

COMPUTER REPAIR MONITORING SYSTEM DESIGN IN THE COMPANY

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Abstract

Technological developments today are unavoidable, have a good impact on the running of a company's business. In this study the authors are interested in designing a computer repair system in the company. In this study, the author uses the waterfall method, so that all stages of the system design can be observed in detail at each stage. The design of this system aims to facilitate management in the IT department, in monitoring the repair process of computers that need repair, either in the process of purchasing new parts, or there are improvements in the program side, until the computer is completed under repair. In this design, the speed of the repair stages can be monitored, and if there is a delay in repairs, departmental leaders can intervene directly, what are the obstacles in the computer repair process. This design utilizes open source applications, namely, Php programs, Apache servers, and Mysql databases. By utilizing a Web-based program, it makes it easier for every employee in the company to use the application either by using a smartphone or a desktop computer, compared to before, every employee in the company had to use email or telephone to confirm whether the computer repair had been completed or not.

Keywords: Apache, Php, Mysql, Information Systems

1 INTRODUCTION

The speed of development of business processes in a company encourages every part of the company to create procedures that are faster in producing a report. So that the faster reports are made, helping decision makers to make the right decisions. One part that is

quite important in the company is the IT department, in that section there is a responsibility to ensure that the entire system can run properly, so that the company's business processes are not disrupted. With this, the authors are interested in conducting research to create a system design that helps to record all computer repair activities, so that it can make it easier for each department in the company to find out the progress of improvements being made by the IT department. The repair process involves the repair process, the purchase of computer spare parts, and the process of deleting computer assets if the device cannot be repaired.

2 METHODOLOGY

In this study the author uses the Waterfall method[1], where in this method the stages of research are: Requirements Analysis, Design, Implementation, Verification, Maintenance, in the description as shown in Figure 1.

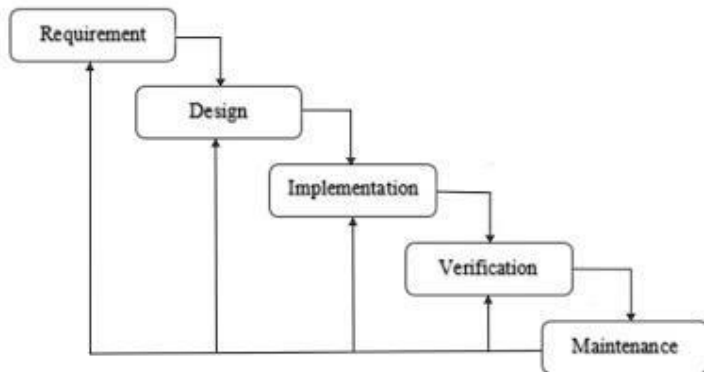


Figure 1. Waterfall model [1]

In the waterfall method, the author uses an approach using the Unified Modeling Language diagram, and the following are the stages that the author does in designing this information system:

a. Requirements Analysis

In the needs analysis stage, the author observes the system that is already running, and also analyzes all input and output documents.

b. Design

In the needs analysis stage, the author observes the system that is already running, and also analyzes all input and output documents. In the design stage, the author uses a Use Case Diagram, as shown in Figure 2.

