

INVENTORY MANAGEMENT SYSTEM FOR RETAILERS

TEAM ID-PNT2022TMID12626

1. INTRODUCTION

1.1. Project Overview

The goal of retail inventory management is to maintain the right amount of desired product in stock. Retailers may meet client demand without running out of product by properly managing their inventory.

Effective retail inventory management reduce costs and improves knowledge of sales patterns in practice. Tools and techniques for retail inventory management provide merchants with more data on which to run their businesses. Applications have been created to assist shops in keeping track of and managing the supply of their own products. Retailers will be prompted by the System to register their accounts by providing necessary information. Retailers can log into the application to access their accounts.

Once retailers have successfully logged in to the programme, they can update the information on their inventory. Users can also add new goods by providing the necessary information regarding the item. They have access to the current inventory's specifics. If there is no stock detected in the accounts of the retailers, the System will immediately send an email alert to them. in order for them to order new supplies.

1.2. Purpose

The main purpose of inventory management is to help businesses easily and efficiently manage the ordering, stocking, storing, and using of inventory. The information from an inventory management system can be used to effectively manage the flow of materials, make use of personnel and equipment, coordinate internal tasks, and interact with consumers. Inventory management does not make choices or manage operation, rather they give managers the data they need to do so in a timely and correct manner. The overall purpose of inventory management is to prevent overstock or excess inventory from occurring while making sure there are enough products or materials to satisfy demand.

2. LITERATURE SURVEY

Title: Research paper on Inventory management system

Year: 2018

Authors :Punam Khobragade , Roshni Selokar, Rina Maraskolhe, Prof. Manjusha Talmale

This paper raises concerns about the bill's information section in light of desktop applications. The Inventory Management System is software that streamlines processes by removing paperwork, human error, and manual lag time. Additionally, it can track sales and inventory levels, alerting a store owner when it's time to reorder and how much to buy. This paper seeks to redefine retailer requirements in

a way that will help readers better understand why. An essential step in any project is the generation of backup data. As a solution, a straightforward desktop application was developed in which there was no information spillage from the stockroom. And furthermore, it gives the one table organization look so that after the end of the month we know about what we sold.

Title: Inventory management for retail companies: A literature review and current trends Year: 2021

Authors: Cinthya Vanessa Muñoz Macas, Jorge Andrés Espinoza Aguirre, Rodrigo Arcenales-Carrión, Mario Peña

This article's goal is to study and summarize a significant amount of research on inventory management that includes numerous definitions and key ideas for the retail industry. Due to their considerable economic impact, retail businesses have grown to be quite important in many nations. The necessity to evaluate their KPIs becomes extremely important as a result. According to research, there are 22 crucial inventory management KPIs that must be taken into account when shops assess their inventories. Ten main indicators were established from them, including inventory level, actual inventory and its connection to the business' information system, shortage or shortage frequency, frequency of product reordering or replenishment, service level, replacement frequency, product availability, inventory excess, number of items on the shelf, and level of income or profit. The three major benefits of improved operating performance, lower financial loss, and better profit rates demonstrate the significance of analyzing an inventory management system utilizing indicators. Overall, the study's findings indicate that the systems, approaches, and tools are mostly focused on order quantity, inventory localisation, and optimization. Given its capacity to track inventory and high levels of reliability in inventory records, RFID systems are the most popular tools in the retail sector for resolving location-related problems. Similarly, systems like the EOQ, JRP, the AUD and IQD policies, and MDP focus on establishing the right order of goods to achieve optimization levels when it comes to order quantity. In fact, research suggests that retailers are working with VMI. In this system, the supplier manages the inventory in accordance with the actions of the retailer, leading to a total SC optimization. Additionally, the current study developed methods for optimizing the inventory, including the Bayesian Estimation Method, the LIS for Omni-Channel, the Threshold and Differential Algorithms, and the Multi Channel Distribution Center. Retailers with limited resources now have access to less expensive tools that can assist with managing their inventory, such as bar codes or policies like EOQ, AUD, and IQD, allowing them to maximize their stock without having to make substantial investments.

**Title: A Review of Inventory Management System
Year: 2021**

Author: Varalakshmi G , Asst Prof. Shivaleela

This article focuses on the development of an inventory management system, a Windows web application that focuses on inventory and issues. It is very convenient for the owners because this application allows the stores to keep records of sales and purchases. If inventory is not maintained, it leads to consumer dissatisfaction and slower sales. By maintaining the inventory system, manual work and human errors are reduced, which at the same time speeds up the process. This inventory management system will also be able to track sales information as

inventory. The inventory management system has a number of functions and also has logical tools for evaluating ideal inventory levels and automatically selecting appropriate replenishment strategies. It also has features such as the ability to identify stock levels, automatically calculate reorder points, and alert you to potential stock outs. This technique minimizes delays and eliminates the risk of stocking fast-moving goods. It regulates the movement of inventory in and out, tracks stock levels for all items and inventory, provides access to sales data and analytics, and helps businesses specify specific Safety Stock Requirements. There are four types of inventory management such as raw materials, work in progress, finished items and MRO. Due to weak sales and inventory, it is difficult to keep records manually such as quantity sold per day. Another problem that has been noted is that most customers who buy in-store do not get a suitable receipt as a reference, making it difficult for customers to exchange their existing goods if there are any problems. The primary purpose is to maintain inventory at a level that is neither overstocked nor understocked. As a result of the inventory management system, there will be higher income and profitability, a better climate for employees and an overall increase in customer satisfaction.

