Project Report

1. **INTRODUCTION**
    a. Project Overview
    b. Purpose
2. **LITERATURE SURVEY**
    a. Existing problem
    b. References
    c. Problem Statement Definition
3. **IDEATION & PROPOSED SOLUTION**
    a. Empathy Map Canvas
    b. Ideation & Brainstorming
    c. Proposed Solution
    d. Problem Solution fit
4. **REQUIREMENT ANALYSIS**
    a. Functional requirement
    b. Non-Functional requirements
5. **PROJECT DESIGN**
    a. Data Flow Diagrams
    b. Solution & Technical Architecture
    c. User Stories
6. **PROJECT PLANNING & SCHEDULING**
    a. Sprint Planning & Estimation
    b. Sprint Delivery Schedule
    c. Reports from JIRA

7. **CODING & SOLUTIONING (Explain the features added in the project along with code)**
    a. Feature 1
    b. Feature 2
    c. Database Schema (if Applicable)
8. **TESTING**
    a. Test Cases
    b. User Acceptance Testing
9. **RESULTS**
    a. Performance Metrics
10. **ADVANTAGES & DISADVANTAGES**
11. **CONCLUSION**
12. **FUTURE SCOPE**
13. **APPENDIX**
    Source Code
    GitHub

INTRODUCTION

Project 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

Inventory management is a challenging problem in supply chain management. A tool or system to aid the inventory management would be a beneficial tool in this area. The term inventory refers to a company's stockpile of material and the components that make up the output. Inventory management refers to managing the quantity, quality, location and transportation of various products utilised in manufacturing by various industrial organisations or in sales by various retailers. Accurately maintaining the quantity (in numbers) of the finished goods in the inventory makes it possible to quickly asses the quantity of products needed for the upcoming sales. It also improves the communication between the entities of the supply chain like retailers, manufacturers, customers, etc.

Purpose

To ensure there is enough goods or materials to meet demand without creating overstock, or excess inventory. This can be used to track the inventory of a single store or to manage the delivery of stock between several branches of a larger franchise. However, the system merely records sales and restocking data and provides warning of low stock at any location through email at a specified interval. The goal is to reduce the stress of tracking rather than to holder all store maintenance. Further features may consist of the ability to create reports of sales, but again the explanation is left to the management. In addition, since theft does occasionally occur, the system provides solutions for confirming the store inventory and for correcting stock quantities

LITERATURE SURVEY

Existing problem

Dave Piasecki .[1] (2001) He focused on various model of inventory to calculating optimum purchase quantity which used the EOQ method. He points out that many companies are not using EOQ model because of poor results resulted from inaccurate data input. He says that EOQ is an accounting formula which determines point at which combination of ordering costs and stock inventory costs are the least. He highlights that EOQ method would not conflict with the JIT approach. He further elaborates the EOQ model formula that includes parameters like yearly usage on unit, order cost and carrying cost. Finally, he proposes several steps to follow in implementing the EOQ model. Now this litrature limitation is as it does not elaborate further association among EOQ and JIT. It does not associate stock turns with EOQ so fails for mention profit gain with associated stock is calculated.

Sambasiva Rao.K [2] (2002) According his investigation on Materials Managing in Public Sector Ship Building Industry evaluates. Output of materials managing and identifies some problems faced by materials managing in the heavy engineering industry. This investigation method involves the 68 documentary evidence and survey of expert opinion. He evaluates the existing purchase systems and lead time involved on procurement of stock item and adviced the long lead time shall be reduced. His research points at additional stock in terms on months poduction cost in all the engineering units. He also highlights some of the problems in the area on materials managing such as delay in customer part on supplying own stock item, existence and disposal of surplus and non-moving items, excessive lead times and excessive dependence on imports. He claims that administrative and procurement lead times for organization are on the higher side according to peculiar nature of industry. He suggests liberalized purchase procedures, increased capital powers to the personnel, Opening up of liaison offices in various countries to reduce the lead time.

Gaur, Fisher and Raman [3] (2005) In their study examined firm-level inventory behavior among retailing companies. They took a sample on 311 public-listed retail firms for years 1987–2000 for investigate relationship on stock turnover about gross margin, capital intensity , sales surprise. All observed that stock aggregate turnover for retailing company was positively related to capital intensity with sales surprise while inversely related gross margins.

S. Singh [4] (2006) Analysed stock control exercises on single fertilizer company named IFFCO. He statistically examined stock level according consumption, sales as well as other variables along growth on these variables with inventory patterns. He concluded increments in components of stocks lead to increment in the proportion on stock in current assets. The special attention was made in stores with spares for calculate excess purchases resulting Pradeep singh (2008) In his study made an attempt to investigate stock with working capital managing Indian Farmers Fertilizer

Cooperative Limited (IFFCO) / National Fertilizer Limited (NFL). He concluded that overall position of the working fund of IFFCO / NFL is satisfactory. But there arises need for imrovement in stocking as situation of IFFCO. Although stock were not properly utilized as well as maintained bay IFFCO during investigation period. Also managing organization of NFL surely try to properly utilize stock with try to care stock according to requirements. So that liquidity will not interrupt. Capkun, Hameri and Weiss [5] (2009) Statistically analysed the association among stock levels with fund situation in manufacturing companies using capital information on large sample on US based production units over a 26- year period, during, 1980 to 2005. According to them a significant relationship existed between inventory performance along with the performance of its components and profitability.