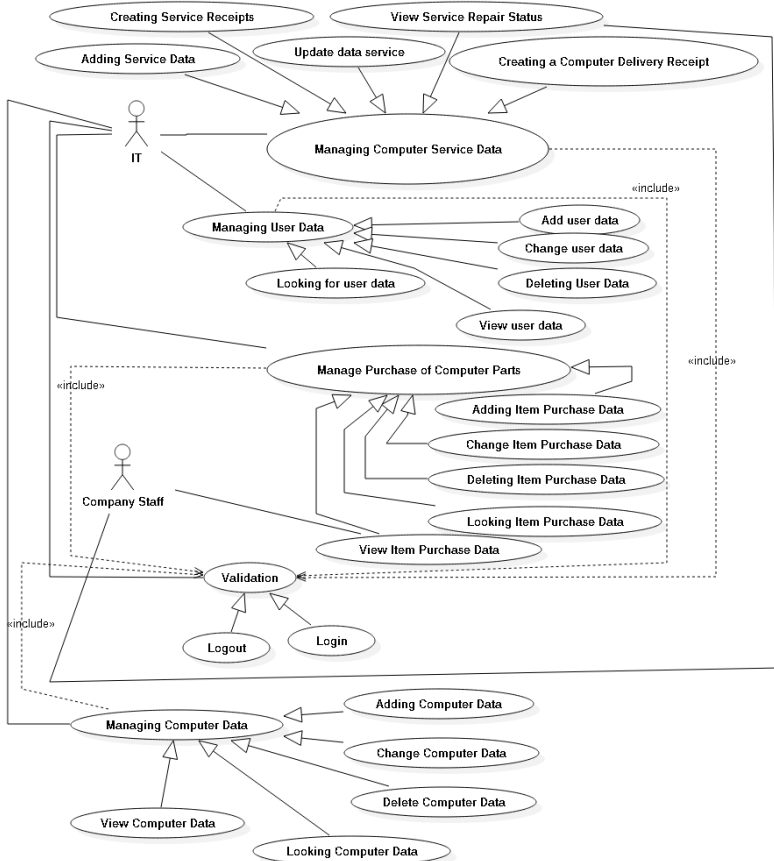


Figure 2. Use Case Diagram Monitoring System.

From the Use Case diagram as shown in Figure 2, it can be explained as follows:

1. Actor : IT

Description : Managing Computer Service Data

- a. IT can adding service data.
- b. IT can Creating service receipts.

- c. IT can update data service.
 - d. IT can view service repair status.
 - e. IT can creating a computer delivery receipt.
2. Actor : IT
Description: Managing User Data
- a. IT can adding user data.
 - b. IT can change user data.
 - c. IT can delete user data.
 - d. IT can view user data.
 - e. IT can looking user data.
3. Actor : IT
Description: Manage Purchase of Computer Parts
- a. IT can adding item purchase data.
 - b. IT can change item purchase data.
 - c. IT can delete item purchase data.
 - d. IT can view item purchase data.
 - e. IT can looking item purchase data.
4. Actor : IT
Description: Managing Computer Data
- a. IT can adding computer data.
 - b. IT can change computer data.
 - c. IT can delete computer data.
 - d. IT can view computer data.
 - e. IT can looking computer data.
5. Actor : IT
Description: Validation
- a. IT can login to the system.
 - b. IT can logout from the system.
6. Actor : Company Staff
Description: View Service Repair Status
- a. Company Staff can View Service Repair Status.
7. Actor : Company Staff
Description: View Item Purchase Data
- a. Company Staff can View Item Purchase Data.

And after making a design using a Use Case diagram, the author continues to use a class diagram, as shown in Figure 3. According to Rosa in Software Engineering [2], the class diagram describes the structure of the system in terms of defining the classes that will be created to build the system. Classes have what are called attributes and methods or operations. And for an explanation of the class can be seen in Table 1.

Table 1. Class Diagram Monitoring System

Class Name	Description
UserInformationSystem	Is a class that handles users and authorities in the use of information systems
ComputerData	Is a class that handles computer part data
ComputerServiceData	Is a class that handles computer service data
ManagingUserData	Is a class that handles user data queries
ManagingComputerData	Is a class that handles computer data queries
ManagingComputerServiceData	Is a class that handles computer service data queries
PurchaseData	Is a class that handles purchase data
ManagePurchaseofComputerParts	Is a class that handles purchase data queries
Validation	Is a class for user authentication
Interface	Is a class that handles each form view
DatabaseConnection	It is a class that handles database connections and querying data
Main	Is a Main class

