

INVENTORY MANAGEMENT SYSTEM FOR RETAILERS

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INTRODUCTION

Inventory management and supply chain management are the backbone of any business operations. With the development of technology and availability of process driven software applications, inventory management has undergone revolutionary changes. In any business or organization, all functions are interlinked and connected to each other and are often overlapping. Some key aspects like supply chain management, logistics and inventory form the backbone of the business delivery function. Therefore these functions are extremely important to marketing managers as well as finance controllers. Inventory management is a very important function that determines the health of the supply chain as well as the impacts the financial health of the balance sheet. Every organization constantly strives to maintain optimum inventory to be able to meet its requirements and avoid over or under inventory that can impact the financial figures. Inventory is always dynamic. Inventory management requires constant and careful evaluation of external and internal factors and control through planning and review. Most of the organizations have a separate department or job function called inventory planners who continuously monitor, control and review inventory and interface with production, procurement and finance departments.

OVERVIEW

Retail inventory management is the process of ensuring you carry merchandise that shoppers want, with neither too little nor too much on hand. By managing inventory, retailers meet customer demand without running out of stock or carrying excess supply. Retail can be split into several areas:

Offline. Where a company sells via a brick-and-mortar store or physical location.

Online. Where a company sells over the internet via an ecommerce website or marketplace.

Multichannel. Where a company sells in multiple different places, usually a combination of online websites and marketplaces.

Omnichannel. Where a company provides a unified, integrated experience for customers across all the different online and offline channels it sells on.

Businesses may also choose to trade via wholesale channels. This involves selling inventory (usually in bulk) directly business-to-business (B2B) or taking part in B2B ecommerce.

A company's inventory will therefore need to be managed in accordance with which of these retail models it operates within. In practice, effective retail inventory management results in lower costs and a better understanding of sales patterns. Retail inventory management tools and methods give retailers more information with which to run their businesses. Applications have been developed to help retailers to track and manage stocks related to their own products. The System will ask retailers to create their account by providing essential details. Retailers can access their accounts by logging to the application.

Once retailers successfully login to the application they can update their inventory details, also users will be able to add new stock by submitting essential details related to the stock. They can view details of the current inventory. The System will automatically send an email alert to the retailers if there is no stock found in their account. So that they can order new stock.

LITERATURE SURVEY

At a basic level, inventory management works by tracking products, components and ingredients across suppliers, stock on hand, production and sales to ensure that stock is used as efficiently and effectively as possible. It can go as deep as you need it to: for example, by examining the difference between dependent and independent demand, or forecasting sales to plan ahead. But at the end of the day, it all goes back to your stock.

Inventory control is how you manage the stock you currently have in storage. This involves knowing your stock inside and out — how much is available, where it is and what condition it is in. It's also about ensuring that you are storing stock efficiently, keeping inventory costs down and minimizing the time spent counting and controlling inventory.

EXISTING PROBLEM

Most of the web application development methodologies used these days are extensions of standard software engineering methodologies. The usual iterated waterfall model is too rigid an approach to developing web applications. An agile approach for web application development has been proposed that applies the concept of agile modeling, adopts a standard software architecture and is heavily based on frameworks, speeding up system analysis, design and implementation.

PROBLEMS IN EXISTING METHOD

As we know manual system are quite tedious, time consuming and less efficient and accurate in comparison to the computerized system. So following are some disadvantages of the old system:

- Time consuming
- Less accurate
- Less efficient
- Lot of paper work
- Slow data processing
- Not user friendly environment
- Difficult to keep old records

PROPOSED SYSTEM OBJECTIVE

- The main objective of this system is to keep records of the complete inventory.
- It support for inventory management helps you record and track materials on the basis of both quantity and value
- It improves cash flow, visibility, and decision making.

- For warehouse management, you can track quantity and value of all your materials, perform physical inventory, and optimize your warehouse resources

