Karnataka Law Society's
GOGTE INSTITUTE OF TECHNOLOGY
Department of Computer Science and Engineering
Udyambag Belagavi -590008
Karnataka, India.

A SOFTWARE REQUIREMENTS SPECIFICATION DOCUMENT ON

KS STORE'S GROCERY MANAGEMENT SYSTEM

Submitted for the requirements of 5th semester B.E. in CSE

for **"SOFTWARE DESIGN LAB"**

Submitted by

NAME	USN
1)Soumya S Bhadrashetti	2GI19CS150
2)Sudha Mane	2GI19CS153
3)Suma Kannur	2GI19CS155
4)Sneha Odeyar	2GI19CS147

Under the guidance of

Mr. Gajendra Deshpande

Asst. Prof., Dept. of CSE

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CHAPTER-1

INTRODUCTION

PURPOSE:

This software is developed in order to mainly replace the manual billing of **KS GROCERY STORE**. This software also enables shopkeeper to maintain the transaction history of all transactions. It is mainly developed to perform accurate billing and securely maintain the transaction details. It allows shopkeeper to add, delete, and update product details. This system is secure as it is only accessible to shopkeeper.

PROBLEM DEFINITION:

Develop a software for KS grocery store. The software should allow the shopkeeper to add new item, delete existing item and it should allow the shopkeeper to prepare bill depending on customers order. The software should also maintain the transaction history and product details. The software should be accessible only to the shopkeeper (authenticated user). The software should also display the transaction history and available products list to the shopkeeper. The software should give shopkeeper only three attempts to login. Once all the three attempts are over the web page should be locked. The technician is responsible for the maintenance of the system.

CHAPTER-2

Functional Requirements:

1. User Authentication

For login user should enter his Username and Password set by him while registering. After Successful Login, "HOME" Page for user is shown from where he can access his transaction history and he can add some new items or prepare the total bill. If user enters the wrong username or password the login process fails with showing the appropriate comment box containing the text 'Login fails', then he can try once again.

2. Prepare bill

Once user selected to prepare bill he enters the details of the customer like Name, list of the purchased items and the quantity. Based on the taxes and item cost per each quantity should be calculated this result should give the total payable amount for the customer. Once he clicks the prepare bill button the invoice is generated and its print is given to customer and after clicking the prepare bill the transaction details are also stored in the database. Where user can access the all transaction details any time.

3. Manage items

When the shopkeeper wants to add new item in his shop, he has to add the details of the new item along with its cost in the main grocery management system by clicking an add item button in manage products page. All the available items should be displayed to user. The user should also be able to remove the existing item

4. Maintain transaction history

Whenever a transaction takes place, it is automatically stored in the transaction table. the shopkeeper can view transaction history any time by clicking the button 'View History' on home page.

Nonfunctional Requirements:

1. **Security**
   - ➔ The system should be accessible only to the authenticated user.

2. **Database Requirement**
   - ➔ The max size of database is 256^7-1 bytes.

3. **Design Constraints**
   - ➔ This is developed as a web application which should work with browsers like Firefox 5+, Internet explorer 8+, Google chrome 12+, Opera 10+.

CHAPTER-3

HARDWARE AND SOFTWARE REQUIREMENTS

HARDWARE REQUIREMENTS :

Processor   : 11th Gen Intel(R) Core(TM) i5-1135G7 @ 2.40GHz   2.42 GHz

Installed RAM: 8.00 GB (7.76 GB usable)

System type   : 64-bit operating system, x64-based processor

Pen and touch : No pen or touch input is available for this display

SOFTWARE REQUIREMENTS

OPERATING SYSTEM :

