Warehouse inventory accounting program for a grocery store

Introduction

Inventory management information system is high performance software, which speeds up the business operations of the organization. Every organization, which deals with the raw materials, put its great effort in the efficient utilization of its raw material according to its need and requirement. The organization must perform number of tasks and operations in order to run its business in a manual system. For example:

- Access to inventory.
- Access to sales.
- Modifying inventory, sales, price data.
- Preparation of purchase order.

Advantages of Inventory management systems are as follows:

1. Inventory information can be handled easily.
2. The manager can easily view when the updates are done at the point of sale devices.
3. The manager can make decisions very fast.
4. The manager can plan the goods production.
5. Automatic value generation.

Content

Problem-solving

1. Cloud and Warehouse Management System – The benefits of cloud-based WMS is that they allow for fast deployment, no maintenance costs, and lower IT costs. A cloud-based WMS can be customized to meet unique business needs and offers additional features such as higher data security protocols for businesses that will handle higher value inventory. Both systems are tailored to fit with the various types and sizes of the businesses. While the Cloud WMS is more ideal for medium to large size businesses as well as those with more complexities. Irrespective of the business size gets benefits greatly varied from a WMS that increases the business efficiency and the productivity.

2. Industry-specific blueprints — some vendors offer industry-specific templates that leverage the proven best practices and processes for specific industries. This is expected to cut down the implementation and deployment cycle, thus reducing the implementation time and cost.

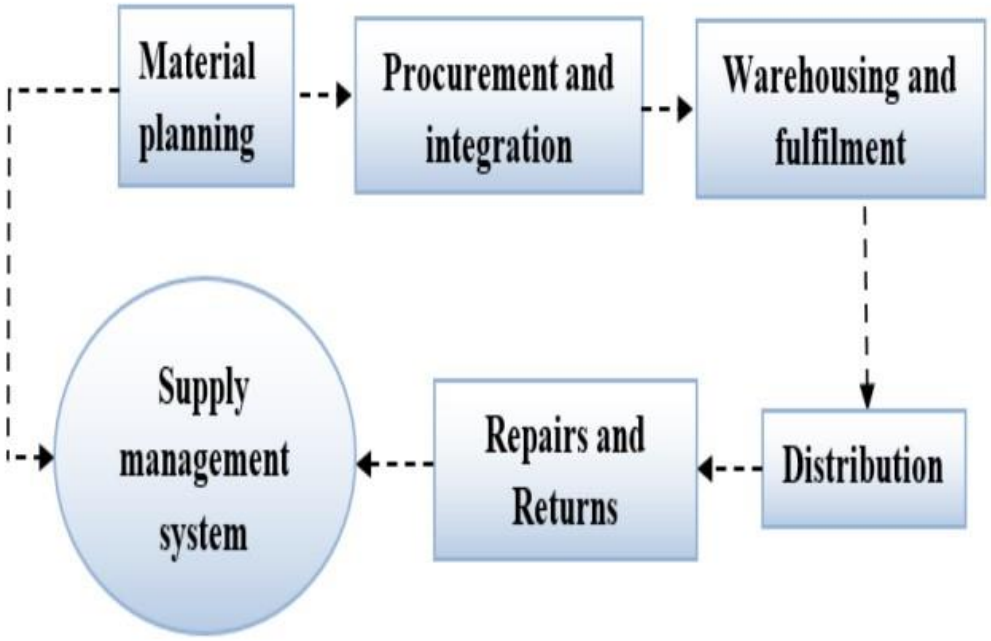
3. Integration with the ERP system — ERP and WMS integration is an important factor to consider when the business model is complex to manage and requires real-time system communications. It is crucial to achieve liveliness to make effective business decisions, become more competitive, and simplifies the data management process.

4. Configuration and Customization — the vendors are finding out the advantage of agile approach to work as needed so that the system can easily adapt and improve its performance. The ability to easily and rapidly configure and customize a solution, in a way, is a key required element for a WMS for any business.

