

Java Programming Assignment: Online Store Simulation

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Overview

The goal of this project is to implement a simple console-based application using the Java programming language. The application will simulate an online store and include functionality for managing products, a shopping cart, and persistent storage.

Project Requirements

Students are required to implement a Java console application that meets the following specifications:

1. Core Functionalities

- **Product Management:**

- Add products to the system. Each product must have a unique **ID**, a **name**, a **category** (e.g., shoes, t-shirts), a **price**, and a **quantity**.
- Remove products from the system using the product ID.
- Display all products within a specific category.

- **Shopping Cart:**

- Add products to the shopping cart.
- Remove products from the shopping cart.
- Display all items currently in the shopping cart, including their **name**, **quantity**, and **price**.
- Calculate and display the total price of items in the shopping cart.
- Ensure that the user cannot add more items to the cart than the available quantity in the system.

- **Persistence:**

- Save all product data to a text file when the program exits.
- Load product data from the text file when the program starts.

2. Technical Details

- Use object-oriented programming concepts, including classes and objects.
- Implement proper input validation to handle user input errors.
- Organize the project into separate classes, such as:
 - **Product:** Represents a product in the store.
 - **Store:** Handles product management and file operations.
 - **Cart:** Manages the shopping cart.
 - **Main:** Contains the main application logic and user interface.
- Use Java's file I/O libraries to read and write product data from/to a text file.
- The application should run in a loop until the user chooses to exit.

Sample Application Flow

1. Program Startup:

- Load products from a text file.

2. Main Menu:

- Add product to the system.
- Remove product from the system.
- Display products by category.
- Add product to the shopping cart.
- Remove product from the shopping cart.
- Display shopping cart contents and total price.
- Exit the program (save products to file).

3. Program Exit:

- Save all product data to a text file.

File Format

The product data should be stored in a text file in a format similar to the following:

```
1, Shoes, Footwear, 49.99, 10
2, T-Shirt, Clothing, 15.99, 25
3, Jeans, Clothing, 39.99, 12
```

where each line represents a product with the following attributes separated by commas:

- Product ID

- Name
- Category
- Price
- Quantity

Good luck and happy coding!