Medical Equipment And Medication Inventory Information System At West Citarip Puskesmas Is Based On A Website

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Abstract
An inventory information system offers data from many processes, including purchasing, storing, and reporting. As a result, it is essential to create an application for the Inventory Information System to transform the company's performance process from manual to automated, resulting in more thorough reports. Data collection, system design, system analysis, and database system design are used to create this application. It is creating PHP-based application programs. MYSQL is the database used, while VisualStudio Code is used for development scripts. It has been determined that the West Citarip Health Center's Drug and Medical Device Inventory Information System is ready to be designed and implemented.

Keywords : Inventory Information System, PHP

INTRODUCTION
The speed at which science and technology are evolving nowadays makes it more critical than ever to access an information system that can assist in processing and accurately presenting data. Using computers as data processors and information producers has made it impossible to isolate human activities from their effects on information.

Enterprises are encouraged to improve their data processing systems so that the information produced may be used in decision-making processes and can also be used to control businesses due to the high rate of errors in processing and creating reports in many information technology-using enterprises.

One type of government organization that needs information technology support to support its business activities is one that provides medical devices based on a doctor's prescription, or what we are more familiar with as the Puskesmas. One of its essential functions is keeping track of the enormous amounts and various specifications of pharmaceuticals and medical equipment in the Puskesmas institution's inventory. Citarip Health Center is one of the healthcare facilities that processes inventory data while continuing to use traditional methods and manual medications and medical equipment. Without the aid of a computer, each inventory management task is still completed by hand. Three types of stock recording cards—the complete list of incoming goods from distributors, stock cards per item, and stock recap cards—as well as two types of record books—the daily goods order book and the daily goods sales recap book—are used in the process of recording drug report data. Additionally, each record of the distributor's receipt of the items is retained as a backup in case something is lost from the two books and three registration cards.

This healthcare facility needs a data processing system to get around this. With this system, it is hoped that it will be helpful in several ways, such as making it simpler to record drugs and medical equipment when checking for specific drugs or medical equipment, reducing the accumulation of drugs in warehouses, preventing drug stock from running out, and
eliminating the need for manual reporting because the system can handle it.

A thesis entitled "Website-Based Medical Equipment And Medicine Inventory Information System At Citarip Community Health Center" was prepared as a result of the author's study and inventory system implementation at the West Citarip Community Health Center.

METHOD

Research methodology comes from the word "Method," which means the right way to do something, and "Logos," which means science or knowledge. So, methodology means doing something by using thought carefully to achieve a goal. Meanwhile, "research" is an activity to search, record, formulate, and analyze to compile a report.

Data Collection Technique

Observation

Observation or observation method is one method of collecting data/facts that is quite effective. Observation is direct observation, an activity that aims to obtain the necessary information by observing and recording with direct observation of agencies or foundations.

Interview

Interview, namely a data model by asking questions or debriefing directly with Dr. Nina, who has credibility in providing answers directly regarding research object reports. The interview question list functions to answer the function of the problem formulation in the research conducted. Entitled "Inventory Information System for Drugs and Medical Devices at the Citarip Public Health Center"

System Development Methods

The method used for system development is the (Object et al.) method. The OOSE method is an activity development method that places more emphasis on use cases. The advantage of this method is that it is easy to learn because it has a simple notation but covers all stages in engineering soft traps. The stages of the system are as follows:

1. Requirement Model, namely finding out the system requirements with the following steps:
   a. Observational study, namely observing directly the supply of drugs at the West Citarip Health Center
   b. Interview, namely direct question and answer with Dr. Nina as a staff member at the West Citarip Public Health Center

2. Analysis Model: The data that has been obtained is then analyzed to determine system requirements and then determines the required objects

3. Design Model: This stage starts with designing the system architecture using UML (Unified et al.) modeling, interface, and user interaction.

4. Implementation Model: The design results that have been made are then realized into code that is ready to be used.

5. Testing Model: After completion, a series of tests are carried out to ensure the system can run properly.

RESULTS AND DISCUSSION

Currently Running System Processes
The current system analysis aims to find out in detail about the system that is currently running at the West Citarip Public Health Center.