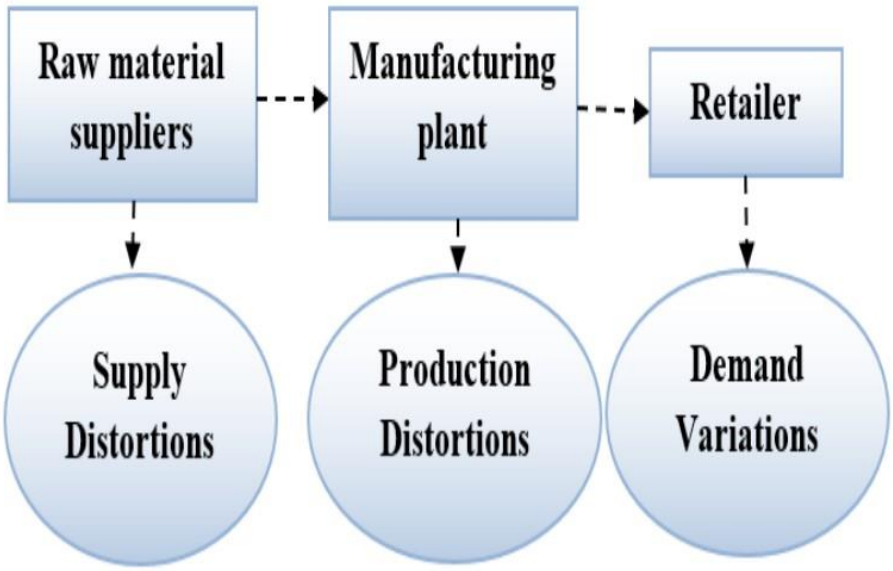
5. Agile Versus Waterfall implementation programs — Some WMS solution providers have agile or rapid implementation programs designed to get business up and running quickly, within a restricted period of time. And some are using the Waterfall approach based on the implementation schedule and timeline.

6. Modern UI/UX — The ease-of-use of a WMS for small businesses/SMBs can greatly reduce the system training needed, as well as make it easier to get new employees up to speed in the future.

With the ever-changing customer and business requirements, the providers have realized the importance of WMS implementations. In this evaluation, the key factors that have been contributing to a successful WMS implementation have been detailed out. And the data regarding the workflow prior and after a successful implementation were analyzed through direct project implementation observations and documentary analysis. It is evident that after the successful implementation of the WMS system, the provider has started gaining the benefits in productivity, cost savings and employee satisfaction etc. It is believed that this research article will help the researchers and the professionals in the logistics and supply chain industry to learn these lessons and make them applicable in the future for very successful WMS implementations.



Process of the Supply Management System



Disturbances in the Supply Chain

Evaluated factors	Before WMS implementation	After WMS implementation

Materials traceability and information	Low traceability and low inventory accuracy	Increased inventory accuracy
Picking route	Hardly random	Best-of-breed sequence and optimization
Bureaucracy level	Manual Process so high level	An automatic system so low
Delivery factor	Low delivery due to loss of inventory	Accurate delivery
Quality of the logistics operations	Very low	Extremely high
Employee satisfaction	Regular	Very satisfied
Organization and standardization	Low	High

1. Real-time Inventory Management.
Managing and controlling the inventory in the facility became much easier and real-time. This helped not just this Logistics service provider but also their customers to plan the resources and inventory accordingly.
2. Reduced Mishandling of Inventory .
As the product is scanned for every movement at the facility, including inbound receiving, Outbound processing, Inventory control and other system driven activities, it reduced the mishandling of the inventory greatly.
3. Efficient Returns Process.
Managing and handling the customer returns became easier and more efficient, since it tracks the returned inventory at the detailed level. This goes back to the Customer for accurate payment processing.
4. Faster Product Delivery.
In today's competitive and dynamic environment, more and more customers do expect service providers with better, faster and cheaper service. Hence the successful implementation of the WMS will lead to faster product delivery and this company have started realizing these in their businesses.
5. Improved Customer Satisfaction.
As WMS helps to track the inventory closely at the facility, it helps the customer to work with the service provider seamlessly. And, when WMS is integrated with the Customer system, it automates all the communication between the partners electronically.

