# System Overview - Inventory Management System

Project Name: Inventory Management System

## Purpose:

The Inventory Management System allows employees and managers to view, manage, and report on stock items. It supports item categorization, discount management, stock level monitoring, and reporting of item-related issues. This system is built with a clear separation between user interface interactions and domain logic.

## Main System Components:

### 1. Presentation Layer:

- InventoryConsole:  
 - Provides a text-based user interface for users to interact with the system.  
 - Displays menus according to the user's role (Worker, Transport Manager, Manager).  
 - Calls domain layer services to perform actions.  
- SampleDataInitializer:  
 - Loads sample data (items, categories, discounts) into the system for testing purposes.

### 2. Domain Layer:

- Inventory:  
 - Holds lists of items and reports.  
 - Provides services to add, remove, search, and manage inventory items and reports.  
- Item:  
 - Represents a stock item.  
 - Includes details like ID, name, quantity, minimum quantity, location, cost price, sell price, expiry date, category, and discount.  
- Category:  
 - Represents a classification for items.  
 - Supports parent-child relationships for subcategories.  
- Discount:  
 - Represents a time-based discount applied to an item.  
 - Includes percentage discount and validity period.  
- ItemReport:  
 - Represents a report on a particular item (e.g., expired or damaged).  
 - Includes item reference, report date, issue type, and comments.  
- Report:  
 - Aggregates a list of items for reporting purposes.  
 - Typically used to generate low stock or category-based reports.  
- ReportGenerator:  
 - Responsible for creating different types of inventory reports.  
 - Interacts directly with Inventory.

## Typical User Flow:

1. User runs the program and selects a role (Worker, Transport Manager, Manager).  
2. The system displays a menu with available actions based on the role.  
3. User can:  
 - View all items.  
 - View items with low stock.  
 - Report an issue on an item.  
 - View all item reports (restricted to Transport Manager and Manager).  
 - (Managers) Generate advanced reports (future feature).  
4. The system updates or displays inventory information based on the user's choice.

## Note:

The system is modular, easy to extend, and ready for future upgrades like login authentication, advanced reporting, or a graphical user interface (GUI).