Gaur and Bhattacharya [6] (2011) Attempted to study the linkage between the performance of the components of inventory such as raw material, work in progress and finished goods and financial performance of Indian manufacturing firms. The study revealed that finished goods inventory as inversely associated with business performance while raw material inventory and work in progress did not have much effect on same. They emphasised that instead of focusing on total inventory, an attempt should be made to concentrate on individual components of inventory so as to adequately manage the same. They concluded that managers not paying heed to inventory performance may become weak in combating competitors.

Eneje et al [7] (2012) He researched the changes of raw stock inventory management system with margin of beer company in Nigeria during data from 1989 to 2008 which had gathered for analysis from the annual reports of the sampled brewery firms. Measures of profitability were examined and related to proxies for raw materials inventory management by brewers. The Ordinary Least Squares (OLS) stated in the form of a multiple regression model was applied in the analysis. Research analysed that local variable raw stock inventory managing system design such a way to capturing changes of efficient management of raw stock inventory on behalf of company in terms of their margin is significantly strong and positive and influences the profitability of the brewery firms in Nigeria. They concluded that efficient management of raw material inventory is a major factor to be contained with by Nigerian brewers in enhancing or boosting their profitability.

Nyabwanga and Ojera[8] (2012) Their research concentrate relationship among inventory management with business performance of smallscale enterprises (SSEs), in Kisii Municipality, Kisii County,Kenya. They used a cross-sectional survey study based on a small sample size of 79 SSEs. The study inferred that inventory comprised the maximum portion of working capital, and improper management of working capital was one of the major reasons of SSE failures. The empirical results disclosed that a positive significant relationship existed between business performance and inventory management practices with inventory budgeting having the maximum influence on business performance ensued by shelf-space management. The study suggested that by following effective inventory management practices business performance can be enhanced.n loss of profit.

Sahari, Tinggi and Kadri [9](2012) They focused on association among the inventory management system and company performance corresponding to fund capability. Therefore according to that reason they looked 82 sample construction company in Malaysia during period of 2006– 2010. Using the regression and correlation analysis methods, they deduced that inventory management is positively correlated with firm performance. In addition, the results indicate that there is a positive link between inventory management and capital intensity.

Soni [10] (2012) Made an in depth study of practices followed in regard to inventory management in the engineering goods industry in Punjab. The analysis used a sample of 11 companies for a period five years, that is, 2004–2009 and was done using panel data set. The adequate and timely flow of inventory determines the success of an industry. She concluded that size of inventory enhanced marginally over the period as compared to a hike in current assets and net working capital. Inventories constituted half of the working capital which was due to overstocking of inventory as a result of low inventory turnover especially for finished goods and raw materials. Rise in sales and favourable market conditions lead to a rise in inventory levels. It was also inferred that sales increased more as compared to inventory.

Lwiki et al[11] (2013) A survey conducted on all the eight (8) sugar manufacturing firms in Kenya established that there is generally positive correlation between each of inventory management practices.Specific performance indicators were proved to depend on the level of inventory management practices. They established that Return on Equity had a strong correlation with lean inventory system and strategic supplier partnerships. As such, they concluded that the performance of sugar firms could therefore be stated as being a function of their inventory management practices.

