.Net Assignment 2 - Inventory Management System

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Introduction & Summary

The objective of this project is to craft an efficient Inventory Management System. The system is meticulously designed to facilitate the management of products, suppliers, and sales for businesses, using an electronics company as a representative example. It aims to streamline the operational workflow, allowing for seamless access and modification of inventory records, thereby enhancing overall productivity and operational efficiency..

User Authentication

A pivotal aspect of the system is user authentication, ensuring secure access to the application. Users are assigned distinct roles, such as administrator or inventory manager, each accompanied by specific permissions. Unique username and password combinations are utilised for login, ensuring secure and personalised user access, thereby safeguarding sensitive information and functionalities.

Product Management

The system features a product management section, accessible to users with the requisite permissions. Within this segment, users can perform a variety of actions such as viewing, adding, editing, and deleting products.

View Products: This section offers a detailed overview of all products within the system, providing essential information such as product ID, name, description, stock quantity, and price. Users are afforded the flexibility to filter products based on attributes like category, price, or supplier, and also to execute specific product searches.

Add Products: Users can seamlessly introduce new products into the system, necessitating the entry of crucial product details such as ID, name, description, price, quantity, category, and supplier ID.

Edit Products: This functionality facilitates the effortless modification of existing product details. Users can search for products by name or ID, updating necessary information or removing products as required.

Supplier Management

Supplier management is another crucial facet of the system, allowing for the management of supplier information. Users endowed with the necessary permissions can view and manage supplier details, ensuring that the supplier data remains accurate and up-to-date.

View Suppliers: This function allows users to access a detailed list of all suppliers, providing essential information such as supplier ID, name, and contact details. It serves as a quick reference, enabling users to easily access and review supplier information.

Add Suppliers: This section is designed to facilitate the addition of new suppliers to the system. Users can enter vital details such as supplier name and contact information, ensuring that the supplier list remains comprehensive and up-to-date.

Edit Suppliers: Users can modify existing supplier information, ensuring accuracy and relevance. It allows for the updating of details such as supplier contact information, ensuring that the system's supplier data remains current and reliable.

Sales Management

Sales management is integral to the system, allowing for the meticulous handling of sales transactions. It ensures that sales data is accurately recorded and managed, contributing to the reliability and integrity of sales records.

New Sale: This function enables users to create new sales transactions. Essential details such as product, quantity, and customer information are captured, ensuring that each sale is accurately recorded and reflected in the inventory.

View Sales: Users can access a detailed overview of all sales transactions, each accompanied by vital details such as transaction ID, products sold, quantities, and customer information. This comprehensive view ensures that users can easily review, track, and manage sales transactions, enhancing the system's sales management capabilities

Development Approach

The Inventory Management System is developed using C# with Windows Forms for the graphical user interface (GUI). This combination of technologies enables the creation of a functional and user-friendly application, making the system accessible and easy to navigate, even for users without extensive technical knowledge.

