

PROJECT REPORT

INVENTORY MANAGEMENT FOR RETAILERS

submitted by

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1. INTRODUCTION

1.1 Project Overview

Inventory is the stock of physical items such as materials, components,
Inventory is a list of what you have. In company accounts, inventory
Inventory is a list of names, quantities and/or monetary values of all or
Any quantifiable item that you can handle, buy, sell, store, consume,

1.2 Purpose

This project is aimed at developing a desktop based application named Inventory Management System for managing the inventory system of any organization. The Inventory Management System (IMS) refers to the system and processes to manage the stock of organization with the involvement of Technology system. This system can be used to store the details of the inventory, stock maintenance, update the inventory based on the sales details, generate sales and inventory report daily or weekly based. This project is categorized individual aspects for the sales and inventory management system. In this system we are solving different problem affecting to direct sales management and purchase management. Inventory Management System is important to ensure quality control in businesses that handle transactions revolving ground consumer goods. Without proper inventory control, a large retail store may run out of stock on an important item. A good inventory management system will alert the wholesaler when it is time to record. Inventory Management System is also an important means of automatically tracking large shipment. An automated Inventory Management System helps to minimize the errors while recording the stock

2. LITERATURE SURVEY

According to 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 advised the long lead time shall be reduced. His research points at additional stock in terms on months production 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.

Attempted to study the linkage between the performance of the components of inventory such as 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.

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.

2.1 Existing Problem

To manage the stock details, purchase details and cash flow of the shop, the inventory management system should be developed. The system would update the purchased product list including its count expiry date and price of the product. The sales should be monitored regularly and so the product update can be done after every single purchase. The system should be developed in a way to group up the similar items in the shop. The shipping details of every product and the shopping cart of the product's sold should be monitored and even marked. If the product count goes down the minimum count then an email should be sent to the responsible one who is maintaining it. The cash flow of the product purchase and the transaction status of the product should be maintained.

2.2 References

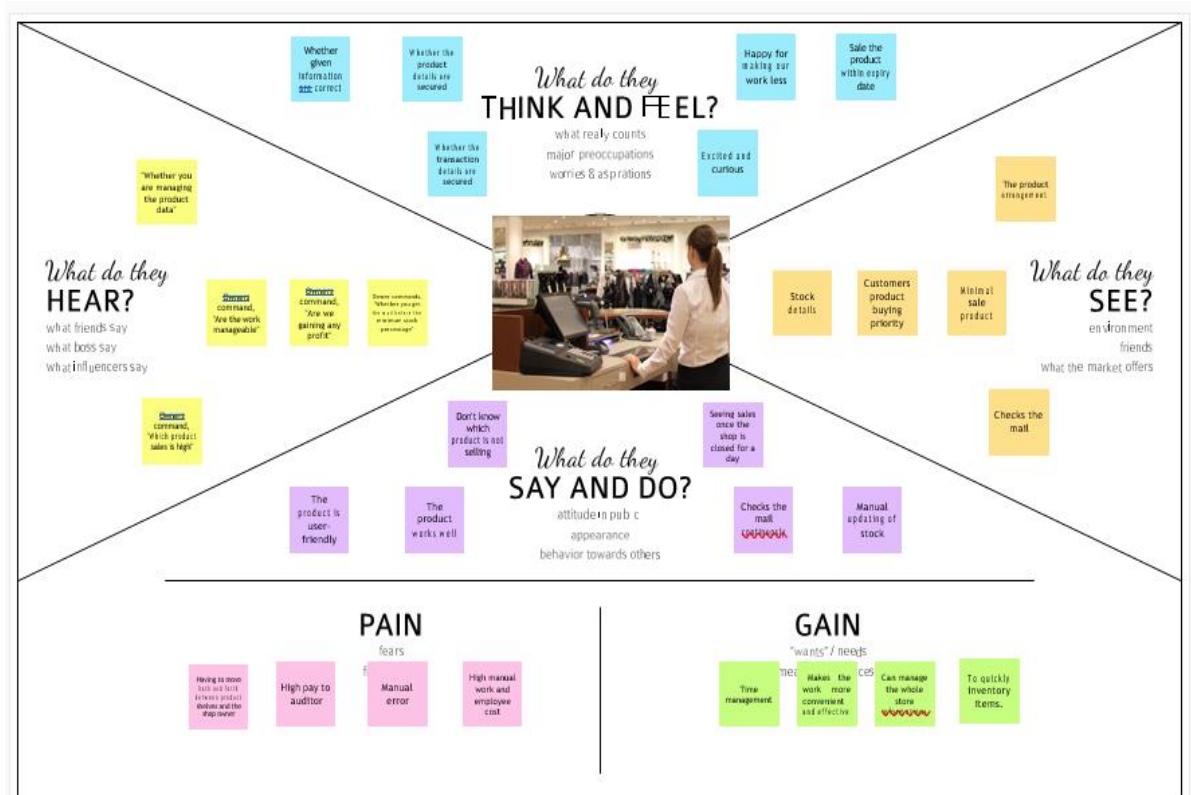
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- [2] Pradeep Singh(2008),” Inventory and Working Capital Management- An Empirical Analysis”, The ICFAI Journal of Accounting and Research.
- [3] Capkun, Vedran, Hameri, Ari-Pekka & Weiss, Lawrence A. (2009). On the relationship between inventory and financial performance in manufacturing. International Journal of Operations & Production Management.
- [4] Gaur, Jigyasu & Bhattacharya, Sourabh. (2011). The relationship of financial and inventory performance of manufacturing firms in Indian context. California Journal of Operations Management.
- [5] Krishnankutty, Raveesh. (2011). Panel data analysis on retail inventory productivity. The Economic Research Guardian.
- [6] Eneje, B. C., Nweze, A .U. & Udeh, A. (2012). Effect of Efficient Inventory Management on Profitability: Evidence from Selected Brewery Firms in Nigeria. International Journal of Current Research.
- [7] Nyab wanga, Robert Nyamao & Ojera, Patrick. (2012). Inventory management practices and business performance for small scale enterprises in Kenya. KCA Journal of Business Management.
- [8] Madishetti, Srinivas & Kibona, Deogratias. (2013). Impact of inventory management on the profitability of SMEs in Tanzania. International Commerce & Management.

2.3 Problem Statement Definition

The problem faced by the company is they do not have any systematic system to record and keep their inventory data. It is difficult for the admin to record the inventory data quickly and safely because they only keep it in the logbook and not properly organised. There were many chances for many errors in the data and the details of the stocks in the shop. It is also costly to hire an employee to manage the stock details randomly and continuously. As a solution to these problems an inventory management system is introduced to make all the works digital.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 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
- 6 hours to collaborate
- 3-8 people recommended

[View template feedback](#)

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

Team gathering
Invite one shared participant in the session and send an invite. (Share relevant information on you want about.)

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

Learn how to use the facilitation tools
Join the Facilitation Experiences to see 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.

[Facilitator](#)

How to manage the whole details, prioritize details and each flow of the stage

2 Key rules of brainstorming
Focus on creative and productive session

- 1 Stay to topic
- 2 Encourage wild ideas
- 3 Suspend judgement
- 4 Welcome others
- 5 Go for volume
- 6 If possible, be visual

3 Brainstorm

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

[Facilitator](#)

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3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The problem faced by the company is they do not have any systematic system to record and keep their inventory data. It is difficult for the admin to record the inventory data quickly and safely because they only keep it in the logbook and not properly organised. There were many chances for many errors in the data and the details of the stocks in the shop. It is also costly to hire an employee to manage the stock details randomly and continuously. As a solution to these problems an inventory management system is introduced to make all the works digital.
2.	Idea / Solution description	To manage the stock details, purchase details and cash flow of the shop, the inventory management system should be developed. The system would update the purchased product list including its count expiry date and price of the product. The sales should be monitored regularly and so the product update can be done after every single purchase. The system should be developed in a way to group up the similar items in the shop. The shipping details of every product and the shopping cart of the product's sold should be monitored and even marked. If the product count goes down the minimum count then an email should be sent to the responsible one who is maintaining it. The cash flow of the product purchase and the transaction status of the product should be maintained
3.	Novelty / Uniqueness	The novelty is to produce the Chatbot to ask questions regarding the details of the stock availability.