Title: Simulation of inventory management systems in retail stores: A case study

Year:2021

Authors: Puppala Sridhar, C.R.Vishnu, R Sridharan

This paper proposes a simulation of the inventory system in a supermarket. The simulation model was developed, tested, and examined using the well-known Arena programme. The package provides standard drag-and-drop components for building the model. The performance parameter used for analysis is inventory level, which directly affects total cost, reorder point, and service level. For the A-category products, the simulation model was developed with a continuous review inventory control system in mind. We've compared the outcomes of running the model using the traditional ordering policy and the suggested ordering policy. The best settings for the stock control parameters are found using the OptQuest module of Arena programme, and the results are compared. It has been found that the traditional approach to placing an order is absurd and pointless. The first stage in simulation modelling is to synthesize the incoming data. Sales data from the preceding two years are used to study demand trends for the selected item using the input analyzer module of Arena simulation software. The distributions for client arrival and purchase orders for that particular item are also modeled using data on client arrival and purchase for that item. The model initially contrasts the level of inventory with the incoming demand. The transaction is recorded as a lost sale if there is more inventory on hand than there is demand; otherwise, the demand will be satisfied and the inventory level will be updated. If there is more demand than there is inventory on hand at the time, the reorder level is checked.

2.1. Existing problem

- **Unconscious Tracking**

It takes a lot of effort, is redundant, and is prone to mistakes to maintain inventory manually in various programmes and spreadsheets. A centralised inventory tracking system with accounting features can be helpful for even small businesses. It is ideal to have software that can perform manual monitoring tasks automatically.

- **Warehouse efficiency**

Controls for warehouse inventory are labour-intensive and require a number of procedures, including receiving and storing, preparing, packing, and shipping. The difficulty lies in carrying out each of these duties as effectively as feasible.

- **Changing Demands**

Customer demand is ever-evolving. Carrying too little could prevent you from filling customer orders while carrying too much could result in outmoded goods that you can't sell. The technology to create and carry out an inventory plan, as well as commodity ordering strategies, can help offset changes in demand.

- **Manual Documentation**

The most difficult task is managing inventories manually since sometimes there are just too many of them and it takes a lot longer than it needs to. This occurs when older businesses continue to operate the same way they always have, assuming that human perception is more accurate. In reality, though, this is nothing more than prejudiced thinking regarding technological assistance. There is no longer time to manually write an inventory on a paper spreadsheet because of how the world has changed.

- **Excess Stock**

There can be problems with both having too much and too little stock on hand. The cash flow of the business is impacted by excess stock, which also causes issues with storage and loss of inventory.

2.2. References

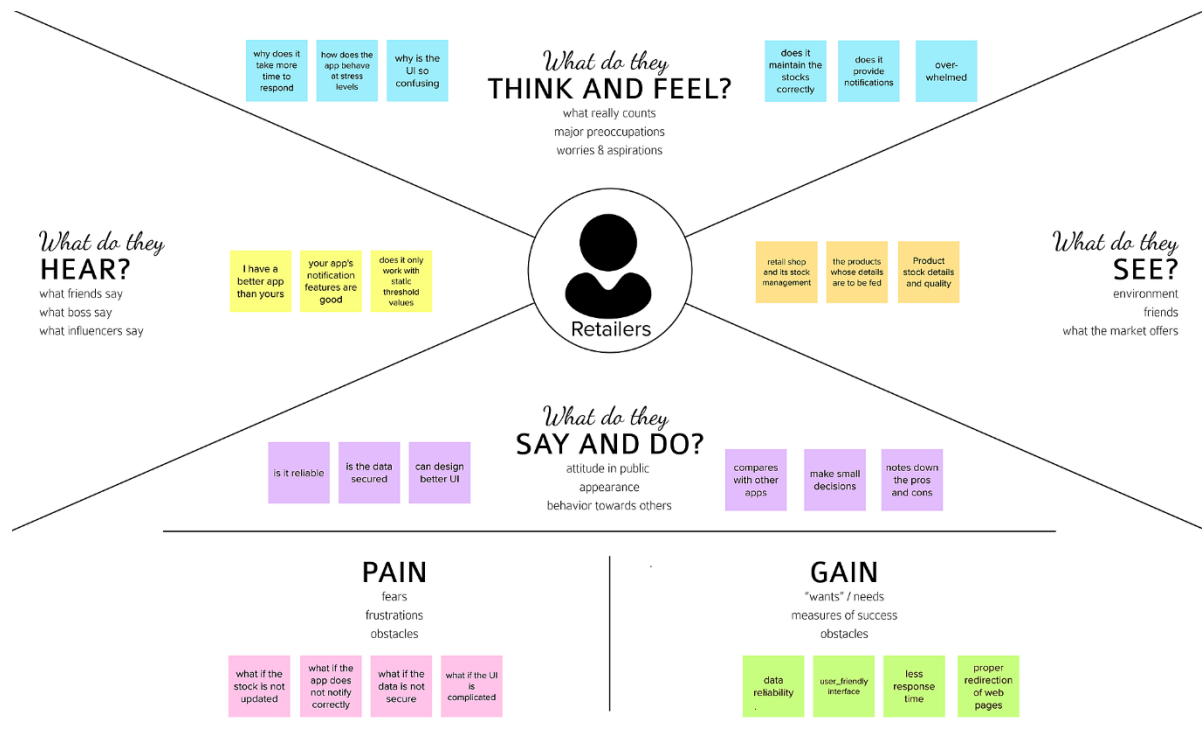
- [1] Punam Khobragade , Roshni Selokar, Rina Maraskolhe, Prof. Manjusha Talmale 2018 "Research paper on Inventory management system" Volume: 05 Issue: 04
- [2] Cinthya Vanessa Muñoz Macas, Jorge Andrés Espinoza Aguirre, Rodrigo Arcentales-Carrión, Mario Peña 2021 "Inventory management for retail companies: A literature review and current trends" DOI: 10.1109/ICI2ST51859.2021.00018
- [3] Varalakshmi G , Asst Prof. Shivaleela 2021 "A Review of Inventory Management System" Vol. 10, Issue 6, June 2021 DOI: 10.17148/IJARCCE.2021.10689
- [4] Puppala Sridhar, C.R.Vishnu, R Sridharan 2021 " Simulation of inventory management systems in retail stores: A case study" Volume 47, Part 15 DOI: 10.1016/j.matpr.2021.05.314

2.3. Problem Statement Definition

To develop a comprehensive system that manages the infrastructure of the inventory and the stocks between the buyer and the seller in an organised, automated manner.

