Project Idea Report

Only for course Teacher						
		Needs Improvement	Developing	Sufficient	Above Average	Total Mark
Allocate mark & Percentage		25%	50%	75%	100%	5
Clarity	1					
Content Quality	2					
Spelling & Grammar	1					
Organization and Formatting	1					
					Total obtained mark	
Comments						

Semester: Spring-2025

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Batch: 41 **Section: J**

Course Code: SE215

Course Name: Object-Oriented Design

Course Teacher Name: Maidul Islam

Designation: Lecturer **Submission Date:24/04/2025**

Project Idea: E-Commerce Application

Project Description:

This project is a simple, yet functional E-Commerce platform built as a Command-Line Interface (CLI) using the Java programming language. It mimics the basic functionalities of real-world online shopping platforms, such as user authentication, product listing, cart management, and billing, all operated within a terminal or console environment.

The goal of this project is to simulate an end-to-end shopping experience using object-oriented programming concepts and demonstrate how console-based applications can manage dynamic user interactions, data processing, and output formatting.

Core Modules and Functionalities:

User Registration and Login:

Users are prompted to enter their name and mobile number to register or log in.

The system validates mobile number format (e.g., 10 digits, optional country code).

Once logged in, the user gains access to the shopping interface.

Product Catalog:

A list of predefined products is presented, each with a unique ID, name, and price.

Products are stored and managed using appropriate data structures (e.g., arrays or ArrayList).

Cart System:

Users can add products to a shopping cart by entering the product ID and quantity.

The cart dynamically updates and stores selected items, calculates subtotals, and handles duplicate items.

View Cart:

At any time, users can view the contents of their cart, including item names, quantities, unit prices, and total price.

Billing and Checkout:

Upon checkout, a final bill is displayed, summarizing the purchase with itemized costs, taxes (if applicable), and the total payable amount.

After billing, the cart is cleared, and the session ends or loops back to the product selection screen.

Console Styling (Optional Enhancement):

The CLI uses ANSI escape codes to add colorful text output, improving the user experience by making prompts and sections more readable.

Technologies and Concepts Used:

- Java (Core language)
- Object-Oriented Programming (OOP):
- Classes for User, Product, Cart, etc.
- Methods for user interaction, product management, and billing
- Collections: ArrayLists for storing cart items and product lists
- Control Structures: Loops, conditional statements for menu handling
- Console I/O: Scanner for input, System.out for output
- Basic Validation: Mobile number format checks, input safety

Objective and Purpose:

The primary objective of this project is to apply theoretical knowledge of Java and Object-Oriented Programming into a real-world simulation. By designing this application, students learn how to:

Create and manage multiple classes and objects

Handle real-time user input and output

Simulate business logic such as product selection and billing

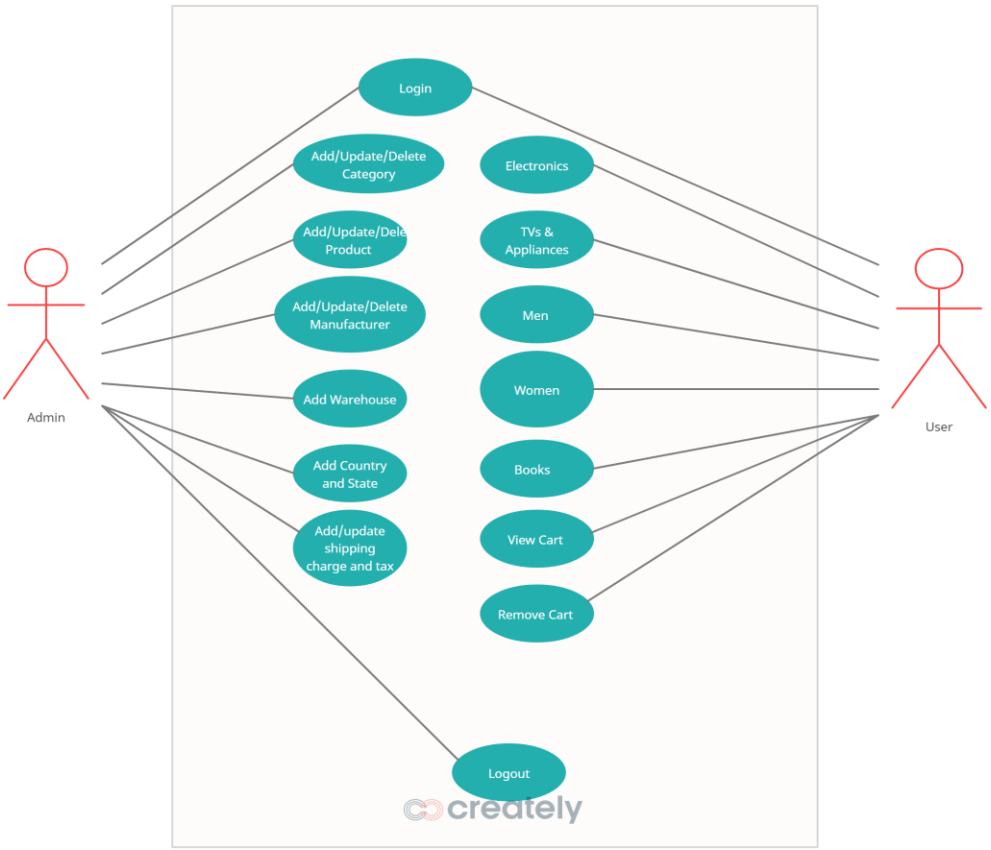
Work with Java data structures and control flows

