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# Design Document

for

## Master Invoice

Version 1.0

Prepared by

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Course: CS253

Mentor TA: Hemang Mohanlal Khatri

Date: 07-02-2024

# Contents

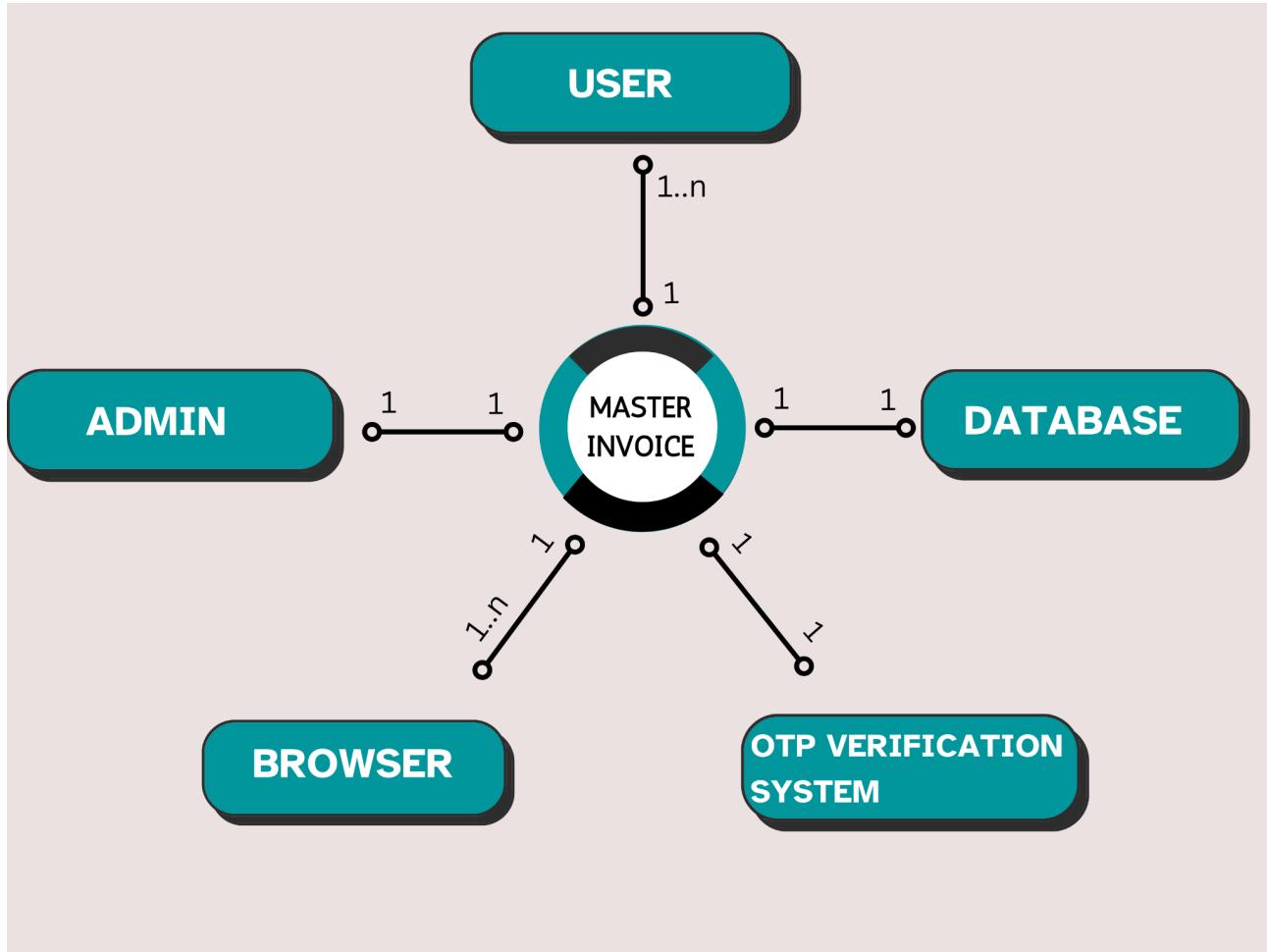
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## Revisions

Version	Primary Author(s)	Description of Version	Date Completed
v1.0	Cezan Vispi Damania Ch V Sai Koushik Challa Kethan Challa Umesh Varun Chilamakuri Kundan Sai Gudi Praneeth Sai Kishore Senthil Kumar Sai Saketh Mogillapalli Srijani Gadupudi Vundela Obula Reddy	The first version of the design document	07/02/2025

## 1 Context Design

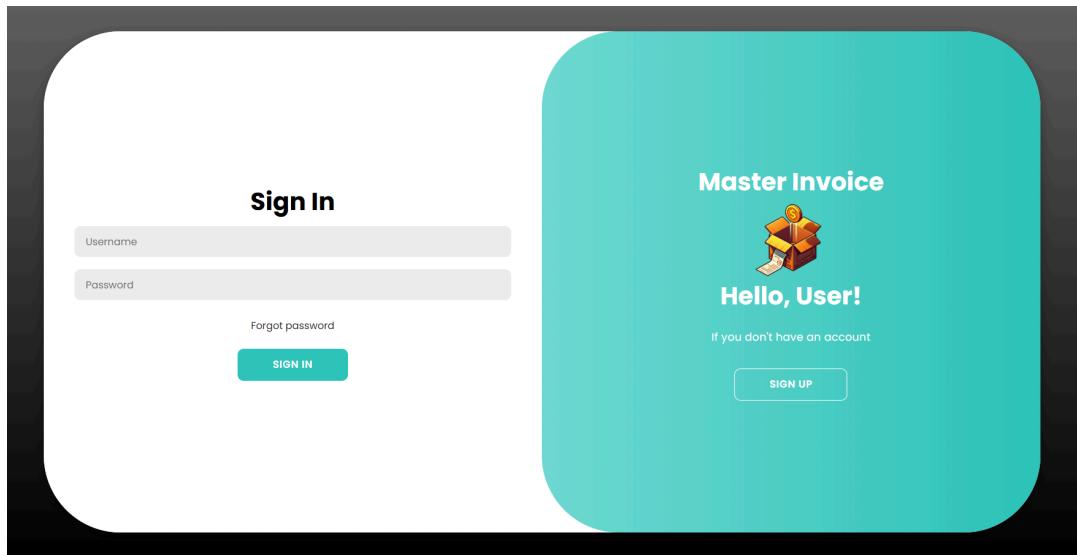
### 1.1 Context Model



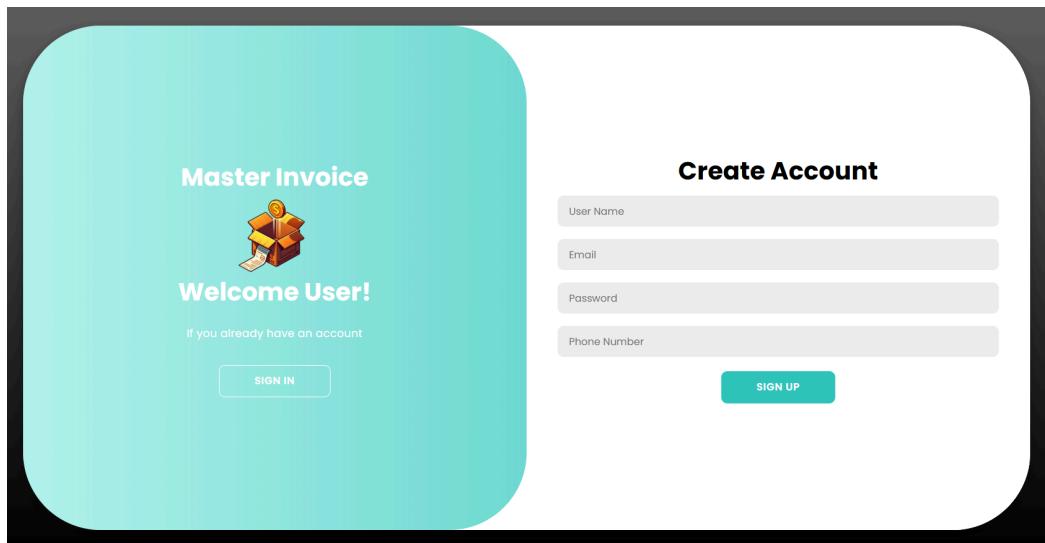
The context model of Master Invoice is shown in the diagram. The context model shows the various entities that interact with the system and the relationships between them. The entities are the user, the admin, the database, the browser, and the OTP verification system. The database stores all the system data, while OTP verification is used to verify the email address during initial account creation. The admin can access the total users of the software and their contacts while each user will have access to his database only. The mode of interaction for both the user and the admin would be through the browser.

## 1.2 Human Interface Design

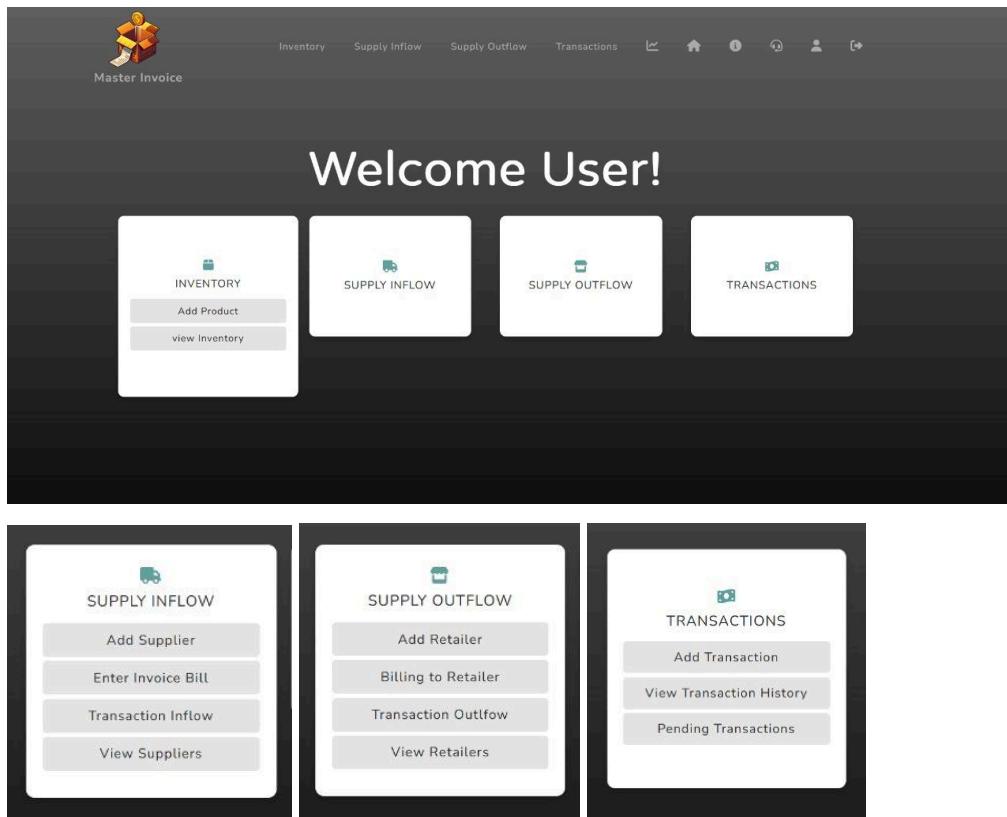
### 1.2.1 Login :



### 1.2.2 Sign Up:



### 1.2.3 Home Page:



### 1.2.4 Add Inventory :

**Add Item to Inventory**

Item Name:

Item ID:

Cost Price:

Selling Price:

MRP:

Gst in %:

Quantity:

**Add Item**   **Reset**

### 1.2.5 View Inventory :

**My Inventory**

Search:  Search

Item Name	Item ID	Cost Price	Selling Price	MRP	Quantity	Edit
Santoor Soap, 100g	#12012006	₹20.00	₹27.00	₹30.00	150	
Reynolds Trimax Gold	#02012006	₹6.00	₹8.50	₹10.00	300	
Boost 17g	#02022003	₹3.00	₹4.20	₹5.00	500	
Boost 500g	#23344657	₹147.00	₹180.00	₹200.00	200	
Comfort 260ml	#20244048	₹210.00	₹230.00	₹240.00	400	
Sting 250ml	#12062005	₹14.00	₹17.00	₹20.00	600	
Pepsi 500ml	#12062006	₹25.00	₹32.00	₹40.00	500	
Cement Bag	#12062007	₹350.00	₹400.00	₹500.00	20	

### 1.2.6 Add New Supplier/Retailer:

**Add New Supplier**

Firm Name:   
Person Name:   
Phone Number:   
Email:   
Address:

**Add Supplier** **Reset**

**Add New Retailer**

Firm Name:   
Person Name:   
Phone Number:   
Email:   
Address:

**Save Retailer** **Reset**

## 1.2.7 View Suppliers/Retailers List:

**My Suppliers**

Search: Search Supplier with Name, Firm or Address

Retailer Name	Firm Name	Phone Number	Email	Address	Credit	Edit
Aditi	Godrej	9876543210	aditi_123@gmail.com	Gomti Nagar, Lucknow, Uttar Pradesh - 226010	12000/-	<input checked="" type="checkbox"/>
Bhavesh	Bajaj Steel Industries	8765432190	bhavesh_kumar@gmail.com	Civil Lines, Allahabad, Uttar Pradesh - 211001	15000/-	<input checked="" type="checkbox"/>
Chirag	Nikamal Limited	7654321980	chirag.official@gmail.com	Raj Nagar, Ghaziabad, Uttar Pradesh - 201002	17000/-	<input checked="" type="checkbox"/>
Devika	Volta Material Handling	6543219870	devika_mehta@gmail.com	Sector 18, Noida, Uttar Pradesh - 201301	14000/-	<input checked="" type="checkbox"/>
Ekansh	Action Construction Equipment	5432198760	ekansh.raj@gmail.com	Hazratganj, Lucknow, Uttar Pradesh - 226001	13000/-	<input checked="" type="checkbox"/>
Farhan	JCB India	4321987650	farhan.shaikh@gmail.com	Sector 62, Noida, Uttar Pradesh - 201309	16000/-	<input checked="" type="checkbox"/>
Garima	Wipro Enterprises	3219876540	garima.kapoor@gmail.com	Indira Nagar, Lucknow, Uttar Pradesh - 226016	11000/-	<input checked="" type="checkbox"/>
Harsh	Blue Dart Express	2109876540	harsh.verma@gmail.com	Kavi Nagar, Ghaziabad, Uttar Pradesh - 201002	20000/-	<input checked="" type="checkbox"/>