Edition   Windows : 10 Home Single Language

Version   : 20H2

OS build   :19042.1348

Experience   : Windows Feature Experience Pack 120.2212.3920.0

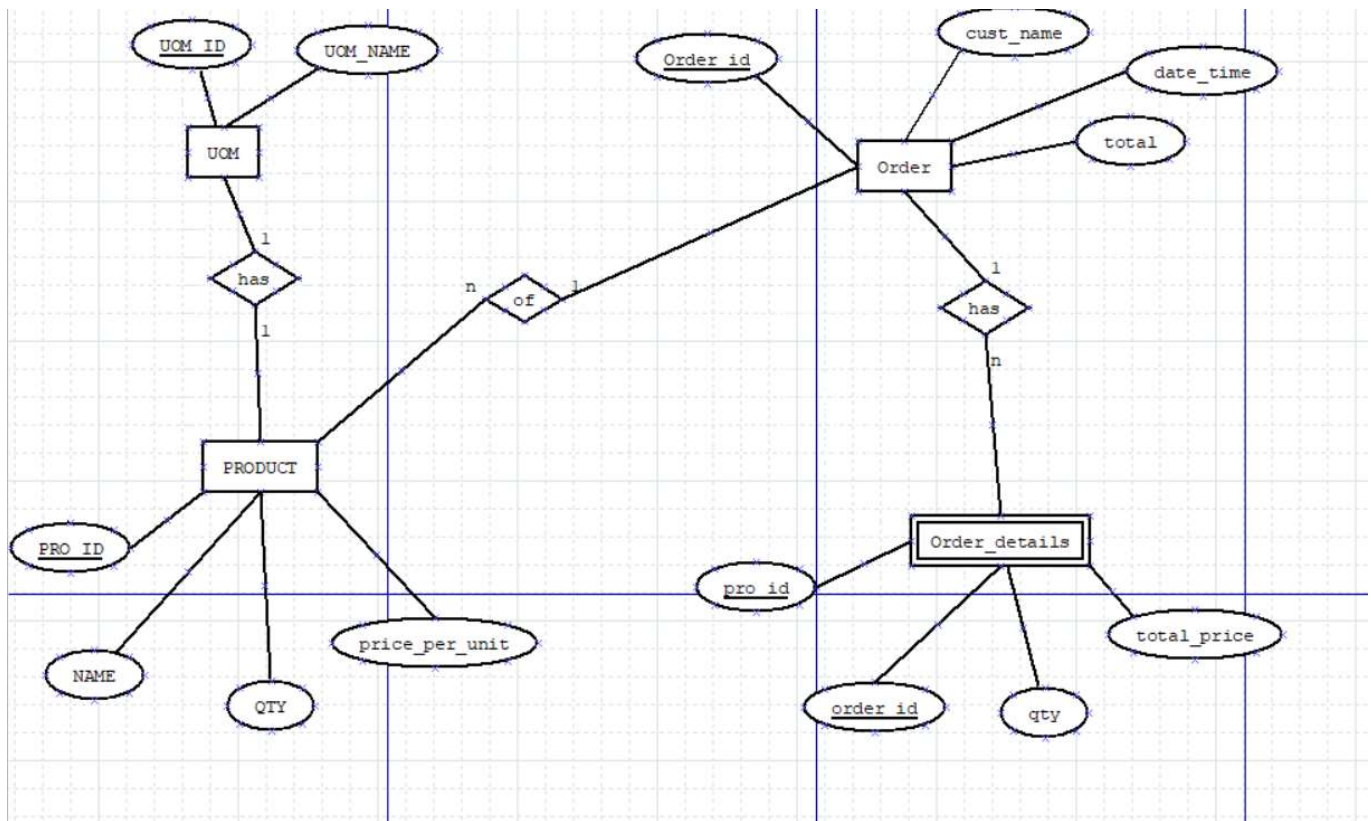**WEBPAGE FRONTEND AND BACKEND