References

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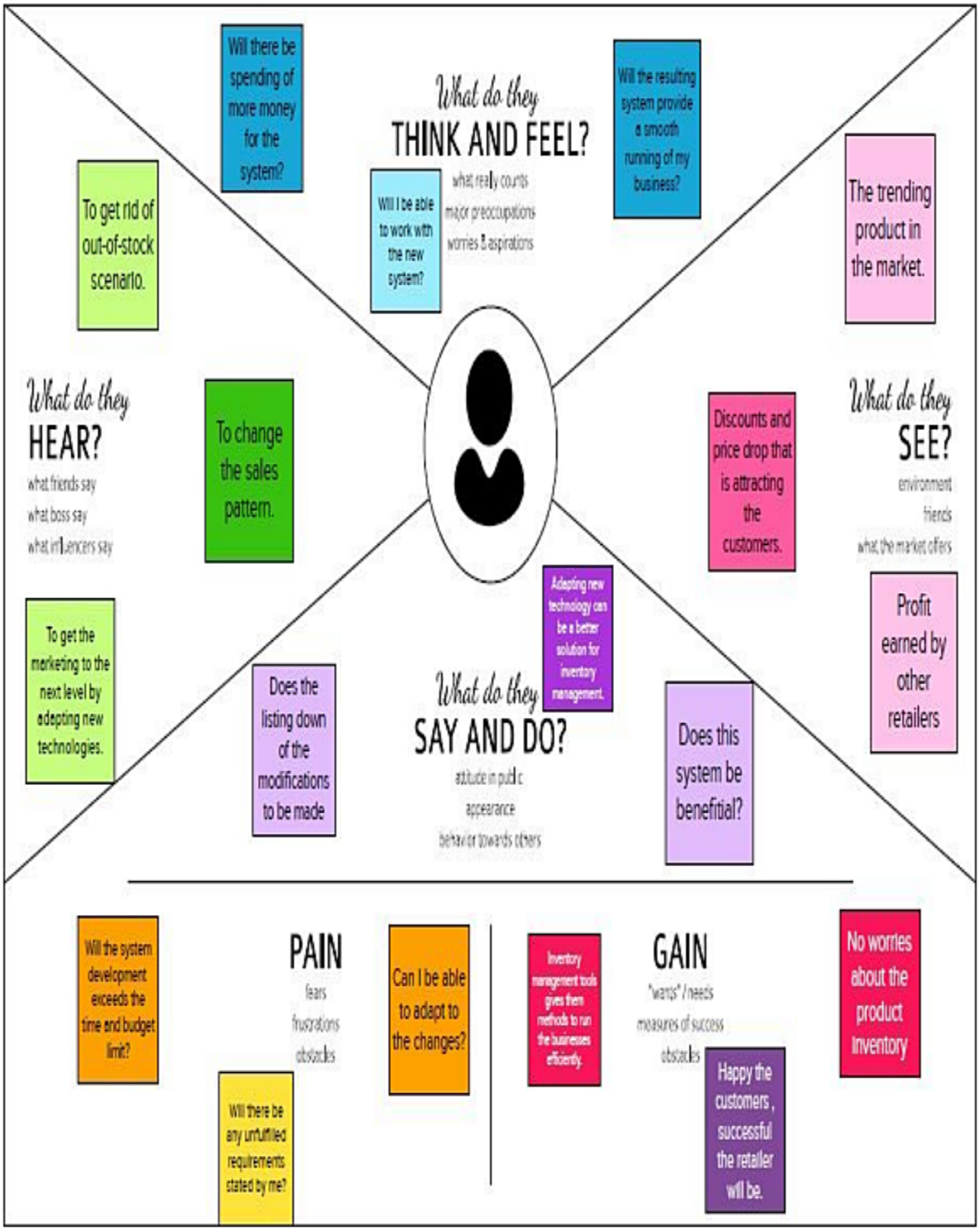
Problem Statement Definition

Inventory management is a challenging problem in supply chain management. The problem faced by the company is that they do not have any system to keep track of inventory data. It is difficult for the retailer to record the inventory data. Every inventory stock manager's main problem is keeping track of how much stock is purchased and how much stock is spent. A tool or system to aid the inventory management would be a beneficial tool in this area. Inventory management refersto managing the quantity, quality, location and transportation of various products utilized in manufacturing by various industrial organizations or in sales by various retailers. Usually, Inventory Management systems are limit ed and fixed to a selected range of items and cannot be modified and extended based on the customer’s needs. The Inventory Management System focuses on making it expandable and usable easily by the end user and with constant customer support to alter the use. Unlike other software that provides similar functionalities, Inventory Management System focuses on making it easier by adding details of various other entities that is a part of organization.

IDEATION & PROPOSED SOLUTION

Empathy Map Canvas



Ideation & Brainstorming

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- **10 minutes** to prepare
- **1 hour** to collaborate
- **2-8 people** recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

A **Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B **Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.

C **Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM

How might we [your problem statement]?

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP
You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Amar

Yuktesh

Person 3

Person 4

Person 5

Person 6

Person 7

Person 8

3 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

Person 4

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.


Idea!
TIP
Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.
Importance
If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?
Feasibility
Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

Proposed Solution

Problem Statement:

- The retailer's one of the challenging problemsisthatthey face lotofissuesin keeping track of the inventory.
- The retailers must know the expiry date of the products so as to avoid wastageof products and loss of money.
- The retailersshould also keep track ofthe fast-moving goods and also the dead stocks to avoid going out of stocks for fast moving goods and also surplusincoming of dead goods.
- The customers lose satisfaction and reliability over the retailers asthere is a highchancetheproductisnotdeliveredontimeoritmaybeaveryold one (in case of dead goods). Idea /Solution description:
- Thisproposedsystem/appwillkeeptrackof the details of every incoming and outgoing goods.
- The systemwill notify or alert the retailer overthe expiry date ofthe products.
- The availability ofstocks of each product is kept in track and the retaileris notified when it goes below the threshold limit.
- Allthe customerswillhave their own account onthe appwhich theycan use tobuy products from theretailers.
- Each customer can see the details ofretailers available in their zone, check for product availability and order their product.
- Both the retailers and the customers can track the order easily with this application.

Novelty /Uniqueness:

- Notificationswillbesenttotheretailersifanyproductthatthecustomershavebeen looking foris not available so that the product can be stocked up soon.
- Also retailerswill notified aboutthedead stocksin the inventory so thatthey could stop stocking them since customers are not preferring them.
- Notification will be sent to the customers who buys certain products regularly when the new arrivals are stocked up.
- Notifications are sent to the customerforthe productsin their wishlist to intimate themthatthe productis availableor about any discounts on those products
- Exclusive discounts and offers are given for regular customers to keep them engaged with the store regularly.