**My Retailers**

Search: Search Retailer with Name, Firm or Address

Retailer Name	Firm Name	Phone Number	Email	Address	Credit	Edit
Anjani	Reliance Fresh	9876543210	anjani_retailer@gmail.com	Sector 18, Noida, Uttar Pradesh - 201301	8000/-	<input checked="" type="checkbox"/>
Bhavana	Sri Venkateswara Retailers	8765432198	bhavana.svr@gmail.com	Gomti Nagar, Lucknow, Uttar Pradesh - 226010	9500/-	<input checked="" type="checkbox"/>
Chirag	More Supermarket	7654321987	chirag_more@gmail.com	Civil Lines, Kanpur, Uttar Pradesh - 208001	8500/-	<input checked="" type="checkbox"/>
Deepika	DMart	6543219876	deepika_dmart@gmail.com	Rajajipuram, Lucknow, Uttar Pradesh - 226017	10000/-	<input checked="" type="checkbox"/>
Ekansh	Vishal Mega Mart	5432198765	ekansh_vishal@gmail.com	Aligarh Road, Mathura, Uttar Pradesh - 281001	9000/-	<input checked="" type="checkbox"/>
Farhan	Spencer's Retail	4321987654	farhan_spencers@gmail.com	MG Marg, Allahabad, Uttar Pradesh - 211001	8700/-	<input checked="" type="checkbox"/>
Garima	Big Bazaar	3219876543	garima_bbazaar@gmail.com	Chowk, Varanasi, Uttar Pradesh - 221001	10500/-	<input checked="" type="checkbox"/>
Harsh	Shoppers Stop	2109876542	harsh_stop@gmail.com	Charbagh, Lucknow, Uttar Pradesh - 226004	11000/-	<input checked="" type="checkbox"/>

## 1.2.8 Generate Invoice Bill:

**ShopRocket**

Billed To: Sri Venkateswara Retailers

Bill Number: 00001  
Date of Issue: 22/01/2025

Item Name	Unit Cost	Quantity	Amount
Semtex Soap, 100g	₹30.00	50	₹1500.00
Reynolds Trimax Gold	₹99.00	100	₹9900.00

**Add Item**

Subtotal: ₹11400.00  
Discount: ₹400.00  
Tax Rate: 0%  
Tax: ₹0.00  
Bill Total: ₹11000.00

**Terms:**  
Please pay invoice by 28/01/2025  
Authorized by: S. Kumar, ShopRocket

**Payment Options:**  
Cardless Bill | General Way Bill

## 1.2.9 View Supplier/Retailer Invoice Bills History:

The image contains two screenshots of the 'Master Invoice' application interface, both titled 'Supplier Invoice Bills' and 'Retailer Invoice Bills' respectively.

**Supplier Invoice Bills (Top Screenshot):**

Supplier Name	Supplier's Bill Number	Date	Total Amount	Number of items	View
ABC Industries Pvt Ltd.	#135724680	27/01/2025	₹1,50,000.00	150	
while(1) Automobiles	#135724681	27/01/2025	₹3,00,000.00	300	
Boost	#135724682	28/01/2025	₹10,000.00	500	
123 Supplies and Co.	#135724683	28/01/2025	₹500.00	20	
Wettle Brothers	#135724684	28/01/2025	₹8000.00	40	
Coca Cola	#135724685	28/01/2025	₹5,200.00	65	
Pepsi	#135724686	29/01/2025	₹1,350.00	15	
Nescafe	#135724687	29/01/2025	₹400.00	20	

**Retailer Invoice Bills (Bottom Screenshot):**

Retailer Name	Bill Number	Date	Total Amount	Number of items	View
FreshMart Supermarket	#246810121	01/02/2025	₹1,75,000.00	175	
City Grocers	#246810122	01/02/2025	₹2,50,00,000.00	250	
Green Basket	#246810123	02/02/2025	₹15,000.00	600	
Budget Bazaar	#246810124	02/02/2025	₹800.00	25	
Daily Needs Store	#246810125	02/02/2025	₹10,500.00	45	
Corner Grocery	#246810126	03/02/2025	₹6,300.00	70	
Super Save Mart	#246810127	04/02/2025	₹2,000.00	20	
Everyday Essentials	#246810128	04/02/2025	₹600.00	30	

## 1.2.10 Transactions:

The screenshot shows the 'ShopRocket' transaction payment screen. At the top, it displays the date as 'Transaction Date: 14 / 02 / 2025' with a calendar icon. Below this is a table showing payments made to different firms:

Firm Name	Supplier Name	Amount Paid	Remarks
Godrej	Aditi	₹5000.00	Paid the amount via UPI
Volta Material Handling	Devika	₹10000.00	Paid the amount via Cash

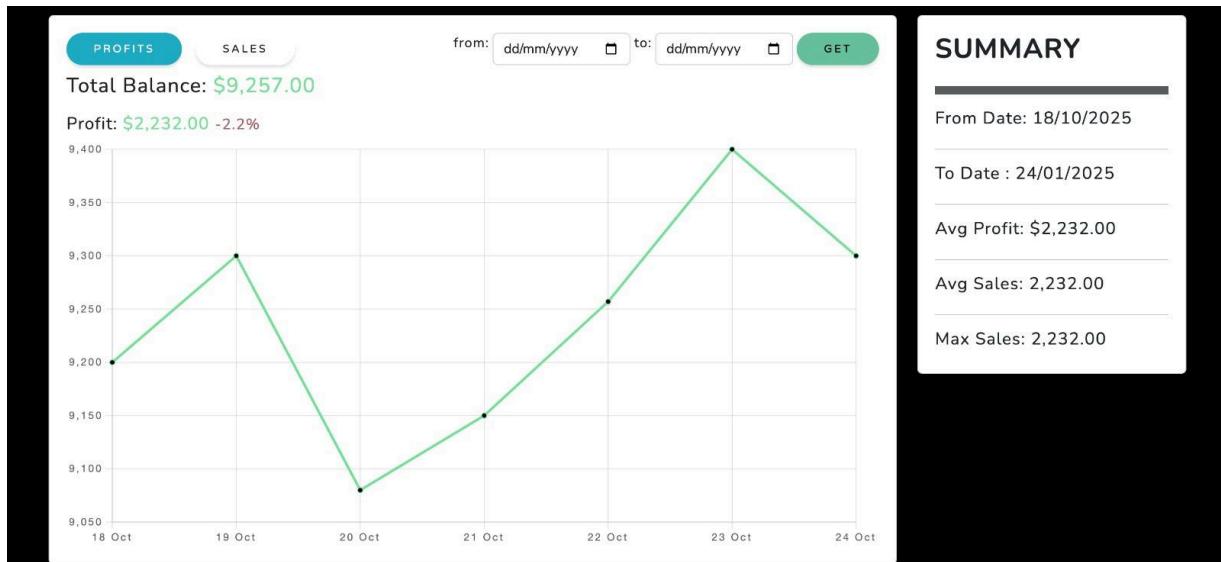
Below the table are two buttons: 'Add Payment' and 'Update'.

## 1.2.11 Pending Transactions:

The screenshot shows a user interface for managing pending transactions. At the top, there is a navigation bar with icons for inventory, supply inflow, supply outflow, transactions, analysis, home, profile, and log out. Below the navigation bar, there is a title "Master Invoice" and a section header "Pending". Under "Pending", there are two tabs: "Retailers" (selected) and "Suppliers". A table lists the following data:

Retailer Name	Firm	Debit	Last Transaction
Noha	Big Bazaar	₹30000.00	18/06/2024
Omkar	DMart	₹40000.00	19/06/2024
Pranav	More Supermarket	₹40000.00	20/06/2024
Qasim	Metro Cash & Carry	₹30000.00	21/06/2024
Rahul	Reliance Fresh	₹50000.00	22/06/2024

## 1.2.12 Analysis :



**PROFITS** **SALES**

Total Balance: \$9,257.00

Sales: \$2,846.00 -2.2%

From: dd/mm/yyyy to: dd/mm/yyyy GET

**SUMMARY**

---

From Date: 18/10/2025

To Date : 24/01/2025

Avg Profit: \$2,232.00

Avg Sales: 2,232.00

Max Sales: 2,232.00

**Sales Statistic**  
\$862.56 (+40.8%)

**Exchange Offer**  
\$291.20 (+9.5%)

**Top RETAILERS** **SUPPLIERS**  
Total: 124 (+9.5%)

**Sales Per Product**

Product Name	Price	Total Sales	Avg Sales	Net Profit
Bitcoin	\$31,073.31	700	100	\$16,632,960,820
Ethereum	\$5,073.31	350	50	\$16,397,543
Bitcoin	\$31,073.31	700	100	\$16,632,960,820
Bitcoin	\$31,073.31	700	100	\$16,632,960,820
Bitcoin	\$31,073.31	700	100	\$16,632,960,820

[VIEW MORE](#)

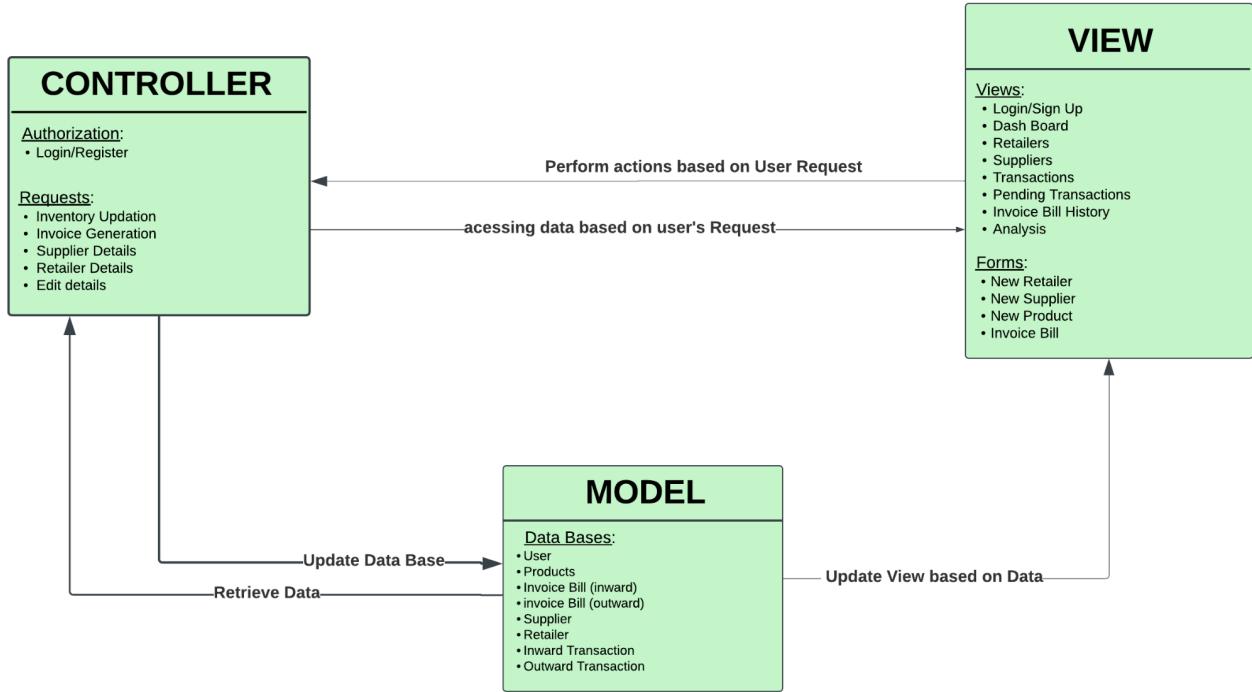
**Product Sales Overview**

SEARCH

Product Name	Price	Total Sales	Avg Sales	Net Profit
Town	\$25,304.11	528	19	\$668,028.50
About	\$30,491.81	340	68	\$518,360.77
Position	\$28,913.92	249	22	\$359,978.30
Win	\$38,387.92	687	100	\$1,318,625.05
Language	\$25,228.49	481	44	\$606,745.18
Coach	\$41,367.73	962	90	\$1,989,787.81
Thought	\$49,873.07	228	30	\$568,553.00
Million	\$19,342.10	761	91	\$735,966.91
Current	\$3,822.87	821	28	\$156,928.81
Movie	\$46,575.05	446	28	\$1,038,623.62
Factor	\$40,199.06	894	74	\$1,796,897.98

## 2 Architecture Design

The overall architecture of our website follows the Model-View-Controller model.



### MODEL VIEW CONTROLLER :

The Model View Controller Architecture is a robust framework that carries out various operations related to invoice management, inventory tracking, credit and debit history, and comprehensive reporting.

It separates an application into three main logical components: the model, the view, and the controller. Each of these components is built to handle specific development aspects of an application.

### MODEL :

- The Model in our Inventory is responsible for managing the database using the Django SQLite3 database management system. It manages tasks related to invoice generation, inventory management, supply and retail chain management, credit and debit history, and analysis of the whole business.
- The Model receives information about the flow and outflow of stock, details of supplier and retailer, and various data interactions from the Controller. It provides updates regarding inventory, transactions, and supplier and retailer profiles back to the Controller. Additionally, it interacts with the View to receive information about the requests of the user.

### VIEW :

- The View component defines the user interface for our billing software, incorporating HTML, CSS, and JavaScript. It handles the presentation layer, showcasing features like inventory status, credit and debit history, supplier and retailer details, invoices, and analysis of whole transactions.
- The view will act like the presentation layer of the web application as it will provide an interface to interact with which will be connected to the controller and model to fulfill the functionality.

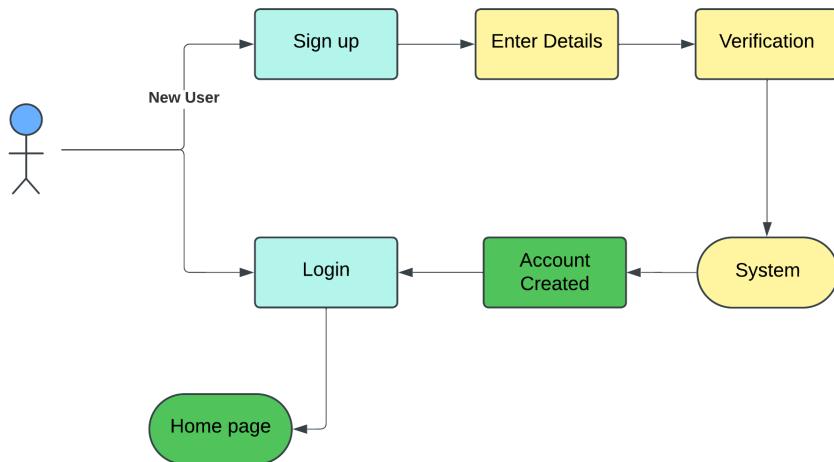
**CONTROLLER :**

- It acts as an intermediate between Model and View. It utilizes Django and Python to manage the application logic and flow. The Controller receives data regarding user interactions from the View and sends relevant information to the Model for database operations.
- The controller acts like a logical segment between view and model, it determines processes and determines the flow of the data. It ensures that changes in the View or Model do not directly affect each other.

