Inventory Management System

Project Report

Name:

Vedurumudi Sri Sai Venkata Ramana Akhil

Date:

July 2, 2025

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1. Objective of the Project

The main objective of this project is to develop a software application that helps manage the inventory of a store or warehouse efficiently. It enables tracking of stock levels, product details, sales, and provides alerts for low-stock items.

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2. Scope of the Project

This project includes:

- Product management (Add, Edit, Delete)
- Inventory tracking
- Low-stock alerts
- Sales summary reports
- User authentication
- GUI for ease of use
- Data persistence using JSON and SQLite
- Report generation in PDF format

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3. Technologies Used

- **Programming Language**: Python
- **GUI Framework**: Tkinter
- **Database**: SQLite and JSON
- **Libraries Used**: `tkinter, sqlite3, reportlab, datetime, os`

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4. System Requirements

Hardware:

- Minimum 2 GB RAM
- 1 GHz processor
- 200 MB disk space

Software:

- Python 3.x
- SQLite / JSON
- Required Python libraries (`pip install`)

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5. Modules of the Project

1. **User Authentication**
2. **Product Management** (Add, Update, Delete)
3. **Inventory Tracking**
4. **Low Stock Alerts**
5. **Sales and Report Generation**
6. **Graphical User Interface using Tkinter**

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6. Features

- Secure login with username and password
- CRUD operations on inventory
- Low stock warning system
- Real-time updates to stock data
- Export sales summary to PDF
- Easy-to-use graphical interface
- Local database storage (SQLite and JSON)

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7. Advantages

- Reduces human errors and manual tracking
- Enhances store or warehouse efficiency
- Gives quick access to inventory data
- Can be extended for use in small businesses or retail

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8. Future Enhancements

- Integration with barcode scanner
- Role-based user access (admin/staff)
- Cloud storage for multi-device access
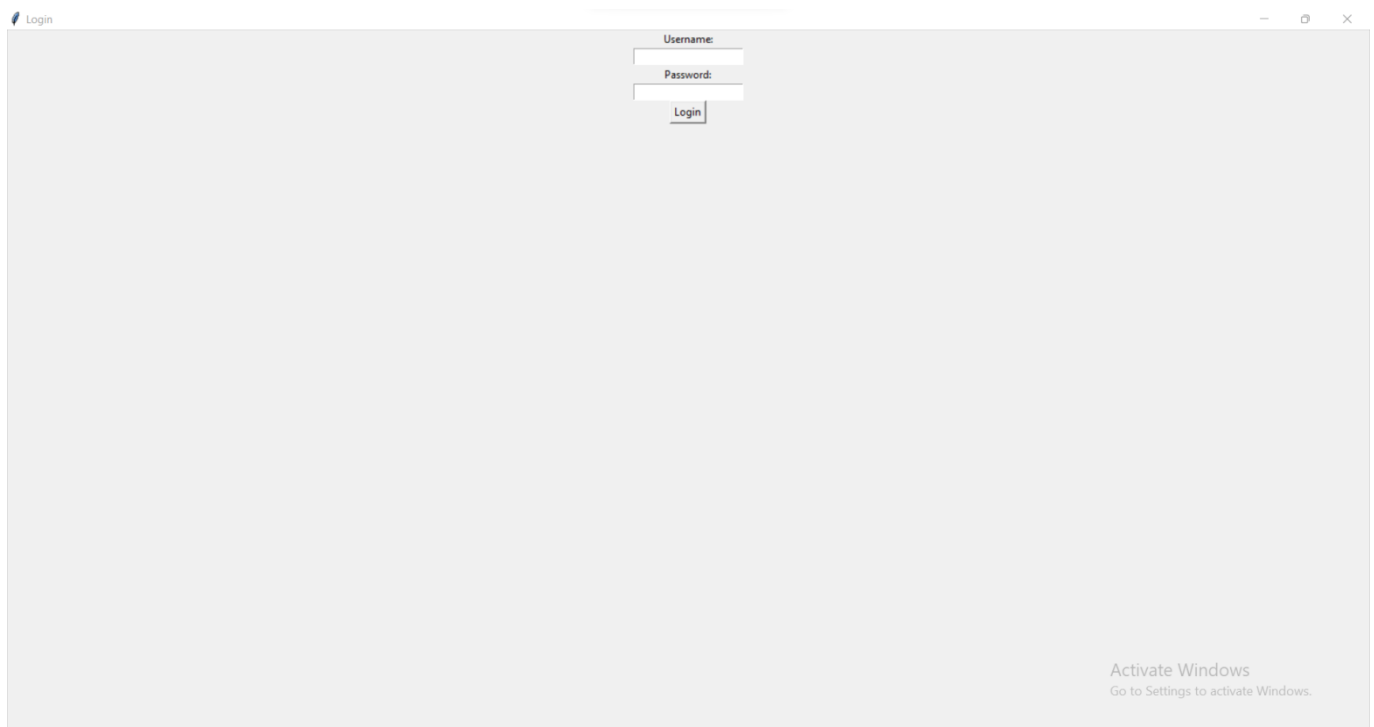- Android version using Kivy or Flutter