The main tasks to make the best Software for WMS:

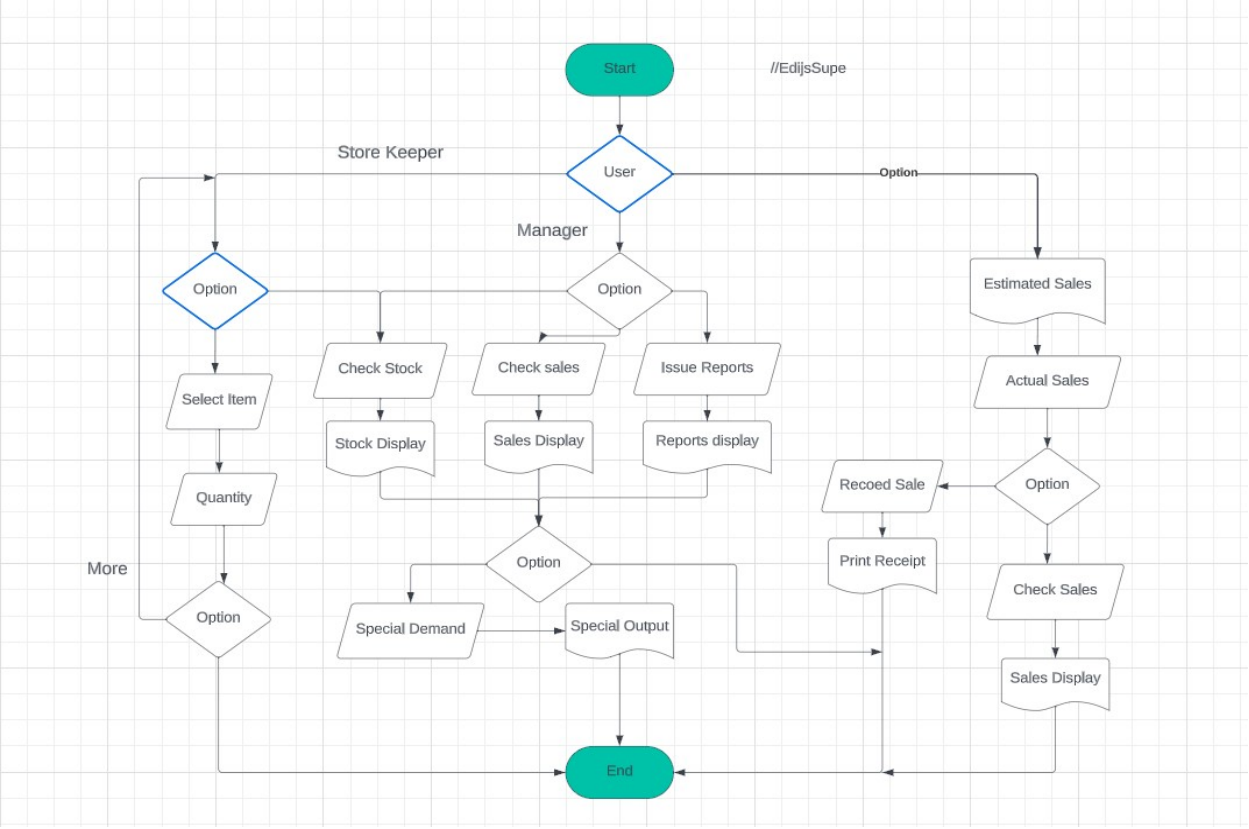
1. Real-time updates.

Warehouse inventory constantly needs to stay updated with the most recent numbers and information. It needs to automatically synchronize updates across all devices to ensure that whenever authorized users access the software, the data they're seeing is accurate all the time.

2. Automation and paperless process.
Knowing the exact location of specific inventory all the time is crucial in warehouse inventory management. This may include geo tagging and other software features that allows location identification that makes it faster and easier to locate inventory.

3. Quality and safety controls.
Managing warehouses is a huge responsibility for warehouse managers, juggling tasks to maintain safety and quality of work and inventory 24 hours a day, 365 days a year. With features such as scheduling and automated reporting, software can help proactively maintain quality and safety in any warehouse. It can also integrate with sensors and other existing platforms you are currently using to maintain seamless operations.