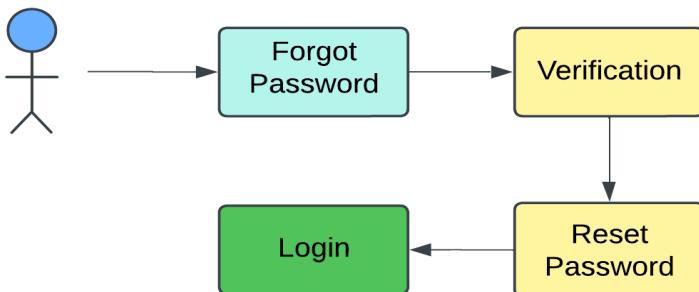
## 3 Object Oriented Design

### 3.1 Use Case Diagrams

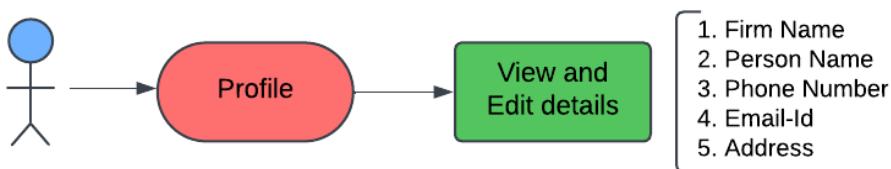
#### 3.1.1 Signup/Login



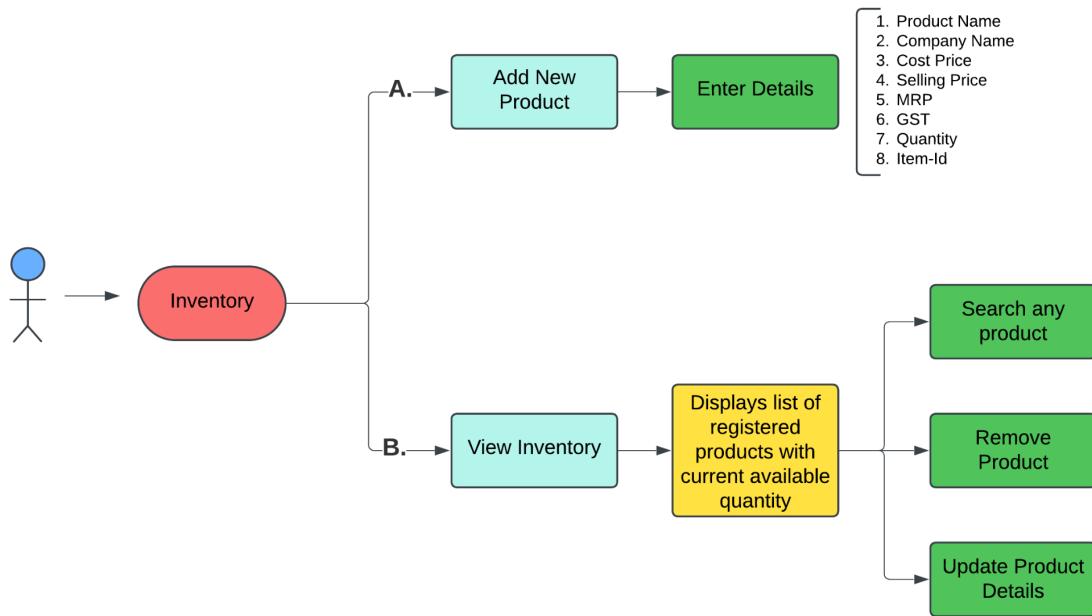
#### 3.1.2 Forgot Password



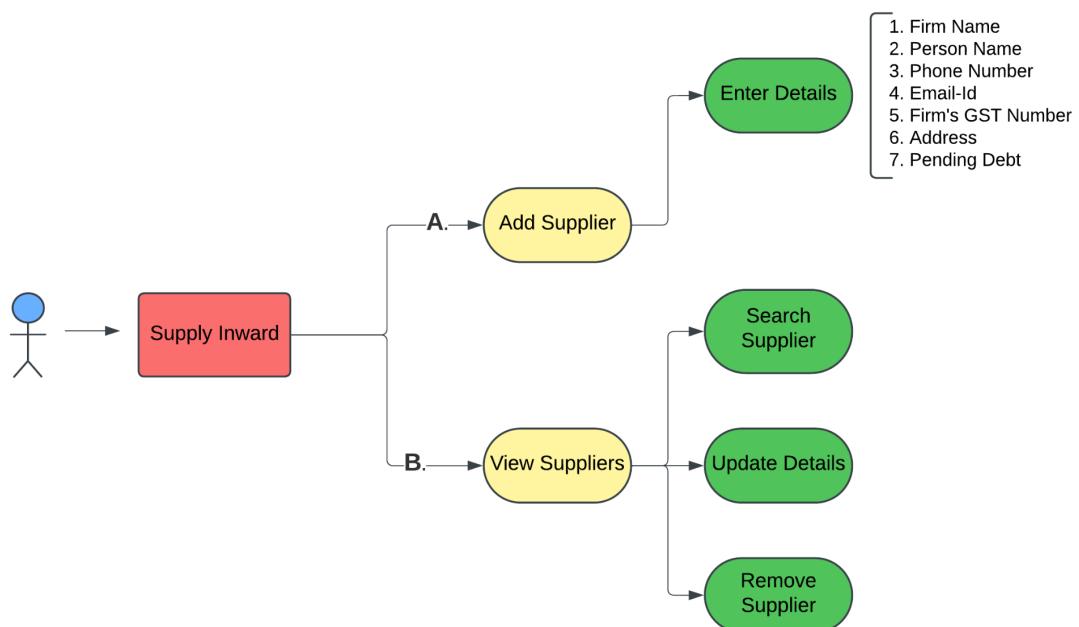
#### 3.1.3 Profile



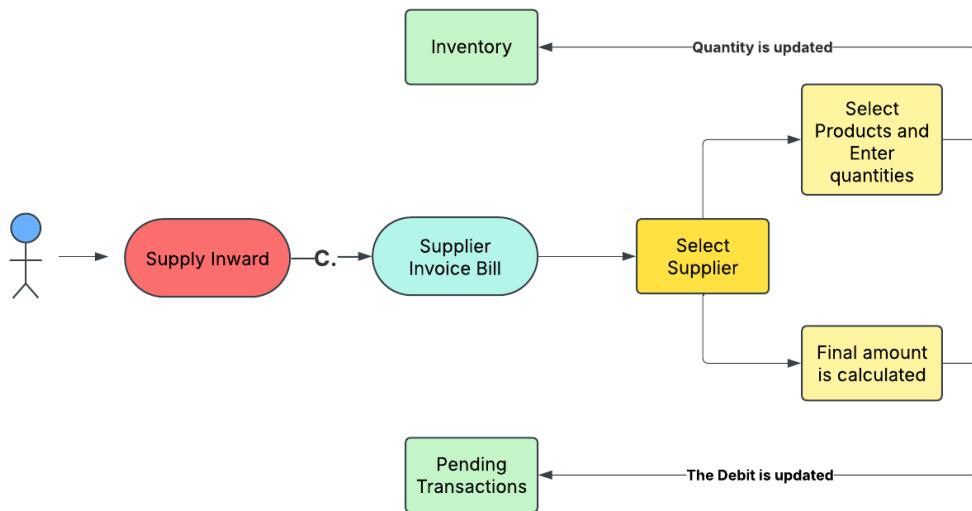
### 3.1.4 Inventory



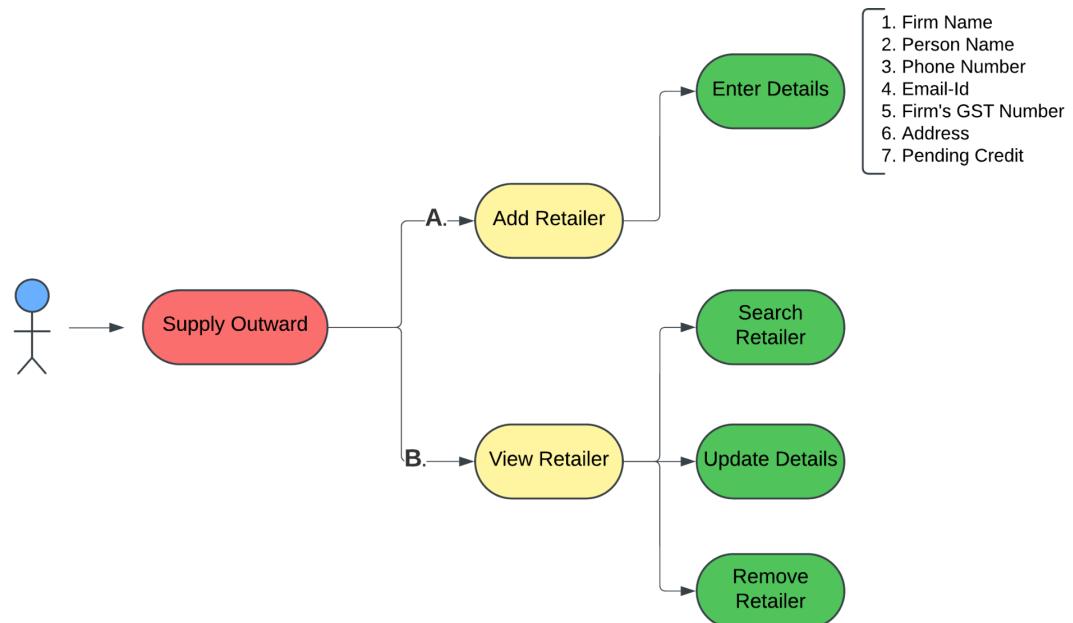
### 3.1.5 Suppliers



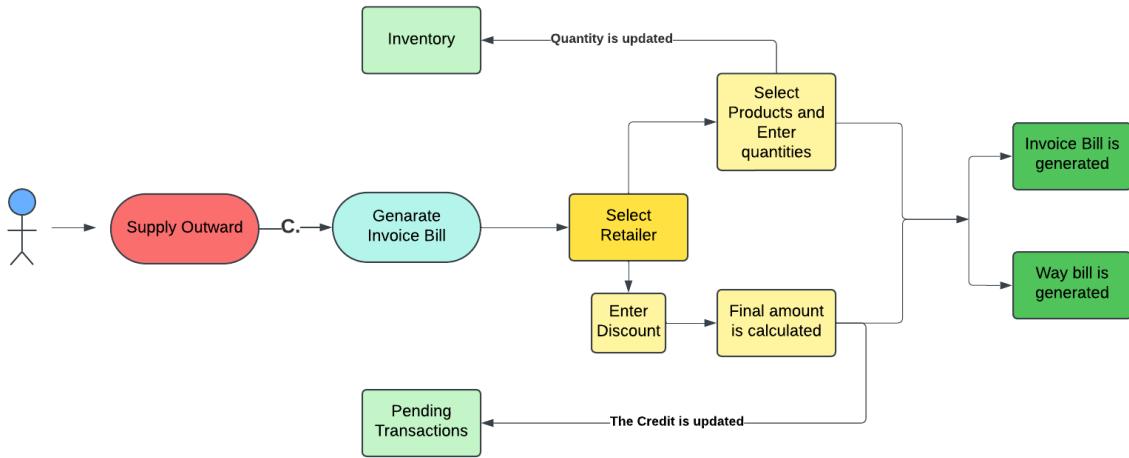
### 3.1.6 Supplier's Invoice Bill



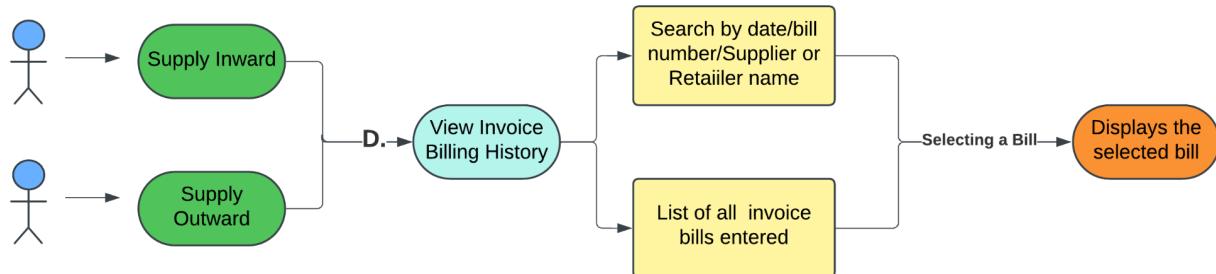
### 3.1.7 Retailers



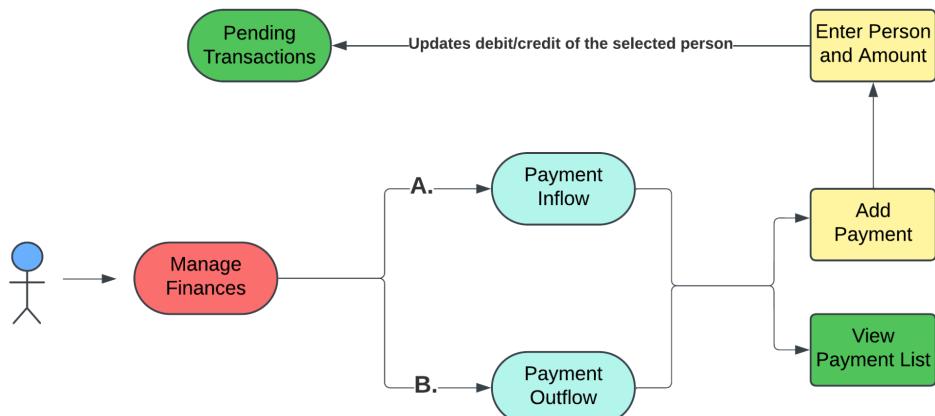
### 3.1.8 Retailer's Invoice Bill



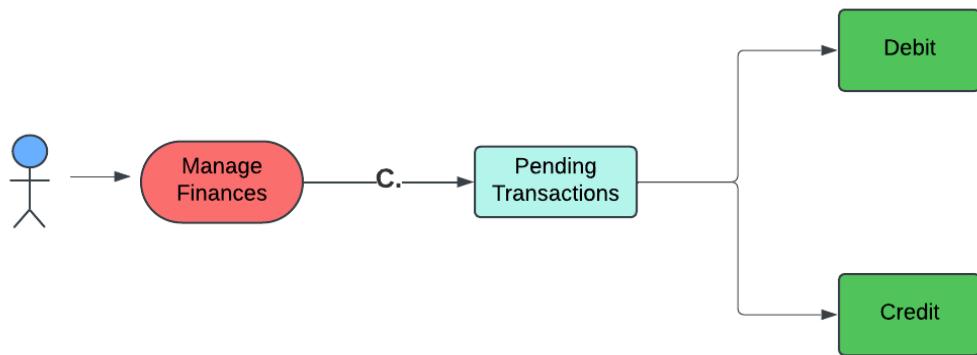
### 3.1.9 Invoice Billing History



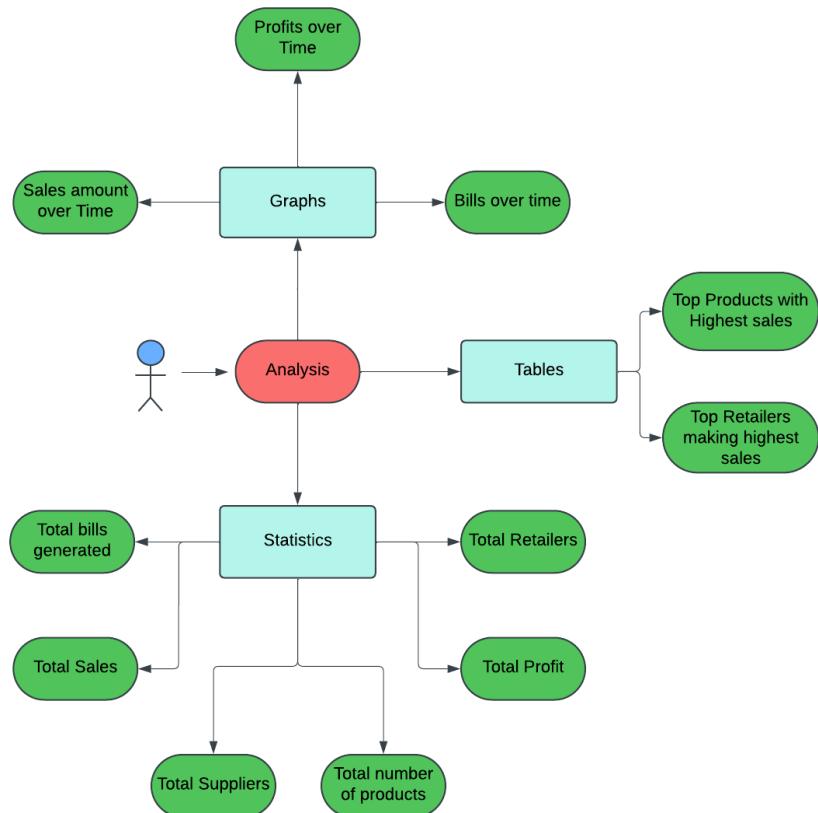
### 3.1.10 Transactions



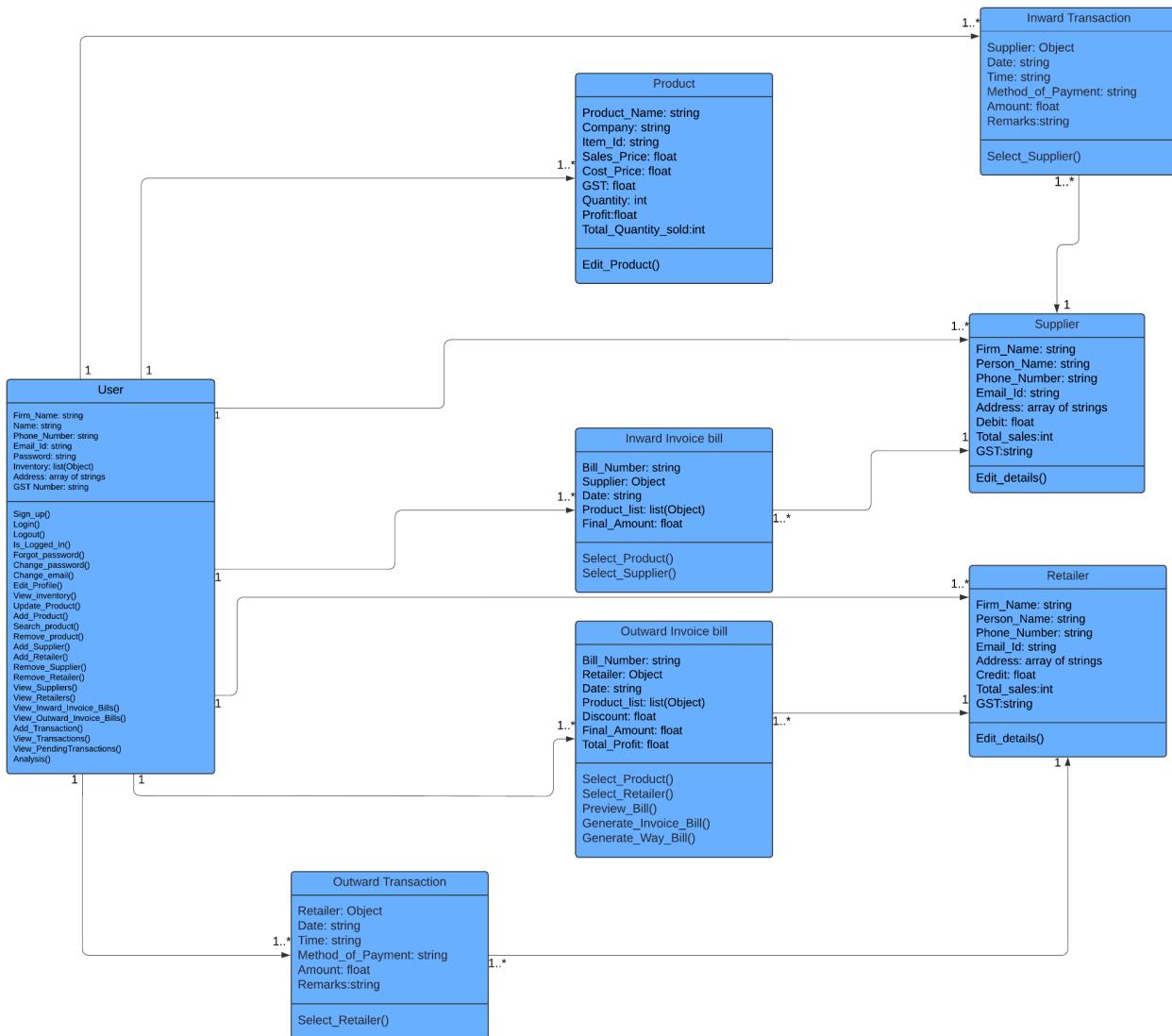