Social Impact /Customer Satisfaction:

- One important reason, the customers are highly satisfied with this app is that they won't waste time on the product which is unavailable. They can check availability from the appitself
- Since the app is automated and it is constantly updating after every purchase the work of keeping track of products is
- almost NIL forretailers

- The customersatisfaction isimproved reasonably due to the timely service

offered to them.

The money wasted on expired and dead goods is greatly reduced which helps the retailers a lot.

Business Model (Revenue Model):

Hereby we can provide a robust and most reliable inventory management system by using:

- Can deploy the most appropriate business advertising models.
- Can implement loss preventing strategies with this model.

Problem Solution fit

Define CS, fit into CL

1. CUSTOMER SEGMENT(S) CS

The person searching for a product to purchase on an online shopping site

6. CUSTOMER LIMITATIONS EG. BUDGET, DEVICES CL

- Lack of time
- Unsatisfiable Search results
- Navigation among Screens

5. AVAILABLE SOLUTIONS PLUSES & MINUSES AS

- User-Friendly Platform
- Enabling Notifications for new products and offers

Explore AS, differentiate

Focus on PR, tap into BE, understand RC

2. PROBLEMS / PAINS + ITS FREQUENCY PR

- Inconsistent Tracking
- Problem Stock
- Product Mismatched
- Changing Demand
- Inaccurate Data

9. PROBLEM ROOT / CAUSE RC

- Wrong material being procured
- Quality related issues
- Data entry errors
- Forecasting errors
- Communication gaps

7. BEHAVIOR + ITS INTENSITY BE

- Move towards offline shopping
- Look for a Better shopping site
- Their choice may change

Focus on PR, tap into BE, understand RC

Identify strong TR & EM

3. TRIGGERS TO ACT TR

- Shopping in hand
- Cost and time efficient
- New Updation

4. EMOTIONS BEFORE / AFTER EM

Before : Frustrated, anxious, decision fatigue

After : Contented

10. YOUR SOLUTION SL

- The platform is based on helping a customer without any drawbacks to products
- Full-time accessible source
- It remains us whenever mega sales and festival offers
- Trustable platform
- It solves any queries about any bugs and errors during payment or purchase

8. CHANNELS of BEHAVIOR CH

ONLINE

- Social Media
- Websites

OFFLINE

- Shops
- Whole sale dealer

Extract online & offline CH of BE

REQUIREMENT ANALYSIS

Functional requirement

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through Phone number
FR-2	User Confirmation	Confirmation via OTP(Email)
FR-3	Transactions processing	Payment through Online
FR-4	Authentication	Through Email
FR-5	Reporting	Through App Through Email

Non-functional requirements

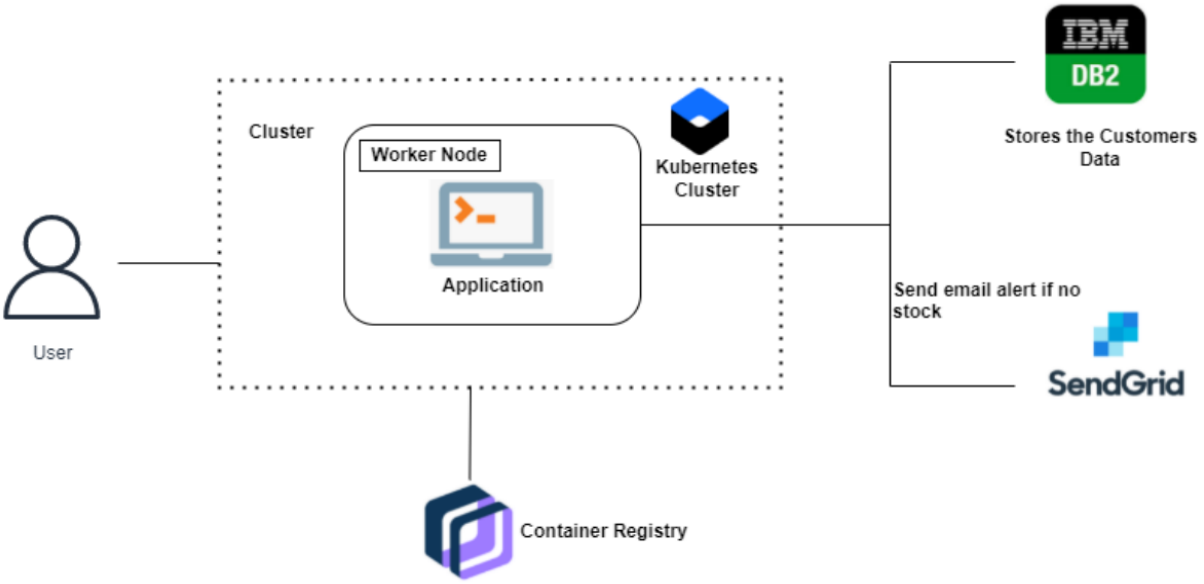
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Keeps track of your inventory and offers a centralized view of stock for 24\7.
NFR-2	**Security**	Access permissions for the particular system information may only be changed by the system's data administrator.

