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Design and Build of a 24-hour Open Pharmacy Geographic Information System in Medan City

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ABSTRACT

Geographic Information System is an information system that is used to enter, store, retrieve, manage, analyze, and generate geographic or geospatial referenced data, to support decision making in planning. Currently, the terms Desktop GIS, WebGIS and Spatial Database are known. is a manifestation of the development of Geographic Information Systems to provide solutions to various problems that can only be answered with this GIS. Using GIS is expected to make it easier for decision makers to find out the locations of 24-Hour Open Pharmacies in Medan City. Because GIS will describe the location of the 24-hour open pharmacy in the city of Medan. This WebGIS application is made using the PHP programming language and uses the MySql database. In this application only the admin can process data input, edit data, and delete data. Meanwhile, users can only view and search for information about the location of 24-hour open pharmacies in Medan City. The purpose of making this application is to create a system that makes it easy to find out and get accurate information about the location of a 24-hour open pharmacy in the city of Medan. Making this application is expected to be able to provide the best possible information about Pharmacies - Pharmacies Open 24 Hours in the city of Medan. Making this application using Mapserver-based Web programming.

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1. INTRODUCTION

Medan City as the Capital of North Sumatra Province is the center of governmental, economic, socio-political, educational and cultural activities. The existence of pharmacy facilities in Medan is quite evenly distributed in various places(Hardiyansyah, 2018),(Lature & TERRITORY, 2019)The 24-hour pharmacy service is a service provided by several pharmacies in Medan to serve the purchase of drugs for patients, but until now there is no geographical description of the location of the 24-hour pharmacy service.(Ahmed, 2019),(TARIGAN, 2018). For this reason, an information system is needed that can provide information on the location of the 24-hour pharmacy facility in Medan City. The purpose of this research is to develop a web-based geographic information system regarding the existence of 24-hour pharmacy facilities in Medan City(Krisdayanti, 2021).

The Health Office itself, to search for the existence of a 24-hour pharmacy in the city of Medan, still uses applications from Microsoft Excel in archiving its data, and this is often constrained by inaccurate and confusing printed data, because there is no specific Geographic Information System. provides information about the location of the 24-hour pharmacy in the city of Medan.

Geographic Information Systems (GIS) have been introduced in Indonesia since the mid-1980s and have been developed into a web-based GIS with the development of technology, especially in the internet field, and then by utilizing this technology a web will be created that can provide complete and detailed information about the things that related to the target data(crt, 2021),(Syafitri et al., n.d.).

The spatial data format used in this study is vector data format because the object's position is recorded in a coordinate system, namely longitude and latitude after going through the digitization and conversion process to ArcView GIS and the program interface using PHP - MySQL(Sulistiyanto, 2021),(Rijal et al., 2019). The results obtained from this web-based geographic information system are regional information on 24-hour pharmacy locations in Medan City. Searching for web-based pharmacies in Medan City can be done by entering a keyword in the form of the name of the pharmacy and also the areas that intersect, in this case, the village or sub-district.(Krisdayanti, 2021),(Reynaldi, 2019).

2. RESEARCH METHOD

The methodology used in writing this research is as follows:

a. Data collection
   At this stage it was carried out by studying the basic theoretical literature on the Geographic Information System that was built, searching and collecting the required data from the Medan City Health Office. The spatial data is in the form of a map of Medan as the base map for making this GIS. Non-spatial data (tabular data) is in the form of descriptions of pharmacies and others related to the location of this 24-hour pharmacy.
b. System Analysis and Design
   At this stage, an analysis of the needs of the system to be built is carried out, after collecting the various needs of system users, the next step that must be done is to design a system that is expected to fulfill the wishes of the user, so that the user can easily access it and obtain the desired information.
c. Implementation
   The tools used include the Windows operating system, MS4W (Mapserver For Windows), MySQL database, PHP and a web browser. At this stage it is the implementation of the design results into a computer program which in this case uses the PHP programming language. This programming requires attribute data in the form of a database, spatial data in the form of a map of the city of Medan and graphical data for making interfaces to beautify the appearance so that it is more attractive.