DEVELOPED USING :** VISUAL STUDIO CODE

DATABASE SOFTWARE   **:** MYSQL
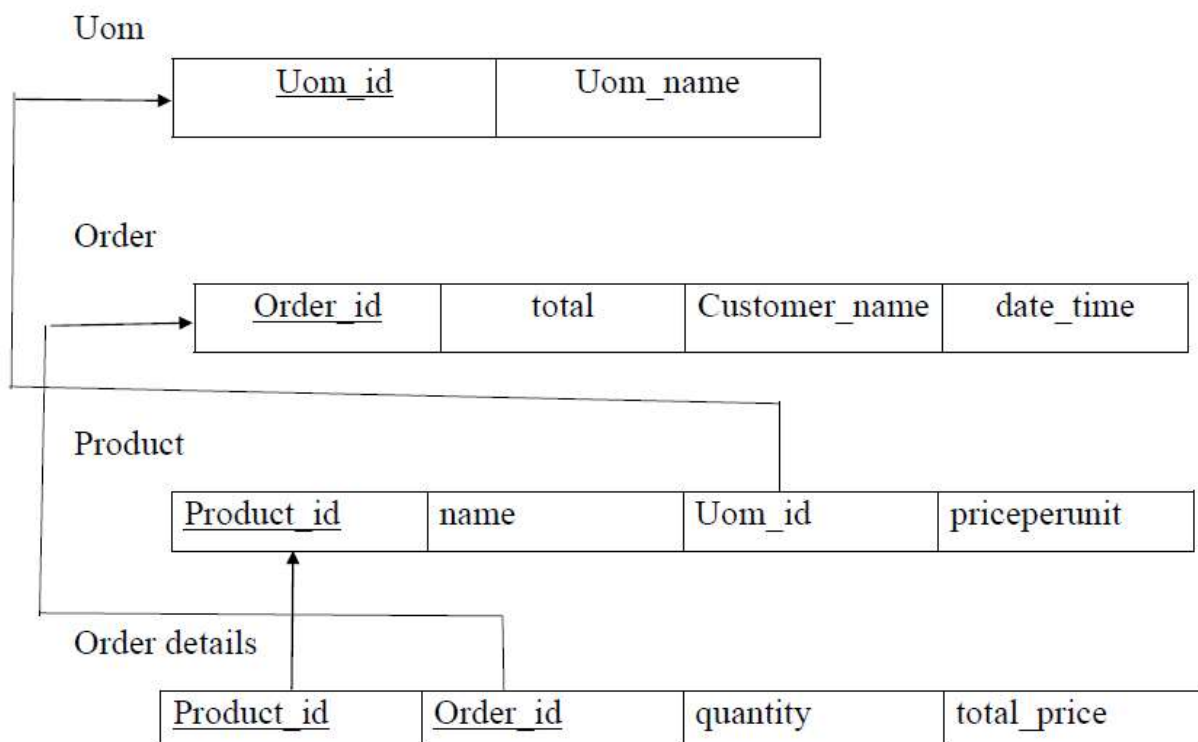
ER AND ACTIVITY DIAGRAM   **:** DIA
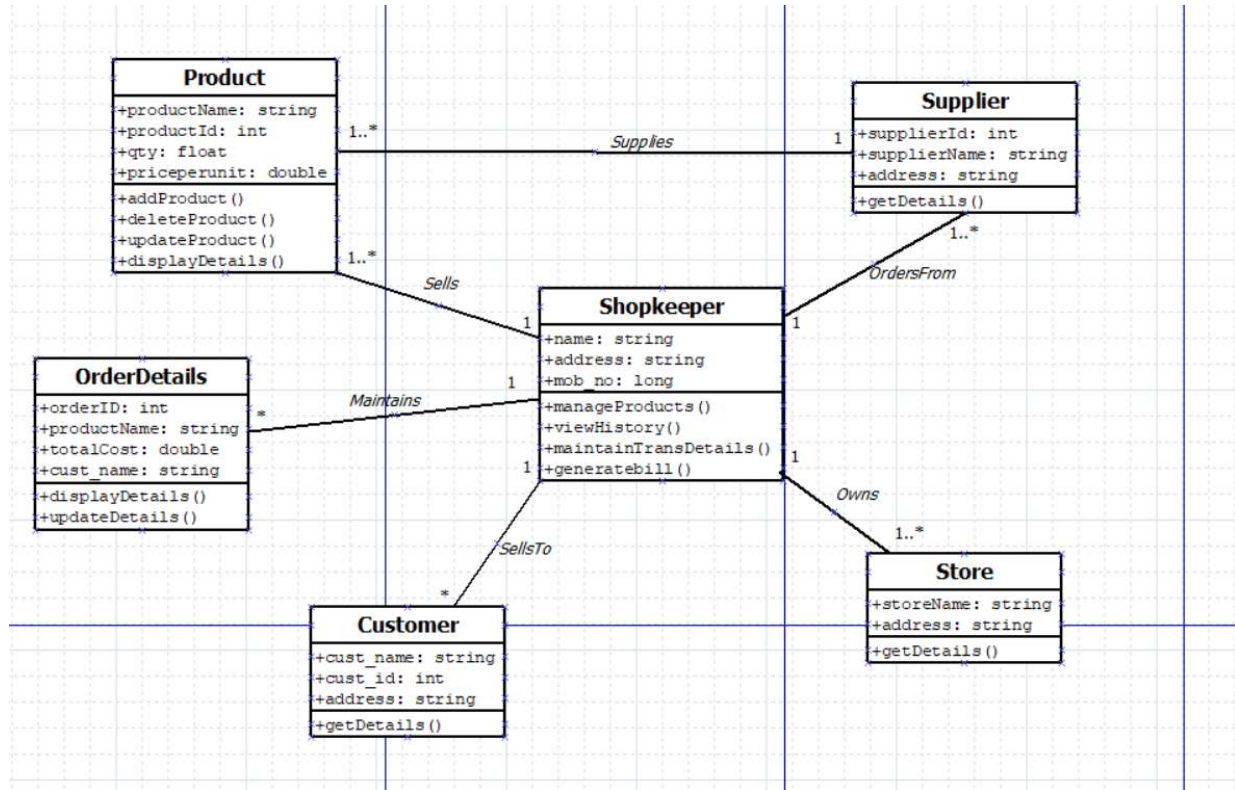
SEQUENCE DIAGRAM   **:** MS WORD