9. Conclusion

The Inventory Management System is an efficient, easy-to-use application that simplifies the process of managing stock and sales data for a business. With Tkinter GUI, SQLite & JSON databases, and PDF reporting features, it offers a complete solution for inventory needs.
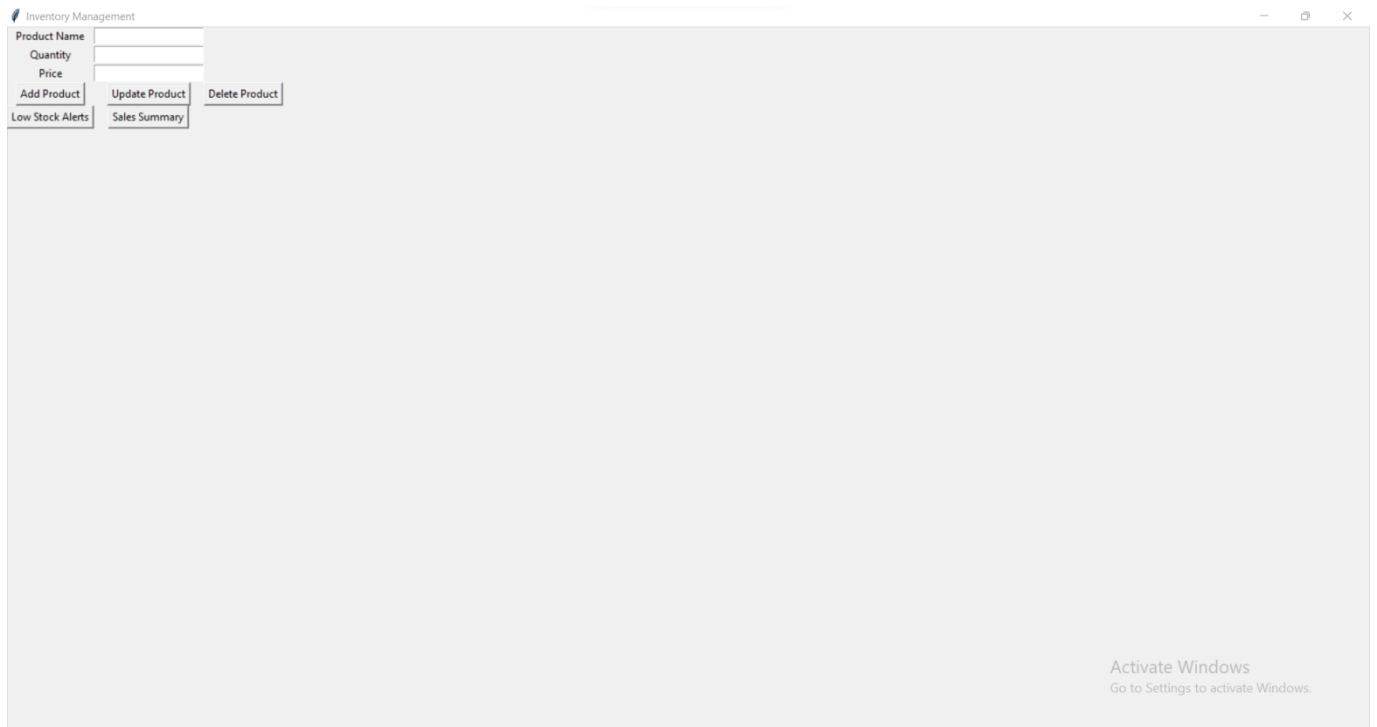
10. Screenshots

Login Page

Inventory Management Interface

11. References

- [Python Official Documentation](#)
- [SQLite Documentation](#)
- Stack Overflow & GitHub resources for Python Tkinter apps.