4.	Social Impact / Customer Satisfaction	The need for organisations to train their personnel in the area of inventory control management. The retailer felt happy for the development of this system. Because a great work and the tensed difficulties handled by the worker itself is now had been handled by the system. The cash flow is easily maintainable and there is no chance of money exchange without the knowledge of the owner. The details of the product's stock can be easily viewed and alerted and this makes the system even very popular among the public and the retailers.
5.	Business Model (Revenue Model)	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 planning and management helps a business minimise the number of days, if any, that an item is out of stock and avoid carrying too much inventory. Good inventory management solutions save time that could be spent on other activities. A better understanding of both availability and demand leads to higher inventory turnover, which leads to greater profits. The cash of the product is managed by the shop until it sells.
6.	Scalability of the Solution	The solution is scalable enough to maintain the product purchase details and cash flow of the great mall too. Digital systems allow managers to use lot or serial number records to trace products by date and location.

3.4 Problem Solution fit

Problem Solution Fit



<p>The Retailer</p>	<p>High maintenance cost, <u>possibility of network issue</u>, need keen <u>surveillance</u>.</p>	<p>The novelty is to produce the Chatbot to ask questions <u>regarding the details of the stock availability</u>.</p>
<p>Need to find the expiry date and sell the products before it. Maintain the product cash flow without fault.</p>	<p>The main reasons identified for the accumulation of inventory are forecasting error, bulk purchase, data entry error, quality-related issues, product category not traceable and wrong material being procured.</p>	<p>Calculate usage and benefits. Need employee who knows well about the system and to handle it</p>
<p>Seeing their <u>neighbour shop</u> installing this and their advanced features which <u>makes</u> the work easier.</p> <p>Felt really worse for getting waste of the products via expiring and having no enough knowledge about the product's sale.</p> <p><u>Before</u> : Felt stress and anxiety <u>After</u> : Feeling relaxed, happy and peaceful.</p>	<p>Maintaining the product stocks and cash flow of the product. Trigger the retailer via an email when the product stock reaches the minimum number. It will also <u>sends</u> the transaction details and also <u>will</u> maintain the <u>total shop's</u> product purchase rate.</p>	<p>There will be a retailer in the shop to monitor the products.</p>

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

FR NO.	FUNCTIONAL REQUIREMENTS (EPIC)	SUB REQUIREMENT (STORY/SUB-TASK)
FR-1	Data entry	Enter the product name Quantity of the product Cost of the product
FR-2	Cloud deployment	Storing the product information in hierarchy manner. IBM db2 cloud space would be used.
FR-3	Monitoring	Monitor product details. Scan purchase product using barcode scanner.
FR-4	Sending emails	Mail should be generated to indicate low availability of product. Mail would reach to the particular concern.

4.2 Non-Functional requirements

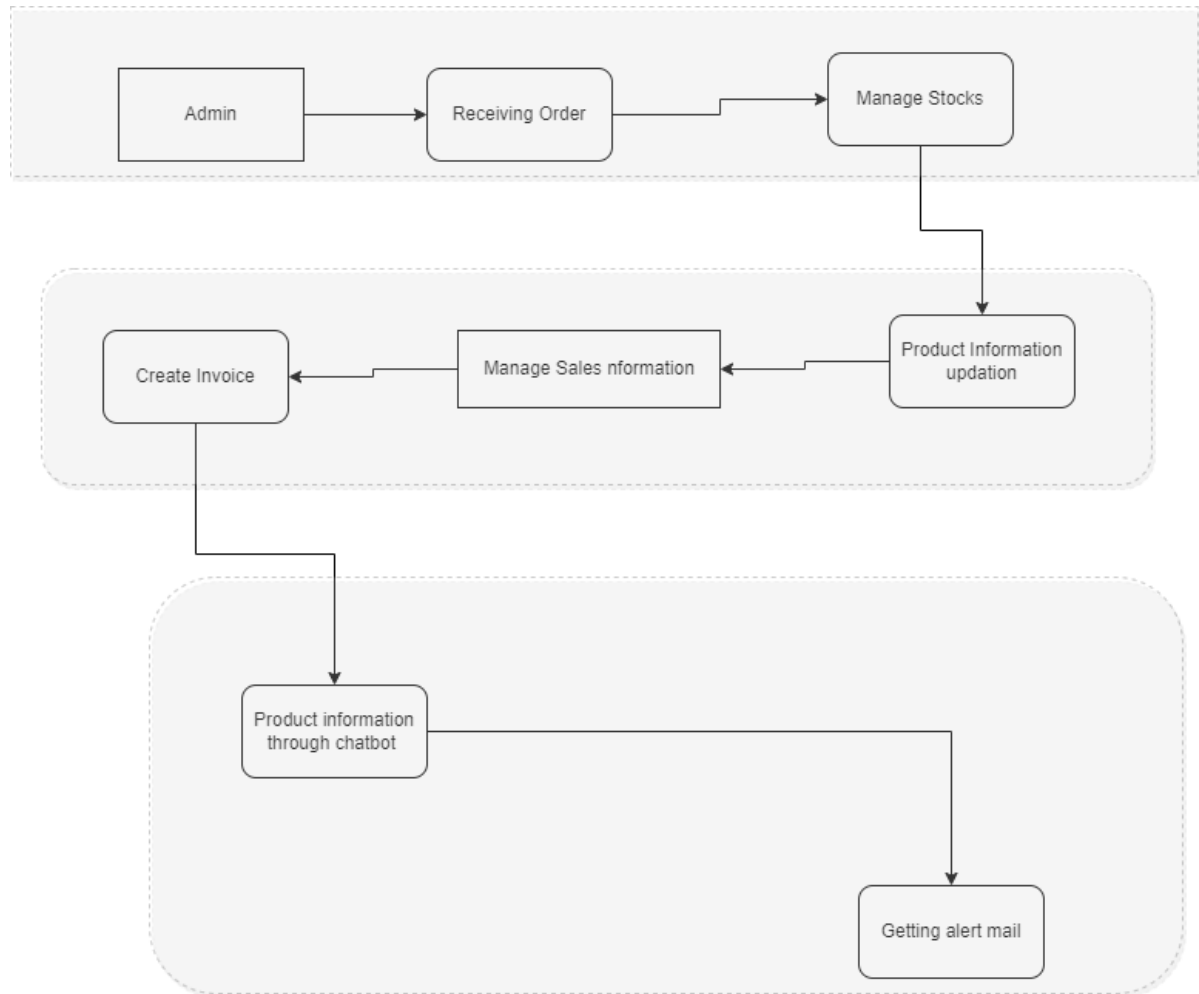
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	This system is really used as it can able to maintain stocks and product deliverables without any sorts of complications and ensure accurate recordkeeping. An Inventory solution makes these processes easier than trying to do them all manually.
NFR-2	Security	This system is highly secured enough to keep our product data confidential. No unauthorized access may get into the data of the system.
NFR-3	Reliability	In this project no loss in product information and every data would be available straight a way to the retailer.