2.1. Existing System Analysis

At this stage, an analysis of the needs of the system to be built is carried out, after collecting the various needs of system users, the next step that must be done is to design a system that is expected to fulfill the wishes of the user, so that the user can easily access it and obtain the desired information. Methods Analysis with GIS begins with

a. Collection of various data, both spatial data and attribute/non-spatial data which will be used as input data in processing with GIS.
b. Organizing the two types of data above (spatial data and attribute data into a database in such a way that it can be accessed, updated and edited.
c. Displays information - information that can be generated with GIS. In this case, information relating to the existence of a 24-hour pharmacy in the city of Medan. The design begins with creating an Interface for a Geographic Information System for 24-Hour Pharmacy Locations in Medan City.

2.3 Location

This research was conducted at the Medan City Health Office, which is located on Jl. Rattan No. 1 Medan Petisah Complex, North Sumatra 20143.

3. RESULTS AND DISCUSSIONS

3.1 Results Display

In this chapter, we will explain the display of the results of the application that has been made, which is used to clarify the views in the 24-Hour Open Pharmacy Geographic Information System in Medan City.

a. Login Form display

This page is the initial appearance when the user accesses this system application, can be seen in the image below

Figure 1: Display Home Menu

b. Map Page Display

On this page the user can see the search results for the location of the 24-hour open pharmacy in the city of Medan, which can be seen in figure 2.

Figure 2 Map View of Pharmacy Locations Open 24 Hours in Medan City

c. Guestbook Page Display

On this page users can provide criticism and suggestions through the contact menu in the guest book contained in the 24-Hour Open Pharmacy Geographic Information System in Medan City, can be seen in figure 3.

Figure 3: View of the Guest Book Filling Page

Figure .4: View Page View Guestbook

d. Admin Login Page Display
To enter as an administrator, the admin must login first, which can be seen in Figure 5.

Figure 5 : Admin login page display

e. Admin Main Page Display
The main data page that can be selected by the admin regarding location data, sub-district data, sub-district data, article data, and guestbook data in the application, this data can be saved, edited and deleted, can be seen in figure 6.

Figure 6: Admin Main Page Display

f. Location Data Input Page Display

Location data is data that is input by the admin regarding location data for 24-hour open pharmacies in Medan City, this data can be saved, edited and deleted, according to data on 24-hour open pharmacies in Medan City, which can be seen in figure 7.

Figure 7 : Location Data Input Page Display

g. District Data Input Page

District data is data input by the admin regarding districts in Medan City, this data can be saved, edited and deleted, according to the districts in Medan City, can be seen in Figure 8 below:

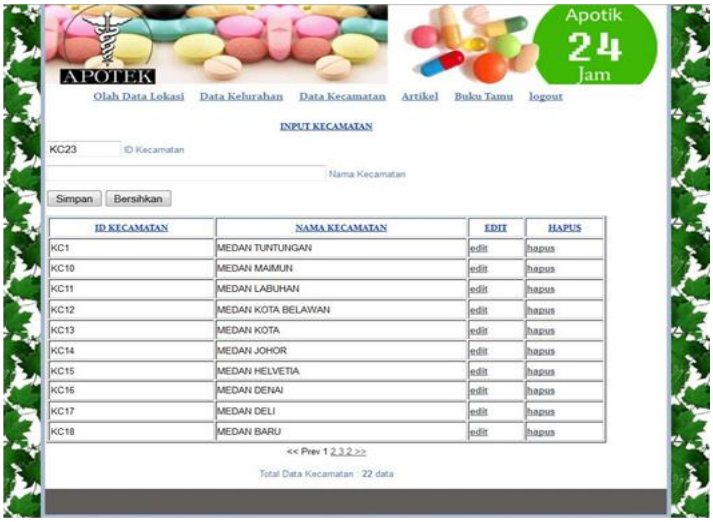

Fig.8: View of District Data Input Page

h. Village Data Input Page Display

Sub-district data is data that is input by the admin regarding sub-districts in Medan City, this data can be saved, edited and deleted, according to the sub-districts in Medan City, can be seen in Figure 9.

