Fundamentals of Computing II - LAB
CSCE 1102 - Project
Milestone 1 - Design Report

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GitHub link: https://github.com/YUSIFABOOD/Inventory.git

Core Classes

Class Name / Description	Data Members	Member Functions
User Abstract base class for all system users. Handles authentication, role, and permissions.	username, password, role	User(), ~User(), getUsername(), getRole(), setUsername(), canManageUsers(), canAddItems(), canGenerateReports()
Authenticator Static class for verifying user credentials during login.	to be implemented	Authentication functions (to be implemented)
UserManager Manages the collection of users, including loading, saving, adding, deleting, and finding users.	container for users (e.g. vector<User>)	loadUsers(), saveUsers(), addUser(), deleteUser(), findUser(), ~UserManager()
Item Represents an inventory item with name, category, quantity, price, and supplier.	name, category, quantity, price, supplier	Item(), getName(), getSupplier(), getPrice(), getQuantity()
Inventory Maintains the collection of items, with adding, saving, and searching capabilities.	container for items (e.g. vector<Item>)	addItem(), loadFromFile(), saveToFile(), searchByName(), searchByCategory(), searchBySupplier()
ReportGenerator Static class to generate and export inventory reports.	to be implemented	generateReport(), more functions planned

User Classes and Functionality

Class Name / Description	Data Members	Member Functions
Admin Derived from User. Full system control to manage users.	inherits from User; future additions	Admin(), addUser(), validatePassword(), saveUsersToFile(), loadUsersFromFile(), listUsers(), deleteUser()
Manager Derived from User. Manages inventory and reports.	inherits from User; future additions	Manager(), viewInventory(), addItem(), generateReport()
Staff Derived from User. Limited access to view inventory.	inherits from User; future additions	Staff(), viewInventory()

Maestro Classes

Page / Module	Expected Data Structures	Reasoning / Usage
Login Page	Simple variables (e.g., Boolean flags)	To store entered credentials and track login status.
Admin Page	Dynamic container (e.g., vector)	To manage a list of users that can grow, delete, and be searched.
Dashboard	Mix of fixed fields + dynamic lists	To show totals, recent updates, and low-stock alerts.
Inventory Page	Dynamic list (e.g., vector)	To hold and display items with search by name/category/supplier.
Add Item Page	Local variables / temp input holders	To capture form inputs before adding to inventory.
Reports Page	Temporary dynamic list / file streams	To collect data and export to .txt or .csv files.