NFR-4	Performance	In this project there is no lagging in the system performance because product data are deployed in cloud storage. And also the functionality and maintenance of the system is ease of use.
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5. PROJECT DESIGN

5.1 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

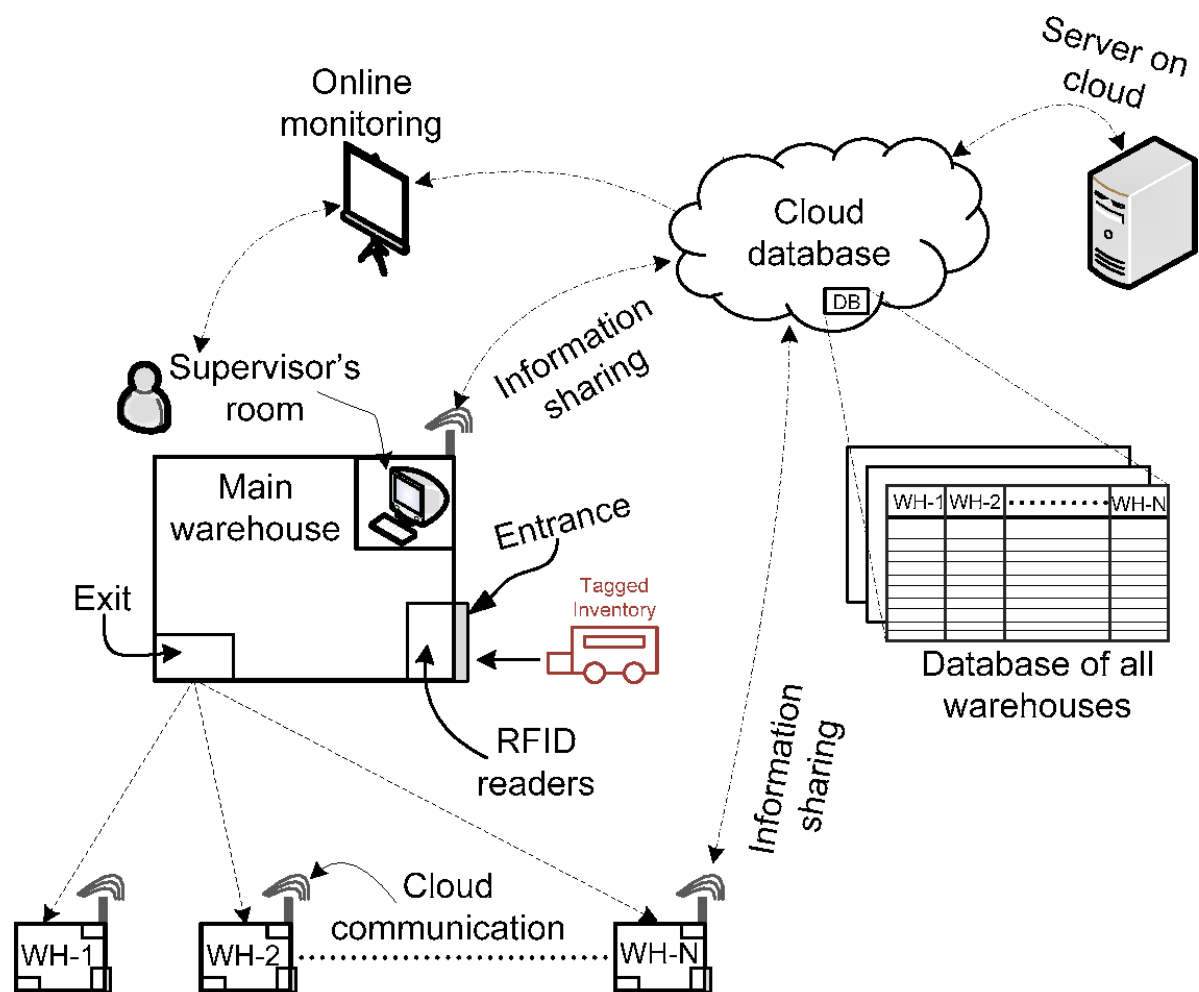


5.2 Solution & Technical Architecture

Solution Architecture:

This is an illustration of a Network Architecture for Inventory management system. Network architecture may help with security, which is becoming more critical as more consumer devices connect to the network. The network's design and protocols must facilitate rapid and efficient user detection and authorisation. The Open Systems Interconnection Model, or OSI, is used in the majority of network topologies. This conceptual paradigm divides network jobs into seven logical levels, from the most basic to the most complex. The Physical layer, for example, is responsible for the network's wire and cable connections. The uppermost tier, the Application layer, has APIs for application-specific tasks such as chat and file sharing. Download this free EdrawMax template to easily create your own network architecture!

Technology Architecture Diagram:



TABLE

Component	Description	Technology
User Interface	User interacts with application through Web UI	HTML, CSS, JavaScript / Angular Js / React Js etc.
Application Programming Interface	API exposes a set of objects to represent inventory adjustments and physical counts for quantities of products (as item variations) and transitions of stocked products to the relevant inventory state.	IBM Watson Machine Learning service
Database	NoSQL databases is used to store variety of data in a flexible manner.	NoSQL
Cloud Database	Database Service on Cloud	IBM Cloud ant
File Storage	File storage requirements	IBM cloud object storage

5.3 User Stories

User Type	Functional Requirement (epic)	User Story Number	User Story / Task	Acceptance Criteria	Priority	Release
Customer (retailer)	Login page	USN-1	As a user , I will need to login to the system using login id and password.	I can able to login to my account	high	Sprint 1
	Product data	USN-2	As a user, I can able to update the product details.	I can able to check	Medium	Sprint 2
		USN-3	As a user, I can able to note the expiry date and the product rate.	I can update the expiry date and rate	High	Sprint 2
		USN-4	As a user, I can able to check and maintain the product data	I can able to check it	High	Sprint 2
	Notification	USN-5	As a user, I can able to check the expiry dates of the product and manage the products	I can able to update expiry date	High	Sprint 3
		USN-6	As a user, it's visible to me that if the product count gets down from the minimum count of the product, it will send the mail to the authority.	I can note that mail is sending successfully.	High	Sprint 3
	Billing	USN-7	As a user, I need to check the product via the barcode scanner	I can scan the product	High	Sprint 4
		USN-8	As a user, the system can able to bill the products purchased.	I can bill the product.	High	Sprint 4

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	Login page	USN-1	As a user , I will need to login to the system using login id and password.	20	High	Manikandan Karthik
Sprint 2	Product data	USN-2	As a user, I can able to update the product details.	5	Medium	Manikandan Karthik
Sprint 2		USN-3	As a user, I can able to note the expiry date and the product rate.	10	High	Manikandan Karthik
Sprint 2		USN-4	As a user, I can able to check and maintain the product data	5	High	Manikandan Karthik
Sprint 3	Notification	USN-5	As a user, I can able to check the expiry dates of the product and manage the products	10	High	Subash Vibunesh
Sprint 3		USN-6	As a user, it's visible to me that if the product count gets down from the minimum count of the product, it will send the mail to the authority.	10	High	Subash Vibunesh
Sprint 4	Billing	USN-7	As a user, I need to check the product via the barcode	10	High	Subash Vibunesh