Use case diagrams are crucial for illustrating, describing, and preserving the behavioral needs of a system. Users and users of the system employ use case diagrams. The system's anticipated functions are described in the suggested use case diagram. The system's "what" rather than "how" is highlighted. This diagram will illustrate the procedures modeled in a collection of actors and use cases and the links between them. The following is the proposed use case:

**Table 1. Use Case Description**

<table>
<thead>
<tr>
<th>No</th>
<th>Use Case</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Login</td>
<td>Is the process of checking access rights to</td>
</tr>
<tr>
<td>2</td>
<td>Process drug data</td>
<td>Can view and manage drug stock in the application</td>
</tr>
<tr>
<td>3</td>
<td>Enter drug stock data</td>
<td>To add drug stock data</td>
</tr>
<tr>
<td>4</td>
<td>Edit drug stock data</td>
<td>To change drug stock data</td>
</tr>
<tr>
<td>5</td>
<td>Manage suppliers</td>
<td>Can view and manage suppliers in the application</td>
</tr>
<tr>
<td>6</td>
<td>Supplier data input</td>
<td>Can add supplier data in the application</td>
</tr>
<tr>
<td>7</td>
<td>Edit supplier data</td>
<td>Can change supplier data</td>
</tr>
<tr>
<td>8</td>
<td>Delete supplier data</td>
<td>To delete supplier data</td>
</tr>
<tr>
<td>9</td>
<td>Manage medication intake</td>
<td>Can view and manage supplier data</td>
</tr>
<tr>
<td>10</td>
<td>Edit incoming drug data</td>
<td>Can edit drug data</td>
</tr>
<tr>
<td>11</td>
<td>Delete incoming drug data</td>
<td>To delete drug data</td>
</tr>
<tr>
<td>12</td>
<td>Enter drug category</td>
<td>To add a drug data category</td>
</tr>
<tr>
<td>13</td>
<td>Edit drug category</td>
<td>To edit the drug category</td>
</tr>
<tr>
<td>14</td>
<td>Manage medication out</td>
<td>Can view and manage outgoing medication data</td>
</tr>
<tr>
<td>15</td>
<td>Edit out drug data</td>
<td>To change the medicine out</td>
</tr>
<tr>
<td>16</td>
<td>Delete drug data out</td>
<td>To clear the medicine out</td>
</tr>
<tr>
<td>17</td>
<td>Delete drug data out</td>
<td>To delete drug data out</td>
</tr>
<tr>
<td>18</td>
<td>Create drug data reports</td>
<td>Can see the drug report data that comes out</td>
</tr>
<tr>
<td>19</td>
<td>Create supplier data</td>
<td>Can see supplier data</td>
</tr>
</tbody>
</table>

**Scenario Use Case Diagram**

A use case scenario can be used to define or further clarify the process above flow, specifically by employing tables with the actors' names, aims, and short descriptions. The activities of the actors directly interacting with
the system are also documented in the scenario section and what the system does.

### Login Use Case Scenario

**Table 2. Scenario Use Case Login**

<table>
<thead>
<tr>
<th>Use case</th>
<th>Actor</th>
<th>Pre-Condition</th>
<th>Post-Condition</th>
<th>Main flow event</th>
<th>Actor action</th>
<th>System reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>Head of administration</td>
<td>Actor opens the application</td>
<td>Displays the main admin page</td>
<td>Displays the login page</td>
<td>Enter user and password</td>
<td>Displays the main login page</td>
</tr>
</tbody>
</table>

### Scenarios Process Data And Drugs

**Table 3. Drug Data Scenario**

<table>
<thead>
<tr>
<th>Use case</th>
<th>Actor</th>
<th>Pre-condition</th>
<th>Post-condition</th>
<th>Main flowmap</th>
<th>Actors action</th>
<th>System reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing drug stock data</td>
<td>Head of administration</td>
<td>The system displays the main warehouse admin page</td>
<td>The system displays drug stock data</td>
<td>Actor selects the medicine stock menu</td>
<td>The system displays the drug stock page</td>
<td></td>
</tr>
</tbody>
</table>