Develop CLI-based applications that are efficient and user-friendly

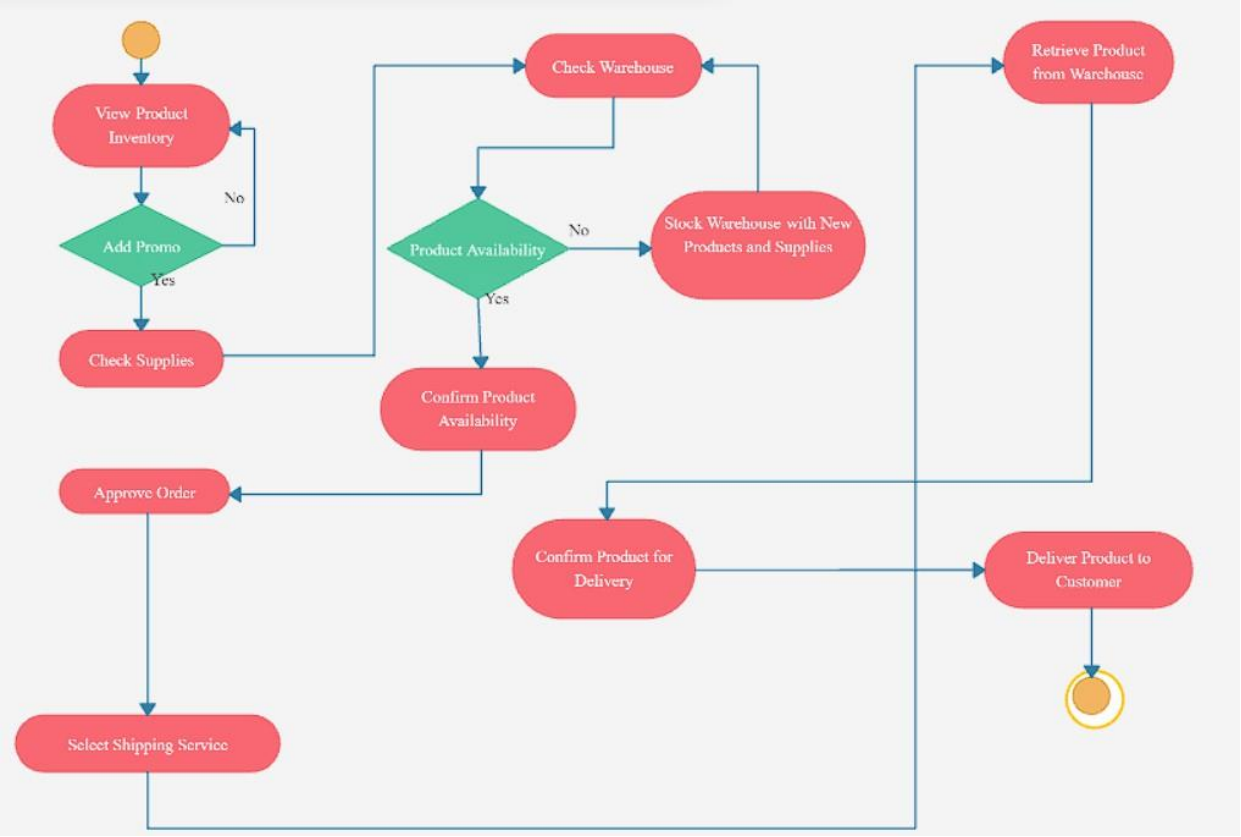
Potential Enhancements (Future Scope):