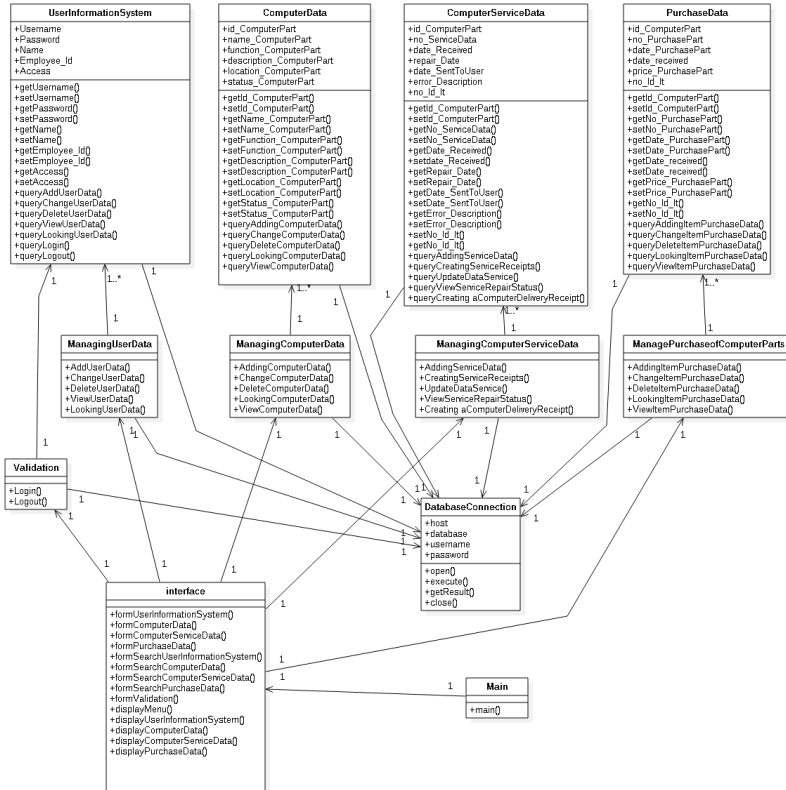


Figure 3. Class Diagram Monitoring System.

After designing the class diagram, the author continues the design using an activity diagram as shown in Figure 4.

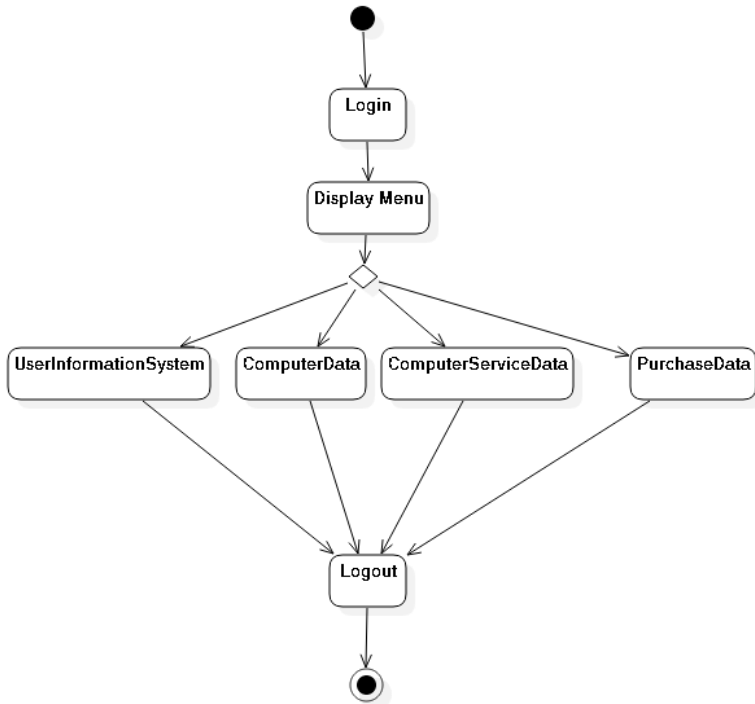


Figure 4. Activity Diagram Monitoring System.

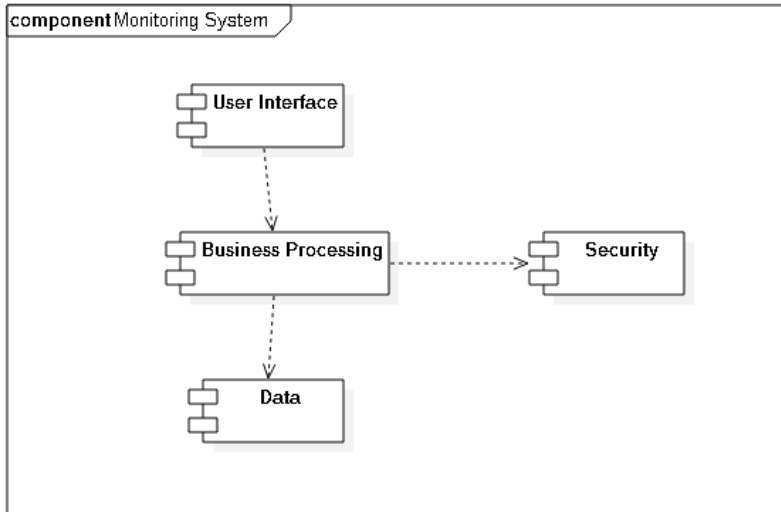


Figure 5. Component Diagram Monitoring System.

