# Project: Inventory Management System with Suppliers

## Objective

To develop a user-friendly application for managing the inventory of a small shop. The system will allow adding, searching, and updating items while managing suppliers and notifying the shopkeeper when stock is low.

## Core Features

### 1. Inventory Management

- Add, view, search, and update inventory items.  
- Store details such as Name, Price, and Quantity.  
- Notify when stock is below a certain threshold.

### 2. Suppliers Management

- Add suppliers with details such as:  
 - Name  
 - Contact Information (phone number, email, address)  
 - Supplied Items (list of items they provide)  
- View and update supplier information.  
- Associate each inventory item with a supplier for tracking purposes.

### 3. Search Functionality

- Search for items by name or supplier.  
- Display detailed information about inventory and suppliers.

### 4. Low-Stock Notifications

- Notify the shopkeeper when an item’s quantity is below a specific threshold (default: 5).  
- Provide supplier details for easy restocking.

### 5. Display Inventory and Suppliers

- Show all inventory items in a table format with their associated suppliers.  
- Display a list of all suppliers with their details.

### 6. Save and Load Data

- Use JSON to store inventory and supplier data persistently.  
- Load data from the JSON file on application startup.

## Additional Features (Recommended)

1. Supplier Stock Requests  
- Add a feature to create and track restocking requests sent to suppliers.  
  
2. Supplier Search  
- Search for suppliers by name or by the items they provide.  
  
3. Inventory Value by Supplier  
- Calculate the total value of items supplied by a specific supplier.  
  
4. Backup Data  
- Enable creating backups of inventory and supplier data.

## Proposed Work Division

### Teammate 1: GUI Design

- Design the main interface using ttkbootstrap.  
- Create forms for adding/editing inventory items and suppliers.  
- Implement tables to display inventory and supplier details.

### Teammate 2: Inventory Data Management

- Implement functions for adding, updating, and searching inventory items.  
- Integrate JSON-based storage for inventory.

### Teammate 3: Suppliers Data Management

- Implement functions for adding, updating, and searching suppliers.  
- Handle the association of suppliers with inventory items.

## Implementation Steps

1. User Interface  
- Create a modern GUI using ttkbootstrap.  
- Add forms for inventory and supplier management.  
- Use Treeview for displaying data in tables.  
  
2. Data Management  
- Use JSON to store inventory and supplier data.  
- Ensure data is saved after each update.  
  
3. Notifications  
- Use messagebox to alert users about:  
 - Low stock items.  
 - Successful/unsuccessful operations.  
  
4. File Handling  
- Ensure JSON files for inventory and suppliers are created if not already present.  
- Implement backup functionality for data safety.

## Outcome

A robust inventory management system with supplier integration. The system will simplify managing inventory, tracking suppliers, and restocking low-stock items efficiently.