

# Inventory Management System

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## Overview

This Java application is a GUI-based inventory management system developed using Swing and an embedded Apache Derby database. It follows core object-oriented programming principles. The system consists of 27 classes, 3 interfaces, and 5 unit tests to ensure functional reliability and maintainability.

## Project Setup

- GitHub Repository: [github.com/moonbby/inventory-manager](https://github.com/moonbby/inventory-manager)
- To run the programme, execute *InventorySystem.java* (no login required)
- Ensure the /database/ folder is located in the project root
- DB URL: jdbc:derby://localhost:1527/inventoryDB
- Derby DB does not enforce authentication; any username/password will work

## Key Features

- Modular object-oriented design using abstraction, polymorphism, encapsulation, inheritance, and interfaces with no obvious code smells
- Dedicated Home Panel for consistent starting point and intuitive navigation reset
- Add, remove, restock, and purchase products with live table updates
- Reporting tools for summary, most expensive product, and low-stock exports
- One-click inventory backup with a visible backup table
- Developer tools to reset products, logs, and backup tables
- Input validation with user-friendly error dialogs
- Styled GUI using a centralised theme manager
- Persistent product and log storage via embedded Apache Derby DB
- Full unit test coverage of core inventory logic
- Complete Git commit history included via the embedded .git folder