### 3.1.11 Pending Transactions



### 3.1.12 Analysis



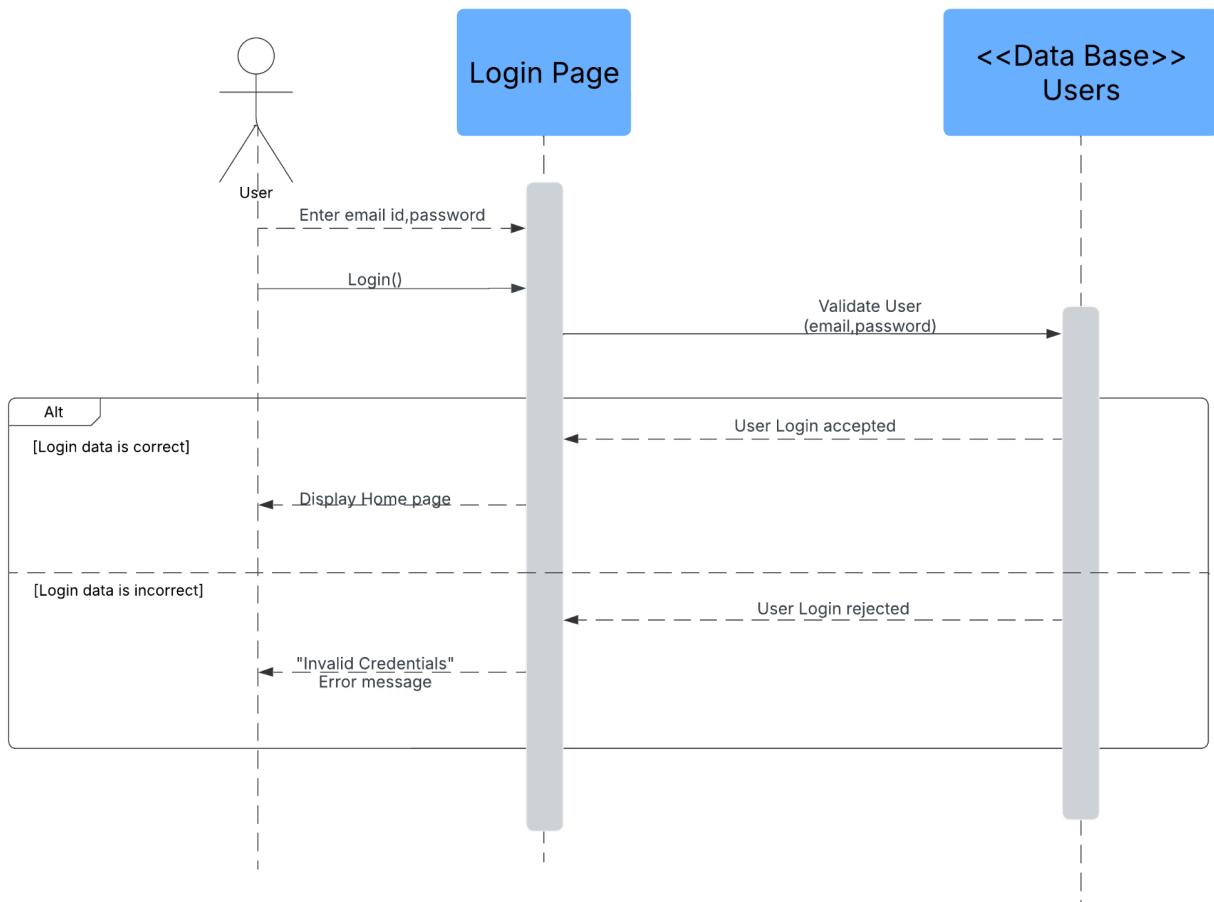
## 3.2 Class Diagram



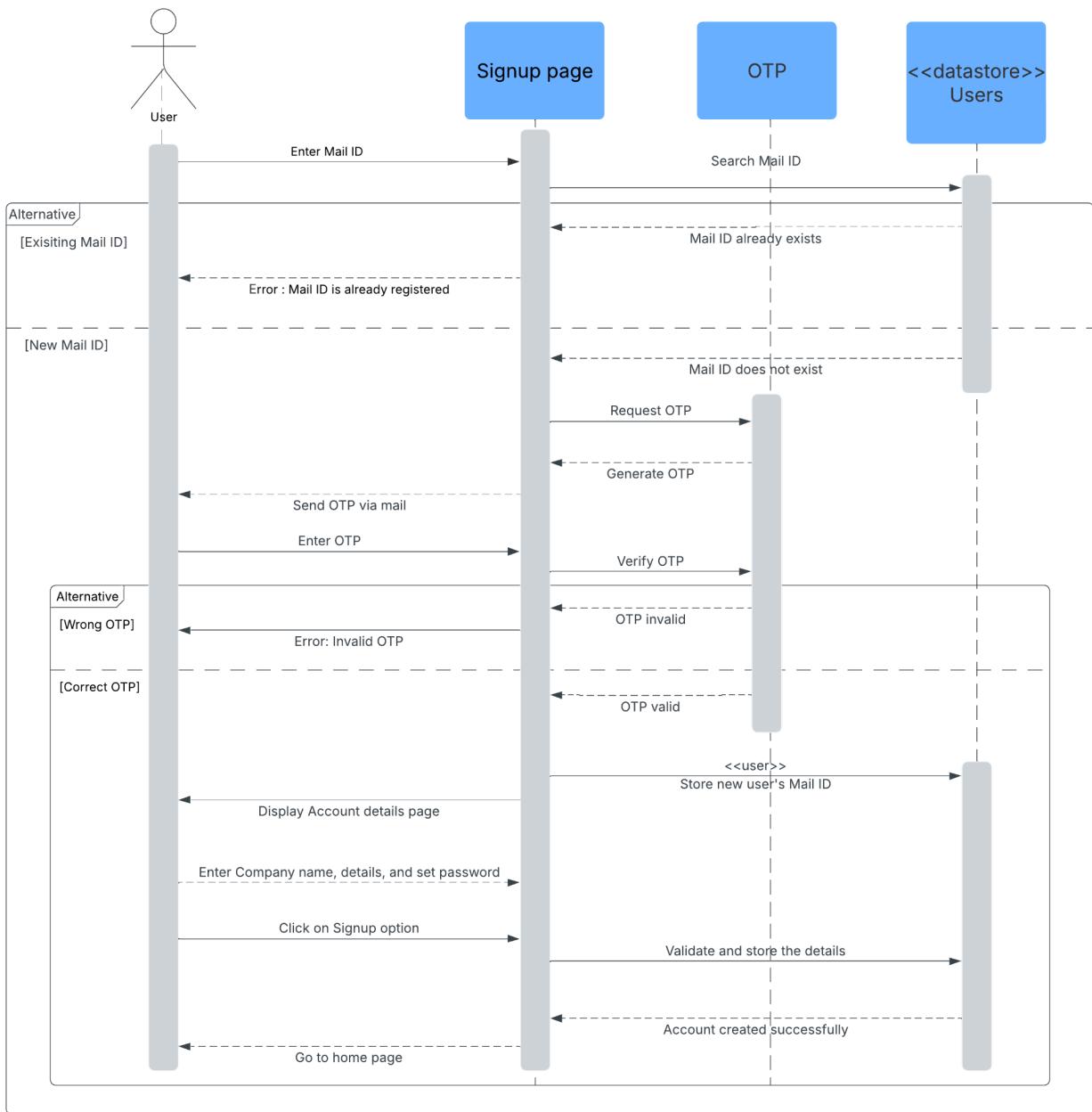
### 3.3 Sequence Diagrams

Symbol	Meaning
Arrow (solid line)	The sender of the message waits for an acknowledgement from the receiver
Arrow (dashed line)	The sender of the message does not wait for a reply
<<datastore>>	Indicates a database
abc : xyz	'abc' is an object of class 'xyz'
<< a >>	Creation of object 'a'
Cross mark	Destruction of an object
Vertical dashed line	Lifeline symbol (Time increases down the line, hence, an interaction occurs after the interaction above it.)
Alt	Alternative (Exactly one of the two possibilities occurs)
Loop	Indicates a set of interactions that occur repeatedly