### Drug Entry Scenario

**Table 4. Admission drug scenarios**

<table>
<thead>
<tr>
<th>Scenario processing suppliers</th>
<th>Use case</th>
<th>Process suppliers</th>
<th>Actor</th>
<th>Head of administration</th>
<th>Pre-condition</th>
<th>The system displays the main admin page</th>
<th>Post-condition</th>
<th>The system displays the supplier's main page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Drug Scenario Out

**Table 5. Drug discharge scenario**

<table>
<thead>
<tr>
<th>Scenario processes outbound drug data</th>
<th>Use case</th>
<th>Process suppliers</th>
<th>Actor</th>
<th>Head of administration</th>
<th>Pre-condition</th>
<th>The system displays the main admin page</th>
<th>Post-condition</th>
<th>The system displays the supplier's main page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Use Case Scenario Processing Outbound Data

<table>
<thead>
<tr>
<th>Use case</th>
<th>Processing outbound drug data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actor</strong></td>
<td>Head of administration</td>
</tr>
<tr>
<td><strong>Pre-condition</strong></td>
<td>The system displays the main admin page</td>
</tr>
<tr>
<td><strong>Post-condition</strong></td>
<td>The system displays outgoing drug data</td>
</tr>
</tbody>
</table>

#### Main flowmap event

<table>
<thead>
<tr>
<th>Actor action</th>
<th>Reaksi sistem</th>
<th>Actors action</th>
<th>System reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actor selects the exit drug data menu</td>
<td>The system displays the main page of outgoing drug data</td>
<td>Actor selects the drug data menu</td>
<td>The system displays the main page of drug data</td>
</tr>
<tr>
<td>Actor selects the &quot;add&quot; button for outgoing drug data</td>
<td>The system displays the add drug out form</td>
<td>Actor selects the &quot;add&quot; drug data button</td>
<td>The system displays the form of adding drugs</td>
</tr>
<tr>
<td>Actor fills in the form to add medication out</td>
<td>The system saves data to a data base</td>
<td>Actor fills in the form to add medicine</td>
<td>The system saves data to the database</td>
</tr>
<tr>
<td>Actor selects the &quot;save&quot; button</td>
<td>The system displays an edit form for outgoing drugs</td>
<td>Actor selects the &quot;save&quot; button</td>
<td>The system displays the edit form for drug data</td>
</tr>
<tr>
<td>Actor selects the &quot;edit&quot; button on the outgoing data</td>
<td>The system saves data to the database</td>
<td>Actor selects the &quot;edit&quot; button on the data</td>
<td>The system saves data to the database</td>
</tr>
<tr>
<td>Actor fills in the edit form</td>
<td>The system saves data to the database</td>
<td>Actor fills out the edit form</td>
<td>The system saves data to the database</td>
</tr>
<tr>
<td>Actor selects the &quot;update&quot; button</td>
<td>The system deletes data in the database</td>
<td>Actor selects the &quot;update&quot; button</td>
<td>The system deletes data in the database</td>
</tr>
<tr>
<td>The actor selects the &quot;delete&quot; button on the selected outgoing drug data</td>
<td>The system deletes data in the database</td>
<td>The actor selects the &quot;delete&quot; button on the selected drug data</td>
<td>The system displays the main page</td>
</tr>
<tr>
<td></td>
<td>The system displays the main page</td>
<td></td>
<td>The system displays the main page</td>
</tr>
<tr>
<td></td>
<td>The system displays the main page of outgoing drug data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Scenario For Creating Drug Data Reports

Table 6. Scenarios for creating drug data reports
designing a web-based medical drug inventory information system in West Citarip.

