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**School of Computing and Mathematical Sciences**

**CO7201 Individual Project**

**Interim Report**

**Stock Control System**

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**DECLARATION**

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Date: 4/4/2025

**Content**

1. Overview
2. Status of requirements
3. Completed Tasks
4. In-Progress Tasks
5. Tasks not started yet
6. Literature Survey
7. Revised Gantt Chart

**1.Overview:**The **Stock Control System** aims to streamline and optimize **inventory management for computer components** in a warehouse. The system ensures **real-time stock tracking, efficient stock movement monitoring, automated alerts, and accurate invoicing**. By providing an intuitive interface and role-based access control, it enhances user experience and security. The system will also include **reporting and analytics tools** to help businesses make data-driven decisions regarding stock levels, demand forecasting, and replenishment.

**2. Status of Requirement:**

1. **Completed Tasks:**

**Development of a full stack centralized inventory management system**:

Following the literature survey, a full stack web application was developed to support real-time inventory tracking and centralized management. The frontend was created using Angular 19 and connected to a Python Flask backend with a MySQL database.

**Implementation of role-based user authentication and access control:**

A role-based authentication system was implemented to ensure secure handling of stock data and transactions. Separate dashboards were developed for administrators and clients, allowing access to specific functionalities based on user roles. Administrators are able to add and manage products, monitor stock levels, and generate reports, whereas clients are provided access to view available products, place orders, and track order status.

**Development of a client dashboard for product selection and order placement:**

A dedicated client dashboard was created to enable users to browse products, select desired items, specify quantities, and add them to a shopping cart. The product details are dynamically fetched from the backend to ensure users have access to real-time inventory information.

**Implementation of automatic cart total calculation:**

The system was enhanced with an automatic total calculation feature within the client dashboard. As users add or modify product quantities in their cart, the total price is dynamically recalculated. This functionality ensures clarity for users regarding the payable amount and supports seamless order processing.

**Secure backend development and database management:**

The backend system was designed to securely handle user data, stock information, and transaction records. MySQL was used for database storage, with attention given to encryption and data integrity.   
  
**b. In-Progress Tasks**

**Creating a shared layout for client and admin dashboards:**

The development of a shared layout for both the client and admin dashboards is currently in progress. The goal is to provide a consistent user experience by having a common structure with a fixed top navigation bar and a side navigation panel. This layout will help users easily navigate between different sections of the system and ensure that the design remains uniform across all dashboard pages.

**Developing the help page for users:**

The help page is being designed to assist users in understanding how to interact with the system effectively. This page will provide step-by-step instructions on how to place orders, check stock availability, and view order history.

**Client dashboard visual overview for product sales:**

Work is underway to enhance the client dashboard with a visual overview displaying the most sold products and products that have not been sold at all. The overview will be represented using bar charts and pie charts for easy analysis.

**c. Tasks Not Started**

**Development of the user history and supplier management pages:**

1.The next phase of development will focus on creating additional pages within the client dashboard. A user history page is planned where users can view their past orders and track order statuses.

2.Additionally, a suppliers page will be created within the admin dashboard where administrators can view supplier information and place new orders for the most sold products based on the visual sales overview. These features are critical for extending the system’s functionality to support proactive stock replenishment and supplier management but have not yet been started.

**3.Revised Gantt Chart**

The initial Gantt Chart underwent certain changes including addition, deletion, and evolution of tasks. The revised Gantt chart is available on the next page.

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**4. Literature survey of the Stock Control System:**

The aim of this project is to design and develop a centralized inventory management system for computer components that supports real-time tracking, dynamic stock movement, automated low-stock alerts, role-based access control, reporting tools, invoicing, and secure database storage. In order to ensure that the system design aligns with current industry needs and best practices, a detailed literature review was conducted. The review included insights from recent industry articles such as “Inventory Management: Definition, How It Works, and Examples” [1], “7 Inventory Management Best Practices for 2024” [2], and “Warehouse Management Explained: Strategies and Systems” [3]. These articles provided valuable guidance on addressing common warehouse management challenges such as preventing stock shortages, ensuring accurate inventory updates, and optimizing warehouse operations. The findings from the literature were crucial in identifying and validating the key features required to meet the project objectives, including real-time stock movement tracking, automated notifications, user authentication, data visualization for stock analysis, invoicing support, and secure database management.

**References**1.Inventory Management: Definition, How It Works, and Examples (Investopedia, 2023).  
2. 7 Inventory Management Best Practices for 2024 (Sortly, 2024).

3. Warehouse Management Explained: Strategies and Systems (SelectHub, 2024).