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Management Information System for Micro Business Empowerment (SIMPUM) Karawang Regency

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ABSTRACT

Micro, small business is one of the businesses that can empower the community in the field of small and micro businesses, but along with the growing number of SMEs in Karawang Regency, support is needed so that business actors can develop the businesses they run, it is hoped that the business actors will not be too immediately to fulfil everyday life. For this reason, the Karawang Regency Government needs to obtain business information that is run by business actors. The author's goal in conducting this research is to make an application for a management information system for empowering micro-enterprises in Karawang Regency. The system development method used is the waterfall method to create a visual design using the Unified Modeling Language (UML). With this system, it is hoped that it will be able to publish micro business profile information along with the products or services sold by business actors, so that it can help inform the through online media to the wider community, with the hope of increasing turnover and income and also Making a micro business management information system application will make it easier data management of micro business actors in Karawang Regency which can be used to determine policies for stakeholders.

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KEYWORDS: Information Systems, MSME, Business, Waterfall, Website

I. INTRODUCTION

Small and micro businesses are one of the businesses that can empower the community in the field of small and micro businesses[1] but in line with the growing number of SMEs in Karawang Regency. The government needs to know the whereabouts of these business actors. So that it can be expected that the government knows about the existence of business actors in Karawang Regency can help support decision-making for the Karawang Regency Government for micro small business actors in Karawang Regency. Therefore, it is necessary to register small and micro business actors in Karawang Regency to obtain information on the businesses being run by business actors. Technological developments can be used to help facilitate communication or exchange of information in a short time where it can also make information exchange widely[2].

As a support in improving registration services for micro business actors. So the registration of micro small business actors can be done online, without having to visit the official office in person. With this system, it is hoped that it will be able to publish micro-enterprise profile information along with the products or services sold by business actors, so that it can help inform the wider community through online media, with the hope of increasing turnover and income[3]. Making the application of a micro business management information system will facilitate the management of data on micro business actors in Karawang Regency which can be used to determine policies for stakeholders.

II. LITERATURE REVIEW

A. Information System

The information system combines processes, information, people, and information technology to achieve a goal. Therefore, an information system is a system that cannot be separated from one element to another in achieving its goals, so that in its achievement it becomes information that forms the basis of a measurable action plan[4][5].

B. Website

A website is a collection of web pages with related topics accompanied by images or files. A website is usually hosted on one or more web servers that can be accessed via a network such as the Internet or a local area network (LAN) at Internet addresses known as URLs. The combination of all publicly accessible pages on the Internet is also known as the World Wide Web, or better known by the acronym WWW[6].

C. PHP

PHP is a language integrated with HTML and works on the server side, meaning that all syntax is executed entirely on the server and only the results are sent to the browser. When a web user accesses a website using server side PHP scripting functions, the Server first processes all the PHP commands on the server and then sends the results to the web user. Until the original code written in PHP disappears from the user's browser. PHP takes information from web-based forms and uses it for various functions such as the language that determines the number of visitors using the PHP language, layout settings in different browsers such as Firefox[7].

D. Database

A database is a collection of interrelated data stored on computer hardware and manipulated using the software. Storing data in a database is necessary for the purpose of providing more information. The data in the database must be organized in such a way that the resulting information is of high quality[7].

E. Waterfall

The waterfall model is a process model for modeling structured software systems and begins with problem identification (requirements, system and software design, unit implementation, and testing, system integration and testing, maintenance)[5].

F. Postgresql

PostgreSQL is an open-source database with good capabilities compared to other databases. The PostgreSQL database features are complete and can support database applications on a medium or large scale. PostgreSQL has a database replication feature. The features provided by PostgreSQL include DB Mirror, PGPool, Slony, and PGCluster[8].

G. System Testing

Testing is run to get maximum results from the application that is running. So you have to test the application. In this study, using the White-box and Black-box testing methods.

H. WhiteBox Testing

WhiteBox tests system logic or flows on the system by tracking the results of running programs and program source code and storing them in the database so that no errors occur when the system is processing, executing transactions or when saving to the database.[9]

I. BlackBox Testing

Black Box testing focuses on the functional requirements of the software. This provides input conditions that fully exploit all the applicable provisions of the program. The testing method is carried out to find bugs that appear in the software such as incorrect or missing functionality, data structure errors, interface errors, or performance errors.[10].

III. METHOD

The research methodology describes the steps taken so that the research is more focused and aligned with the research objectives. Several stages were carried out including literature research, system requirements analysis, system design, system implementation, testing, conclusions, and recommendations[11]. The stages of the research are described in the form of a flow diagram below.