3. IDEATION & PROPOSED SOLUTION

3.1. Empathy Map Canvas



3.2. Ideation & Brainstorming

PROBLEM- How might we aid the retailers to automate managing the inventories efficiently

Harini S -

- Analyzation of past inventories for future prediction.
- Keep track of Product locations.
- Identify quantities of each product type for easy use
- Which stock sells well and which doesn't, by location and sales channel.
- Profit margin by style, model, product line or item
- Ideal amount of inventory to have in back stock and storage.
- Avoid duplication in ordering of stock.
- ABC analysis.

Jayasree B S-

- How many products to reorder and how often.
- When to discontinue a product.
- Maintain the list of faulty stocks.
- See how sales are affected by seasonal variation.
- Set pre-order points for different products.
- Try to maintain a centralized view of stock.
- Pick and Pack Process.
- Minimum safety stocks.

Nivedha K-

- Use EOQ for optimal order quantities.
- Adapt and adjust to rapid market and industry changes.
- Avoid products that are expired and are out of trend.
- Dropshipping and Cross docking.
- Get the reviews and feedback from the customers.
- Keep track of inventory Turnover Rate.
- Minimize unnecessary transportation cost.
- JIT method.

Selva Keerthana B G-

- Determine a Dead Stock Procedure.
- Optimizing storage cost.
- Conducting cycle counting.
- Manage understocking and overstocking.
- Regular audits.
- Analyze performance of the suppliers.
- FIFO method.
- Fast slow and Non- moving method