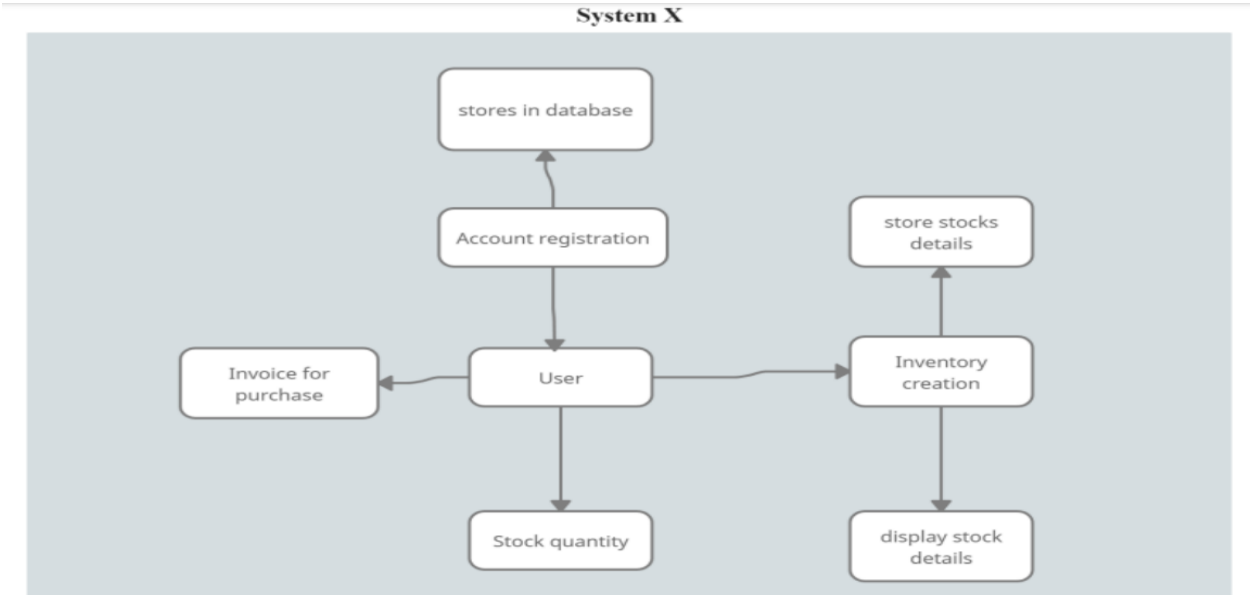
NFR-3	**Reliability**	The database update process must rollback all related updates when any updates fails in the stock inventory.
NFR-4	**Performance**	The front-page load time must be no more than 2 seconds for users that access the website using an LTE mobile connection.
NFR-5	**Availability**	New module deployment mustn't impact front page, product pages, and check out pages availability and mustn't take longer than one hour. The rest of the pages that may experience problems must display a notification with a timer showing when the system is going to be up again.
NFR-6	**Scalability**	The website/app attendance limit must be scalable enough to support 200,000 users at a time.

PROJECT DESIGN

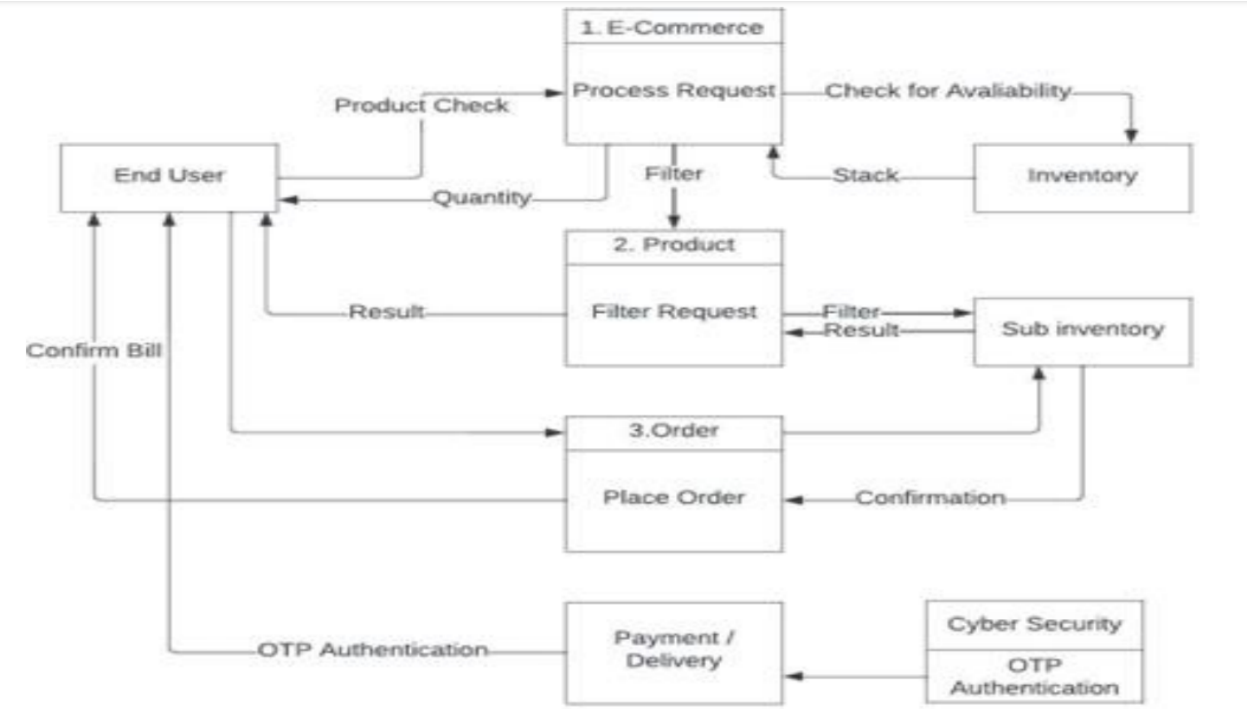
Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.