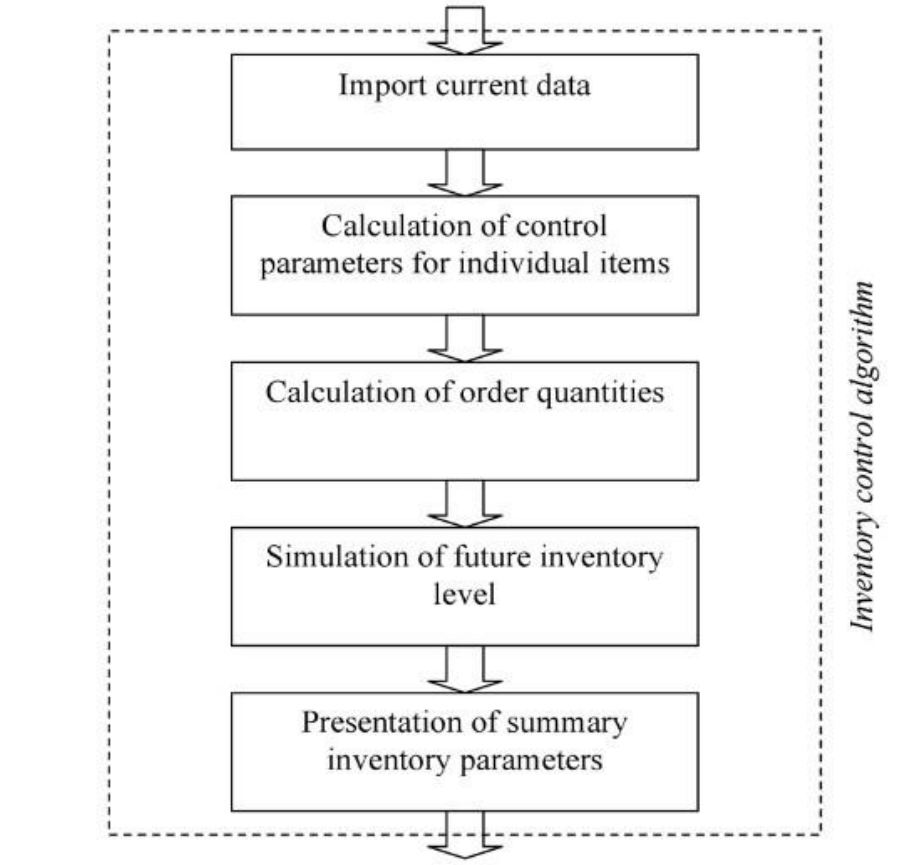
Solution process



Flowchart

Basic input data:

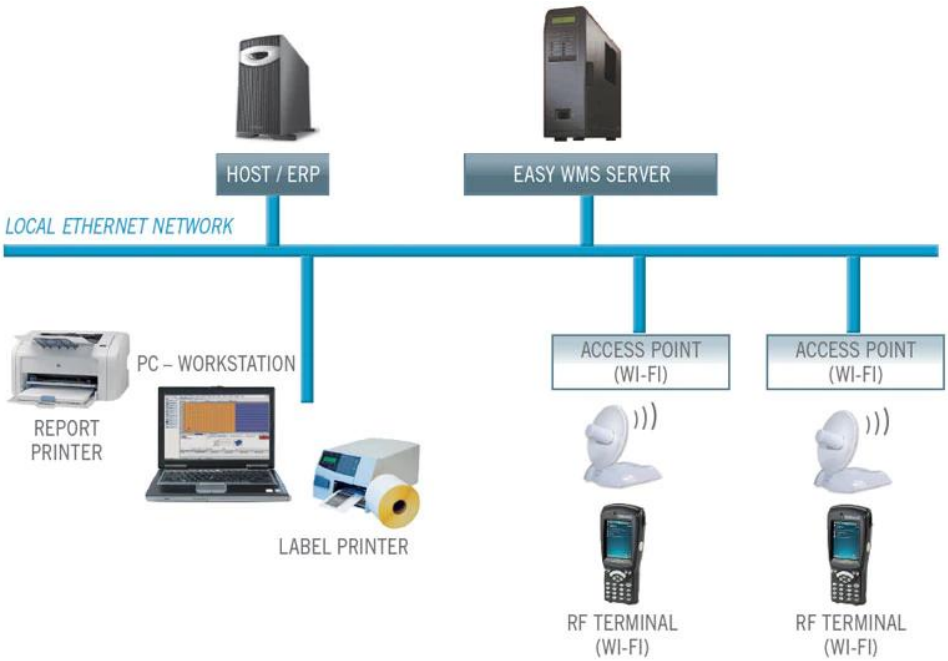
- item ID
- planning group
- minimum order quantity
- lead time
- time series of consumption
- actual inventory level
- on order inventory