Inventory management application

Design such that it works well under normal and peak loads

User friendly UI for the customers making it more interactive

Making use of buttons and dropdown rather than typing

Minimize response time of the application

Using a cloud based inventory management system

Get the reviews and feedback from the customers

Optimization techniques

Use EOQ(Economic Order Quantity) for optimal order quantities

ABC inventory analysis

Fast slow and Non-moving method

Tracking Procedure

Keep track of inventory Turnover Rate

Track the stock levels at all times

Try to maintain a centralized view of stock

See how sales are affected by seasonal variation

Regular audits of stock

keep track of Product locations

Order of selling goods

Follow LIFO order for non-biodegradable goods

Follow FIFO order for products that are easily spoilt

Avoid products that are expired and are out of trend

Inventory database management

Cycle counting

Having a centralized and real-time database

adapt and adjust to rapid market and industry changes

Product storing methods

Maintain the list of faulty stocks

Ideal amount of inventory to have in back stock and storage

Avoid duplication in ordering of stock

Which stock sells well and which doesn't, by location and sales channel

Identify quantities of each product type for easy use

Group inventory in categories for easier organization

Close inspection of goods before stocking them

External factors that affects inventory

Choose a person who controls the stock

Analyze supplier performance

Practice the 80-20 inventory rule

Constantly check if equipment is in working condition, if not repair immediately

Production strategy

Lean
manufacturing
strategy

JIT inventory
management

Dropshipping
and
Crossdocking

Handling defective products

Following
the
sixsigma
practice

Keep track
of damaged
products

Decide
When to
discontinue
a product

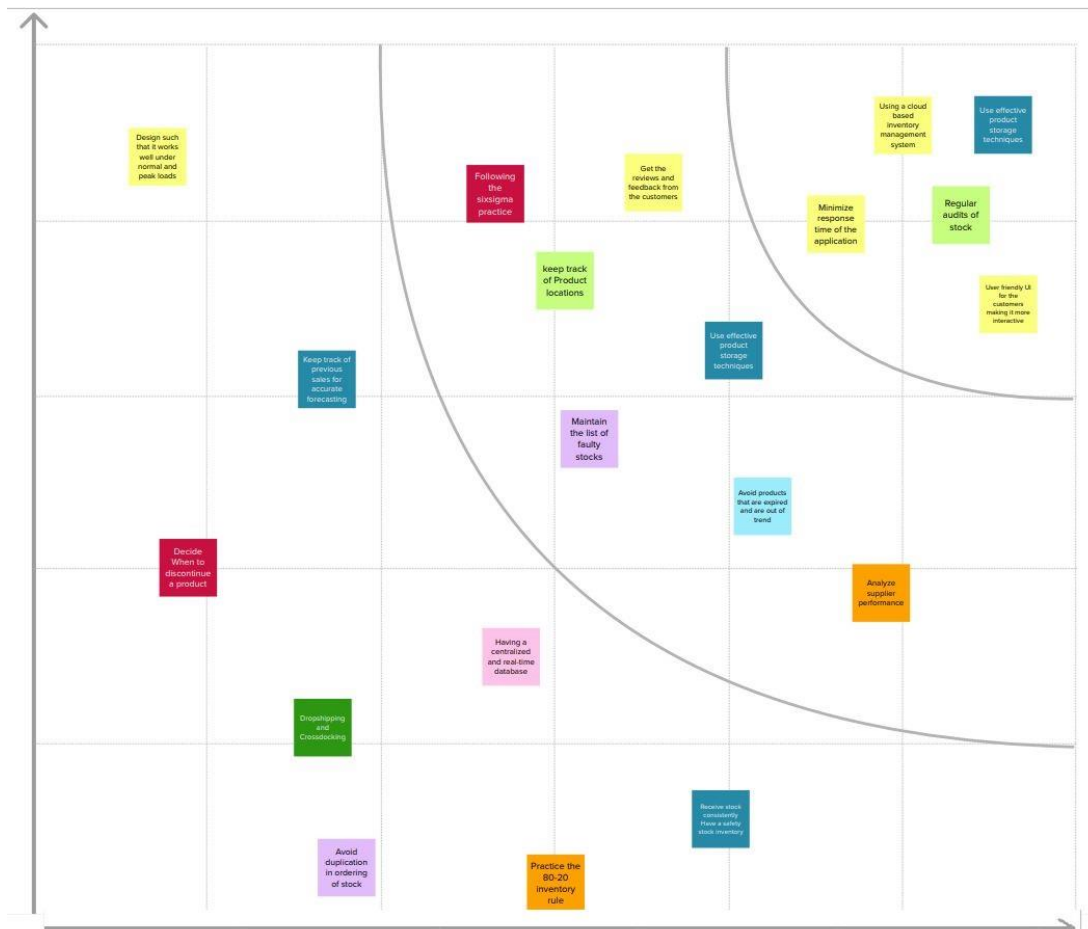
Analysis of products

Keep track of
previous
sales for
accurate
forecasting

Identify low turn
stock and stop
purchasing them
altogether

Receive stock
consistently
Have a safety
stock inventory

Use effective
product
storage
techniques



3.3. Proposed Solution

We propose an automated real-time inventory management system that does not require a lot of physical tasks and will include all the accurate information regarding stock availability and location data. We automate the entire process of establishing reordering points upon the availability of items in order to manage inventories more efficiently. This technology will make it easy to find items, which will ultimately enhance order fulfilment and boost satisfaction among customers by meeting all the requirements.

3.4. Problem Solution fit

Problem Solution Fit			INVENTORY MANAGEMENT SYSTEM FOR RETAILERS - TEAM ID - PNT2022TMD12626		
Define CS, fit into	1. CUSTOMER SEGMENT(S) CS Retailers	6. CUSTOMER LIMITATIONS CC Available devices Network Connection	5. AVAILABLE SOLUTIONS AS Manually counting and tallying items Maintaining Account registers and Excel workbooks	Explore AS.	
	2. JOBS-TO-BE-DONE / PROBLEMS PR To add, delete and update the inventory. To notify the retailers about the items which are out of stock.	9. PROBLEM ROOT / CAUSE RC Manual work consumes time and it is error prone. Not much organized	7. BEHAVIOUR BE Enquire the retailers in the neighborhood Get reference from customers who visit their shop	Focus on J&P, tap into BE, understand	
Identify strong TR & EM	3. TRIGGERS TO ACT TR Monotonous and error prone	10. YOUR SOLUTION SL A web application to manage stocks using database. It allows the retailers to add new stocks, update stocks and view the existing stocks. If the stock falls below a certain threshold value, the system sends an email to the retailer using SendGrid	8. CHANNELS of BEHAVIOUR CH 8.1 ONLINE Immediate accessibility irrespective of place and time.	Extract online & offline CH of BE	
	4. EMOTIONS: BEFORE / AFTER EM Before: Frustrated, Breaking Head After: Stress free, in control		8.2 OFFLINE Access of previously downloaded information.		

4. REQUIREMENT ANALYSIS

4.1. Functional requirements

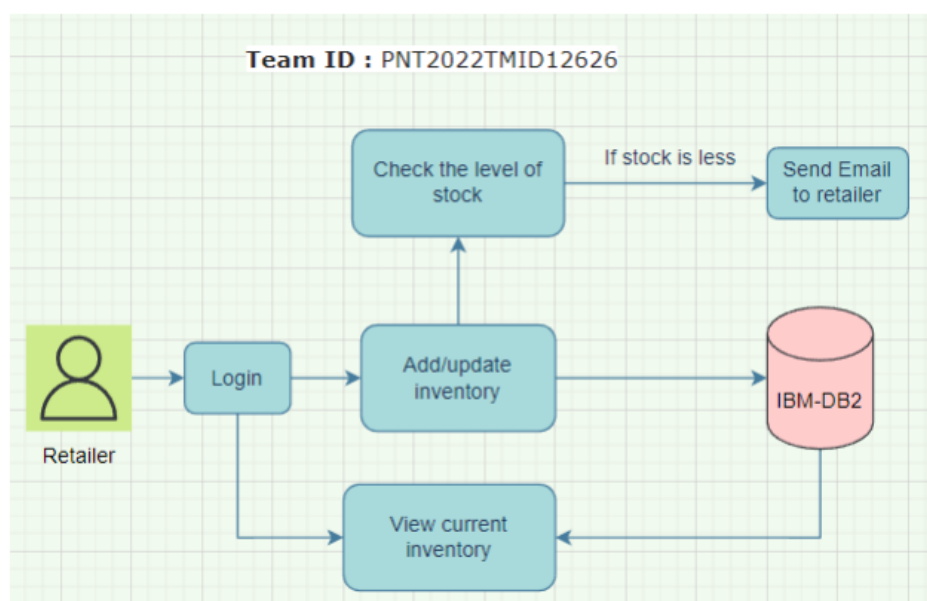
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form
FR-2	User Login	Login through Form
FR-3	Add and delete inventory	Get the details through form and store it in the database
FR-4	Update inventory	Get the details through form and update it in the database
FR-5	View Details	Display the details according to the query
FR-6	Alert Mail	Notify the retailers through SendGrid
FR-7	Logout	Logs out by clicking the logout button

4.2. Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Everyone should be able to use the UI regardless of their language preferences. The app's UI and platform should match the device. independent. It should work with a variety of potential range of gadgets People with certain disabilities should additionally able to easily use the application. (Example, Google Assistant should be included so that blind persons utilise it).
NFR-2	Security	Access permissions for the particular system information may only be changed by the system's data administrator.In
NFR-3	Reliability	In the event that the server fails due to software or hardware failure, the software should be able to connect to the database.
NFR-4	Performance	The app's performance should be dependable, with the software running on high-end servers.
NFR-5	Availability	The software should be available at all the time. Deployment of a module should not affect the functionalities of existing modules.
NFR-6	Scalability	As the customer base evolves, the comprehensive software solution must be robust and scalable.