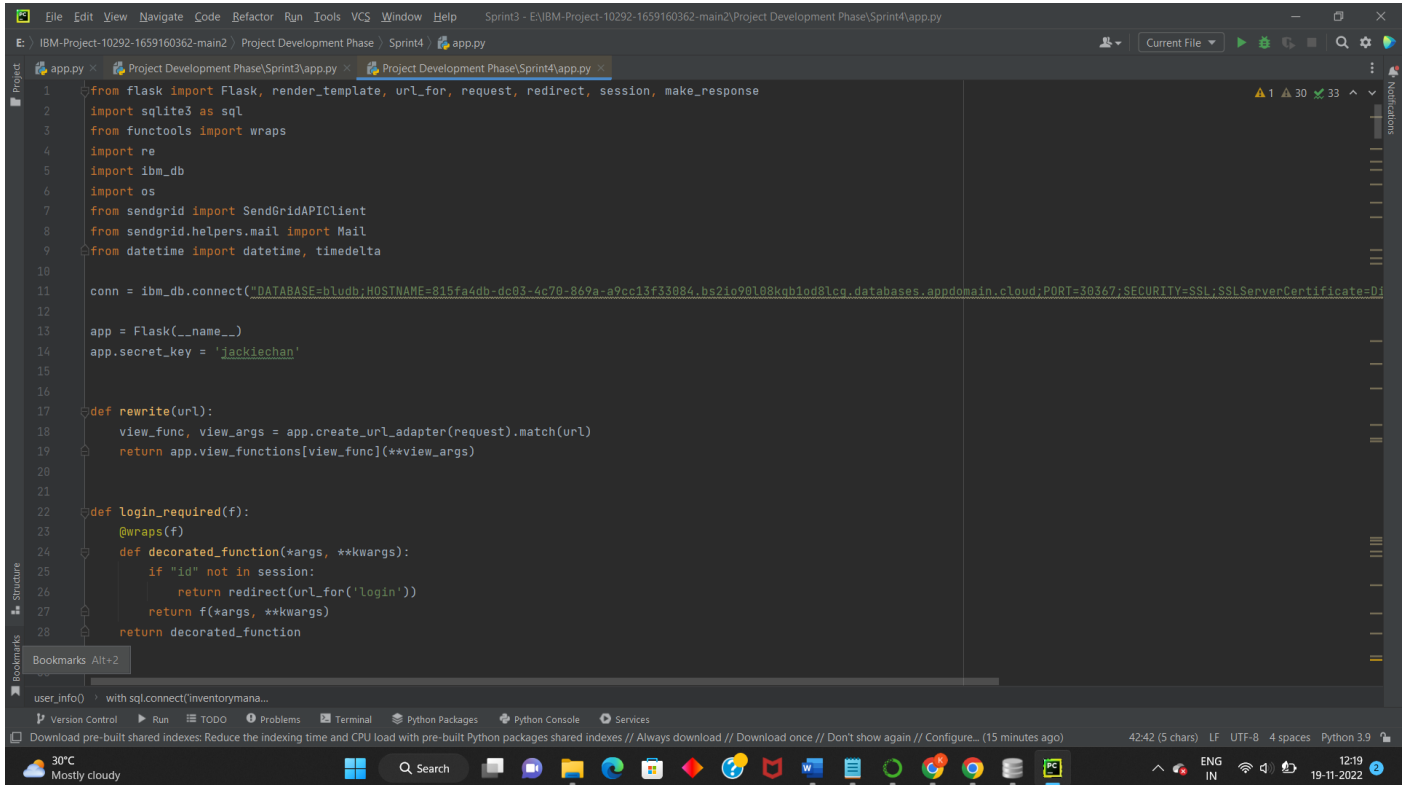
6.2 Sprint Delivery Schedule

Sprint	Sprint Topic	Start Date	Expected Delivery
Sprint 1	Login page	28-10-2022	4-11-2022
Sprint 2	Product data	5-11-2022	12-11-2022
Sprint 3	Notification	14-11-2022	21-11-2022
Sprint 4	Billing	23-11-2022	30-11-2022

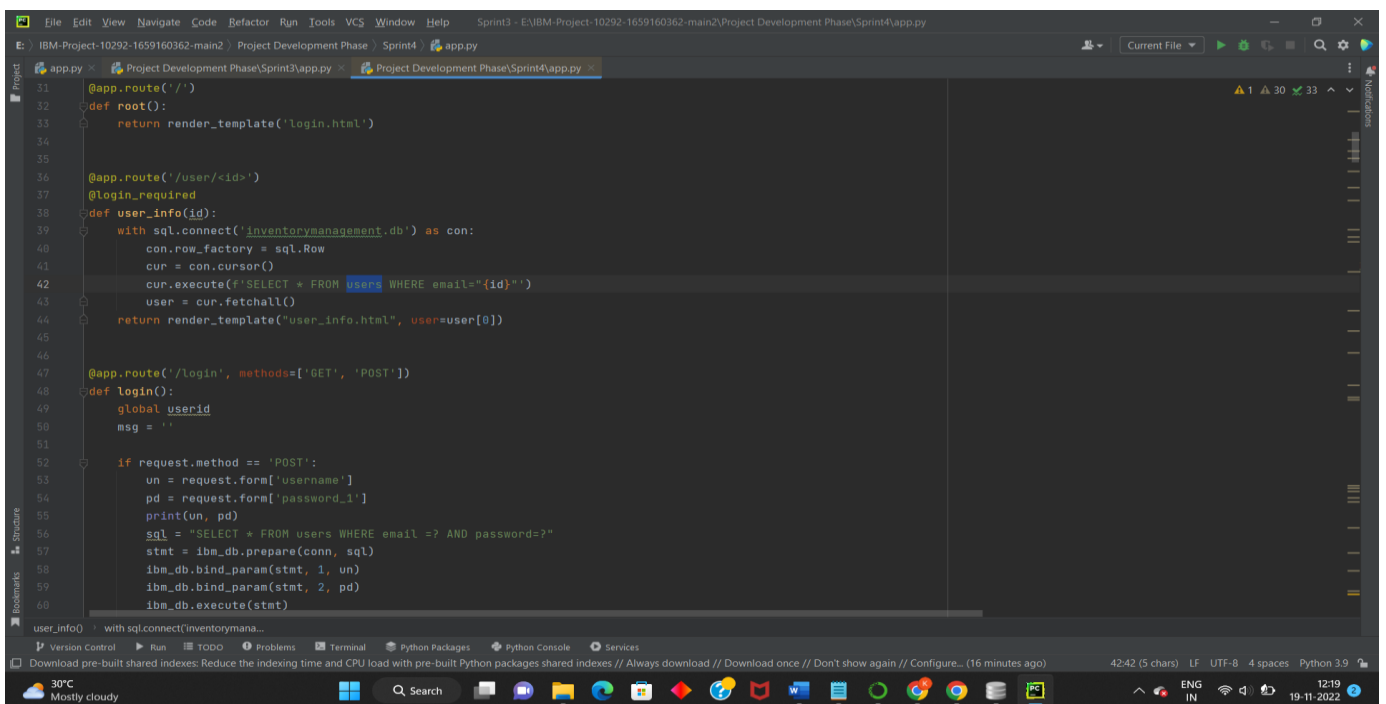
7.

