DESIGN OF UD BRICK RAW MATERIAL PREDICTION APPLICATION. INARA

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Article Information	Abstrak
	Raw material data processing system is a very important thing in trading business. A computerized system is needed that can make predictions that are more effective, efficient and balanced with adequate human resources. UD.INARA does not yet have a system that can predict the need for brick raw materials. Because in the process of processing raw brick material data still uses manual predictions which are of course inaccurate, so that the process of ordering customers to calculating raw materials is not effective and efficient. *The system design uses the SDLC (System Development Life Cycle) waterfall method which consists of five stages, namely 1) planning, 2) analysis, 3) design, 4) implementation, 5) maintenance. System modeling uses UML (Unified Modeling Language) to describe visually, which is then implemented using the Hypertext Preprocessor (PHP) programming language with MySQL database as the database used.* *This design produces a data processing application for ud.inara brick raw materials that is effective and efficient in the process of predicting raw materials. This system can also generate accurate raw material reports.* *The design of a data processing application for brick raw materials is expected to improve UD.INARA's performance, to be more productive and efficient in providing services to customers.*

A. Introduction

The development of Information Technology is marked by many useful innovations in various aspects of life The development of information technology makes it easier to manage a business to be neatly organized and well accommodated in conducting sales transactions and in processing raw materials into an important point in a business.

In today's era of globalization, competition in all business sectors is getting tighter. With the development of the times and the new order of people's lives, the business world also cannot be separated from changes in the business environment that are oriented towards speed and accuracy. Where consumers are increasingly smart and demanding, consumers are no longer just satisfied with the products and quality they buy at competitive prices, but they also demand accuracy and speed of service (PE Nuriyanto, 2019).

Various forms of platforms can be used to advertise production and to meet all its needs, ranging from needs in the fields of Industry, Business, Education to Household needs. The description of various platforms was created, one of which was applications, ranging from sales applications, graphic design applications, multimedia applications, desktop applications and especially brick raw material data processing applications.

Erman (2018) application is the use in a computer, instruction (instruction), or statement (statement) that is arranged in such a way that it can process input into output. According to Andi (2015) the application is a program that is ready to be used that is made to carry out a function for users. Applications are also a subclass of computer software that is designed in such a way as to carry out a task that the user wants. Applications are used to solve problems faced by users in completing work or an activity.

UD. INARA is a trading business that produces bricks as the main production besides UD. INARA sells several raw materials such as stone, water and sand. Based on the results of the author's observations and interviews with UD owners. INARA that UD. INARA still uses standard data processing and ordering methods in terms of processes and equipment used. The lack of technology utilization causes the brick ordering process to be inefficient. Similarly, in the production process, there is often a difference in raw materials not equal to the number of orders, meaning that production is often not sufficient. This condition causes the owner to re-order the stock of raw materials to meet demand. As a result, the cost of transportation and automatic production increases and is not proportional to the profit. This condition can cause losses that affect the company's revenue turnover. Another problem is the traditional business operation without maximizing the use of technology in ordering services and business promotion, it also affects business performance and productivity.