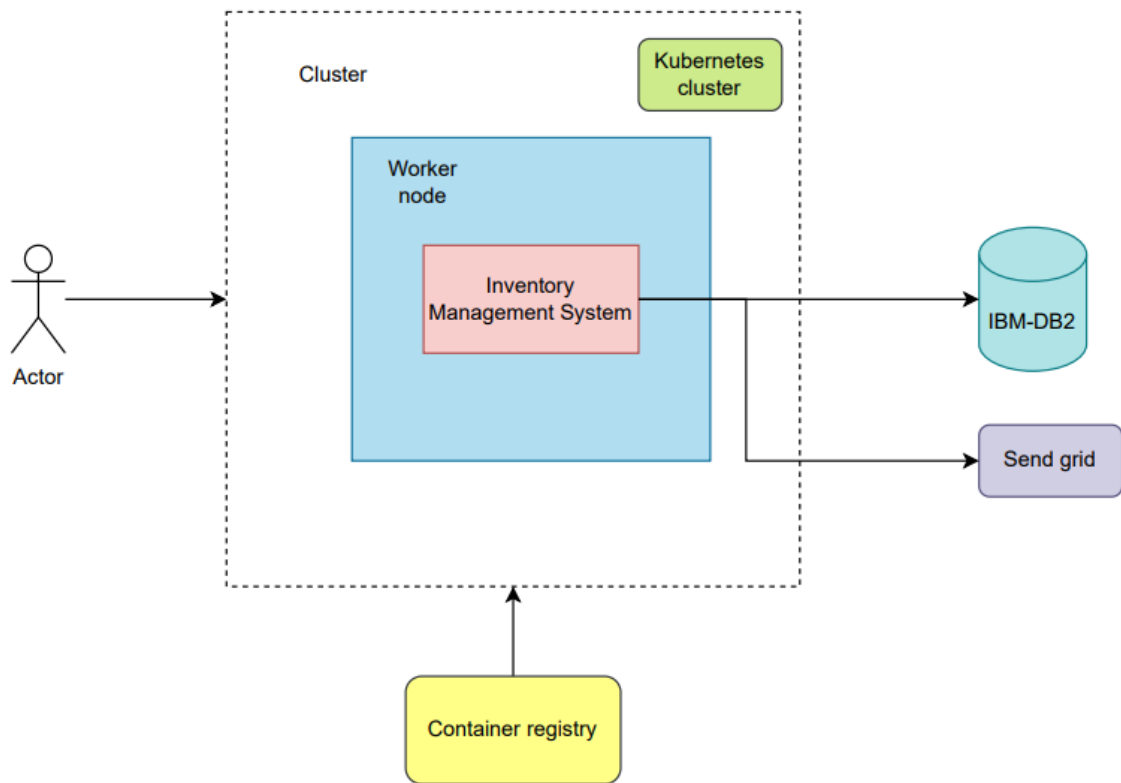
5. PROJECT DESIGN

5.1. Data Flow Diagrams

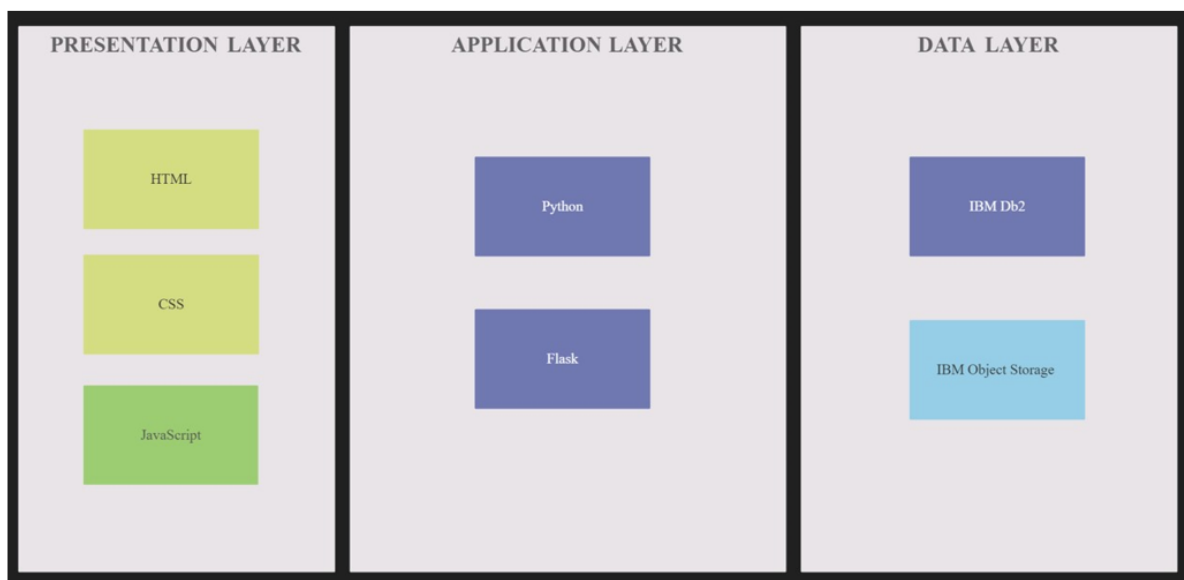


5.2. Solution & Technical Architecture

SOLUTION ARCHITECTURE - INVENTORY MANAGEMENT SYSTEM FOR RETAILERS - TEAM ID - PNT2022TMID12626



Technical Architecture



5.3. User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Web user)	Registration	USN-1	As a user, I can register for the application by entering my username, password, and email.	I can access my account / dashboard	High	Sprint-1
	Login	USN-2	As a user, I can log into the application by entering username & password	I can access my account / dashboard	High	Sprint-1
	Add and delete inventory	USN-3	As a user, I can enter the details of the stocks	The details are stored in the database	High	Sprint-2
	Update inventory	USN-4	As a user, I can update the stock details	The database is updated	High	Sprint-2
	Alert email	USN-5	As a user, I'll receive email notification when the stock is low.	I can refill the stock	Medium	Sprint-3
	Logout	USN-6	User can log out	I will be redirected to login page	High	Sprint-1

6. PROJECT PLANNING & SCHEDULING

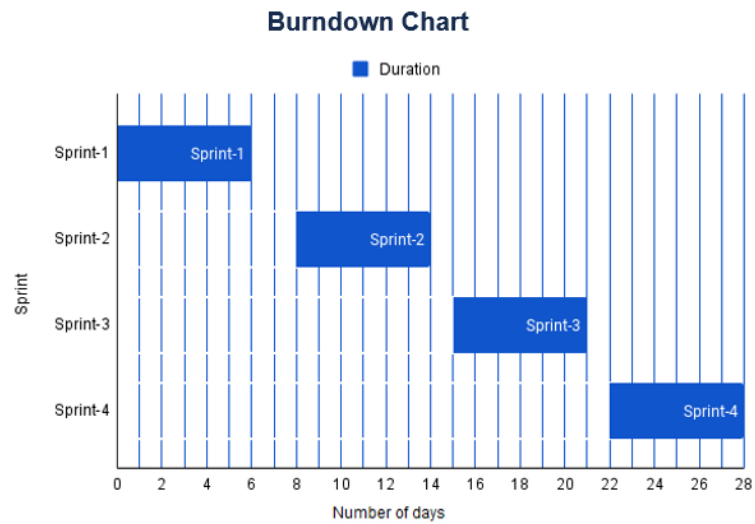
6.1. Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my username, password, and email.	20	High	Harini S Jayasree B S Nivedha K Selva Keerthana B G