CODING & SOLUTIONING

7.1 Feature



```
1 from flask import Flask, render_template, url_for, request, redirect, session, make_response
2 import sqlite3 as sql
3 from functools import wraps
4 import re
5 import ibm_db
6 import os
7 from sendgrid import SendGridAPIClient
8 from sendgrid.helpers.mail import Mail
9 from datetime import datetime, timedelta
10
11 conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=815fa4db-dc03-4c70-869a-a9cc13f33084.bs2io90108kqb1od8lcc.databases.appdomain.cloud;PORT=30367;SECURITY=SSL;SSLServerCertificate=D:
12
13 app = Flask(__name__)
14 app.secret_key = 'jackiechan'
15
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17 def rewrite(url):
18     view_func, view_args = app.create_url_adapter(request).match(url)
19     return app.view_functions[view_func](**view_args)
20
21
22 def login_required(f):
23     @wraps(f)
24     def decorated_function(*args, **kwargs):
25         if "id" not in session:
26             return redirect(url_for('login'))
27         return f(*args, **kwargs)
28     return decorated_function
29
30
31 user_info() with sql.connect('inventorymana...
```



```
31 @app.route('/')
32 def root():
33     return render_template('login.html')
34
35
36 @app.route('/user/<id>')
37 @login_required
38 def user_info(id):
39     with sql.connect('inventorymanagement.db') as con:
40         con.row_factory = sql.Row
41         cur = con.cursor()
42         cur.execute(f'SELECT * FROM users WHERE email="{id}"')
43         user = cur.fetchall()
44         return render_template("user_info.html", user=user[0])
45
46
47 @app.route('/login', methods=['GET', 'POST'])
48 def login():
49     global userid
50     msg = ''
51
52     if request.method == 'POST':
53         un = request.form['username']
54         pd = request.form['password_1']
55         print(un, pd)
56         sql = "SELECT * FROM users WHERE email =? AND password=?"
57         stmt = ibm_db.prepare(conn, sql)
58         ibm_db.bind_param(stmt, 1, un)
59         ibm_db.bind_param(stmt, 2, pd)
60         ibm_db.execute(stmt)
```

```
File Edit View Navigate Code Refactor Run Tools VCS Window Help Sprint3 - E:\IBM-Project-10292-1659160362-main2\Project Development Phase\Sprint4\app.py
E: IBM-Project-10292-1659160362-main2 > Project Development Phase > Sprint4 > app.py
Project Development Phase\Sprint3\app.py Project Development Phase\Sprint4\app.py
61 account = ibm_db.fetch_assoc(stmt)
62 print(account)
63 if account:
64     session['loggedin'] = True
65     session['id'] = account['EMAIL']
66     userid = account['EMAIL']
67     session['username'] = account['USERNAME']
68     msg = 'Logged in successfully !'
69
70     return rewrite('/dashboard')
71 else:
72     msg = 'Incorrect username / password !'
73 return render_template('login.html', msg=msg)
74
75
76 @app.route('/signup', methods=['POST', 'GET'])
77 def signup():
78     msg = ''
79     if request.method == "POST":
80         username = request.form['username']
81         email = request.form['email']
82         pw = request.form['password']
83         sql = 'SELECT * FROM users WHERE email =?'
84         stmt = ibm_db.prepare(conn, sql)
85         ibm_db.bind_param(stmt, 1, email)
86         ibm_db.execute(stmt)
87         acct = ibm_db.fetch_assoc(stmt)
88         print(acct)
89
90         if acct:
```

```
File Edit View Navigate Code Refactor Run Tools VCS Window Help Sprint3 - E:\IBM-Project-10292-1659160362-main2\Project Development Phase\Sprint4\app.py
E: IBM-Project-10292-1659160362-main2 > Project Development Phase > Sprint4 > app.py
Project Development Phase\Sprint3\app.py Project Development Phase\Sprint4\app.py
91 msg = 'Account already exists!!'
92
93 elif not re.match(r'[a-zA-Z0-9]+@[a-zA-Z0-9]+\.[a-zA-Z]+', email):
94     msg = 'Please enter the valid email address'
95 elif not re.match(r'[A-Za-z0-9]+', username):
96     msg = 'name must contain only character and number'
97 else:
98     insert_sql = 'INSERT INTO users (USERNAME,FIRSTNAME,LASTNAME,EMAIL,PASSWORD) VALUES (?, ?, ?, ?, ?)'
99     pstmt = ibm_db.prepare(conn, insert_sql)
100     ibm_db.bind_param(pstmt, 1, username)
101     ibm_db.bind_param(pstmt, 2, "firstname")
102     ibm_db.bind_param(pstmt, 3, "lastname")
103     # ibm_db.bind_param(pstmt, 4, "123456789")
104     ibm_db.bind_param(pstmt, 4, email)
105     ibm_db.bind_param(pstmt, 5, pw)
106     print(pstmt)
107     ibm_db.execute(pstmt)
108     msg = 'You have successfully registered click login!'
109     message = Mail(
110         from_email=os.environ.get('MAIL_DEFAULT_SENDER'),
111         to_email=email,
112         subject='New SignUp!',
113         html_content='<p>Hello, Your Registration was successful. <br><br> Thank you for choosing us.</p>')
114
115     sg = SendGridAPIClient(
116         api_key=os.environ.get('SENDGRID_API_KEY'))
117
118     response = sg.send(message)
119     print(response.status_code, response.body)
120     return render_template("login.html", msg=msg)
```

8. TESTING

8.1 Test Cases

← → ↻ ⓘ 127.0.0.1:5000/signup

REGISTER FORM

User name

email

password

retype password

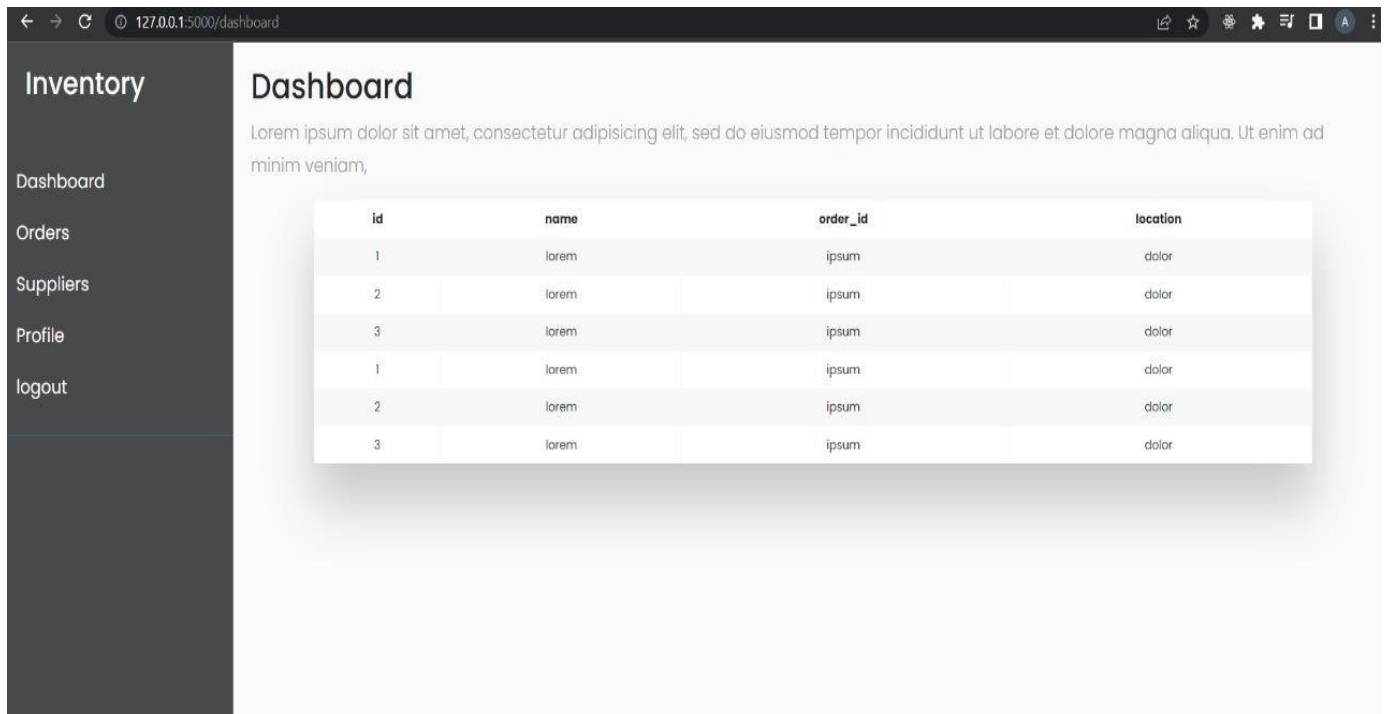
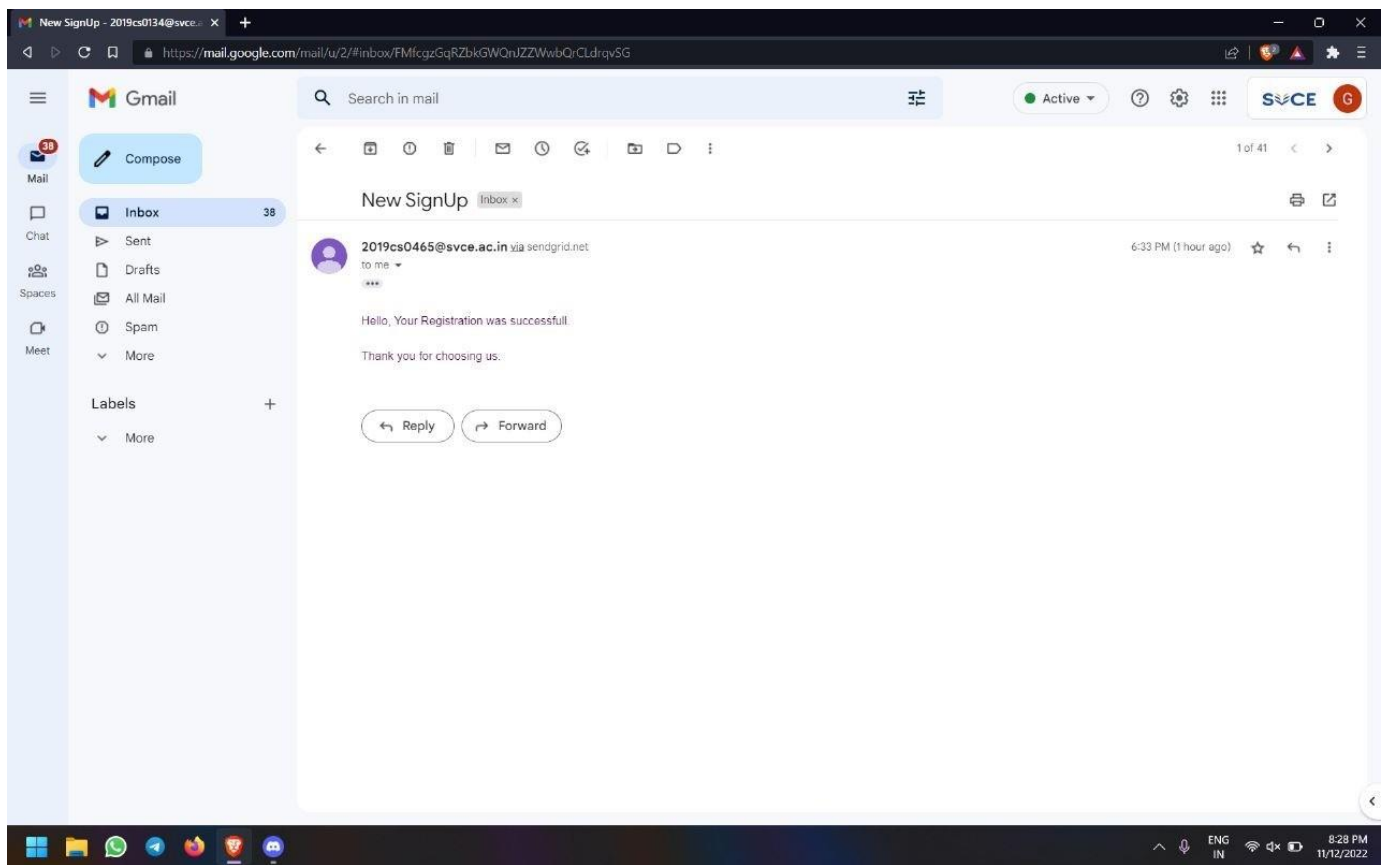
[already have an account ? please login!](#)