Splution& Technical Architecture



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 email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
Customer (web user)	Registration	USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
Customer (web user)	Registration	USN-3	As a user, I can register for the application through mobile number.	I can register & access the dashboard .	Low	Sprint-2
Customer (web user)	Registration	USN-4	As a user, I can register for the application through Gmail	I can register & access the dashboard .	Medium	Sprint-1
Customer (web user)	Login	USN-5	As a user, I can log into the application by entering email & password	I can login & access the dashboard .	High	Sprint-1
Customer (web user)	Dashboard	USN-6	As a user ,I can access all my accounts details in dashboard.	I can see all my details in dashboard	low	Sprint-2
Customer (Web user)	Storage	USN-7	As a user,i can store all my details in storage.	I can store,update and delete details in database.	High	Sprint-1
Customer Care Executive		USN-8	As a user,I can deal my query with customer care executive	I can clear all my queries .	Low	Sprint-2
Administrator	administration	USN-9	As a administrator ,i can solve my customers requests.	I can solve all my customer's requests.	Medium	Sprint-1

PROJECT PLANNING & SCHEDULING

Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Priority	Team Members
Sprint 1	Registration	USN-1	As a user, I can register for the application by enteringmy email, password, and confirming my password.	High	Split between all 4
Sprint 1		USN-2	As a user, I will receive confirmation email once I have registered for the application	Medium	Split between all 4
Sprint 1	Login	USN-3	As a user, I can log into the application by enteringemail & password	High	Niraj Kumar
Sprint 2	Items	USN-5	As a user, I can add the items.	High	Split between all 4
Sprint 2		USN-6	As a user, I can see the items	Low	Rajkumar S
Sprint 2	Inventory	USN-7	As a user, I can add the items to inventory.	High	Palraj R
Sprint 2		USN-8	As a user, I can see the items in the inventory.	Low	Tharan Kumar S
Sprint 3	Indication	USN-9	As a user, I can be able to receive indication	High	Split between all 4
Sprint 3	Location	USN-10	As a user, I can be able to see items from a particularstore location	Medium	Niraj Kumar
Sprint 3		USN-11	As a user, I can add a new location of my store	Medium	Split between all 4
Sprint 4	Purchase	USN -12	As a customer, I can be able to purchase good fromthe particular location of the store	High	Split between all 4
Sprint 4	Deployment	USN-13	As a user, I can access the software in the web	High	Niraj Kumar