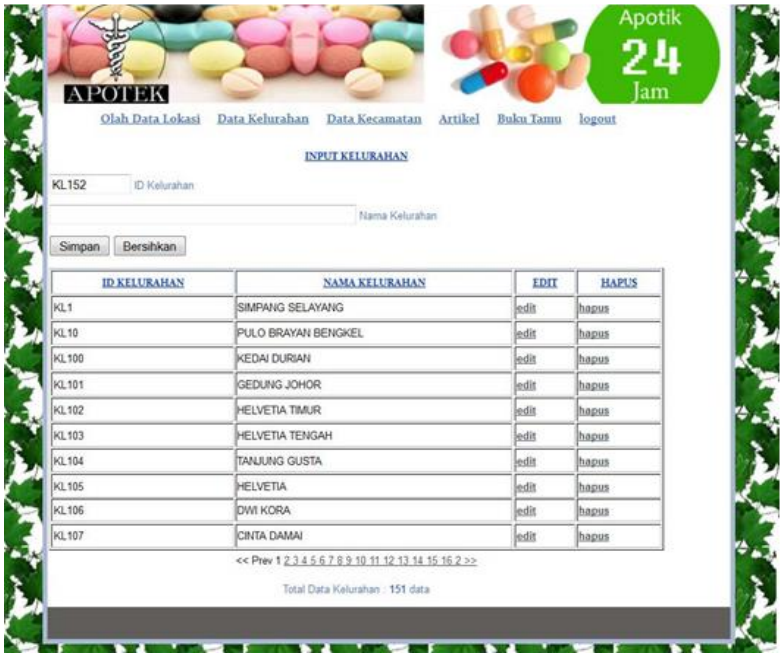

Figure 9: Display of Village Data Input Page

i. Article Data Input Page Display

Article data is data input by the admin regarding health article data contained in the 24-hour Pharmacy Geographic Information System in the city of Medan, can be seen in Figure 10.

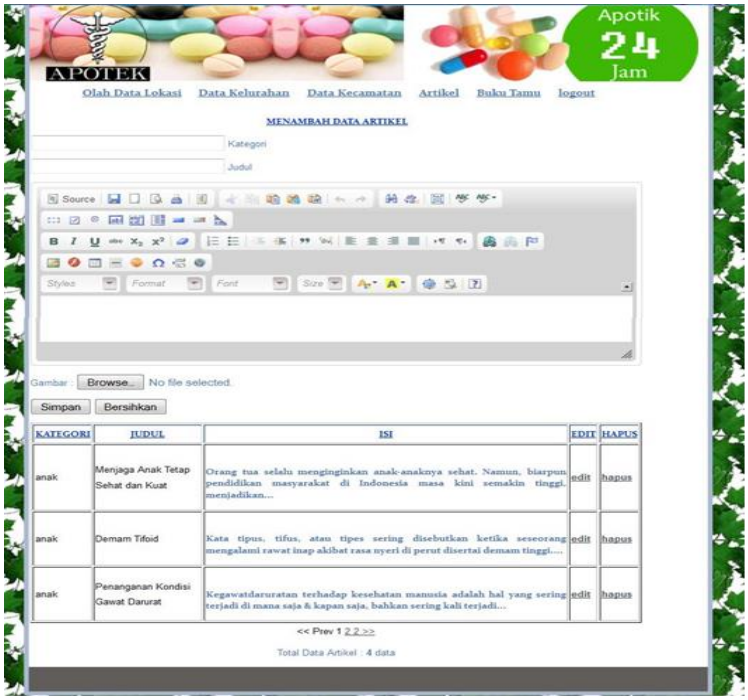

Figure 10. Article Data Input Page Display

4. CONCLUSION

The conclusions that can be given in writing this thesis are as follows: In accordance with current technological developments, the development of information systems has led to a more accurate geographic information system. The geographic information system developed in this application can be used as information on the Location of 24 Hour Open Pharmacies in Medan City effectively and efficiently. Makes it easier for users to search for Pharmacy Locations Open 24 Hours in Medan City. In designing this system using the programming language PHP and MySQL as the database.

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