure 8 User Main Page Display

8. User Application Profile Page

This page is a page that displays the profile of the program that has been created by the admin as shown in Figure 9 below:

Figure 9. User Program Profile Page Display

9. User Hotel Location List page

This page is a page where users search for the hotel they want to go to on this page there are hotel ratings and hotel descriptions as shown in Figure 10 below:

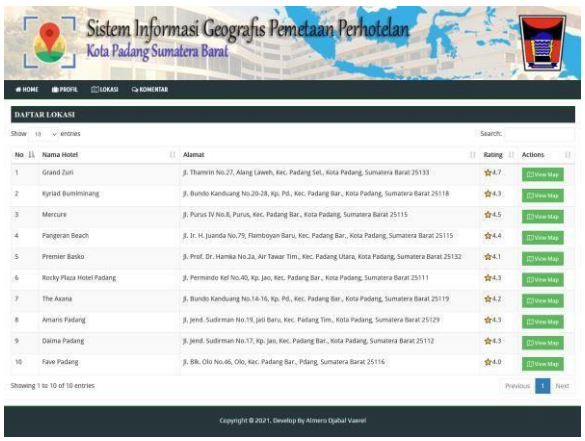

Figure 10 Display of User's Hotel Location List Pages

10. User Comments Page

This page is a page that users can use to comment on the applications they use, as shown in Figure 11 below:

Figure 11 Display User Comments

4. CONCLUSION

Based on the design of the hotel geographic information system in the city of Padang and the analyzes carried out on data processing, the authors draw several conclusions, namely:

1. The information system that is built can provide information to users about hotels in the city of Padang according to the keywords used to obtain information. The information displayed includes a visual layout of the geographic location shown on a map, and a brief hotel profile data.
2. All information received by the user is displayed by the system based on the data stored in the system database
3. To design and create GIS Hotel applications in Padang City, use the Google Maps API so that the need for information for each user can be met, namely by designing and designing to simultaneously display symbols on Google Maps maps and attribute data in tables taken from the Google database. MySQL maps and databases
4. The information system is built based on the data that has been obtained, has several facilities that can provide information to the user about the hotel, namely displaying information on the geographical location of the hotel on a map and brief hotel profile information, and the hotel rating that the user wants to target.
5. With the geographical information system of hospitality in Padang City, it can increase Padang city tourism, especially in the hotel sector and can improve the economy in Padang City

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