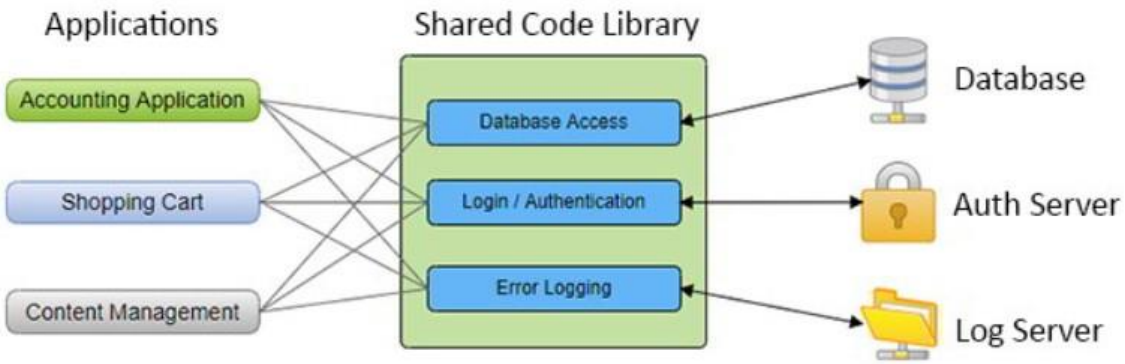
Outputs:

- planning database of material items (order dates and quantities)
- modeled inventory progress for the next periods
- summary inventory data (tables, graphs)