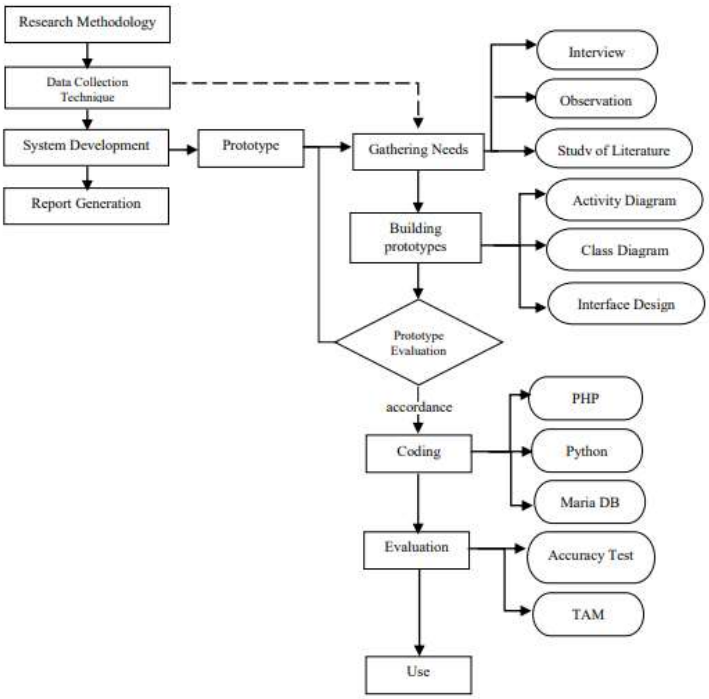

Figure 1. Research stages

A. Data collection technique

In collecting data, researchers used several methods, including:

1. Observation method.

The observation method is to systematically observe and record the symptoms that occur in research subjects. This method is used to obtain information by careful observation and recording of the constraints on the Office of Cooperatives and Small and Micro Enterprises in providing guidance to business actors and the expectations of business actors for the business being run.

2. Interview Method

The interview method is a method of collecting data while observing by asking and answering questions verbally to the Office of Cooperatives and Small Micro Enterprises, Karawang Regency.

3. Literature Study

To collect data using the library method is done through collecting literature to produce secondary data such as journals, books, papers, and online media sites as sources of literature that are relevant to the topic of writing[12].

B. Development Method

When designing with the waterfall method, this method is implemented in the following stages:

1. Needs analysis

Needs analysis is the process of defining needs and priorities that can be used to identify urgent needs related to finances, safety, or something that affects work.

2. System design

System design draws or organises separate elements into a coherent and functional unit.

3. Program code

Program code is commands written by programmers that instruct applications to perform tasks, such as performing calculations, opening or executing certain functions or manipulating data, producing output, responding to user input, etc.

4. Program testing

A study whose purpose is to obtain information about the service or quality of the product being tested. Software testing also provides an objective and independent view of the software, useful to businesses in understanding the risk level of their implementation.

5. Maintenance

Software maintenance is the process of modifying or improving software after it has been delivered to consumers. maintenance to fix coding bugs, or fix design bugs, or significant upgrades to fix specification bugs/adjust to new requirements [3].

C. Data Analysis and Testing Methods

Data analysis in this study used a quantitative descriptive technique to describe the surveillance system[13]. The data generated by the device was evaluated using quantitative descriptive statistics. This analysis is used to describe the characteristics of the data for each variable. This method is used to facilitate the understanding of information in all processes. Different methods test the results of system development:

1. WhiteBox Testing

This test is used to produce the expected results of the monitoring system logic.

2. BlackBox Testing:

This test is used to tell the truth of the system descriptively and can be seen transparently.

The data obtained through the collected questionnaires were then analyzed using the alpha test method

IV. RESULT AND DISCUSSION

Based on the results of this study, the initial steps were to analyze the problems in the MSME system in Karawang Regency and to find solutions in designing management information systems for empowering MSME in Karawang Regency.

A. Running System

MSME in Karawang Regency still uses information systems manually, such as collecting data using Microsoft Excel, the MSME profile data is not updated, it is difficult to present reports and manage MSME data from year to year.

B. System Design

1. Usecase Diagram

The use case diagram of the micro business empowerment management information system (SIMPUM) section describes what activities can be carried out by MSME actors and admins including: registration for MSME actors, managing MSME data and master data and managing reports for admins.