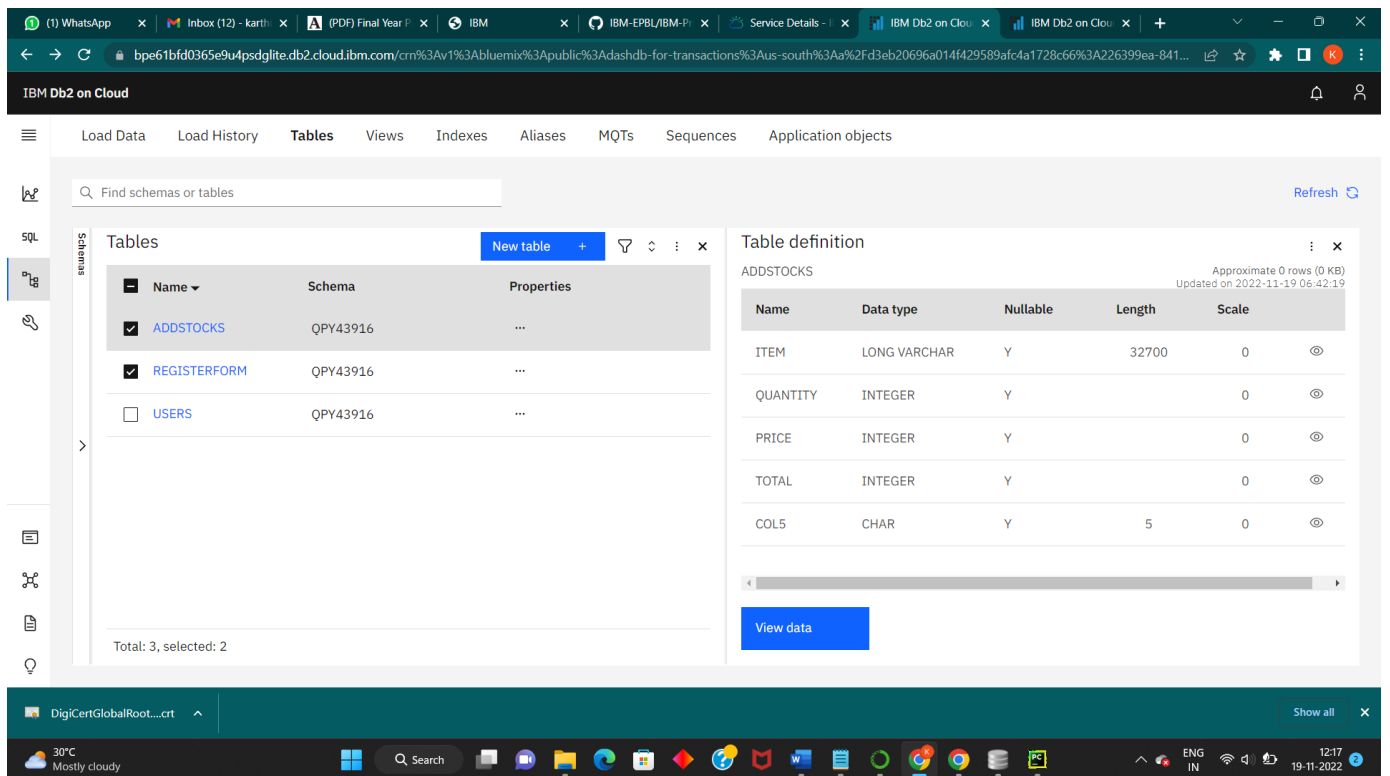
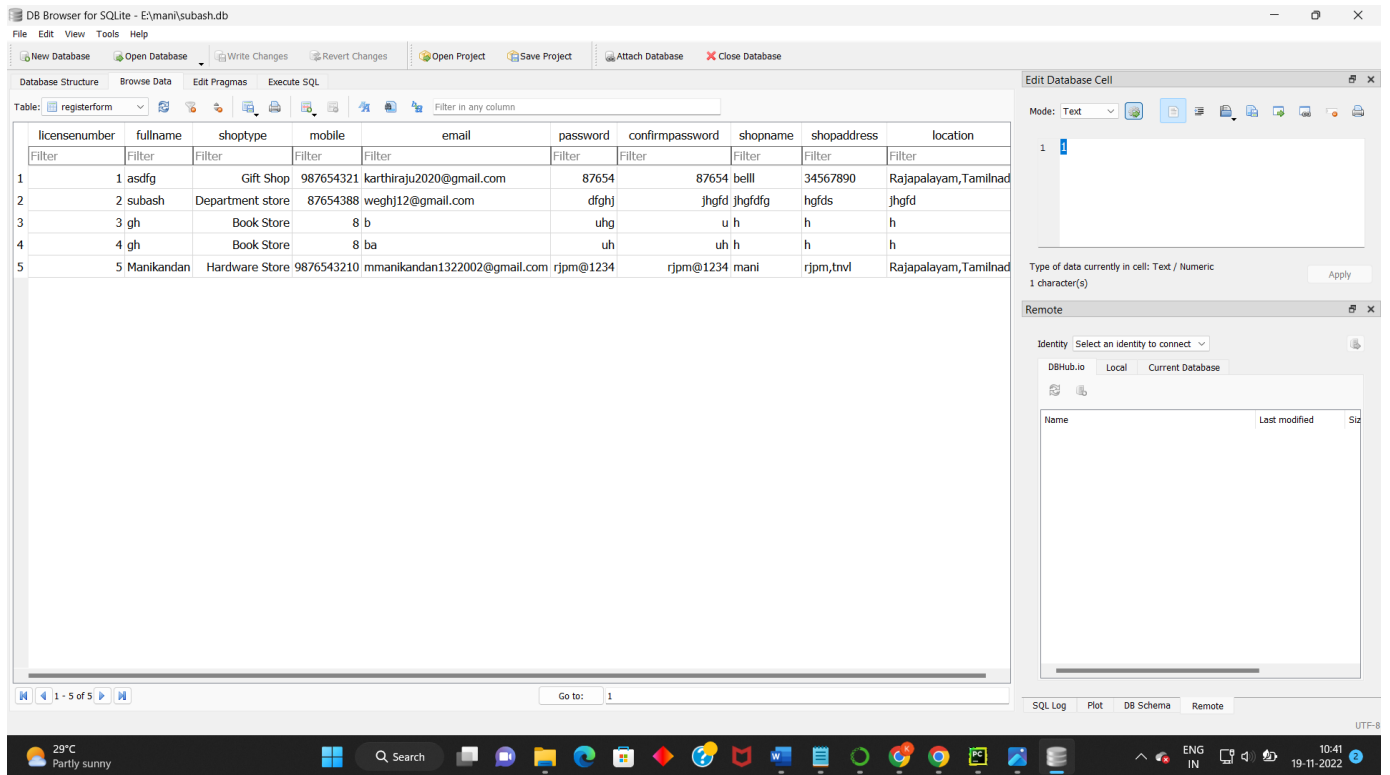
LOGIN

username

password

[Don't have an account? Sign Up](#)