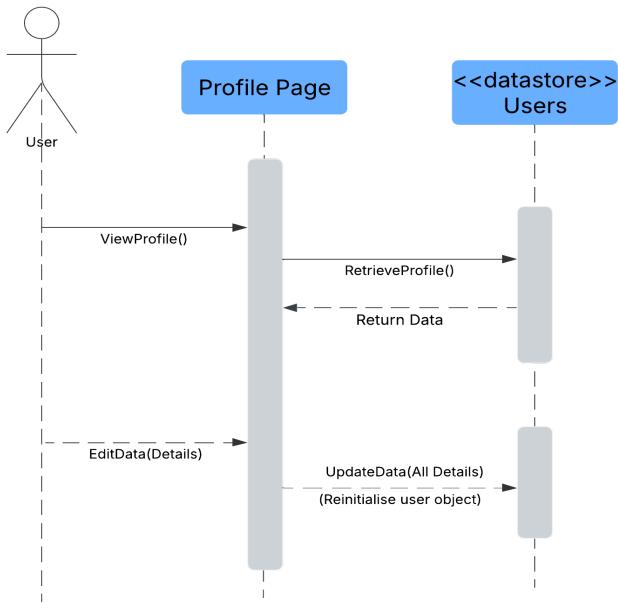
#### 3.3.1 Login:



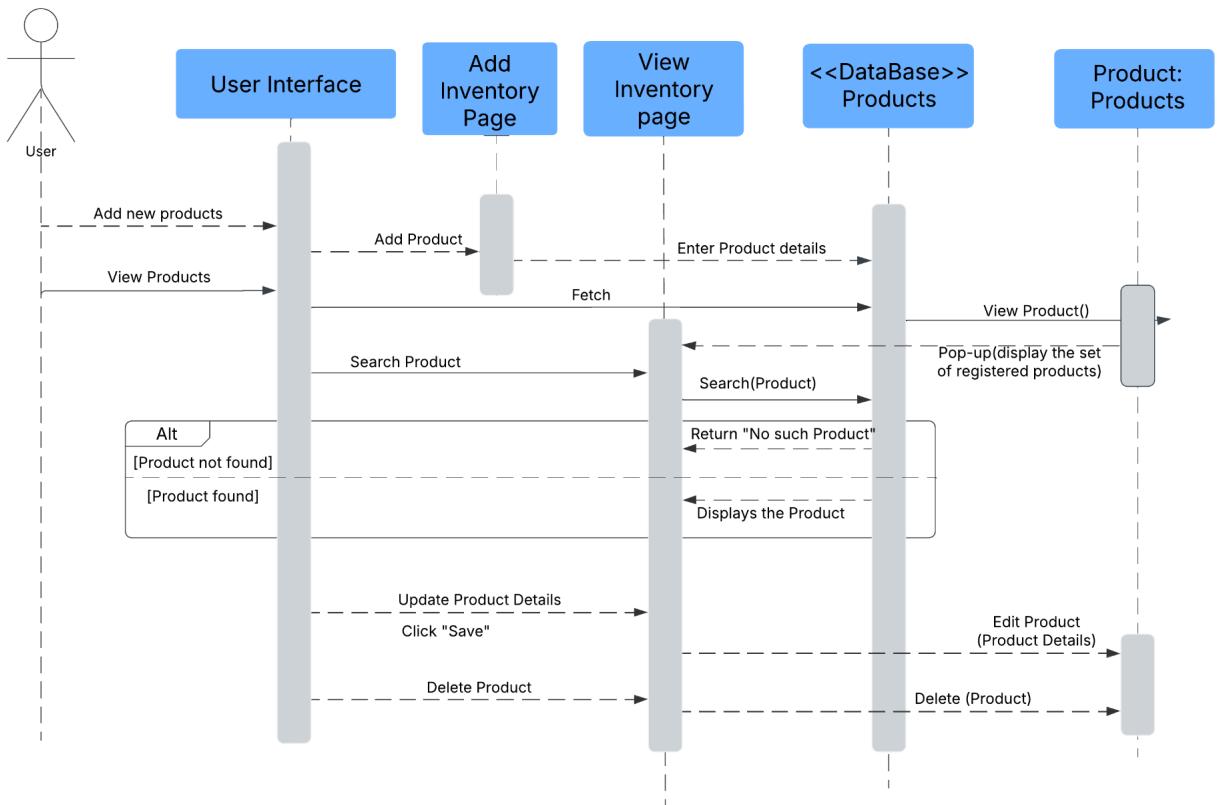
### 3.3.2 Signup:



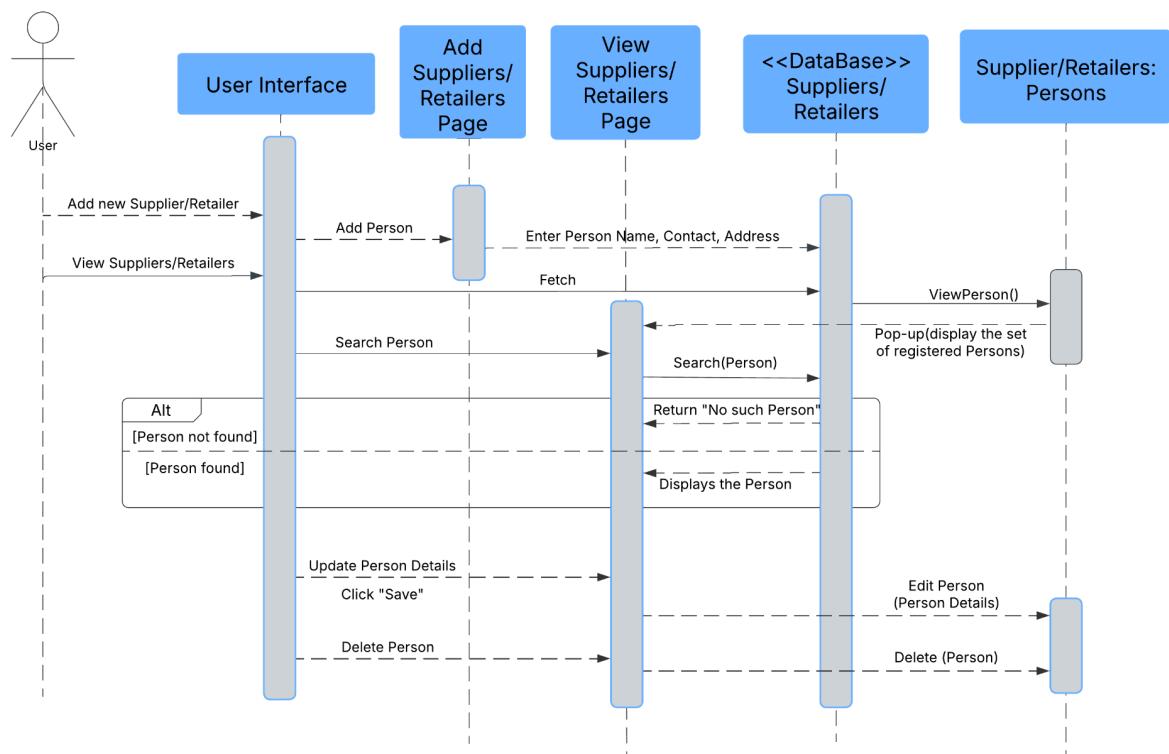
### 3.3.3 Profile:



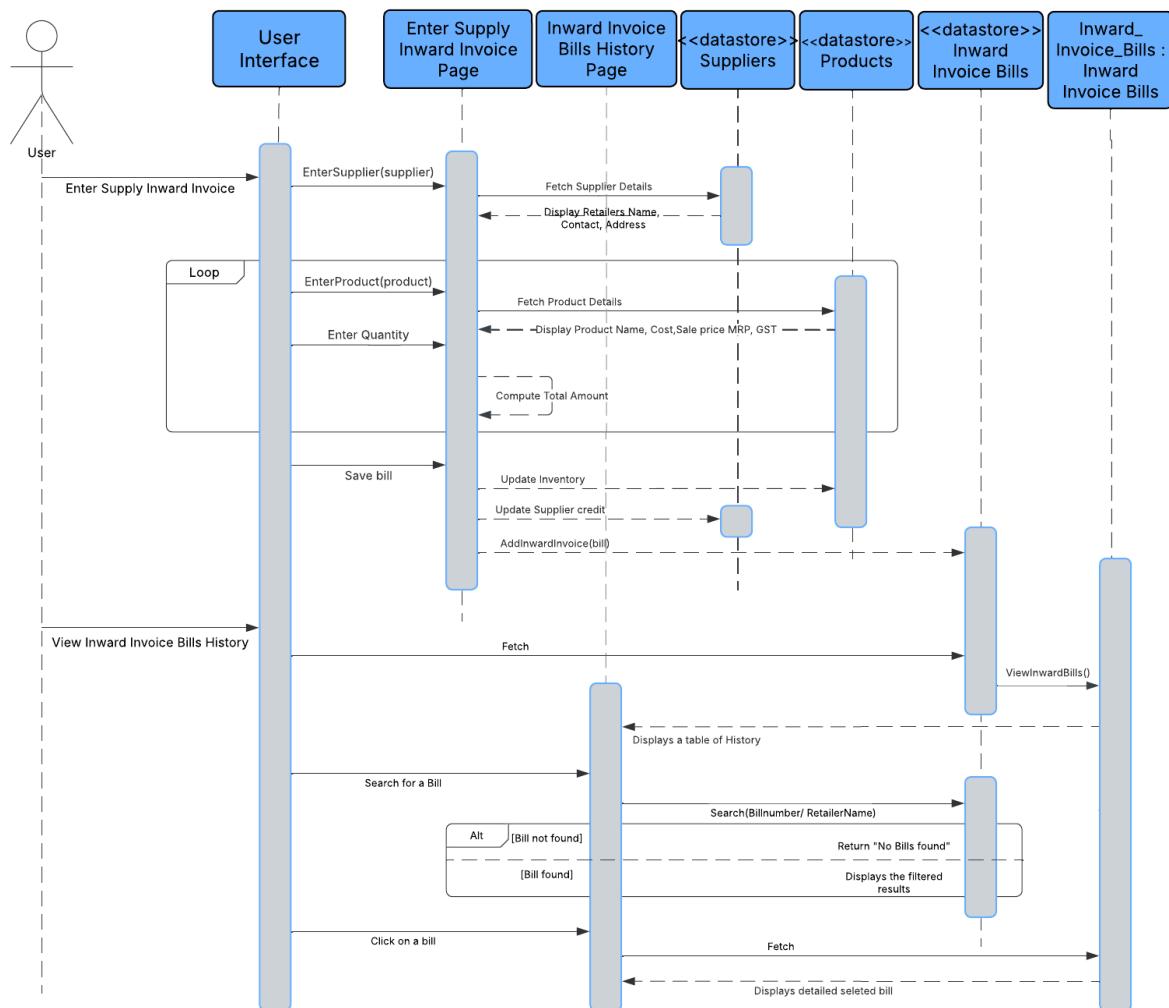
### 3.3.4 Inventory:



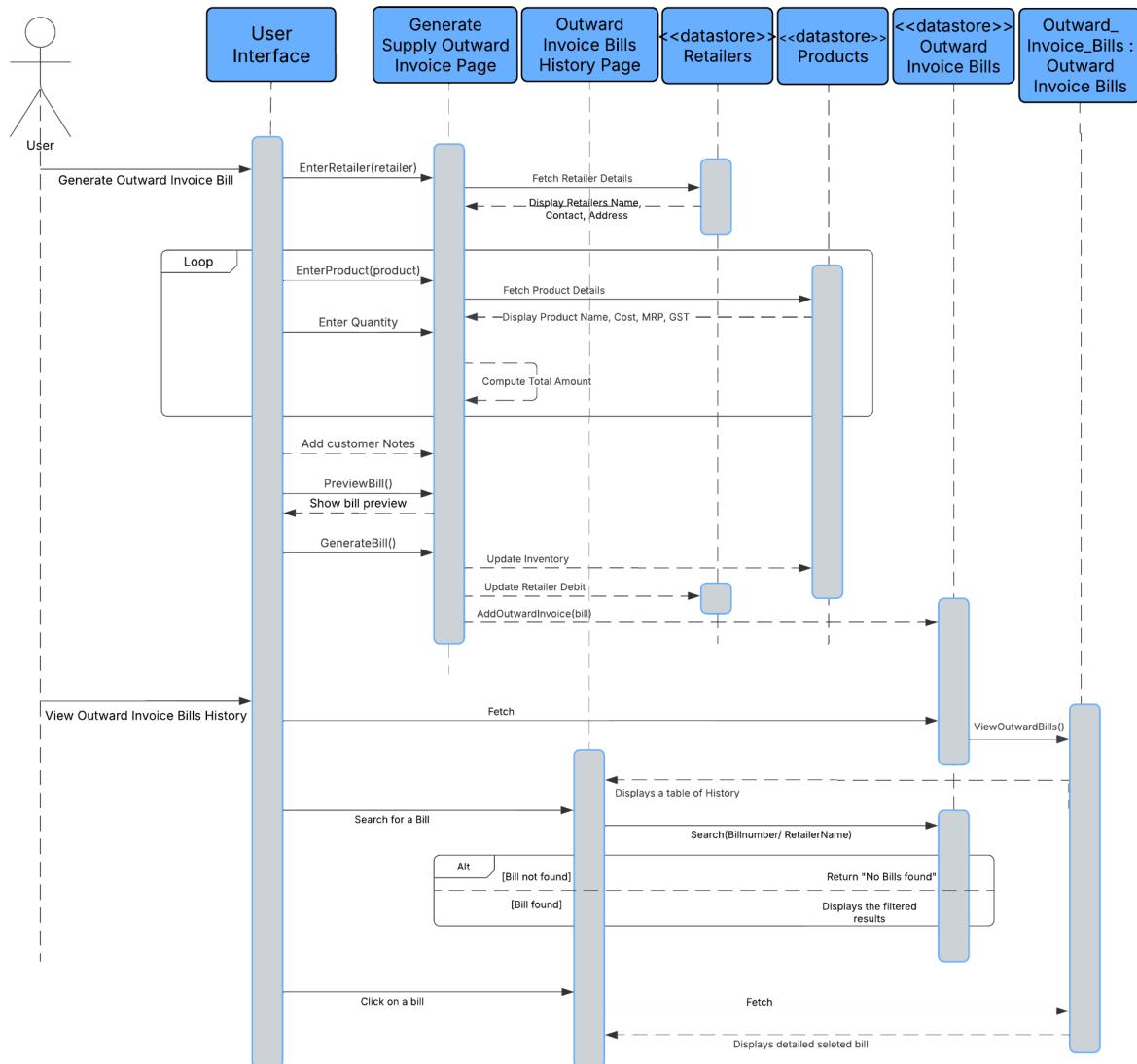
### 3.3.5 Supplier/Retailer:



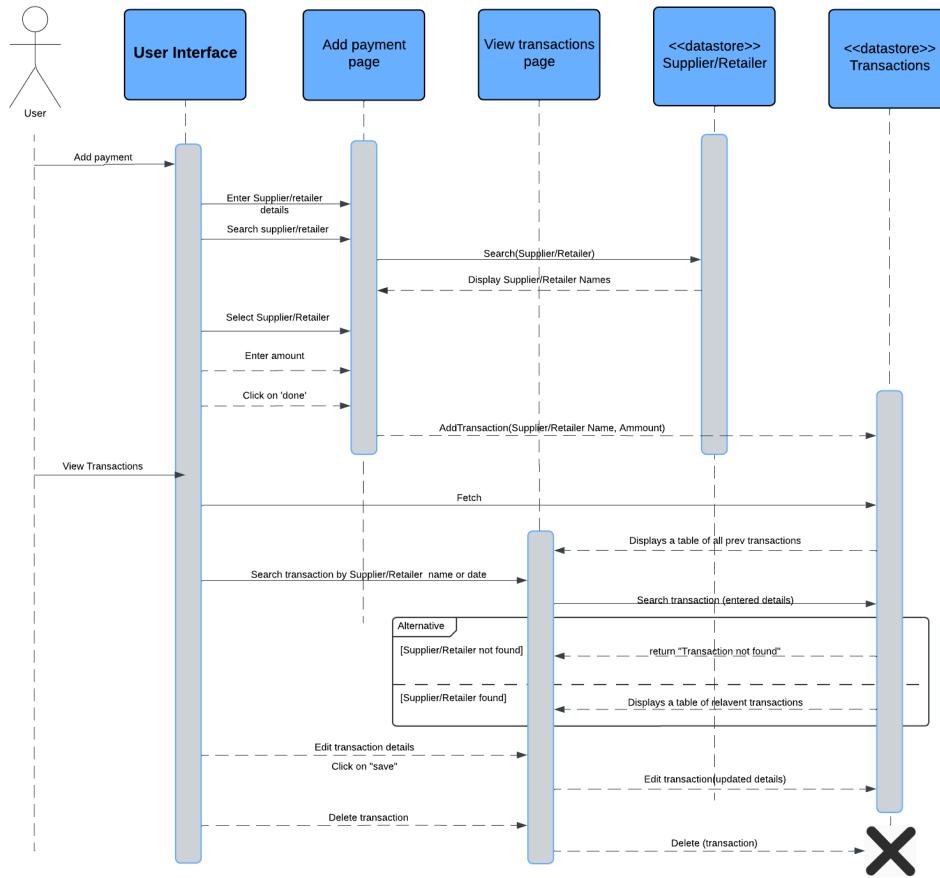
### 3.3.6 Inward Invoice Bill:



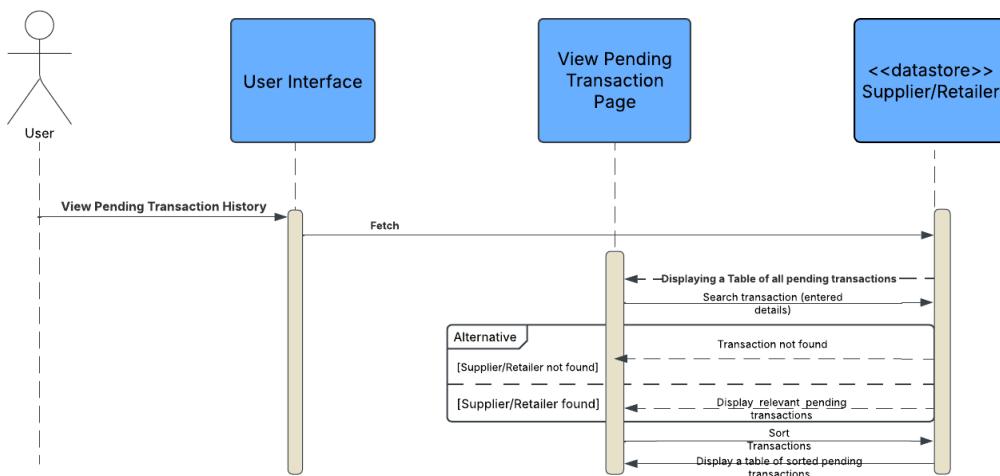
### 3.3.7 Outward Invoice Bill:



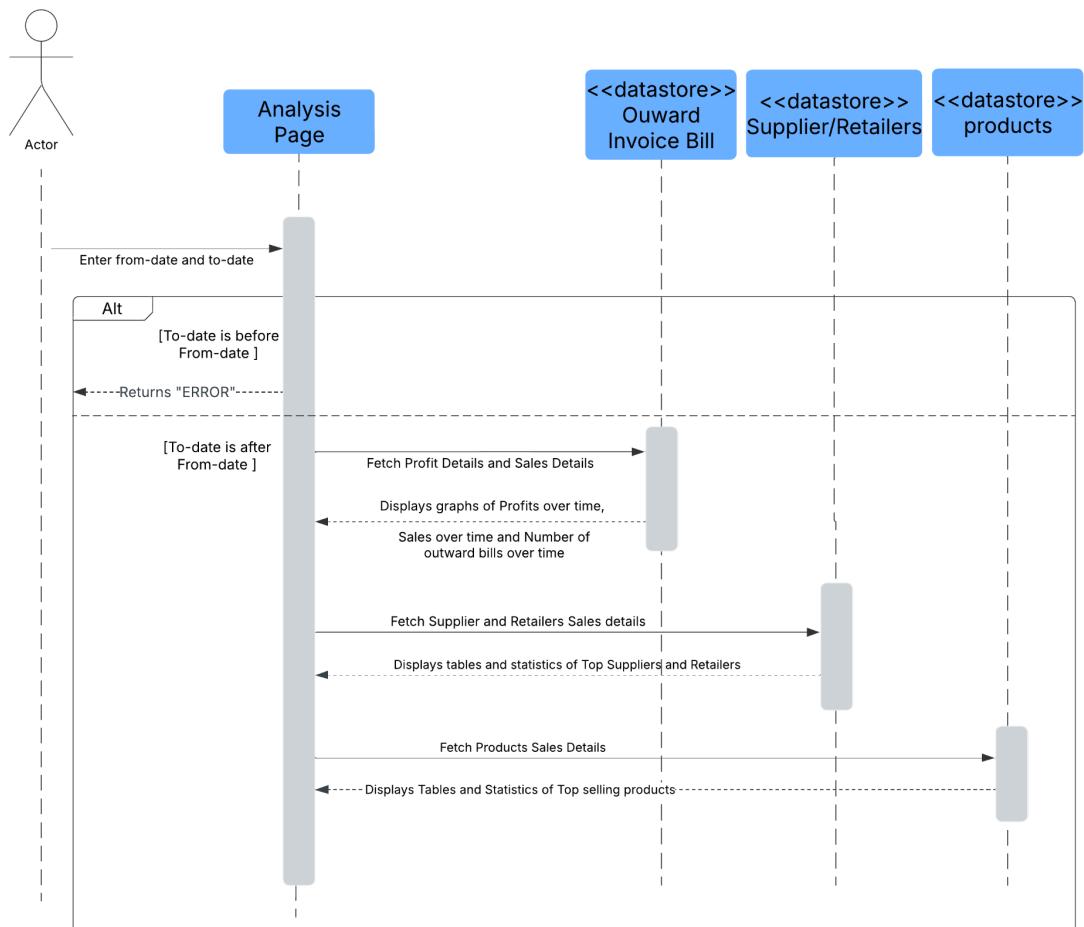
### 3.3.8 Transactions:



### 3.3.9 Pending Transactions:

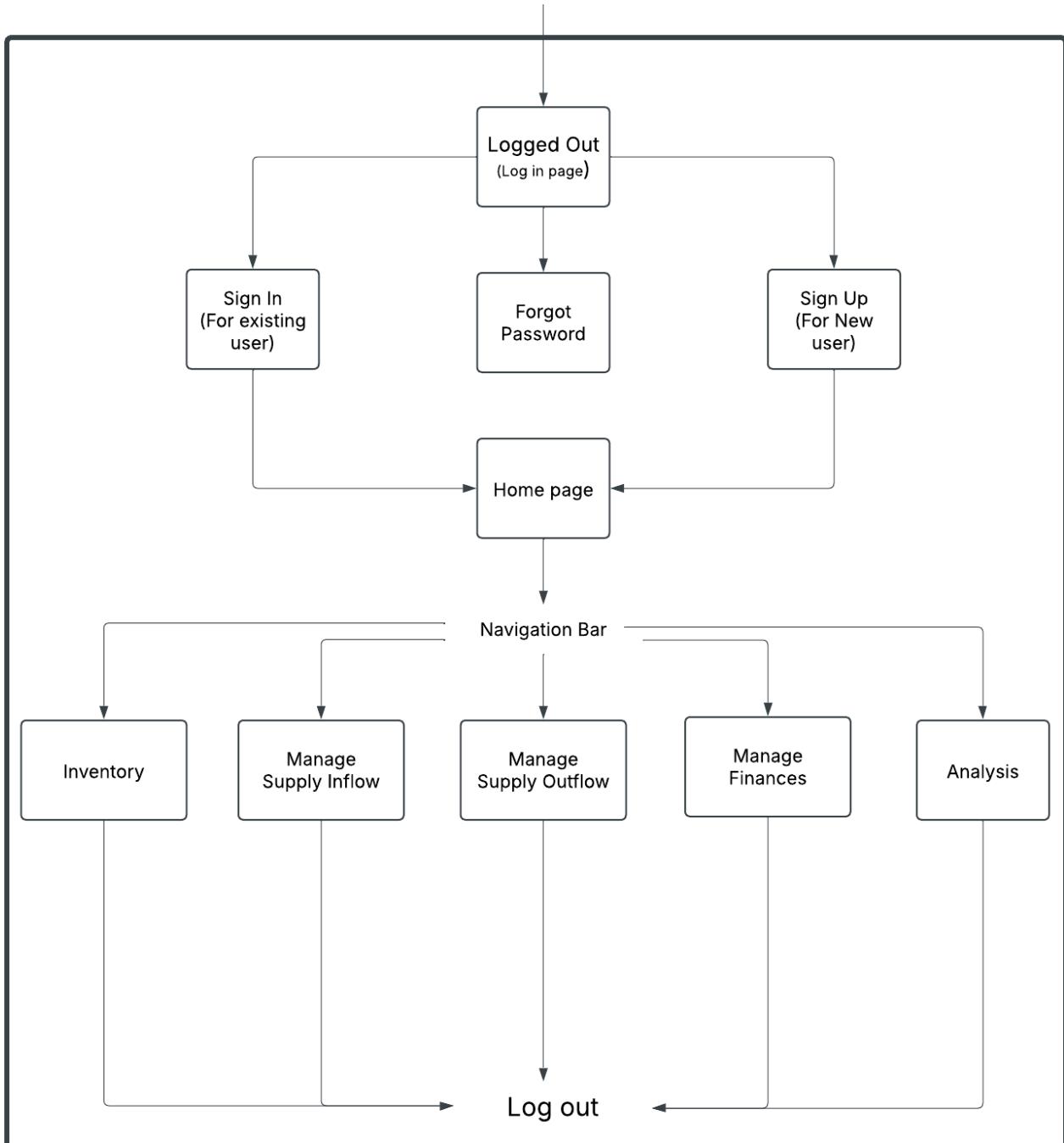


### 3.3.10 Analysis:

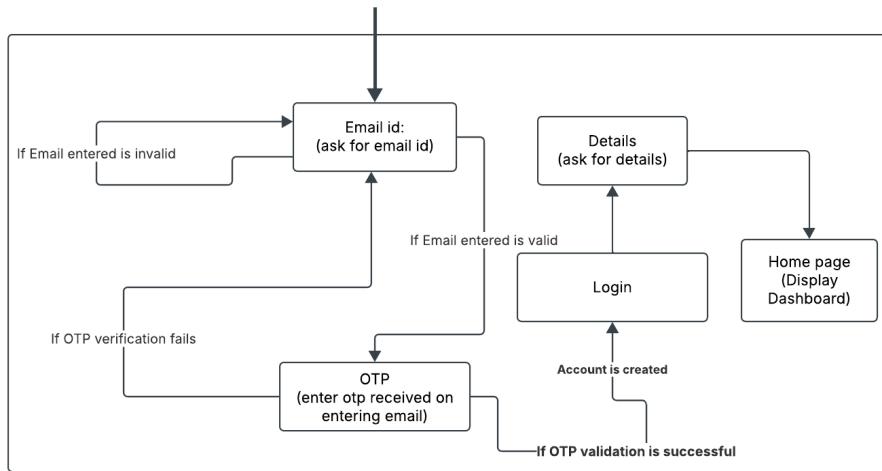


### 3.4 State Diagrams

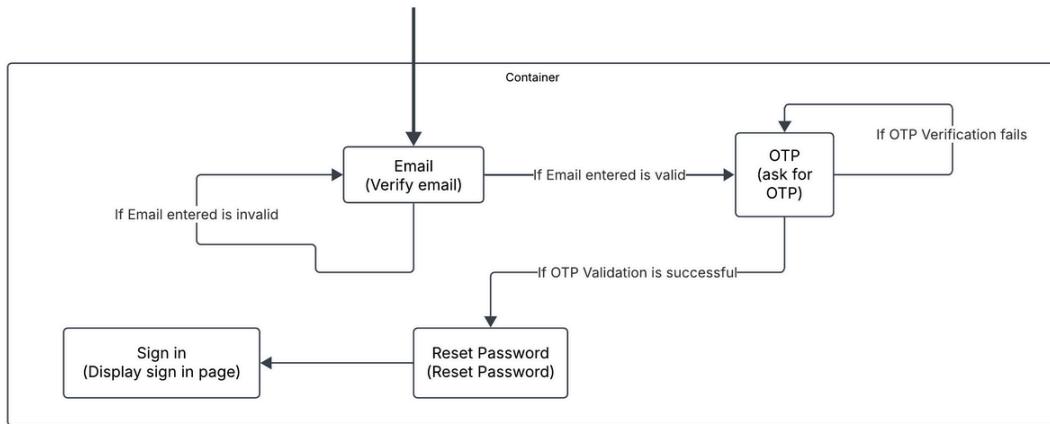
#### OVERALL STATE DIAGRAM:



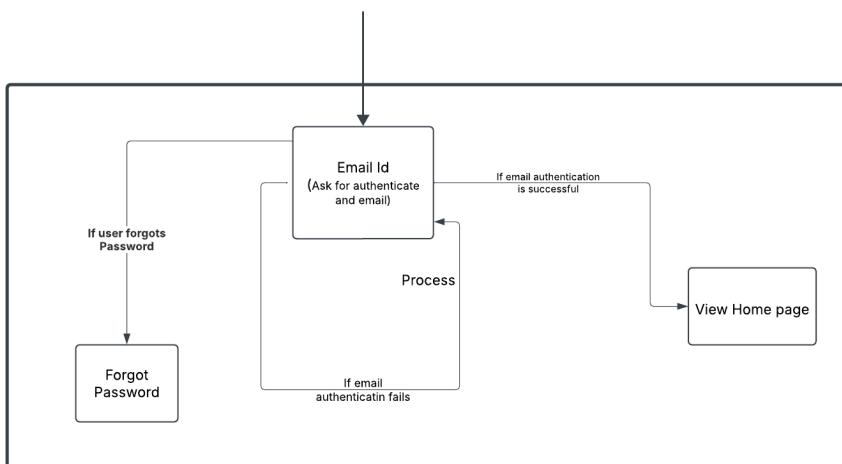
## SIGN UP(FOR A NEW USER):

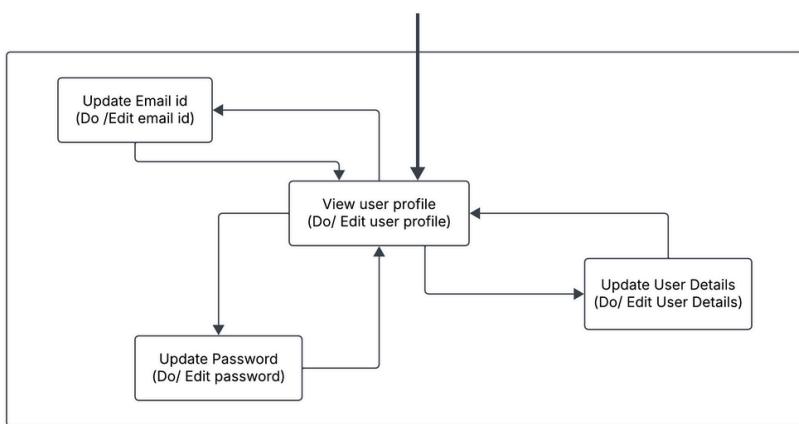
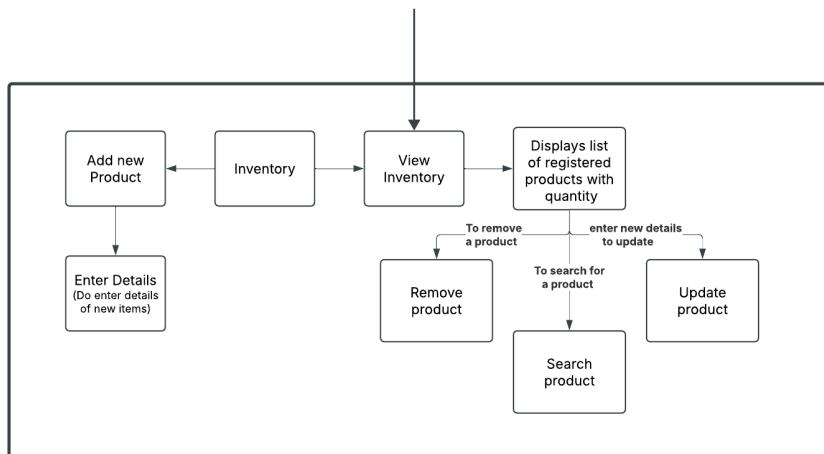
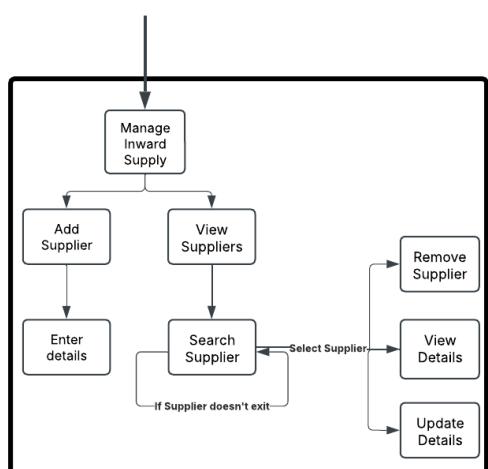


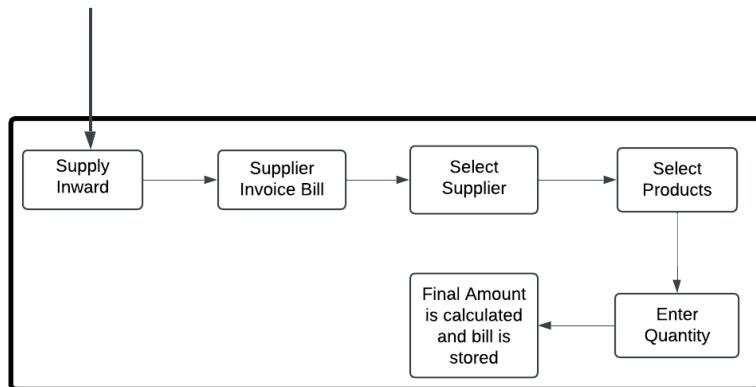
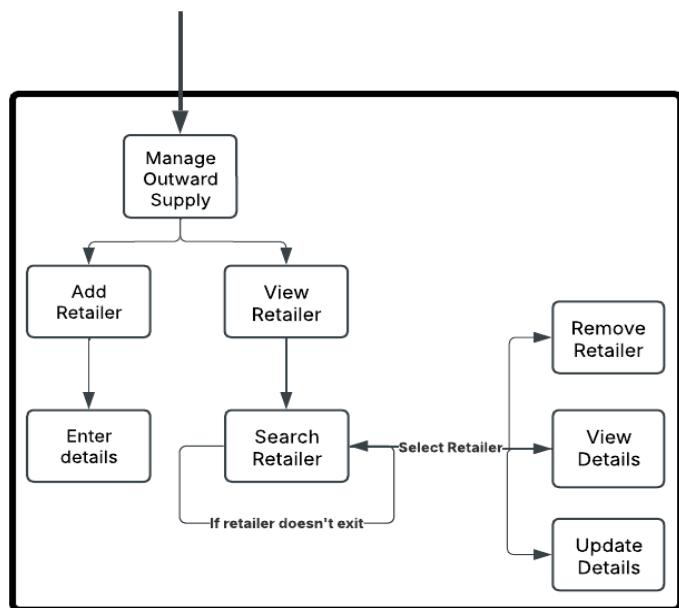
## FORGOT PASSWORD:



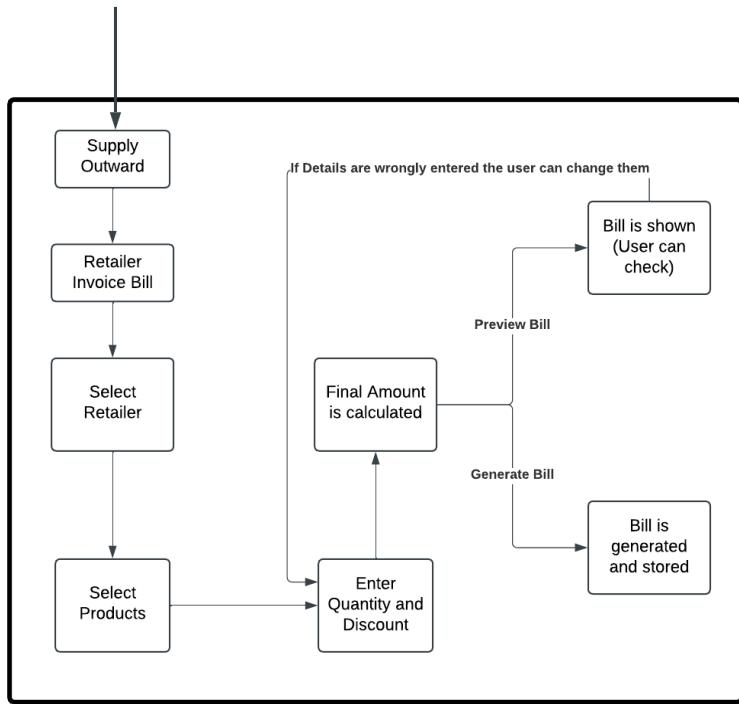
## SIGN IN:



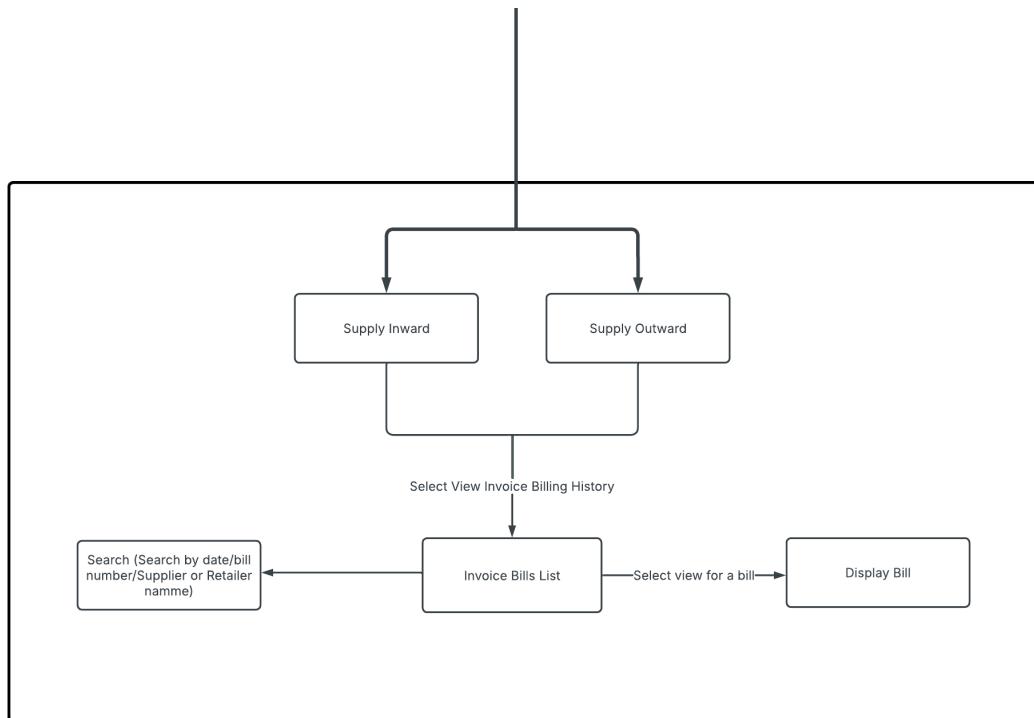
**PROFILE:****INVENTORY:****SUPPLIER:**

**SUPPLIER INVOICE BILL:****RETAILER:**

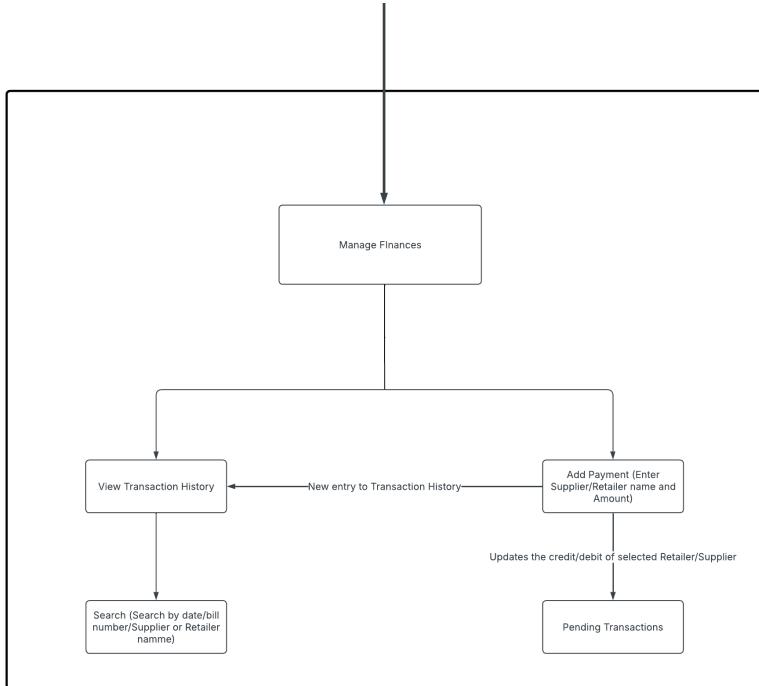
## RETAILER INVOICE BILL:



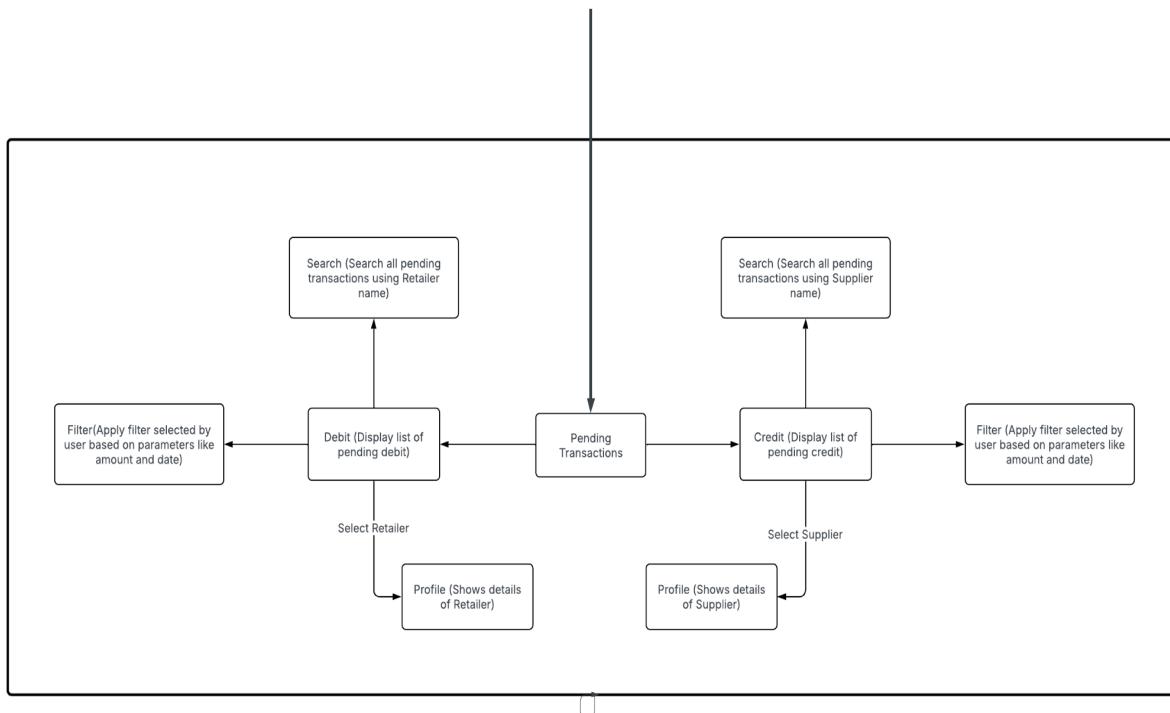
## INVOICE BILLING HISTORY:

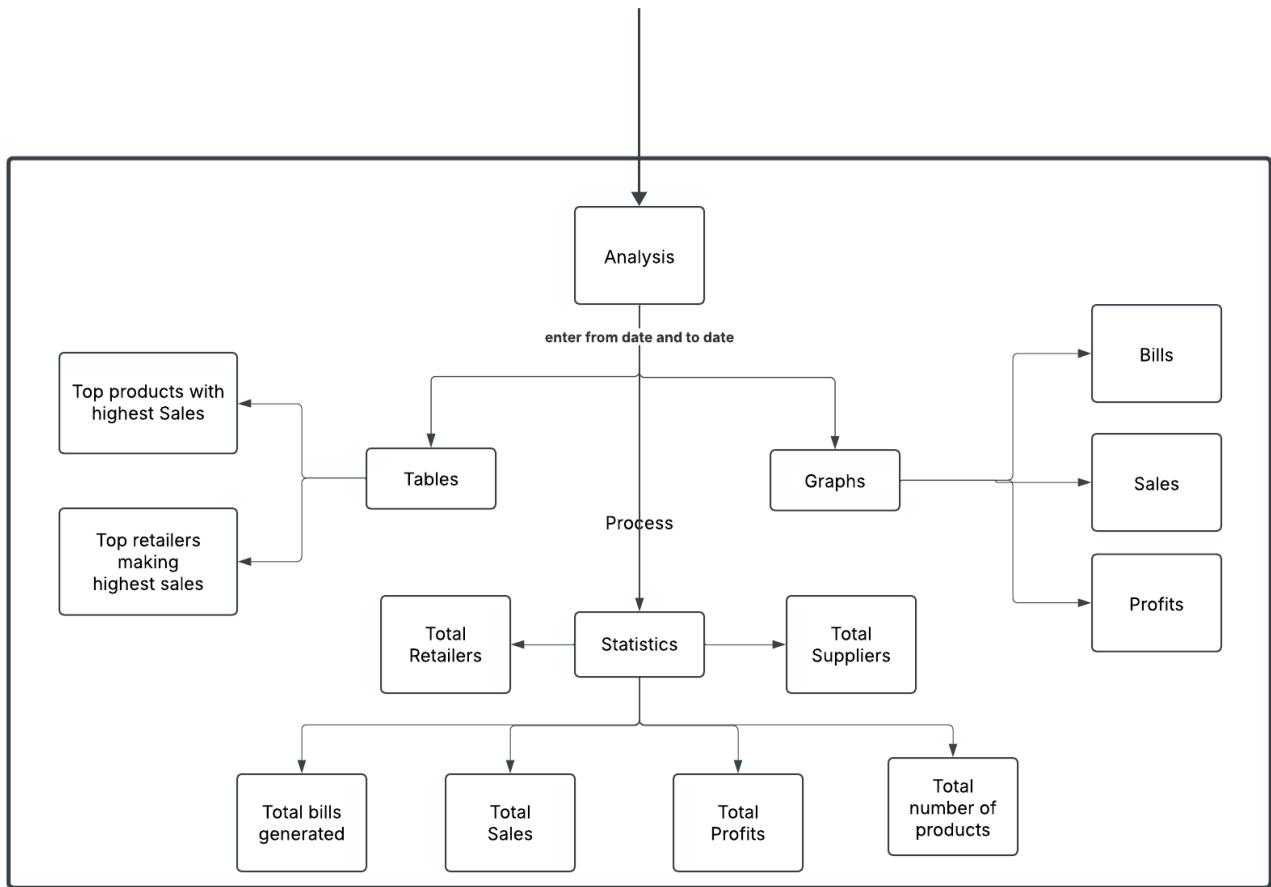


## PAYMENTS:



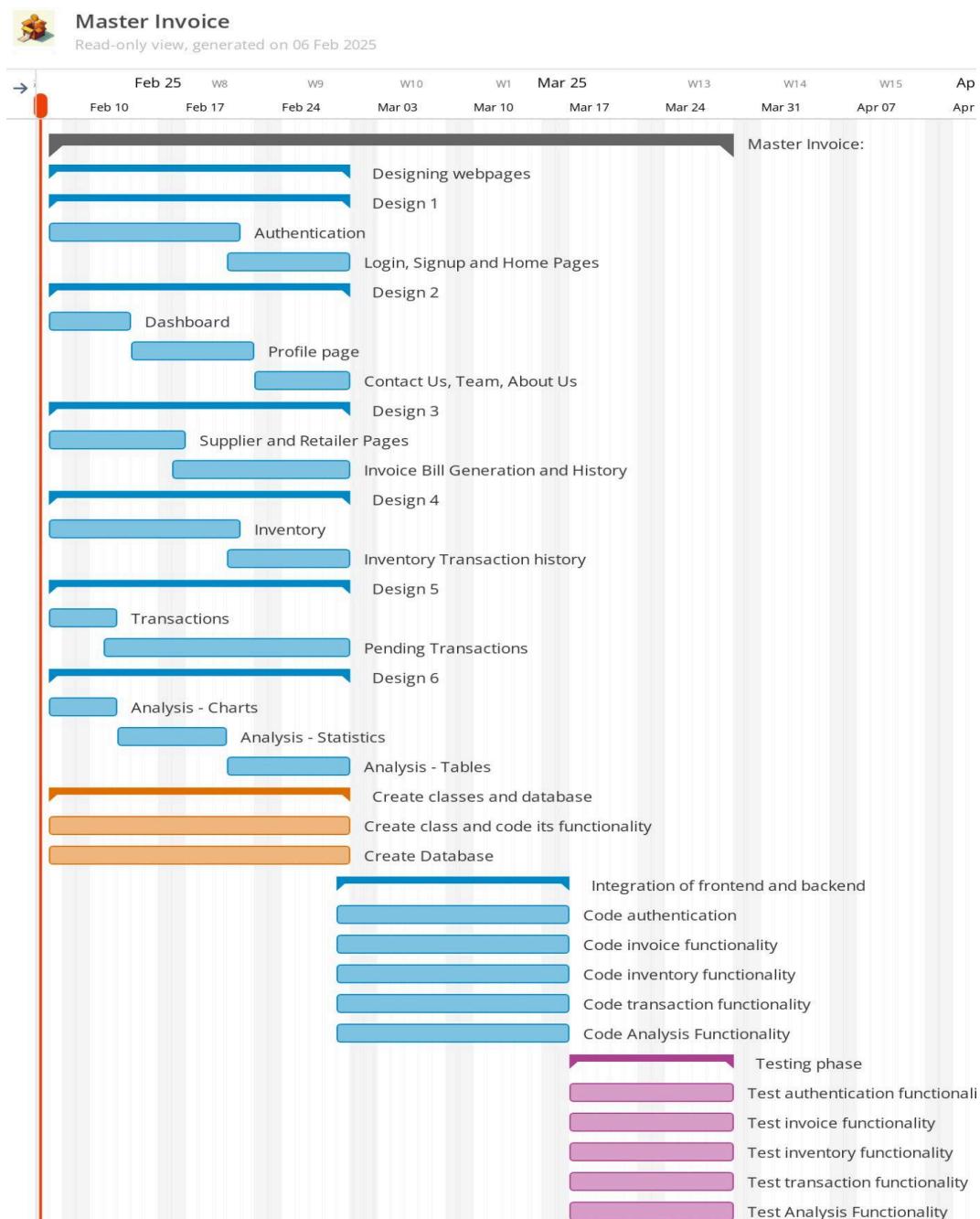
## PENDING TRANSACTIONS:



**ANALYSIS:**

## 4 Project Plan

### 4.1 Project Planning



Task	Assigned To
Design 1	Kundan Sai
Design 2	Kethan Challa, Vundela Obula Reddy
Design 3	Srijani Gadupudi, Ch V Sai Koushik
Design 4	Kishore Senthil Kumar, Challa Umesh Varun
Design 5	Sai Saketh Mogillapalli
Design 6	Gudi Praneeth Sai, Cezan Vispi Damania
Create Classes and Database	Sai Saketh Mogillapalli
Backend - Authentication	Kundan Sai, Kethan Challa
Backend - Inventory	Kishore Senthil Kumar
Backend - Supplier/Retailer	Challa Umesh Varun, Vundela Obula Reddy
Backend - Invoice Generation and History	Srijani Gadupudi, Ch V Sai Koushik
Backend - Transactions	Sai Saketh Mogillapalli
Backend - Analysis	Gudi Praneeth Sai, Cezan Vispi Damania

## 4.2 Code Collaboration

We are using GitHub to collaborate on the code. Separate repositories have been made for the frontend User Interface codes and backend (main) repository to store the database and applications.

The screenshot shows the GitHub repository page for 'Master-Invoice'. The repository is public and was forked from 'me-kethanchalla/Master-Invoice'. The main branch is 'main' with 1 branch and 0 tags. There are 5 commits by 'Swi-Rt' from 3 weeks ago. The commits include updates to 'LoginPage', 'static/user', 'templates/user', 'user', and 'manage.py', along with initial commits for 'LICENSE' and 'README.md'. The repository has 0 stars, 0 forks, and 0 forks. It includes sections for 'About', 'Releases', 'Packages', and 'Languages'. The 'About' section notes it's a CS253 Course Project with a README, MIT license, activity, and report repository. The 'Languages' section shows Python 34.7%, CSS 29.7%, HTML 29.0%, and JavaScript 6.6%.

## 4.3 Communication

The image shows two screenshots illustrating communication methods. On the left is a screenshot of a WhatsApp group named 'Master\_Invoice - CS253' with 10 members. The group info screen shows options for Audio, Video, and Search. Below the group name are links to forgot password, about us, contact us, navigation bar (darkens existing tab), profile (personal details, gst registered number, contact details), Faqs, and Financial analysis. On the right is a screenshot of a WhatsApp group chat titled 'Master\_Invoice - CS253'. The messages include:

- 'what happened with this ??' (14:41)
- 'is it done ??' (14:41)
- 'Sai Saketh' (14:48) - 'No clue'
- 'Do Imk if y'all are meeting up' (14:48)
- 'half are in lab rn, we will do evening' (14:52)
- A diagram from 'Kundan Sai' showing a workflow: 'Search by date/bill number/Supplier or Retailer name' leads to 'List of all invoice bills entered', which then leads to 'Selecting a Bill'.
- 'in photos there was no user should I add the user or paste directly' (Edited 15:14)
- 'Srijani' (17:43) - 'Guys when are we meeting today?'
- 'Koushik' (19:47) - 'Did anyone mail the TA?'
- 'Is 2:30 ok for everyone to meet him?' (19:50) with 8 replies

At the bottom of the WhatsApp screen is a message input field with icons for emoji, file, and a paperclip.

We primarily used a WhatsApp group for seamless coordination and held offline meetings twice weekly to ensure steady progress. These meetings focused on key updates, solutions, and aligning efforts toward the next goals. At the end of each session, we outlined and assigned the tasks for the next meeting, ensuring clarity, accountability, and a well-structured workflow.

## Appendix A - Group Log

SL. No.	Date	Timings	Venue	Description
1	25/01/2025	2:00 pm - 4:00 pm	RM building	Discussed design document plan and split into 2 groups for UI, diagrams
2	27/01/2025	5:00 pm - 6:30 pm	RM building	The UI design plan was done along with the division of work.
3	31/01/2025	1:00 pm - 4:00 pm	KD Library	Worked on the sequence diagrams and class diagrams
4	01/02/2025	10:00 pm - 11:30 pm	KD Library	Worked on the User Interface of multiple pages.
5	03/02/2025	1:00 pm - 4:00 pm	RM Building	Worked on the state diagrams and class diagram
6	04/02/2025	10:00 pm - 12:00 am	Hall 12	Worked on the Context diagram and Architecture Design.
6	06/02/2025	12:00 pm - 2:00 pm	KD Library	Progressed with other design documentation work.
7	06/02/2025	2:30 pm-6:30 pm	KD Library	Discusses further Website implementation plan