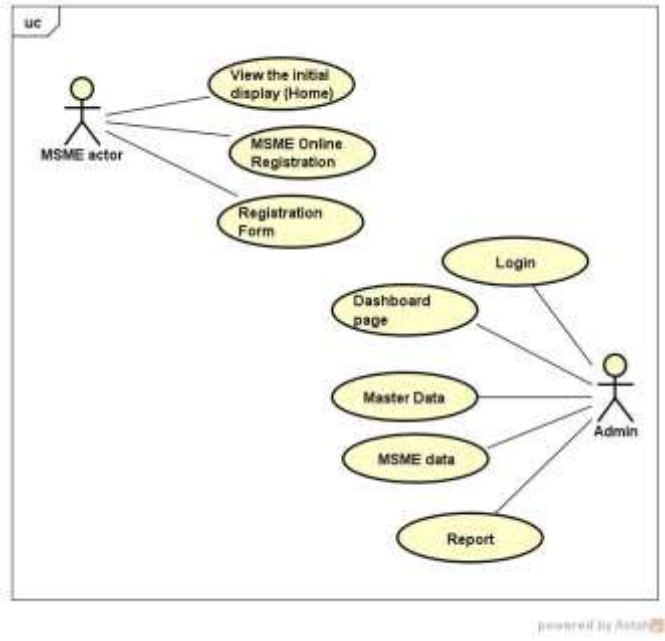

Figure 2. SIMPUM Use Case Diagram

In Figure 2, the use case diagram of the proposed system shows that two actors have their respective functions. The two actors can be described more clearly in the form of an Activity Diagram. The Activity Diagram of the system to be proposed is as follows.

2. *Activity Diagram*

Activity diagrams provide an overview of activities or activities that can be carried out by the system when carrying out the functions performed by the user.

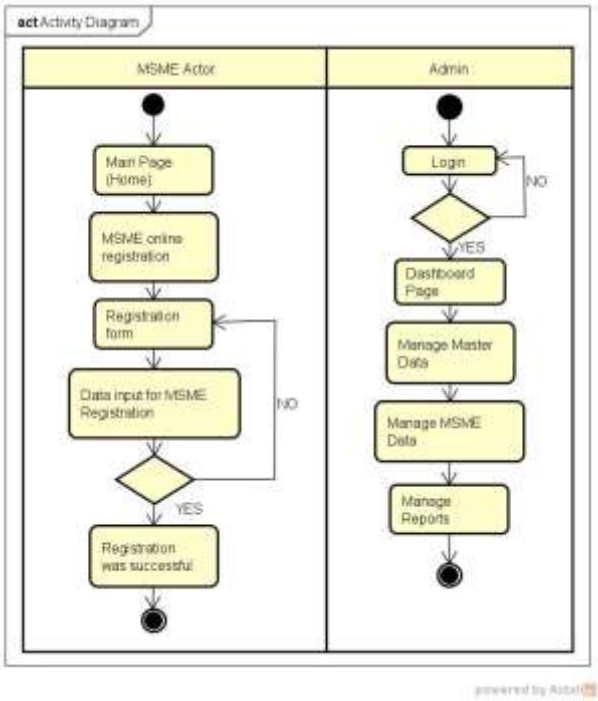

Figure 3. SIMPUM Activity Diagram

Figure 3 is an activity diagram of the micro business empowerment management information system (SIMPUM). The activity diagram above describes the activities carried out by admins and MSME actors. If the admin can log in successfully, the admin can enter the dashboard page and can enter or can access the admin page, which contains master data management, UMKM data which contains management of profile data and UMKM Karawang Regency products, and report management data. MSME actors can access the main page or website homepage which contains information about MSME activities and products in Karawang Regency and can register online on the MSME registration page.

3. *Class Diagram*

The class diagram is a UML diagram that provides an overview of a relationship for each class (table) of the information system database being built. Tables in the database of the information system built consist of admin tables, MSME actors tables, MSME data tables and master tables, and report tables.

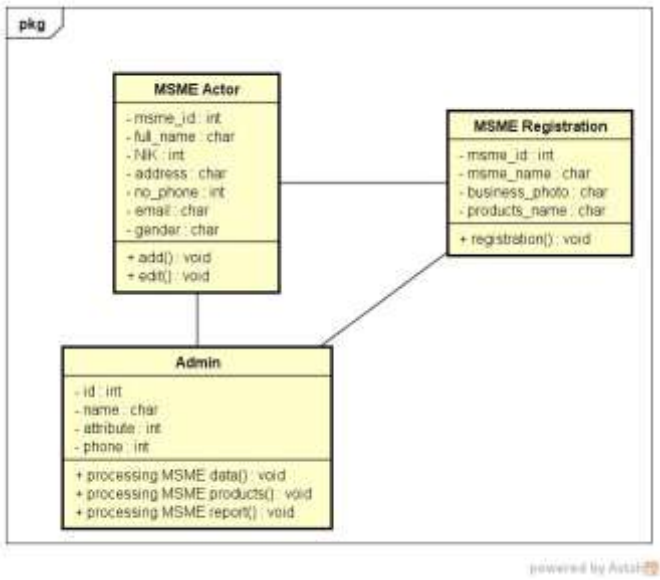

Figure 4. SIMPUM Class Diagram

C. Implementation

The development of a web-based micro business management empowerment information system (SIMPUM) produces a display like an image below.