IBM Db2 on Cloud

Load Data Load History **Tables** Views Indexes Aliases MQTs Sequences Application objects

Find schemas or tables Refresh

Tables New table

Name	Schema	Properties
<input type="checkbox"/> ADDSTOCKS	QPY43916	...
<input checked="" type="checkbox"/> REGISTERFORM	QPY43916	...
<input type="checkbox"/> USERS	QPY43916	...

Total: 3, selected: 1

Table definition REGISTERFORM No statistics available

Name	Data type	Nullable	Length	Scale
LICENSENUMBER	INTEGER	N		0
FULLNAME	LONG VARCHAR	N	32700	0
SHOPTYPE	LONG VARCHAR	N	32700	0
MOBILE	INTEGER	N		0
EMAIL	LONG VARCHAR	N	32700	0
PASSWORD	LONG VARCHAR	N	32700	0

View data

DigiCertGlobalRoot... Show all

30°C Mostly cloudy Search 12:17 19-11-2022

IBM Db2 on Cloud

Load Data Load History **Tables** Views Indexes Aliases MQTs Sequences Application objects

Find schemas or tables Refresh

Tables New table

Name	Schema	Properties
<input type="checkbox"/> ADDSTOCKS	QPY43916	...
<input type="checkbox"/> REGISTERFORM	QPY43916	...
<input checked="" type="checkbox"/> USERS	QPY43916	...

Total: 3, selected: 1

Table definition ADDSTOCKS No statistics available

Name	Data type	Nullable	Length	Scale
ITEM	LONG VARCHAR	Y	32700	0
QUANTITY	INTEGER	Y		0
PRICE	INTEGER	Y		0
TOTAL	INTEGER	Y		0
COL5	CHAR	Y	5	0

View data

DigiCertGlobalRoot... Microsoft Store Show all

30°C Mostly cloudy Search 12:17 19-11-2022

9.ADVANTAGES & DISADVANTAGES

- **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.
- **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.
- **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.
- **Better Terms With Vendors and Suppliers:** Inventory management also provides insights about which products sell and in what volume. Use that knowledge as leverage to negotiate better prices and terms with suppliers.
- **More Productivity:** Good inventory management solutions save time that could be spent on other activities.
- **Increased Profits:** A better understanding of both availability and demand leads to higher inventory turnover, which leads to greater profits.
- **A More Organized Warehouse:** An efficient warehouse with items organized based on demand, which items are often sold together and other factors reduces labour costs and speeds order fulfillment.
- **Better Customer Experience:** Customers that receive what they order on time are more loyal.

The disadvantages of inventory management systems are the same as for other software. Solutions can be expensive, hard to learn and subject to hacks. However, simple safeguards can mitigate weaknesses:

- **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.
- **Reduced Physical Audits:** When you automate some warehouse operations, it's easy to skip a physical inventory check. Solve this by instituting regular audits.

9. CONCLUSION

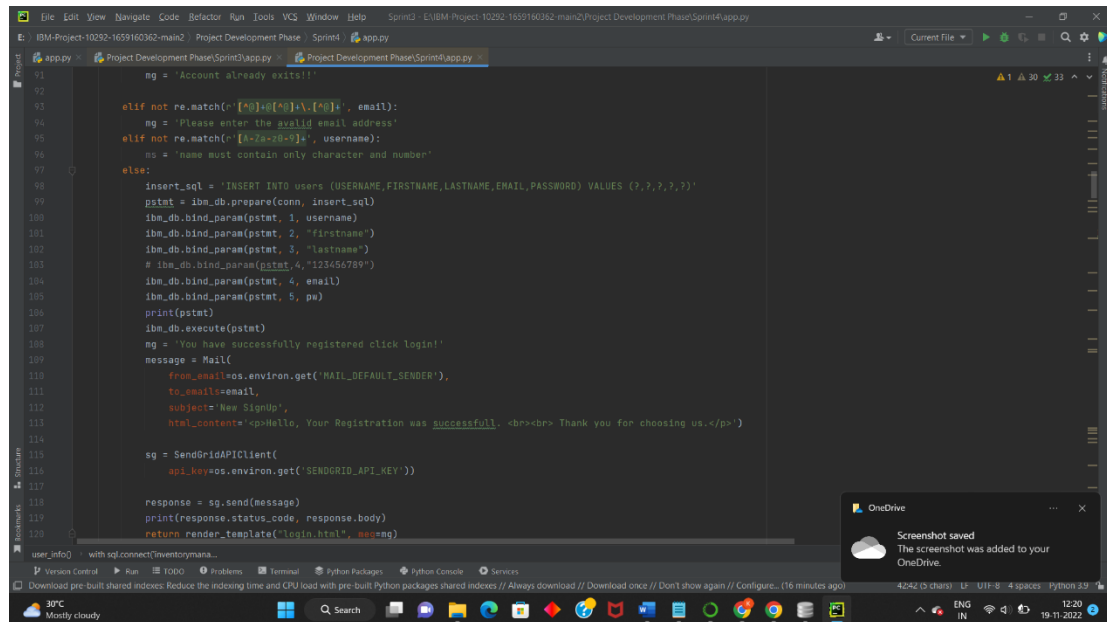
Inventory management has to do with keeping accurate records of goods that are ready for shipment. This often means having enough stock of goods to the inventory totals as well as subtracting the most recent shipments of finished goods to buyers. When the company has a return policy in place, there is usually a sub-category contained in the finished goods inventory to account for any returned goods that are reclassified or second grade quality, Accurately maintaining figures on the finished goods inventory makes it possible to quickly convey information to sales personnel as to what is available and ready for shipment at any given time by buyer. Inventory management is important for keeping costs down, while meeting regulation. Supply and demand is a delicate balance, and inventory management hopes to ensure that the balance is undisturbed. Highly trained Inventory management and high-quality software will help make Inventory management a success. The ROI of Inventory management will be seen in the forms of increased revenue and profits, positive employee atmosphere, and on overall increase of customer satisfaction.