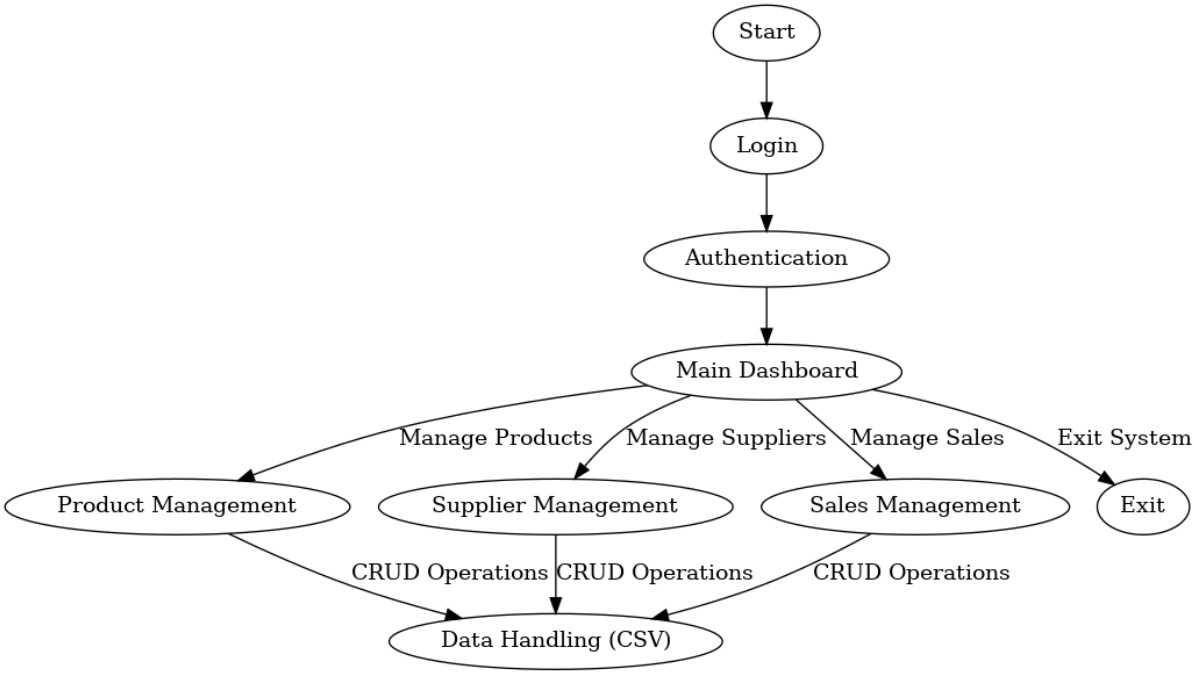
For data management, the application utilises CSV files. The decision to use CSV files was influenced by project constraints and group restrictions. More complex database solutions were considered out of scope due to time management challenges experienced within the team. This approach allowed the team to maintain focus on delivering a functional application within the project timeline, despite the constraints.

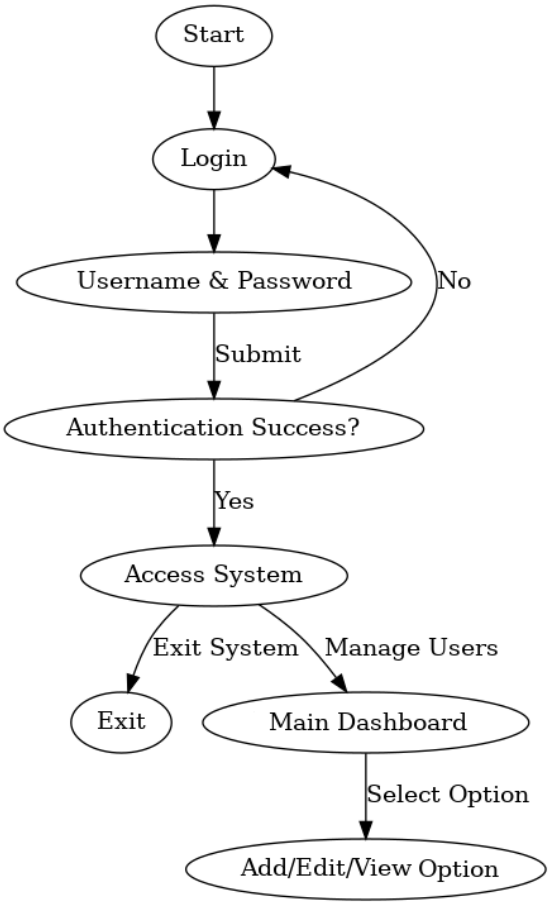
A specific file manager class is included in the application to manage file operations, ensuring accurate and efficient reading from and writing to the files. This dedicated class simplifies data interactions, providing a consistent method for handling data throughout the application.