**Login Activity Diagrams**

Below is an activity diagram that depicts the actor and system process for logging in:

![Figure 3. Login Activity Diagram](image)

**Drug data activity diagram**

Below is an activity diagram that describes actors and systems for processing drug data:

![Figure 4. Activity diagram for drug data](image)

**Activity Diagram Supplier Data**

Below is an activity diagram that depicts actors and systems for processing supplier data.
Ibrahim
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**Figure 5. Supplier Data Activity Diagram**

**Activity Diagram of Incoming Drug Data**

Below is an activity diagram that describes the actors and systems for processing incoming data:

![Activity Diagram of Incoming Drug Data](image)

**Figure 6. Activity Diagram of Incoming Medicine Data**

**Activity Diagram of Medication Outflow Data**

Below is an activity diagram that depicts the actors and system for processing outgoing drug data:

![Activity Diagram of Medication Outflow Data](image)

**Figure 7. Activity Diagram of Outgoing Drug Data**

**Activity Diagram Making Drug Data Reports**

Below is an activity diagram that depicts the actors and system for creating drug data reports:

![Activity Diagram creating drug report data](image)

**Figure 8. Activity Diagram creating drug report data**

**Activity Diagram Creates Supplier Data Reports**

Below is an activity diagram that describes the actors and systems for making supplier reports:

![Activity Diagram Creates Supplier Data Reports](image)
Medical Equipment And Medication Inventory Information System At West Citarip Puskesmas Is Based On A Website

Activity Diagram Creating Supplier Data Reports

Below is an activity diagram that depicts the actors and system for logging out:

Figure 9. Activity Diagram Creating Supplier Data Reports

Activity Diagram Logout

Below is an activity diagram that depicts the actors and system for logging out:

Figure 10. Logout Activity Diagram

System Requirements

The hardware needed to be able to support the implementation of a computerized system. Hardware implementation that can support system applications that will be made include:

Hardware

1. AMD A8-5550M APU White Rodeo
2. Spec hard disk 500gb
3. 3.4GB of RAM
4. Monitors 14inc
5. Keyboards
6. Mouse

Software

1. Cpanel
2. Web Server: Apache
3. Database : MySQL
4. Programming Language: PHP & Laravel Framework 7
5. Operating System : Windows, Linux, MacOS
6. Web Browser : Google Chrome

Program Use

Brainware is one of the important components in implementing the system and is usually in the form of a human object as the implementing staff which consists of:

1. Users, namely people who are users of the results of the system that has been completed, namely: Head of Administration
2. Programmers, namely people who function as creators and repair computer programs that refer to the system being built

Data Base Implementation

Figure 11. Implementation of admin data
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Figure 12. Drug data implementation

Figure 13. Data Out Implementation

Figure 14. Implementation of drug details

Figure 15. Exit Drug Implementation

Figure 16. Detailed drug implementation

Figure 17. Supplier data implementation

Interface Implementation
Login Interface Implementation
Drug Data Interface Implementation

Figure 18. Login and Dashboard
Medical Equipment and Medication Inventory Information System at West Citarip Puskesmas is based on a website.

**Figure 19. Drug Data**
Implementation of the Drug Data Form

**Figure 20. Drug Data Form**
Supplier Data Implementation

**Figure 21. Supplier data**
Implementation From Supplier

**Figure 22. From Suppliers**
Implementation of Admission Medication

**Figure 23. Medication Entry**
Implementation of Medication Entry Form

**Figure 24. Medication Entry Form**
Exit Drug Implantation
CONCLUSION

After creating an inventory system for medicines and medical equipment at the health center, it is hoped that this will simplify the inventory system and create accurate and efficient drug reports. The author can provide several conclusions, including:

1. Drug data processing can be done quickly, precisely and accurately and avoid data entry errors.
2. Computerized system as a result of technological development that helps in handling transaction data processing so that it can facilitate better monitoring of drug entry and exit.
3. Searching for data is faster and easier because all drug data already has a database.
4. Implementation of this drug inventory information system will simplify pharmacy operational activities and improve effective and efficient performance.
5. This inventory system can help facilitate computerized recording so as to improve service and supervision.

Based on the conclusions from the discussion and explanation above, the author provides suggestions that can be used as very useful and useful input for the West Citarip Community Health Center, namely as follows:

1. In order for the use of this inventory information system to run well, it is necessary to provide training for users so that the use of this information application program can function optimally.
2. For the owner or manager of this website to update drugs regularly so that transaction staff can see product information in detail.
3. For web managers, they must carry out maintenance in order to minimize the occurrence of problems on the web.
4. Web managers must regularly back up to anticipate crimes involving the loss or error of a website.

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