

Java Project Guide: Inventory Management System

1. Project Overview

Build a console-based Inventory Management System using Java. This app allows adding, removing, and viewing products with quantity and price tracking. It uses object-oriented design and file handling.

2. Key Features

- Add new products
- Remove products by ID
- View current inventory
- Low stock alert
- Save/load inventory from file

3. Classes and Responsibilities

- Product: id, name, quantity, price
- Inventory: manages a list of products
- FileHandler (optional): read/write inventory data
- Main: menu and user interaction

4. File Structure

```
/InventorySystem
|-- Main.java
|-- model/
|   |-- Product.java
|-- service/
|   |-- Inventory.java
|-- util/
|   |-- FileHandler.java
|-- data/
    |-- inventory.txt
```

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5. Step-by-Step Implementation

1. Define the Product class with fields and methods
2. Create Inventory class to manage products (add, remove, list)
3. Build the menu system in Main.java
4. Implement file read/write in FileHandler.java
5. Add validation and exception handling

6. Sample Menu Flow

1. Add Product
2. Remove Product
3. View Inventory
4. Save and Exit

7. Optional Enhancements

- Sort products by quantity or price
- Add search by name or ID
- Use JSON or CSV format for storage
- Add user authentication for admin access

8. Final Notes

This project reinforces OOP, logic building, and real-world problem solving. Start simple, build incrementally, and keep testing as you go.