WIREFRAME : FLOWCHART MAKER AND ONLINE DIAGRAM
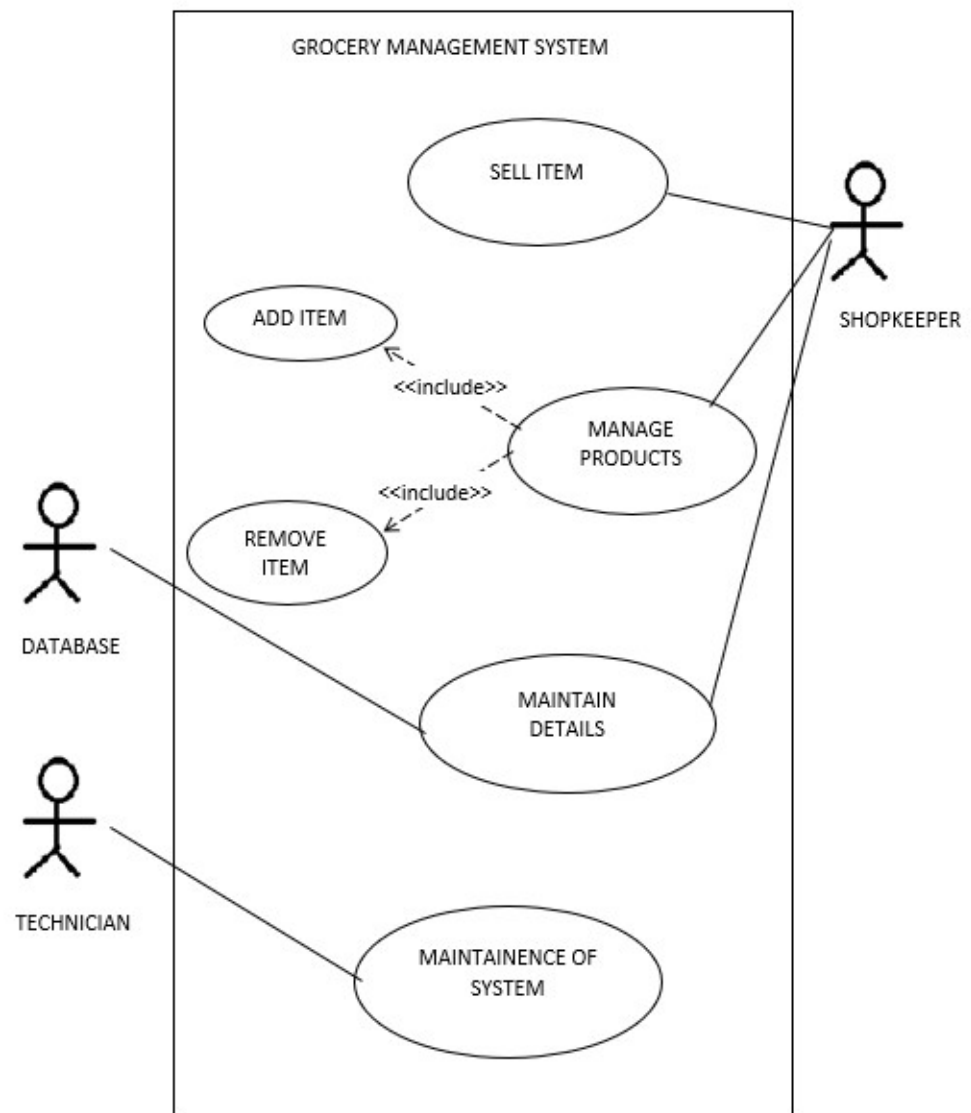
CHAPTER-4

ER DIAGRAM

SCHEMA DIAGRAM

Uom

Uom_id	Uom_name

Order

Order_id	total	Customer_name	date_time

Product

Product_id	name	Uom_id	priceperunit

Order details

Product_id	Order_id	quantity	total_price

CHAPTER-5

CLASS DIAGRAM:

Product
+productName: string
+productId: int
+qty: float
+priceperunit: double
+addProduct()
+deleteProduct()
+updateProduct()
+displayDetails()

Supplier
+supplierId: int
+supplierName: string
+address: string
+getDetails()

1..* ———— Supplies ———— 1

1..*

OrdersFrom

Sells

Shopkeeper
+name: string
+address: string
+mob_no: long
+manageProducts()
+viewHistory()
+maintainTransDetails()
+generatebill()

1

1

OrderDetails
+orderID: int
+productName: string
+totalCost: double
+cust_name: string
+displayDetails()
+updateDetails()

* ———— Maintains ———— 1

1

Owns

1..*

Store
+storeName: string
+address: string
+getDetails()

SellsTo

*

Customer
+cust_name: string
+cust_id: int
+address: string
+getDetails()

CHAPTER-6

USE CASE DIAGRAM

USE CASE DESCRIPTION

Use Case Name:	Sell item
Description	The shopkeeper receives the order from customer and prepares the bill using grocery management sytem interface.
Actor:	Shopkeeper
Pre-Condition:	• Shopkeeper should login with valid credentials. • Shopkeeper enter order details.
Post-Condition:	• Invoice is generated • Transaction details are stored in database.
Flow of events	• Actor login • Navigate to home page • Click on new order button on home page • Enter order details • Click on generate bill
Exception Condition:	• Invalid credentials entered by actor at the time of login • The order table is full.

Use Case Name:	Manage Products
Description	The shopkeeper either adds a new item or delete the existing item details from the system.