Based on the background that has been explained and the problems described above, the author wants to try to make a prediction program for brick raw material data using applications to produce effective and efficient data and information, so as to reduce errors that may occur. The mind map for designing the application for predicting brick raw material data can be seen in picture 1 below :
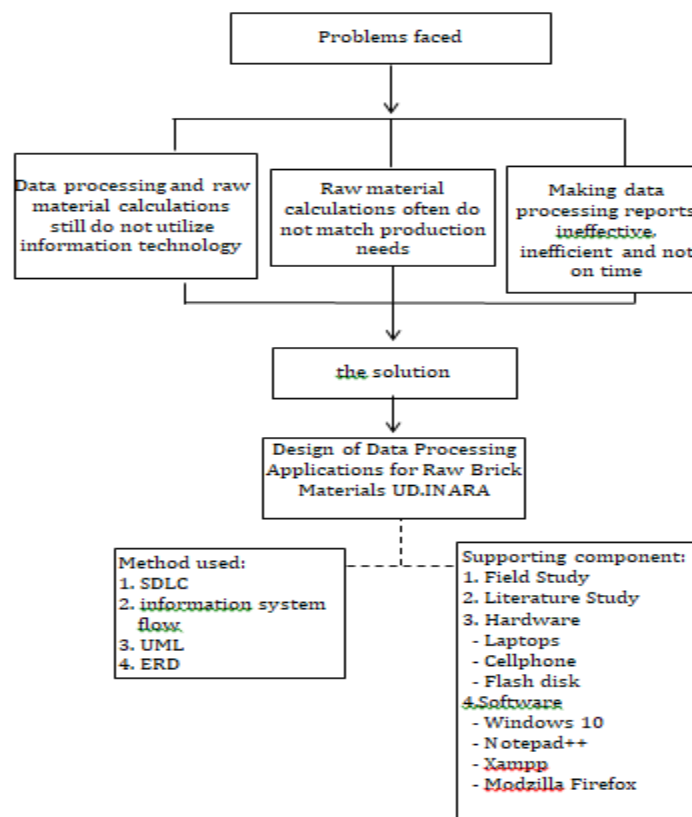
Figure 1. Mind Map Application Design.

B. Research Methods

Meto The method used in this study refers to the SDLC (System Development Life Cyrcle) method can be explained as follows:

1. Planning Phase

The planning stage is a stage that discusses data collection according to the needs in solving problems before analysis. At this stage, data collection is carried out through field observation, interviews, documentation and literature studies to collect references relevant to the research.

2. Analysis Stage

Furthermore, at this stage, an analysis of the problems experienced in the flow of the information system is running. The system is running using a manual system on processing raw material inventory data. Data processing relies on estimates and calculations globally. Like when the number of orders has been received, the brick party makes predictions or estimates raw material needs. Furthermore, after the details of the raw materials are obtained, the brick party orders the amount of raw materials as estimated. But there are often production delays due to lack of raw material stocks because the amount of raw materials that have been ordered is insufficient production, so raw material re-orders must be carried out to meet needs and resume production.

3. Design Stage

After the analysis, then proceed with the system design stage that will be used to solve the problem that has been analyzed. In accordance with the technical

guidelines issued by the Department of Public Works in 1986 the brick making process consists of sand, cement, and water mixed in a ratio of 75: 20: 5. Where one bag of cement (50kg) requires half (1/2) cubic (m3) of sand to produce a 120 seed brick. This stage deals with hardware and software to create a solution to the problem found, namely by creating an application of prediction of brick raw material data. UD brick raw material data prediction application design. INARA that will be designed is: calculation of raw materials needed for production in accordance with the number of orders along with reports.

4. Implementation Phase

The implementation stage is an important stage that is carried out after the design stage is carried out. This stage researchers implement the results of the design of the UD brick raw material data prediction application. INARA through a computer device without being connected to the internet. The program language used to implement the UD brick raw material data prediction application design. INARA is PHP while the database itself uses MySQL through the PHPMyAdmin application which is accessed through the XAMPP web server application.

5. Testing Phase

The testing phase is the last stage carried out by researchers after the implementation is carried out offline. At this stage testing is carried out without using an internet connection. This stage determines whether the application design predicts UD brick raw material data. INARA that has been made successful or not in overcoming problems that have been analyzed before.

C. Results and Discussion

This application is an application that predicts raw material needs offline. Here are some of the design results used in building raw material prediction applications at UD. INARA :