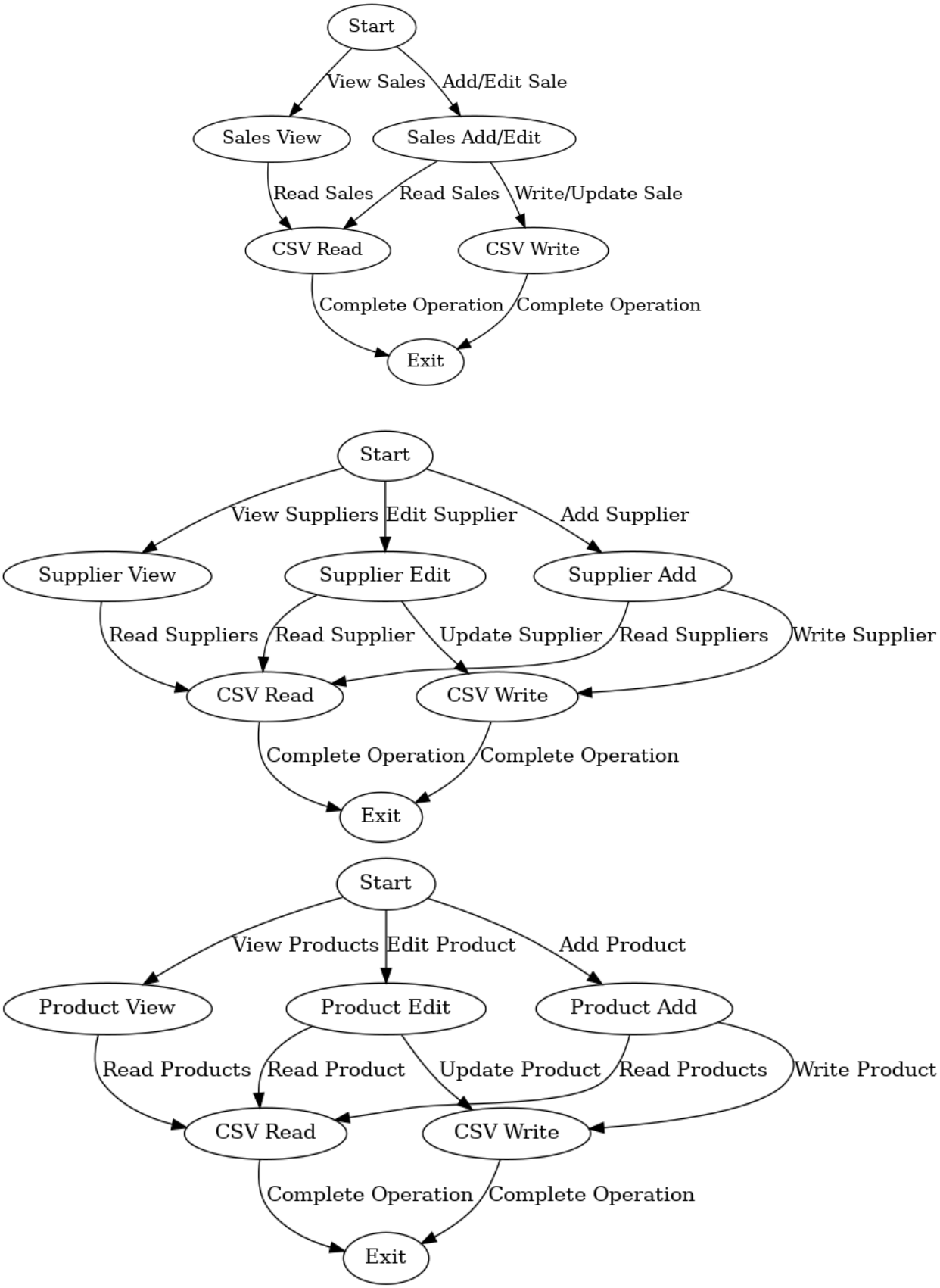
The codebase is structured and organised, with a focus on readability and maintainability. Comments and documentation are integrated within the code to clarify functionality and support future development and understanding of the application's components and operations.

Flowchart

The report will be complemented by a detailed flowchart, visually articulating the operational flow and intricate interactions amongst various system components. This graphical representation will serve to enhance understanding, providing a clear visualisation of the system's architecture and functional workflow






Start
View Sales
Add/Edit Sale
Sales View
Sales Add/Edit
Read Sales
Read Sales
Write/Update Sale
CSV Read
CSV Write
Complete Operation
Complete Operation
Exit
Start
View Suppliers
Edit Supplier
Add Supplier
Supplier View
Supplier Edit
Supplier Add
Read Suppliers
Read Supplier
Update Supplier
Read Suppliers
Write Supplier
CSV Read
CSV Write
Complete Operation
Complete Operation
Exit
Start
View Products
Edit Product
Add Product
Product View
Product Edit
Product Add
Read Products
Read Product
Update Product
Read Products
Write Product
CSV Read
CSV Write
Complete Operation
Complete Operation
Exit

Individual Contributions

Student	Role	Contribution
Dylan	-	-
Harrison Hanavan	Head Developer & Project Lead	Majority of code structure design and development Created Flow Charts Wrote Part of Intro and Majority of Project Overview and Development Approach