Sprint-2	Login	USN-2	As a user, I can log into the application by entering username & jiira password	10	High	Harini S Jayasree B S Nivedha K Selva Keerthana B G

Sprint-3	Add and delete inventory	USN-3	As a user, I can enter the details of the stocks	20	High	Harini S Jayasree B S Nivedha K Selva Keerthana B G
Sprint-4	Update inventory	USN-4	As a user, I can update the stock details	10	High	Harini S Jayasree B S Nivedha K Selva Keerthana B G
Sprint-4	Alert email	USN-5	As a user, I'll receive email notifications when the stock is low.	10	Medium	Harini S Jayasree B S Nivedha K Selva Keerthana B G
Sprint-2	Logout	USN-6	User can log out	10	High	Harini S Jayasree B S Nivedha K Selva Keerthana B G

6.2. Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	6	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	4	5 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	9	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	4	19 Nov 2022



6.3. Reports from JIRA

▼ IMS Sprint 1 Add dates (6 issues)

0 0 0 Start sprint ...

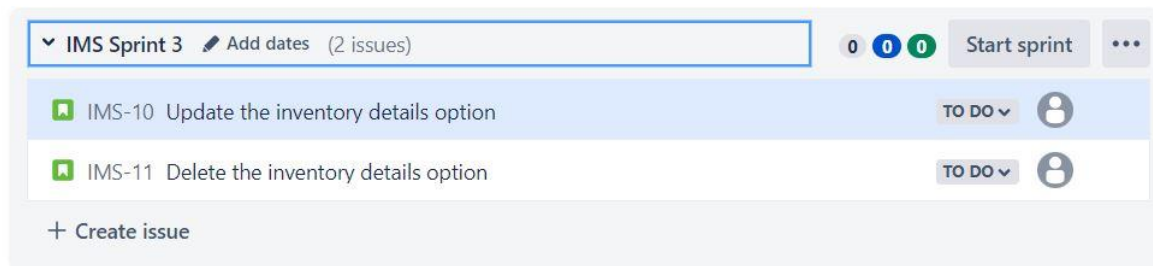
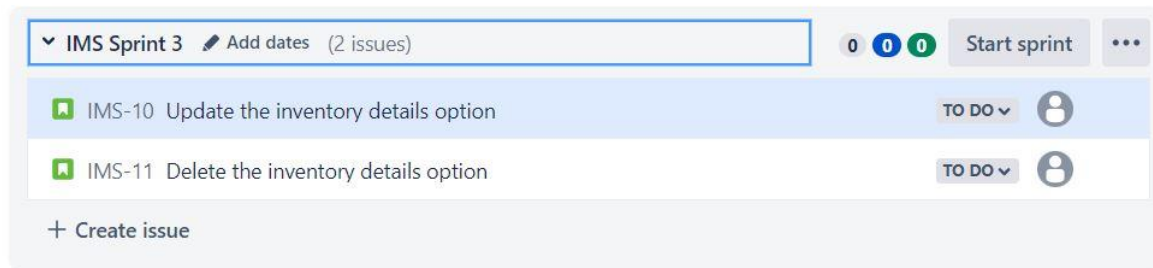
IMS-1 import the packages	TO DO ▼	
IMS-2 Create the setup environment	TO DO ▼	
IMS-3 Design Login page	TO DO ▼	
IMS-4 Design Home page	TO DO ▼	
IMS-5 Design the dashboard	TO DO ▼	
IMS-6 Logout option	TO DO ▼	

▼ IMS Sprint 2 Add dates (3 issues)

0 0 0 Start sprint ...