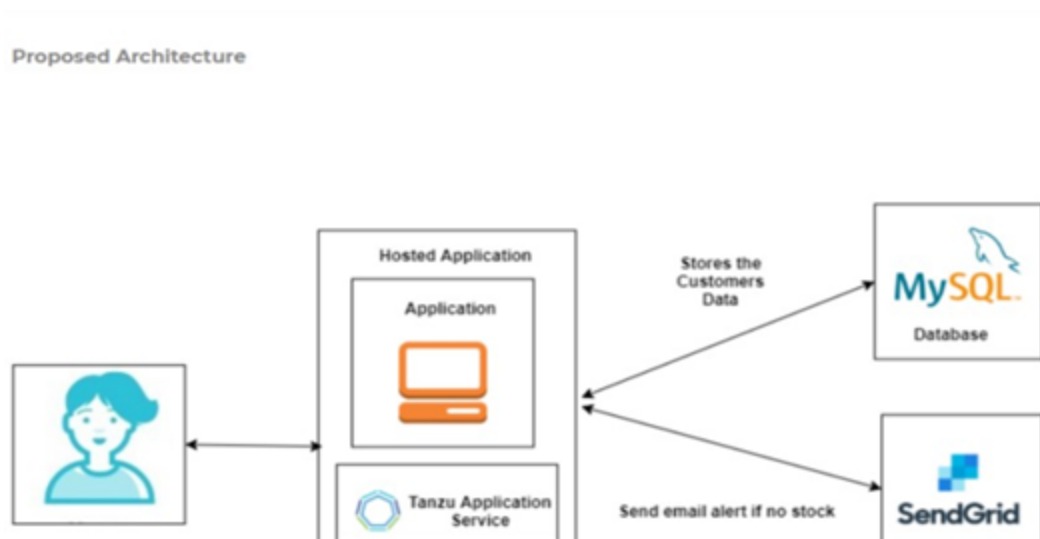
SCOPE OF PROPOSED SYSTEM

The scope of this system is to provide user efficient working environment and more output can be generated through this. This system provides user friendly interface resulting in knowing each and every usability features of the system.

This system helps in tracking records so that past records can be verified through them and one can make decisions based on the past records. This system completes the work in a very less time resulting in less time consumption and high level of efficiency.

This system is developed in such a way that even a naïve user can also operate the system easily. The calculations are made very quickly and the records are directly saved into databases and the databases can be maintained for a longer period of time. Each record can be retrieved and can be verified for the future transactions. Also this system provides high level of security for data leaking as only admin people can access the database no changes can be made in it until it verifies the user login id and password.

SYSTEM OVERVIEW



While selecting the platform to build the web application, I went through a lot of web development tools and found that Python Flask web framework would be

easy to use as Python provides all the required modules and tools needed to build a web application. While there are no-code web application builders available online, it does not give us the full freedom to design the UI the way we want. Hence, a traditional coding framework was chosen for this project. The peculiarity of this problem is collecting the inventory details from the user and working with the database to add new item into the inventory, edit the details of the existing item, delete an item from inventory and to display other details such as total inventory value.

HARDWARE / SOFTWARE REQUIREMENTS

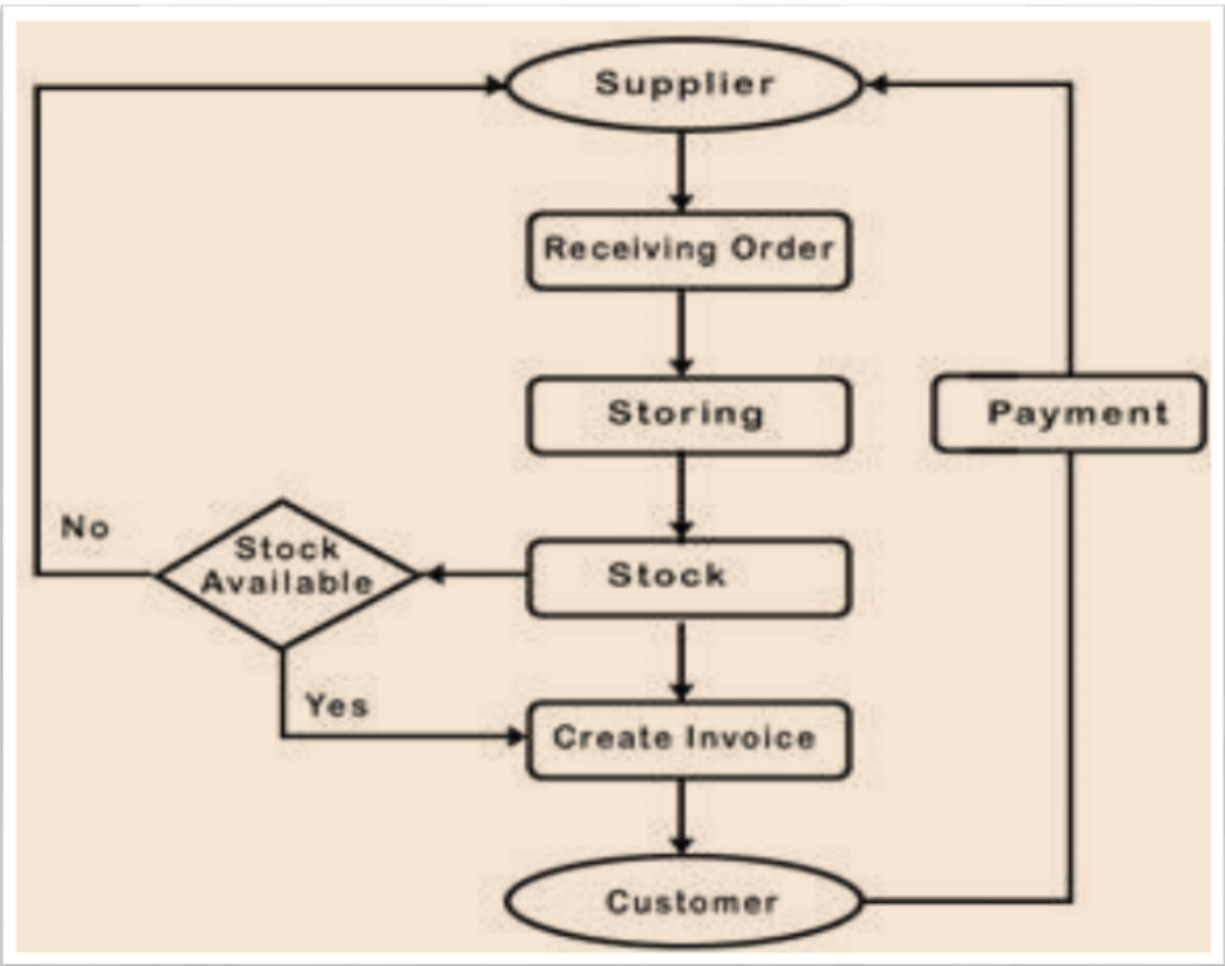
HARDWARE :