Algorithm

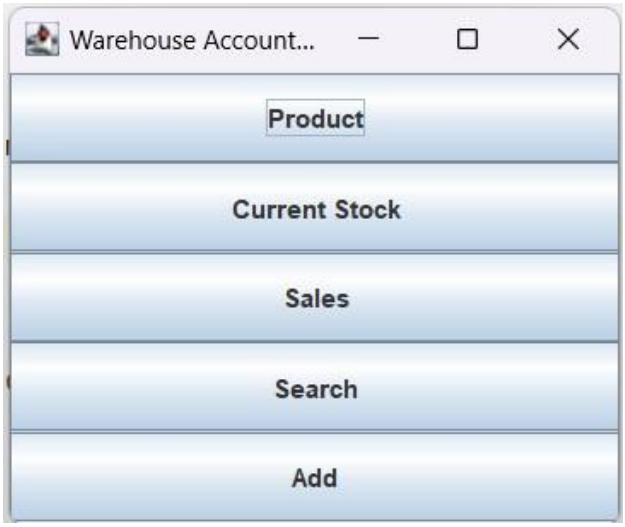


Module

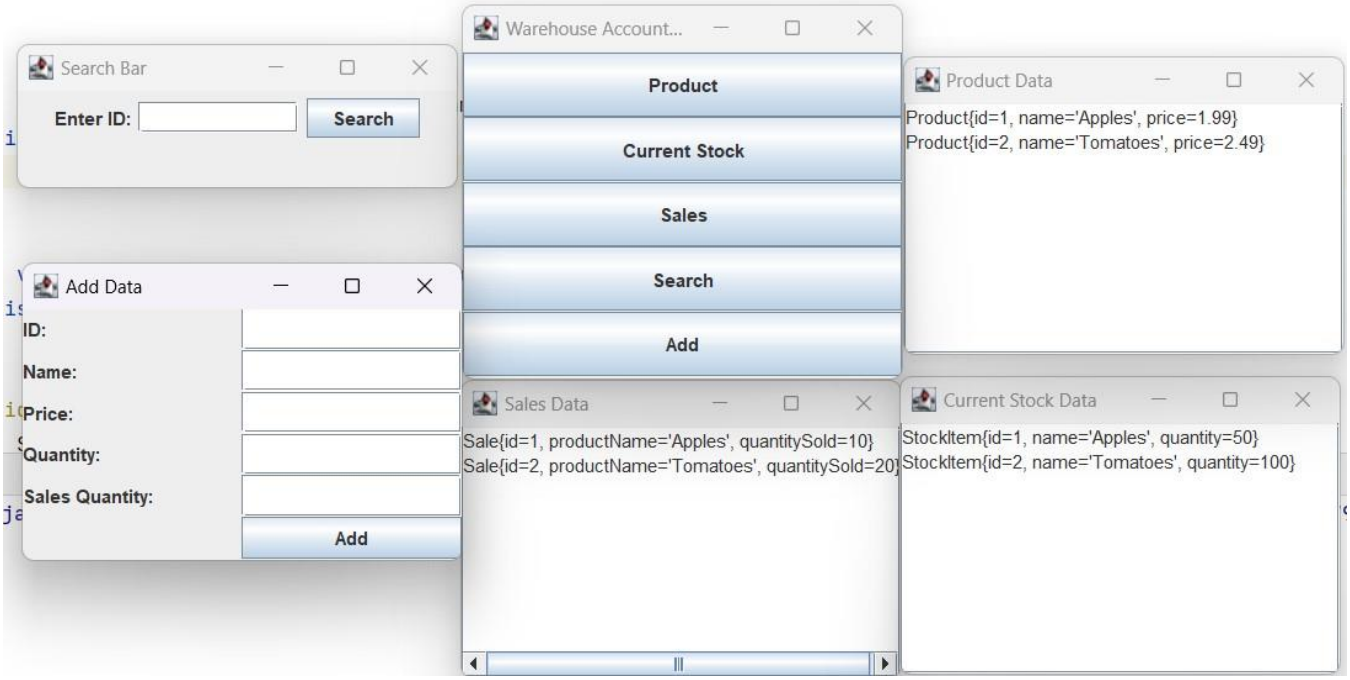


Reusable code

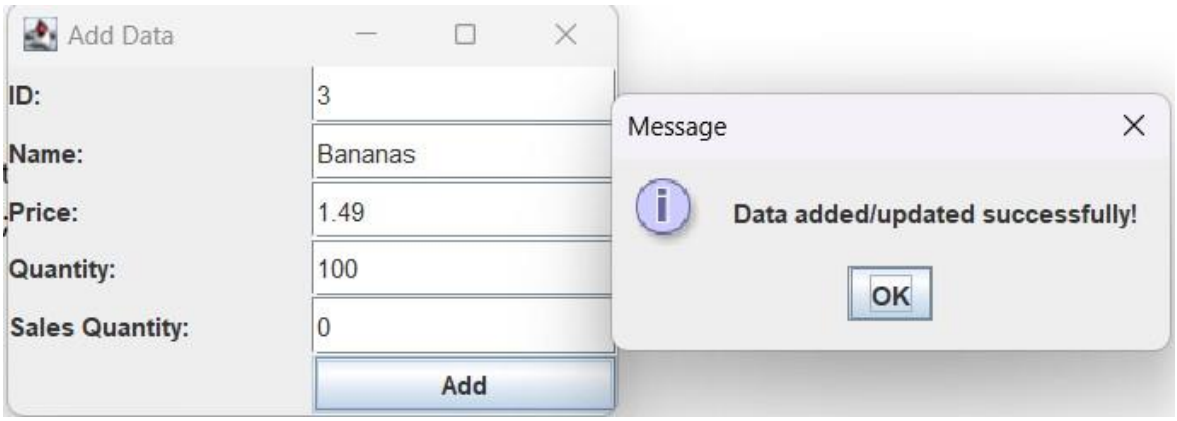
Testing



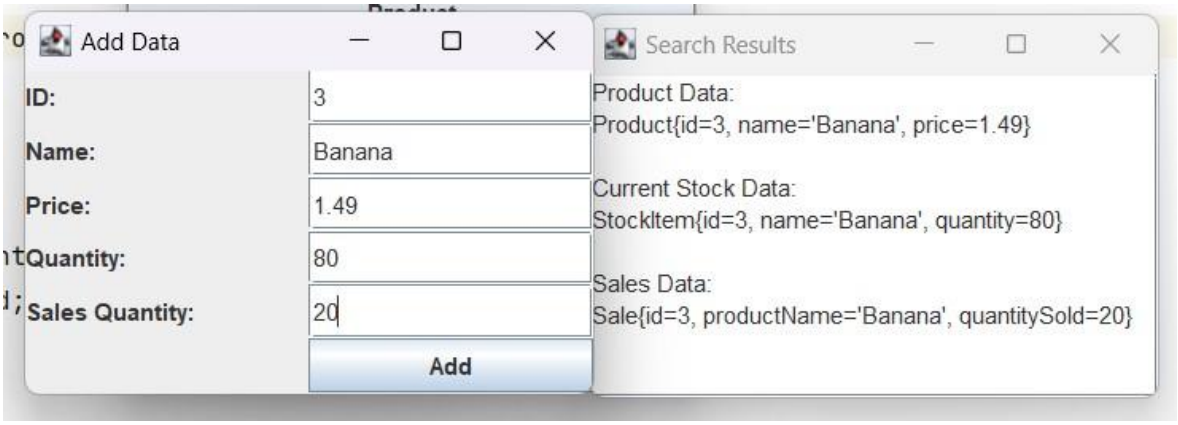
This is the home screen, you can see the options here.



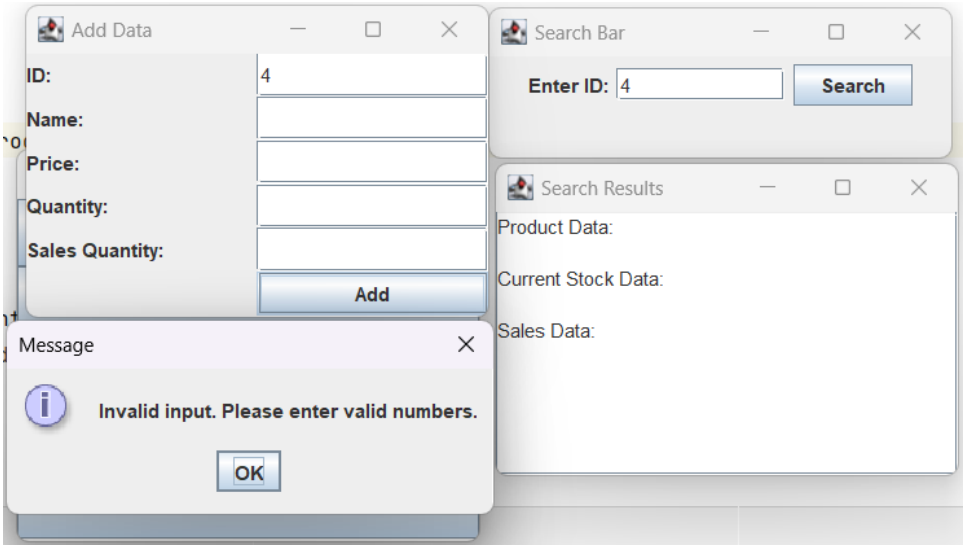
These are the option windows, Product name and price, Inventory, Sales, Search by Id and modifications.



Here you can see an example how you can add new items to the database.



Modifying data for “Banana.”



Testing. Searching ID`s that do not exist showing blank. Adding unfulfilled data does not add to the “database.”

Source Code

Added in separate file

Literature and sources

Andiyappillai, Natesan (2020). "Factors Influencing the Successful Implementation of the Warehouse Management System (WMS)" (PDF). *International Journal of Applied Information Systems.*
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