Sprint Delivery Schedule

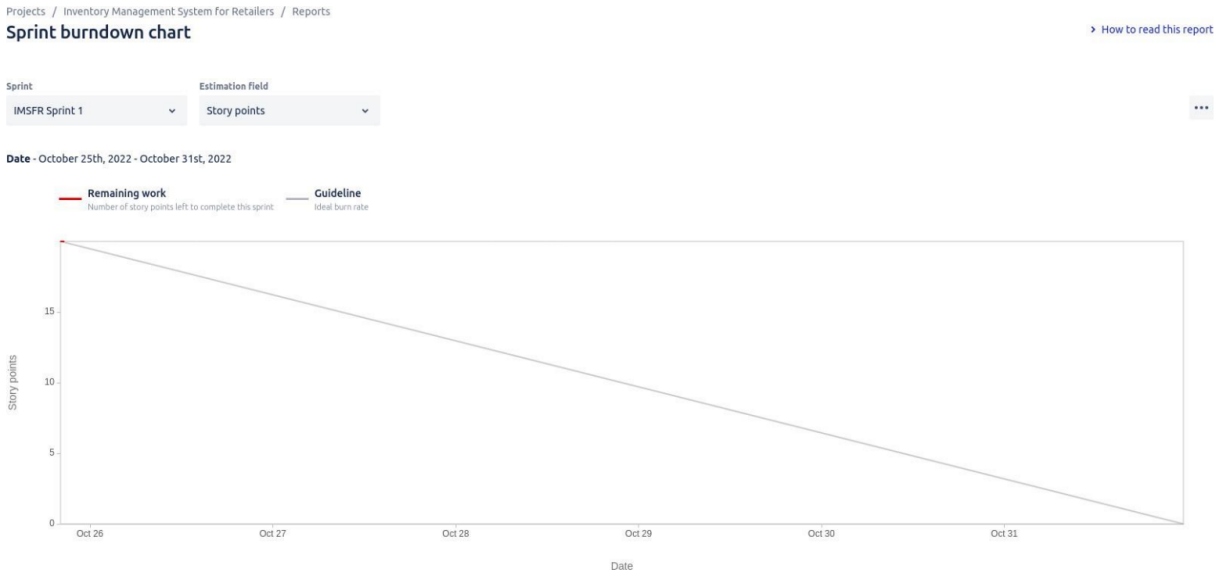
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date(Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date(Actual)
Sprint-1	20	7 Days	24 Oct 2022	30 Oct 2022	20	30 Oct 2022
Sprint-2	20	7 Days	31 Oct 2022	06 Nov 2022	20	07 Nov 2022
Sprint-3	20	7 Days	07 Nov 2022	14 Nov 2022	20	14 Nov 2022
Sprint-4	20	7 Days	14 Nov 2022	21 Nov 2022	20	21 Nov 2022

Velocity: Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

Sprint	Total Story Points	Duration	Average Velocity
Sprint 1	20	7 Days	20 / 7 = 2.85
Sprint 2	20	7 Days	20 / 7 = 2.85
Sprint 3	20	7 Days	20 / 7 = 2.85
Sprint 4	20	7 Days	20 / 7 = 2.85
Total	80	28	80 / 28 = 2.85

Reports from JIRA



CODING & SOLUTIONING

Feature 1

Python:

- Python is a widely-used, interpreted, object-oriented, and high-level programming language with dynamic semantics, used for generalpurpose programming. It's everywhere, and people use numerous Python-powered devices on a daily basis, whether they realize it or not.
- Python is derived from many other languages, including ABC, Modula3, C, C++, Algol-68, Smalltalk, and Unix shell and other scripting languages.
- It is easy to obtain, install and deploy – Python is free, open and multiplatform; not all languages can boast that.
- Programming skills prepare you for careers in almost any industry and are required if you want to continue to more advanced and higherpaying software development and engineering roles.
- Python is now maintained by a core development team at the institute, although Guido van Rossum still holds a vital role in directing its progress.

Feature 2

Flask :

- Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries.
- It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions. However, Flask supports extensions that can add application features as if they were implemented in Flask itself.
- Extensions exist for object-relational mappers, form validation, upload handling, various open authentication technologies and several common framework related tools.
- Applications that use the Flask framework include Pinterest and LinkedIn.

Database Schema

IBM Db2:

- DB2 is a database product from IBM.
- It is a Relational Database Management System (RDBMS). DB2 is designed to store, analyze and retrieve the data efficiently.
- DB2 product is extended with the support of Object-Oriented features and non-relational structures with XML.
- Provide a massively parallel processing (MPP) architecture Exploits Hive, HBase and Apache

Spark concurrently for best-in-class analytic capabilities.

- Provides low latency support for ad-hoc and complex queries, high performance, and federation capabilities Understands dialects from other vendors and various products from Oracle, IBM® Db2® and IBM Netezza® Enables advanced row and column security

Kubernates:

- Kubernetes is also known as 'k8s'.
- Kubernetes is an extensible, portable, and open-source platform designed by Google in 2014.
- It is mainly used to automate the deployment, scaling, and operations of the container-based applications across the cluster of nodes.
- Kubernetes helps to manage containerised applications in various types of physical, virtual, and cloud environments.
- Google Kubernetes is a highly flexible container tool to consistently deliver complex applications running on clusters of hundreds to thousands of individual servers
- Kubernetes is the Linux kernel which is used for distributed systems.
- It helps you to be abstract the underlying hardware of the nodes(servers) and offers a consistent interface for applications that consume the shared pool of resources.

TESTING

Test Cases

- It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectation and does not fail in an unacceptable manner.
- There are various types of test. Each test type addresses a specific testing requirement