- i. System Type: 64-Bit Operating System.
- ii. Hard Disk: 1TB.
- iii. RAM: 8 GB RAM.

SOFTWARE :

- iv. Operating System: Windows 10.
- v. Software : Spyder/Anaconda
- vi. Front End: HTML, CSS, JavaScript.
- vii. Back End: Python 3.
- viii. Database: RemotemySQL

FLOW CHART



SCREENSHOTS

REGISTRATION PAGE



The screenshot shows the registration interface of an Inventory Management System. The background is a solid blue color. At the top center, the text "INVENTORY MANAGEMENT SYSTEM" is displayed in white, uppercase letters. In the center of the page, there is a white rectangular box with a blue border. Inside this box, the word "Register" is centered at the top. Below it, there are three input fields: "Username" with the text "admin", "Email" which is empty, and "Password" with a single asterisk. A blue "Register" button is positioned below the password field. At the bottom of the white box, there is a link that says "Already have an account? Login". In the bottom right corner of the blue background, there is a watermark that reads "Activate Windows" and "Go to Settings to activate Windows".

INVENTORY MANAGEMENT SYSTEM

Register

Username
admin

Email

Password
*

Register

Already have an account? [Login](#)

Activate Windows
Go to Settings to activate Windows

LOGIN PAGE



The screenshot shows the login interface of an Inventory Management System. The background is a solid blue color. At the top center, the text "INVENTORY MANAGEMENT SYSTEM" is displayed in white, uppercase letters. In the center of the page, there is a white rectangular box with a blue border. Inside this box, the word "Login" is centered at the top. Below it, there are two input fields: "Username" with the text "admin" and "Password" with a single asterisk. A blue "Login" button is positioned below the password field. In the bottom right corner of the blue background, there is a watermark that reads "Activate Windows" and "Go to Settings to activate Windows".

INVENTORY MANAGEMENT SYSTEM

Login

Username
admin

Password
*

Login

Activate Windows
Go to Settings to activate Windows


HOME PAGE

INVENTORY MANAGEMENT SYSTEM

[Supplier](#)[Inventory](#)[Checkout](#)[Transactions](#)[Logout](#)

Add supplier

SUPPLIER DETAILS

Supplier name	Contact	Address	Edit	Delete
XYZ	1234567890	nil		

Activate Windows
Go to Settings to activate Windows.

ADD PRODUCT

INVENTORY MANAGEMENT SYSTEM

Add a product

Product name

Quantity

Maximum stock

Initial

Cost price

Profit

Category

012

Add

Activate Windows
Go to Settings to activate Windows.