Use Case Diagram

Paramitha (2015) Use Case is a technique used in the development of a software or information system to capture the functional needs of the system concerned, use case describes the interaction that occurs between the initiator of the interaction of the system itself with the existing system. The usecase diagram used in designing the UD brick raw material prediction application. INARA is as follows:
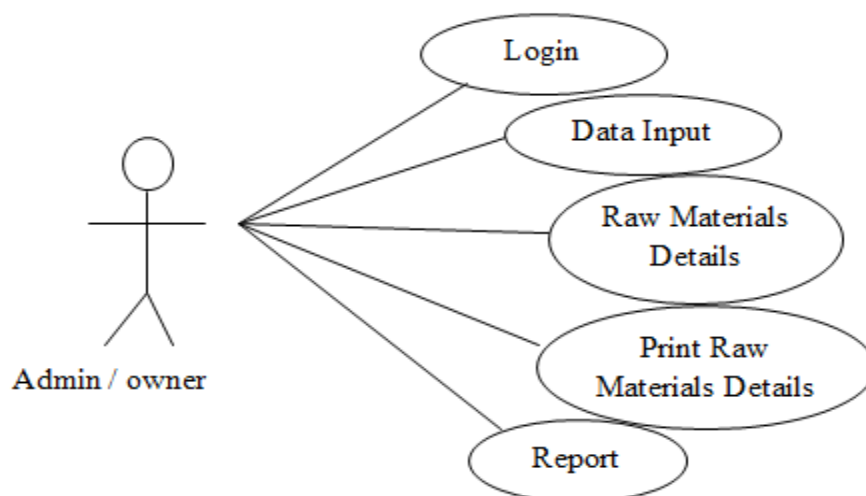

Figure 2. Use Case Diagram.

Based on figure 1. Above it can be explained that in the proposed use case there is one actor, namely the admin or store owner. The sub-system activities are: Login, Data Input, Raw Material Details, Print Raw Material Details. The actors' activities are as follows:

    1. Login using username and password.

    2. Admin inputs data in the form of the number of brick orders that have been ordered by customers.

    3. After the data is inputted, then processed by the system that has been designed, then the system will provide output in the form of details of raw materials needed in producing bricks according to the number of orders.

    4. Details of raw materials obtained can be printed by the admin in the form of softcopy and hardcopy.

    5. Finally, the admin gets a report in the form of a recapitulation of the entire number of orders inputted.

Entity Relationship Diagram

According to Bunardi (2019), Entity Relationship Diagram or ERD is a diagram used to illustrate a data storage modeling consisting of a collection of objects called entities and relationships between these objects. An entity is a "thing" or "object" that exists in the real world and can be distinguished from other objects. The ERD used in designing the prediction application of brick raw materials are:
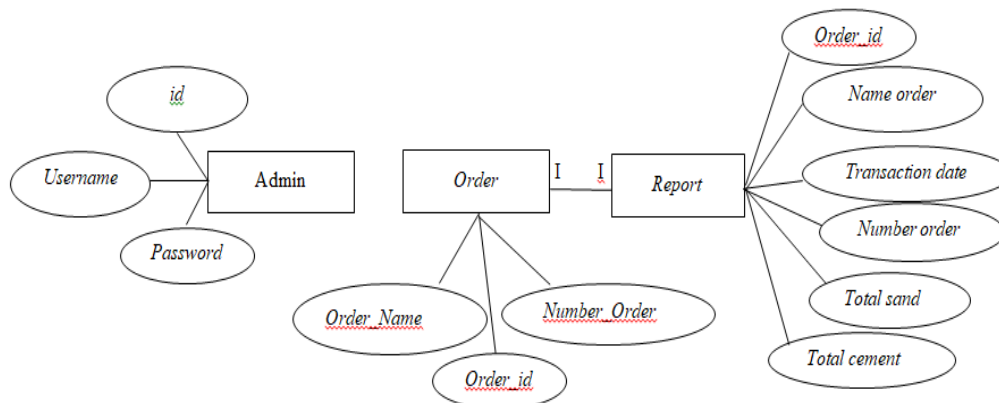

Figure 3. Entity Relationship Diagram (ERD)

Interface

Interface implementation (Interface) describes the appearance of the software being built and the usefulness of the functions of each existing form. To clarify the form of interface implementation, the following is the explanation and function of each display that has been created in the design of the UD.INARA Brick Raw Material Data Prediction application:

Home Page

Figure 4. Home Page.