10. FUTURE SCOPE

- Inventory Management System (IMS) is targeted to the small or medium organization which doesn't have many warehouses
- only to those organization that has single power of authority
- Some of the scope are Only one person is responsible in assigning the details or records
- It is security drive .ware house can be added as per the requirement

13.1 Source Code

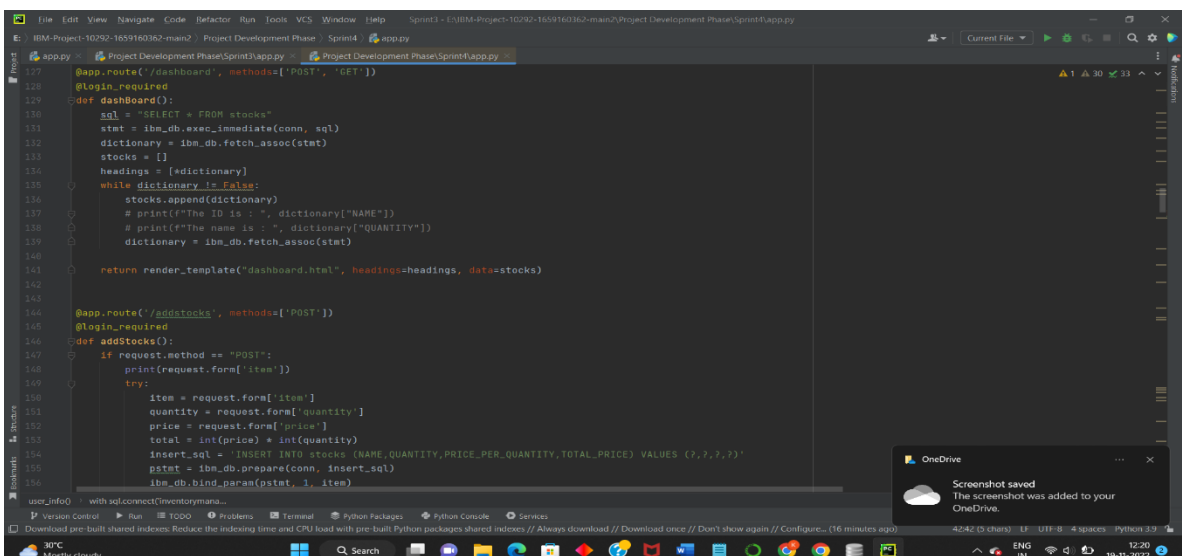
MODEL CREATION



```

11  mg = 'Account already exists!'
12
13  elif not re.match("[0-9][0-9]@[0-9]+.[0-9]+", email):
14      mg = 'Please enter the valid email address'
15  elif not re.match("[0-9a-z@-]*", username):
16      mg = 'name must contain only character and number'
17  else:
18      insert_sql = 'INSERT INTO users (USERNAME,FIRSTNAME,LASTNAME,EMAIL,PASSWORD) VALUES (?, ?, ?, ?, ?)'
19      pstmt = ibm_db.prepare(conn, insert_sql)
20      ibm_db.bind_param(pstmt, 1, username)
21      ibm_db.bind_param(pstmt, 2, "firstname")
22      ibm_db.bind_param(pstmt, 3, "lastname")
23      # ibm_db.bind_param(pstmt, 4, "123456789")
24      ibm_db.bind_param(pstmt, 4, email)
25      ibm_db.bind_param(pstmt, 5, pw)
26      print(pstmt)
27      ibm_db.execute(pstmt)
28      mg = 'You have successfully registered click login!'
29      message = Mail(
30          from_email=os.environ.get('MAIL_DEFAULT_SENDER'),
31          to_email=email,
32          subject='New SignUp',
33          html_content=f'Hello, Your Registration was successful. <br><br> Thank you for choosing us.</p>')
34
35      sg = SendGridAPIClient(
36          api_key=os.environ.get('SENDGRID_API_KEY'))
37
38      response = sg.send(message)
39      print(response.status_code, response.body)
40      return render_template("login.html", msg=mg)

```

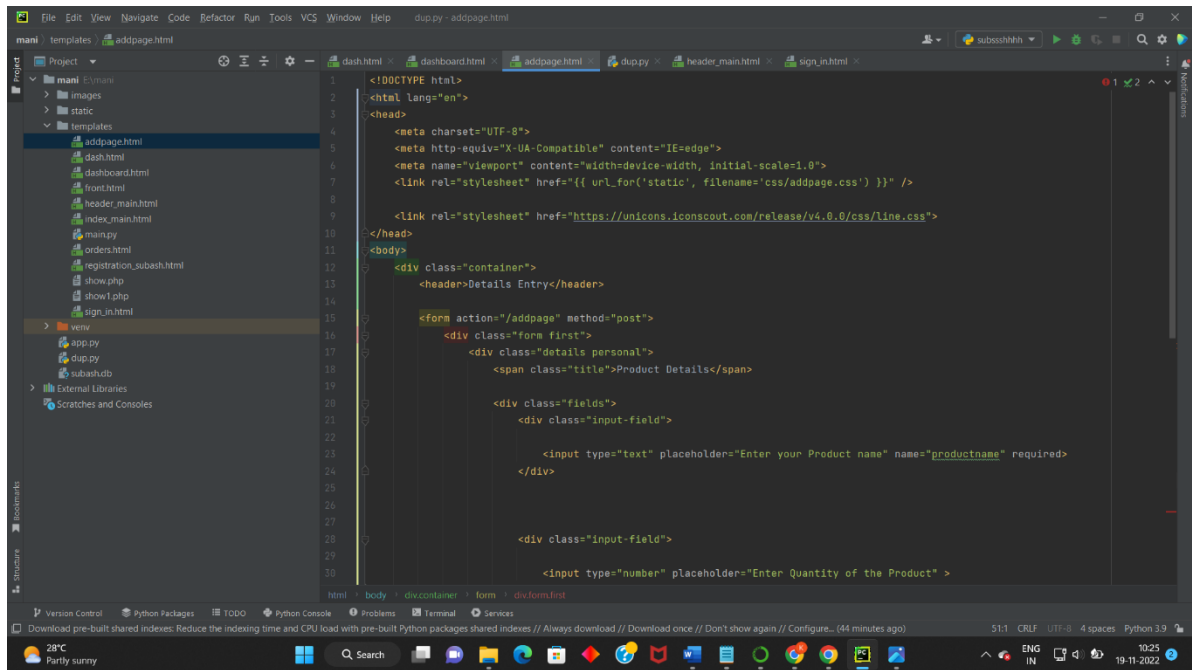


```

127  @app.route('/dashboard', methods=['POST', 'GET'])
128  @login_required
129  def dashBoard():
130      sql = "SELECT * FROM stocks"
131      stmt = ibm_db.exec_immediate(conn, sql)
132      dictionary = ibm_db.fetch_assoc(stmt)
133      stocks = []
134      headings = [dictionary]
135      while dictionary != False:
136          stocks.append(dictionary)
137          # print(f"The ID is : ", dictionary["NAME"])
138          # print(f"The name is : ", dictionary["QUANTITY"])
139          dictionary = ibm_db.fetch_assoc(stmt)
140
141      return render_template("dashboard.html", headings=headings, data=stocks)
142
143
144  @app.route('/addstocks', methods=['POST'])
145  @login_required
146  def addStocks():
147      if request.method == "POST":
148          print(request.form['item'])
149          try:
150              item = request.form['item']
151              quantity = request.form['quantity']
152              price = request.form['price']
153              total = int(price) * int(quantity)
154              insert_sql = 'INSERT INTO stocks (NAME,QUANTITY,PRICE_PER_QUANTITY,TOTAL_PRICE) VALUES (?, ?, ?, ?)'
155              pstmt = ibm_db.prepare(conn, insert_sql)
156              ibm_db.bind_param(pstmt, 1, item)

```

```
File Edit View Navigate Code Refactor Run Tools VCS Window Help duppy - sign_in.html
manali templates sign_in.html
Project
manali
External Libraries
Scratches and Consoles
dash.html dashboard.html duppy.py header_main.html sign_in.html
1
2 {% block head %}
3 <style>
4 .card{
5 border: 1px solid;
6 box-shadow: 5px 10px 18px #888888;
7 }
8 </style>
9 {% endblock %}
10 {% block body %}
11 <head>
12 <meta charset="utf-8">
13 <title>inventory</title>
14 <link rel="stylesheet" href="{{ url_for('static', filename='css/styleinven.css') }}">
15 </head>
16 <body>
17 <div class="card">
18 <h1 class="top">Login</h1>
19
20
21 <form method="POST" action="/sign_in">
22 <div class="text">
23 <input type="text" placeholder="username" name = "name" required>
24 <span></span>
25 <label>Username</label>
26 </div>
27 <div class="text">
28 <input type="password" placeholder="password" name = "password" required>
29 <span></span>
30 <label>Password</label>
31 </div>
32 </form>
33 </div>
34 </body>
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13.2 GitHub & Project Demo Link

<https://github.com/IBM-EPBL/IBM-Project-38107-1660372510>