ADD SUPPLIER

INVENTORY MANAGEMENT SYSTEM

Add a supplier

Supplier name

Contact

Address

Add

Activate Windows
Go to Settings to activate Windows.

INVENTORY

INVENTORY MANAGEMENT SYSTEM

SupplierInventoryCheckoutTransactions

Logout

Total products: 2

Total inventory value: ₺150

Add product

INVENTORY DETAILS

Product name	Quantity	Measurement	Cost price	Selling price	Profit	Supplier	Edit	Delete
Inda	1	unit	₺250	₺350	₺100	XYZ		
M&C	2	unit	₺200	₺250	₺50	XYZ		

Activate Windows
Go to Settings to activate Windows.

ADD TO CART

INVENTORY MANAGEMENT SYSTEM

Add product to cart

Customer name

Product name

Quantity available

Measurement

Quantity required

Price per item

Supplier

Add

Activate Windows

Go to Settings to activate Windows.

CHECKOUT

INVENTORY MANAGEMENT SYSTEM

[Supplier](#)
[Inventory](#)
[Checkout](#)
[Transactions](#)
[Logout](#)

CART

No items in the cart.

Customer name	Product	Quantity	Measurement	Price	Delete
No. of items in the cart: 0					
Total cost: ₹					Checkout
Tax Paid:	₹				
Change:	₹				

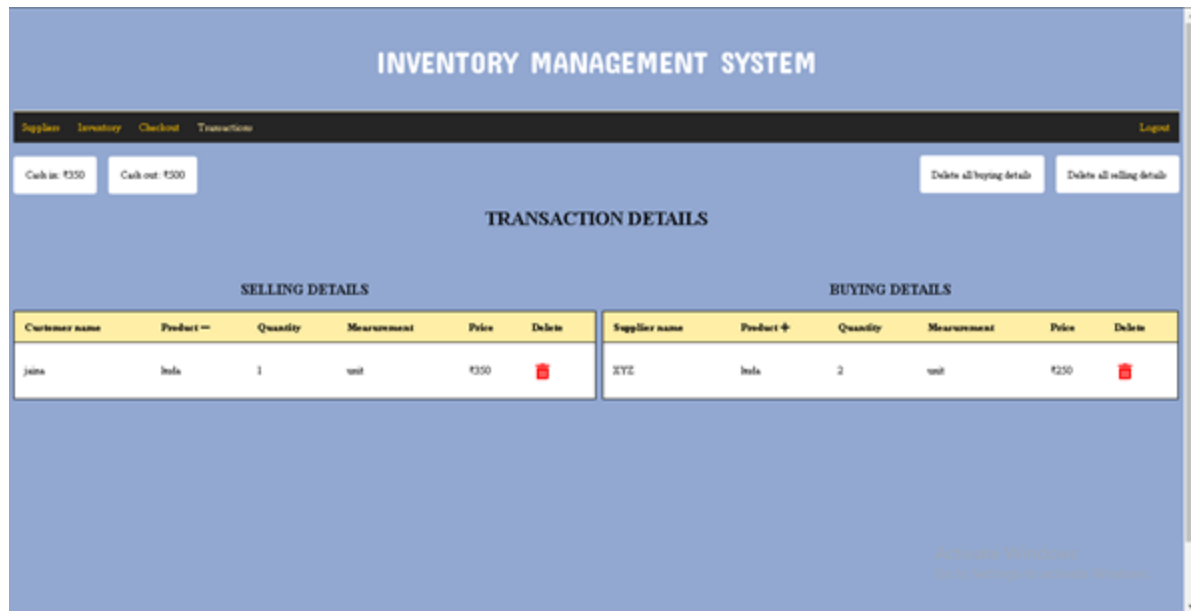
PRODUCTS

Product name	Quantity available	Measurement	Price per item	Supplier	Add to cart
Ivula	1	unit	₹150	XYZ	+
MAC	2	unit	₹250	XYZ	+

Activate Windows

Go to Settings to activate Windows.

TRANSACTIONS



FUTURE SCOPE

- The scope of the project includes that what all future enhancements can be done in this system to make it more feasible to use
- Databases for different products range and storage can be provided.
- Multilingual support can be provided so that it can be understandable by the person of any language.
- More graphics can be added to make it more user-friendly and understandable.
- Manage & backup versions of documents online.

CONCLUSION

This project is built using the Flask framework. HTML and CSS are used effectively to create a simple UI for the users to interact with the system. Necessary Python modules are used to provide the email feature for the users and also to create the rest API. Retailers can easily maintain a record of the suppliers, transactions and the products that they buy and sell.

REFERENCES

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