IMS-7 creating the cloud account	TO DO ▼	
IMS-8 create a database in the cloud	TO DO ▼	
IMS-9 Implement Add inventory details function	TO DO ▼	

+ Create issue



7. CODING & SOLUTIONING

7.1. Sign up/Registration

The registration feature of the inventory management system allows external users to register a new user account. Registration is of **high priority** because only when a user is registered, He/She may be able to log in and use the functionalities.

7.2. Login

The login feature of the inventory management system allows external users to log in to his/her account. This has equal priority to registration because only if the user is registered and logged in, he will be able to access the website and place the order.

[illegible]

7.3. View Inventory

The system shall have a feature for the admin to view items and their details.

```

<div class="container">
  <form method="post">

    <div class="row">
      <div class="col-25">
        <label for="id">Product ID</label>
      </div>
      <div class="col-75">
        <select id="id" name="id" required>
          <option value="None">None</option>
          {% for i in product_ID %}
            <option value="{{i}}">{{i}}</option>

          {% endfor %}
        </select>
      </div>
    </div>
    <div class="row">
      <div class="col-25">
        <label for="name">Product Name</label>
      </div>
      <div class="col-75">
        <select id="name" name="name" required>
          <option value="None">None</option>
          {% for i in product_name %}
            <option value="{{i}}">{{i}}</option>

          {% endfor %}
        </select>
      </div>
    </div>
  </div>

```

7.4. Add inventory

The system shall have a feature for the admin to add items and their details.

```

<h2>ADD ITEMS</h2>
<div class="container">
  <form method="post">

    <div class="row">
      <div class="col-25">
        <label for="name">Product name</label>
      </div>
      <div class="col-75">
        <input type="text" id="name" name="name" pattern="[a-zA-Z0-9 ]+" oninvalid="alert('Enter a valid product name');" required>
      </div>
    </div>
    <div class="row">
      <div class="col-25">
        <label for="supplier">Supplier</label>
      </div>
      <div class="col-75">
        <input type="text" id="supplier" name="supplier" required>
      </div>
    </div>
    <div class="row">
      <div class="col-25">
        <label for="quantity">Threshold Quantity</label>
      </div>
      <div class="col-75">
        <input type="number" id="t_quantity" name="t_quantity" required>
      </div>
    </div>
    <div>{{ msg }}</div>
    <div class="row">
      <div class="space">
        <input type="submit" value="Submit" name="submit">
      </div>
    </div>
  </form>
</div>
</body>
</html>

```

7.5. Update inventory

The system shall have a feature for the admin to update items, etc.

```

<body>
<h2>UPDATE STOCKS</h2>

<div class="container">

  <table class="table table-hover">
    <thead>
      <tr>
        <th>Product ID</th>
        <th>Product name</th>
        <th>Quantity</th>
        <th>Supplier</th>
        <th>Edit</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <td>{{data['Product_ID']}} </td>
        <td>{{data['Product_name']}} </td>
        <td>{{data['quantity']}}</td>
        <td>{{data['supplier']}} </td>
        <td><a href="{{ url_for( 'update_selected_stocks', product_id=data['Product_ID'] ) }}"><i class='far fa-edit'></i></a></td>
      </tr>
    </tbody>
  </table>
</div>
{% endfor %}
</table>
</body>
</html>

```

7.6. Delete inventory

The system shall have a feature for the admin to remove items once they move out of stock.

```
<div class="container">

  <table class="table table-hover">
    <thead>
      <tr>
        <th>Product ID</th>
        <th>Product name</th>
        <th>Quantity</th>
        <th>Supplier</th>
        <th>Delete</th>
      </tr>
    </thead>
    {% for data in product_details %}
    <tbody>
      <tr>

        <td>{{data['Product_ID']}} </td>
        <td>{{data['Product_name']}} </td>
        <td>{{data['quantity']}}</td>
        <td>{{data['supplier']}} </td>
        <td><a href="{{ url_for( 'delete_selected_stocks', product_id=data['Product_ID'] ) }}"><i class='far fa-trash-alt'></i></a></td>
      </tr>
    </tbody>
  </div>
```

7.7. Logout

This feature of the online inventory management system allows customers to log out of his/her account.

7.8. Database Schema

Name
PRODUCT_ADD_DETAILS
PRODUCT_DETAILS
USER

PRODUCT_ADD_DETAILS

Name	Data Type	Nullable	Length	Scale
ADD_ID	INTEGER	N		0
PRODUCT_ID	INTEGER	N		0
PRODUCT_NAME	VARCHAR	N	32	0
QUANTITY	INTEGER	N		0
LOCATION	VARCHAR	N	32	0
DATE_OF_PURCHASE	DATE	N	4	0

PRODUCT_DETAILS

Name	Data Type	Nullable	Length	Scale
PRODUCT_ID	INTEGER	N		0
PRODUCT_NAME	VARCHAR	N	32	0
QUANTITY	INTEGER	N		0
SUPPLIER	VARCHAR	Y	30	0
THRESHOLD_QTY	INTEGER	Y		0

USER

Name	Data Type	Nullable	Length	Scale
USER_ID	INTEGER	N		0
USER_NAME	VARCHAR	N	32	0
PASSWORD	VARCHAR	N	32	0
EMAIL	VARCHAR	Y	20	0