- Save user and cart data to files or a database
- Add support for discounts or coupon codes
- Implement product search and category filters
- Add admin interface to manage product inventory
- Integrate with a GUI using JavaFX or Swing

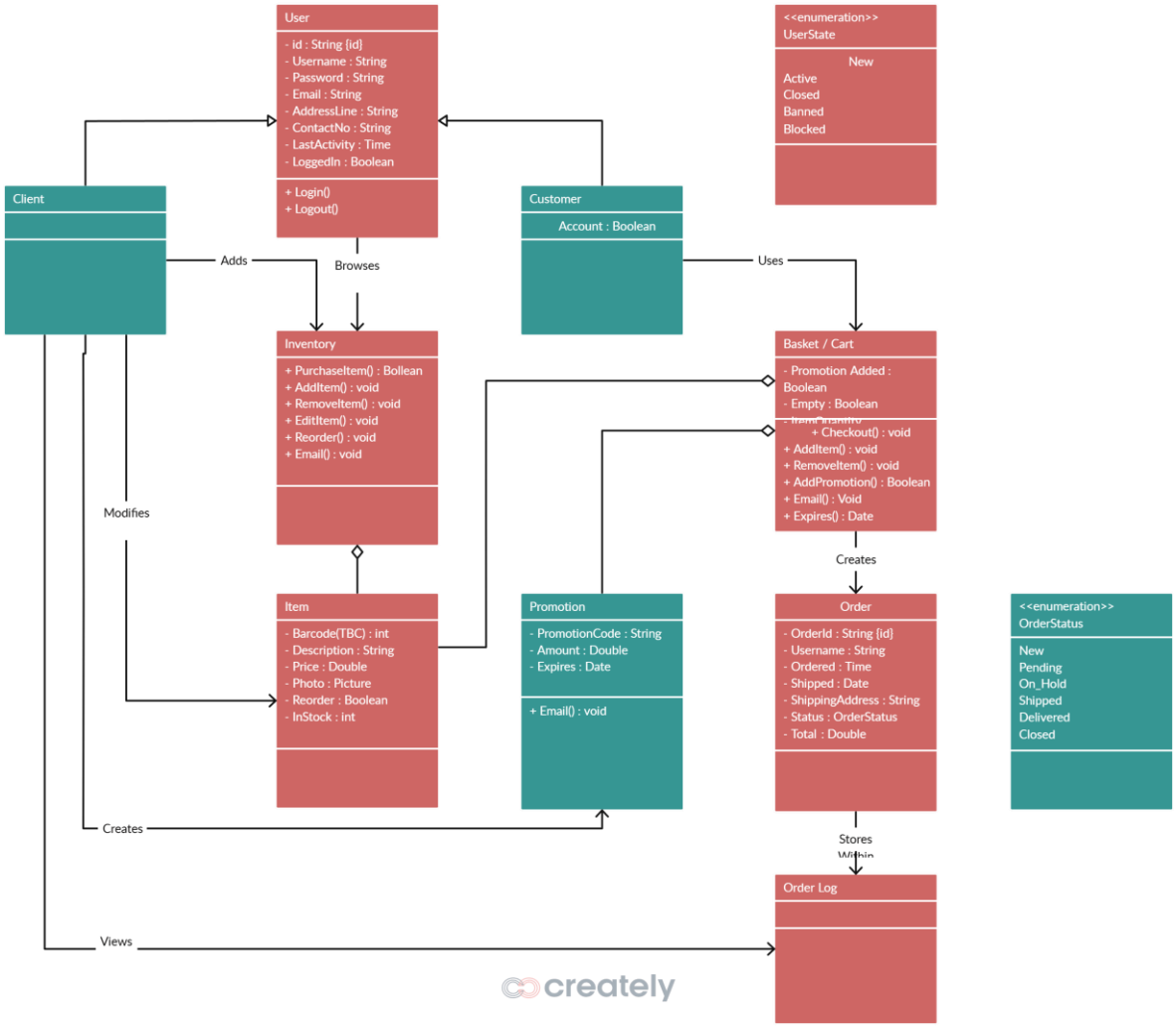
USE CASE DIAGRAM:



ACTIVITY DIAGRAM:



UML DIAGRAM:



GITHUB LINK: https://github.com/Ahmmedtanvir/QuickShop-Console-Application-