UNIVERSITY OF CALOOCAN CITY
COMPUTER ENGINEERING DEPARTMENT

Software Design

Progress Report No. 7

Designing the System

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I. Objectives

In this section, the goals in this laboratory are:

- To describe the conceptual design and the technical design of the system

- To transform the requirements into a working system

II. Methods

Design Overview

Our customers require a new inventory system due to the absence of a fully automated solution and the presence of limitations in their existing inventory process. The requirements gathered during the analysis phase clearly define the problems that the system is expected to solve.

Design is the creative and systematic process of transforming these requirements into a structured solution. It serves as a blueprint of the system, providing a clear description of how the system will function before actual development begins.

The design process is divided into two major parts:

- **Conceptual (System) Design** – describes what the system will do and how it will support the users' needs.

- **Technical Design** – specifies the hardware, software, and technical components required to implement the system.

III. Preliminary Design Review

During the Preliminary Design Review, we met with customers and users to validate the conceptual design of the proposed Custom Inventory System. This review ensures that all system requirements are properly addressed and aligned with the operational needs of Asia Wood International Corporation.

A. Overall Conceptual Design

The proposed system is a web-based Custom Inventory System designed to manage and monitor inventory transactions efficiently. It provides a centralized platform for recording, updating, and tracking inventory data in real time.

B. Hardware Configuration

The system will operate using a client-server configuration:

- *Server Side*: Hosts the web application and database

- *Client Side*: Desktop or laptop computers used by administrators, inventory staff, and management.

C. Software Architecture

The system follows a three-tier architecture:

1. **Presentation Layer** – the web-based user interface accessed through a browser.

2. **Application Layer** – handles business logic such as stock-in, stock-out, and report generation.

3. **Data Layer** – stores inventory data, user accounts, and transaction records in a database.

This architecture ensures system scalability, maintainability, and security.

D. User Interface

The system interface is designed to be simple and user-friendly. Key interfaces include:

- Login and authentication page.

- Inventory dashboard displaying current stock levels.

- Forms for stock-in and stock-out transactions.

- Report viewing and generation pages.

Each interface is designed according to the user's role to prevent unauthorized access.

E. Data Structures

The system uses structured data storage composed of the following main entities:

- **Users** – stores login credentials and access roles

- **Items** – contains item details such as name, category, and quantity.

- **Stock-In Records** – logs incoming inventory transactions

- **Stock-Out Records** – logs outgoing inventory transactions These data structures ensure accurate inventory tracking and data integrity.

F. Data Flow, Input, and Output

Input:

- Item information

- Stock-in and stock-out transaction details

- User account data

Process:

- Validation of inputs

- Updating inventory quantities

- Storing data in the database

- Processing inventory summaries

Output:

- Updated inventory list

- Stock movement history

- Inventory reports and summaries

- Low-stock notifications

Data flow diagrams may be used to visually represent how data moves through the system from input to output.

IV. Conclusion

As a group, we discussed and reviewed the conceptual design to ensure that it addresses all the identified requirements of the client. The proposed design provides a clear solution to the existing inventory problems and serves as a solid foundation for the next phases of development. The feedback gathered during this preliminary review will be used to refine the system before proceeding to the technical and implementation stages.

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