8. TESTING

8.1. Test Cases

Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Expected Result	Status
LoginPage_TC_O1	Functional	Login Page	Verify user is able to see the Login/Registration popup when user enters the site.	1.Enter URL and click go 2.Verify login/Singup popup displayed or not	Login/Signup popup should display	Pass
LoginPage_TC_O2	UI	Login Page	Verify the UI elements in Login/Signup popup	1.Enter URL and click go 2.Verify login/Singup popup with below UI elements: a.name text box b.email text box c.password text box d.Login button e.New customer? Registration link	Application should show below UI elements: a.email text box b.password text box c.Login button with pastel green colour d.New customer? Create account link e.Last password? Recovery password link	Pass

LoginPage_TC_O3	Functional	Login page	Verify user is able to log into application with Valid credentials	1.Enter URL and click go 2.Enter Valid username/email in Email text box 3.Enter valid password in password text box 4.Click on login button	User should be able to navigate to user account homepage.	Pass
LoginPage_TC_O4	Functional	Login page	Verify user is able to log into application with Invalid credentials	1.Enter URL and click go 2.Enter Invalid username/email in Email text box 3.Enter valid password in password text box 4.Click on login button	Application should show 'Incorrect email or password ' validation message.	Pass
LoginPage_TC_O5	Functional	Login page	Verify user is able to log into application with Invalid credentials	1.Enter URL and click go 2.Enter Valid username/email in Email text box	Application should show 'Incorrect email or password '	Pass

				4.Enter Invalid password in password text box 5.Click on login button	validation message.	
HomePage_TC_O1	UI	Home page	Verify user is able to navigate to the Prediction page	1.Enter URL and click go 2.Enter Home Page using valid credentials 3.Click on the Prediction button to navigate to Prediction page.	Home Page with Dashboard should be displayed	Pass
HomePage_TC_O2	UI	Home page	Verify user is able to navigate to the Logout Page	1.Enter URL and click go 2.Enter Home Page using valid credentials 3.Click on the Logout button	Logout Page should be displayed	Pass
PredictionPage_TC_OO1	UI	Prediction Page	Verify user is able to navigate to the Logout Page	1.Enter URL and click go 2.Enter Home Page using valid credentials 3.Enter on the Prediction Page 4.Click on the Logout button	Logout Page should be displayed	Pass

Predictio nPage_T C_002	UI	Predicito n Page	Verify user is able to navigate to the Home Page	1.Enter URL and click go 2.Enter Home Page using valid credentials 3.Enter on the Dashboard Page 4.Click on the Home button	Logout Page should be displayed	Pass
Predictio nPage_T C_003	Funciton	Predicito n Page	Verify user is able to upload an image	1.Enter URL and click go 2.Enter Home Page using valid credentials 3.Enter on the Home Page 4.Upload an image in the given input box 5.Click Submit	Image is uploaded	Pass
Predictio nPage_T C_004	Funciton	Predicito n Page	Verify user is not able to upload any other image formats	1.Enter URL and click go 2.Enter Home Page using valid credentials 3.Enter on the Dashboard Page 4.Upload an image in the given input box 5.Click Submit	Image is uploaded	Fail
LogoutPa ge_TC_0 01	UI	Logout Page	Verify User is able to navigate to Login Page	1.Enter URL and click go 2.Enter Home Page using valid credentials 3.Enter on the Logout Page 4.Click on the Login button	Login Page should be displayed	Pass

8.2. User Acceptance Testing

Defect Analysis

Resolution	Severity1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	4	2	2	18
Fixed	6	2	2	2	12

Skipped	0	0	0	1	1
Won't Fix	0	0	0	1	1
Totals	16	6	4	6	32

Test Case Analysis

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	8	0	0	8
Client Application	17	0	0	17
Security	2	0	0	2
Exception Reporting	2	0	0	2
Final Report Output	5	0	0	5
Version Control	1	0	0	1

9. ADVANTAGES & DISADVANTAGES

Advantages

- Automated Reordering and In-Stock Information
- Helps to maintain the right amount of stocks
- Forecasting and Planning
- Simplicity ,Reliability, Flexibility
- Improves efficiency and productivity
- Cost effectiveness
- A well-structured inventory management system leads to improved customer retention.

Disadvantages

- Incorrect Information
- Reduced Physical Audits
- Lack of personal touch

10. CONCLUSION

Inventory management systems is a more real-time and automated system, giving retailers more data about demographics, spending habits, shopping preferences, and more. With this constant increase in inventory visibility, retailers aim to better their

accuracy with their inventory, and continue to appeal to their consumers. Users can always access the Inventory Management System, which is available around-the-clock. This system will be used for all inventory management functions. It can manage all stockpiles and keep track of all the goods. All things considered, a well-implemented solution will increase productivity and aid in purpose fulfilment for your firm.

11. FUTURE SCOPE

1. A built-in Open-to-Buy (OTB) system enables businesses to quickly assess the amount of funding available for making or buying inventory. OTB is an inventory planning and budgeting system. Based on the stock and number of sales from the current month, the objective is to make sure the company has enough inventory for the following month.

2. Inventory shrinkage, which is brought on by poor inventory management, theft, and inaccurate data input, has a significant negative impact on a company's bottom line. We can put in place particular procedures to reduce inventory shrinkage. Maintaining a regular manual inventory cycle count schedule and reviewing all return and exchange transactions to ensure they were completed correctly each day at the end of the day are two strategies for managing shrinkage.

3. Implementing a direct chat system with merchants The easiest strategy to manage an inventory is to keep positive working relationships with your vendor partners. A scalable inventory management system will be achievable thanks to strong relationships.

12. APPENDIX

Source Code

Source code is uploaded in the github:

<https://github.com/IBM-EPBL/IBM-Project-14209-1659545672>

GitHub & Project Demo Link

Github: <https://github.com/IBM-EPBL/IBM-Project-14209-1659545672>

Demo Link : <https://youtu.be/5XVg-fJVlu8>