1. Display The Start Page

Figure 5. Main Page Display

The main page display is the first display when opening the SIMPUM website. The main view is a description of all pages. In the main view, there are several main menus such as home, MSME product data, MSME registration and some related information.

2. MSME Registration Display

Figure 6. MSME Registration Display

In the MSME registration section, a form is provided to input registration data for MSME actors.

3. Display of MSME Products

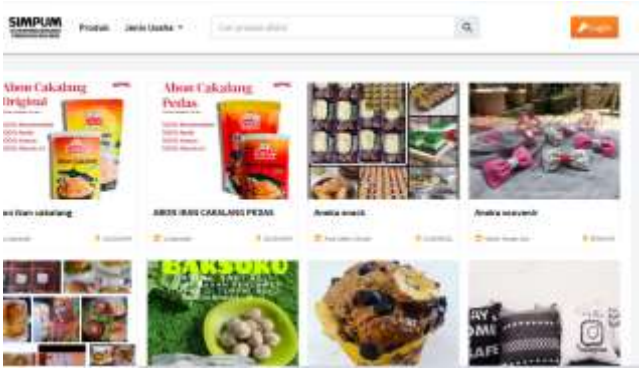

Figure 7. Display of MSME Products

The display of MSME product page displays the profiles and descriptions of MSME products.

4. Login Display

Figure 8. Login Display

The admin uses the login page to log in and process data on the UMKM information system in Karawang Regency.

5. MSME Data Display

Figure 9. MSME Data Display

MSME data displays a complete business profile that the admin can input. The MSME data input form can be seen in the image below

6. MSME Data Input Display

Figure 10. MSME Data Input Display

The admin inputs MSME data into the system based on the MSME registrant data that has been uploaded.

7. Display Report

Figure 11. Display Report

D. Testing

Testing is important in finding bugs or defects in the software being tested. The testing methods used are Blackbox and Whitebox. Blackbox testing tests the system from the start until all forms and spaces are tested, White box testing tests system logic or flow by testing it from the system traced into. The results that are executed and the source code of the program are stored in the database, so there are no errors during system operation or storage in the database. Blackbox testing example.

Table 1. Example of BlackBox Testing

No	Deskripsi	Target	Hasil
1	Registering SMEs	Can register and successfully save registration data	Valid
2	Look at MSME products	Can view and display MSME products and profiles	Valid
3	Process MSME data	Can process and edit MSME data	Valid
4	Process Report data	Can process, edit, and print report data	Valid

The following is a test conducted with a BlackBox, and the system has undergone a thorough testing process.
Testing by WhiteBox:

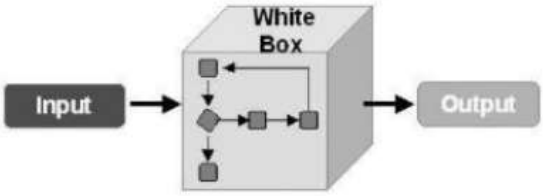

Figure 12. WhiteBox Testing

Table 2. Example of WhiteBox Testing

No	Deskripsi	Target	Hasil
1	Define logical processes	In executing the program, there are no errors, and input and output are as expected	Valid
2	Build cases for testing	Can register, view MSME products, process master data, product data, MSME, and report data and each actor is tested until it meets the goals and expectations.	Valid
3	Evaluate all test results	The results of testing points 1 and 2 are rechecked so that they are as expected	Valid
4	Carry out full testing	Conduct thorough testing both logically and as a result of system execution..	Valid

The test results in BlackBox and WhiteBox on the website system that has been built are suitable for use.

V. CONCLUSION

Based on the description above, it can be concluded that the design of a website-based micro-enterprise empowerment information system (SIMPUM) for Karawang Regency can facilitate and assist MSME actors to register their businesses online. With this system, it is hoped that it will be able to publish micro business profile information along with the products or services sold by business actors, so that it can help inform the through online media to the wider community, with the hope of increasing turnover and income and also Making a micro business management information system application will make it easier data management of micro business actors in Karawang Regency which can be used to determine policies for stakeholders.

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