Can be seen in Figure 5, Component Diagram Monitoring System, describes the design of the relationship between components on the server, in running the information system. After making the component design, the author continues with a sequence diagram, where here the author displays a sequence diagram for the managing user data section, as shown in Figure 6.

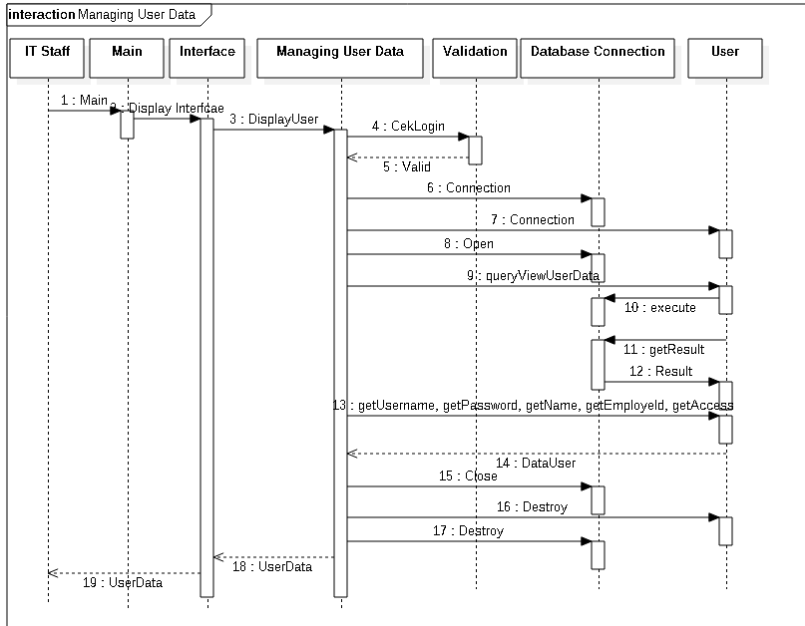


Figure 6. Sequence Diagram Managing User Data.

c. Implementation

In this stage, the author implements both the program code and database to be run directly, and is tested at every stage of the process, and ensures that each stage of the process can run according to the system design that has been made.

d. Verification

In this stage, the author verifies the stages of each information system process, and ensures that it has input and output in accordance with the design and expectations of users of the information system. Where both the PHP program, Web Server, and Mysql Database can run well and do not experience errors, in the course of the information system process.

e. Maintenance

At this stage the author ensures that the system is always in good working condition, the author monitors the mysql database, where the mysql database is an open source product [2], so ensuring that the product is always in an updated condition and does not experience problems, as well as for open source programs. PHP and Apache Web Server[3].

3 RESULTS

After doing the design, the following is the result of the application that is run as shown in Figure 7, is the display of logging into the information system.

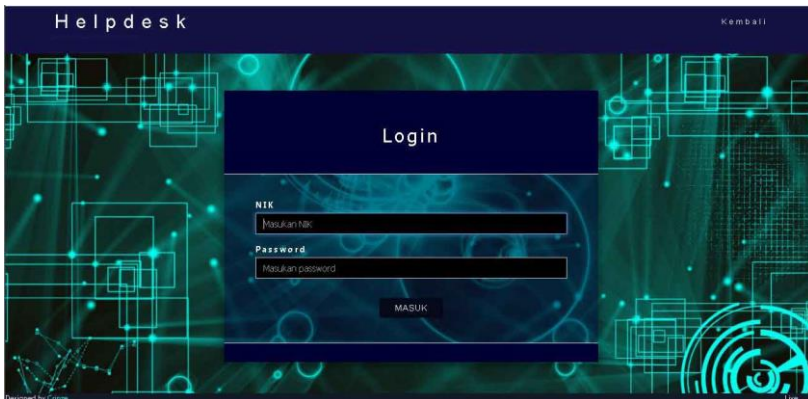


Figure 7. Login Form

4 CONCLUSIONS

With this information system, it makes it easier for communication between company staff and the IT department, as a service provider, plus also assists the IT Manager in monitoring the performance of each IT staff in it.

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