This home page is the first page that appears when this application is accessed.
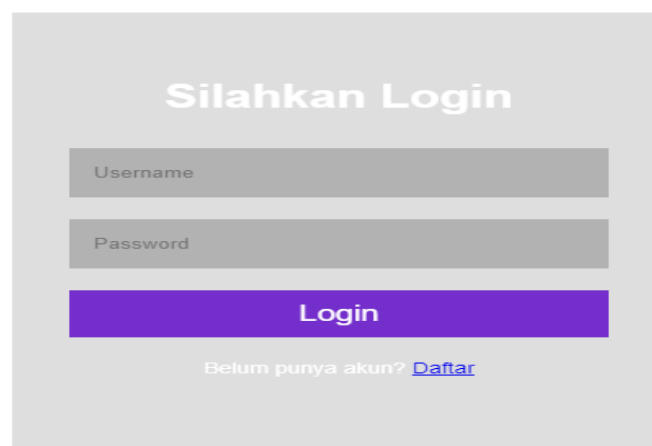
Login Page

Figure 5. Login Page

The Login page functions to carry out the process of entering the system. The input process on the login page is the username and password which have been inputted first by the admin.
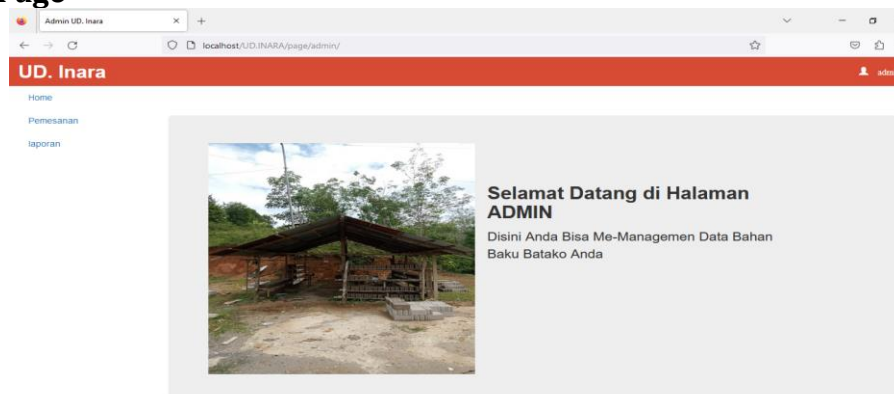
Admin Page

Figure 6. Admin Page

This page is the page that will appear after the admin accesses the login page.

Data Input Page

Figure 7. Data Input Page

This page is a page that processes brick data from the number of orders into detailed data needed to produce the ordered bricks.

Report Page

Figure 8. Report Page

On this page, all orders entered and detailed raw material data required will be summarized and produce an output in the form of a report.

System Testing

At this stage, system testing will be carried out which aims to find errors or deficiencies in the software being tested. For this functional testing, namely testing as a user, as can be seen in the following tables:

Table 1. Admin Page Testing

No	Menu name	Link	Result	Conclusion
1	Login Page	http://localhost/UD.Inara/login.php	Works	Valid
2	Home Page	http://localhost/UD.Inara/page/admin/index.php	Works	Valid
3	Order Page	http://localhost/UD.Inara/page/admin/index.php? page=detail	Works	Valid
4	Report Page	http://localhost/UD.Inara/page/admin/index.php?page=laporan	Works	Valid

This browser tester is useful for finding errors in incompatibility of different web browsers. The results of the decomposition analysis can be seen in the following table.

Table 2. Admin Link Test Result

No	Menu	Test Case	Test Result	Mozilla Firefox	Google Chrome
1	Login Page	Test	According Expectations	valid	valid
2	Order Page	Test	According Expectations	valid	valid
3	Order Page	Test	According Expectations	valid	valid

D. Conclusion

Based on the entire discussion of the final assignment regarding the design of the UD.INARA Brick Raw Material Data Prediction Application the author can draw several conclusion, namely :

1. This Brick Raw Material Data Prediction Application was built using the php programming language and MySql database.

2. this Application can effectively and effeciény overcome problems in systems designed in the form of offline data processing information systems.

3. this Brick raw Material Data Prediction Application helps UD.INARA update order data more effectively and produce accurately structured data processing reports.

Suggestion

Based on the analysis of the conclusion above, there are several suggestion that can be taken into consideration as follows :

Maintenance of software and hardware is required for the smooth running of the program to be used.

Future researchers can develop it by creating a more interactive data processing information system application, for example an Andriod based system.

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