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N	BUG ID	Executed By
LoginPage_TC_001	Functional	Home Page	Verify user is able to see the Login/Signup popup when user clicked on My account button		1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Singup popup displayed or	Inventorymanagement.localhost	Login/Signup popup should display	Working as expected	Pass				
LoginPage_TC_002	UI	Home Page	Verify the UI elements in Login/Signup popup		1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Singup popup with below UI elements: a.email text box b.password text box c.Login button d.New customer? Create account link e.Last password? Recovery password link	Username: mjeevan5791@gmail.com password: jeevan123	Application should show below UI elements: a.email text box b.password text box c.Login button with orange colour d.New customer? Create account link e.Last password? Recovery	Working as expected	Fail	Steps are not clear to follow		BUG-1234	Admin
LoginPage_TC_003	Functional	Home page	Verify user is able to log into application with Valid credentials		1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email test box 4.Enter valid password in password text	Username: mjeevan5791@gmail.com password: jeevan123	User should navigate to user account homepage	Working as expected	pass				
LoginPage_TC_004	Functional	Login page	Verify user is able to log into application with InValid credentials		1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email test box 4.Enter valid password in password text box	Username: mjeevan5791@gmail.com password: jeevan123	Application should show 'Incorrect email or password ' validation message.	Working as expected	Fail	need to verify		bug-1235	customer
LoginPage_TC_004	Functional	Login page	Verify user is able to log into application with InValid credentials		1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email test box 4.Enter Invalid password in password text	Username: mjeevan5791@gmail.com password: jeevan123	Application should show 'Incorrect email or password ' validation message.	Working as expected	pass				
LoginPage_TC_005	Functional	Login page	Verify user is able to log into application with InValid credentials		1.Enter URL and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email test box 4.Enter Invalid password in password text box	Username: mjeevan5791@gmail.com password: jeevan123	Application should show 'Incorrect email or password ' validation message.						

User Acceptance Testing

Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the Inventory Management System for Retailers project at the time of the release to User Acceptance Testing (UAT).

Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

Test Case Analysis

This report shows the number of test cases that have passed, failed, and untested

RESULTS

Performance Metrics

Performance Metrics

- Project metrics are used to track the progress and performance of a project.
- Monitoring parts of a project like productivity, scheduling, and scope make it easier for team leaders to see what's on track.
- As a project evolves, managers need access to changing
- deadlines or budgets to meet their client's expectations

ADVANTAGES & DISADVANTAGES

ADVANTAGES:

- Cost Savings: Stock costs money until it sells. Carrying costs include storage handling and transportation fees, insurance and employee salaries. Inventory is also at risk of theft, loss from natural disasters or obsolescence

- Better Inventory Accuracy: With solid inventory management, you know what's in stock and order only the amount of inventory you need to meet demand.

- Reduced Risk of Overselling: Inventory management helps track what's in stock and what's on backorder, so you don't oversell products.

- Avoiding Stockouts and Excess Stock: Better planning and management helps a business minimize the number of days, if any, that an item is out of stock and avoid carrying too much inventory. Learn more about solving for stockouts in our "Essential Guide to Inventory Control."

- Greater Insights: With inventory tracking and stock control, you can also easily spot sales trends or track recalled products or expiry dates.

DISADVANTAGES:

- Expensive for Small Businesses: The cost of inventory management software can seem daunting to a small business, but the investment often pays for itself in increased profits and improved customer loyalty. Additionally, cloud-based systems have made software that was once the domain of large enterprises available to smaller businesses.

- Complex to Learn: Business software is sometimes tricky to learn. However, managers can help by investing in online training to quickly bring users up to speed.

- Risk of System Crashes: Software does crash. However, you can remove the risk of data and productivity loss by using cloud-based platforms.

- Malicious Hacks: Malicious hacks are a risk to all businesses. The Internet of Things (IoT) adds even more complexity. Cloud-based software typically has greater security than a single company would offer on its own because of the risk a breach would have on the vendor.

CONCLUSION

- The efficient way of finding products for the people is implemented using the inventory website that is hosted on IBM Cloud platform.

- To ensure the smooth functioning of the web site operation. I have hosted the website in IBM Db2 & Kubernates Cluster to make sure the operations are running successfully Cloud lambda function is used and to deploy the application IBM Db2 service is used.

FUTURE SCOPE

- Upgrading the UI that is more user-friendly which will help many users to access the website and also ensures that many stocks can be added into the list.
- Using elastic load balancer, it helps to handle multiple requests at the same time which will maintain the uptime of the website with negligible downtime

APPENDIX

Source Code

app.py

```
from flask import Flask,render_template

app=Flask(__name__)


@app.route('/home')

def home():

    return render_template('home.html')


@app.route('/signin')

def signin():

    return render_template('signin.html')


@app.route('/about')

def about():

    return render_template('about.html')

@app.route('/signup')

def signup():

    return render_template('signup.html')


if __name__=='__main__':

    app.run()
```

dashboard-adminuser.yaml

```
apiVersion: v1
kind: ServiceAccount
metadata:
  name: admin-user
  namespace: kubernetes-dashboard
---
apiVersion: v1
kind: Secret
metadata:
  name: admin-user-token
  namespace: kubernetes-dashboard
  annotations:
    kubernetes.io/service-account.name: admin-user
type: kubernetes.io/service-account-token


---
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRoleBinding
metadata:
  name: admin-user
roleRef:
  apiGroup: rbac.authorization.k8s.io
  kind: ClusterRole
```

name: cluster-admin

subjects:

- kind: ServiceAccount

name: admin-user

namespace: kubernetes-dashboard

flask_deployment

GitHub

https://github.com/IBM-EPBL/IBM-Project-29490-1660126245

& Project Demo Link