Actor:	Shopkeeper
Pre-Condition:	• Shopkeeper should login with valid credentials. • Shopkeeper visits manage products page
Post-Condition:	• Product details in the database is updated.
Flow of events	• Actor login • Navigate to home page • Click on manage products button on home page • To add a new product: click on add item and enter the product details and click on save • To remove a product: Select the product and click on remove. • Update status is displayed to the shopkeeper
Exception Condition:	• Invalid credentials entered by actor at the time of login • Product table is full.

Use Case Name:	Maintain details
Description	The grocery store's database maintains both product and order details
Actor:	Database ,Shopkeeper
Pre-Condition:	• Shopkeeper login with valid credentials • Navigate to home page.
Post-Condition:	• Product details or order details in the database are updated.
Flow of events	To update product details • Click on manage products button on home page • To add a new product: click on add item and enter the product details and click on save • To remove a product: Select the product and click on remove. • Update status is displayed to the shopkeeper To update order details • Click on new order button on home page • Enter order details • Click on generate bill
Exception Condition:	• The tables cannot store data due to shortage of space.

Use Case Name:	Maintain system
Description	Technician develops the antivirus to protect the system from the attackers and even resolves the technical issues of the system
Actor:	Technician
Pre-Condition:	• Technical issue in the system
Post-Condition:	• Issue resolved
Flow of events	• Identify the issue • Identify all possible solution • Find optimal solution • Upgrade the system
Exception Condition:	• The solution is not found

CHAPTER-7

SEQUENCE DIAGRAM
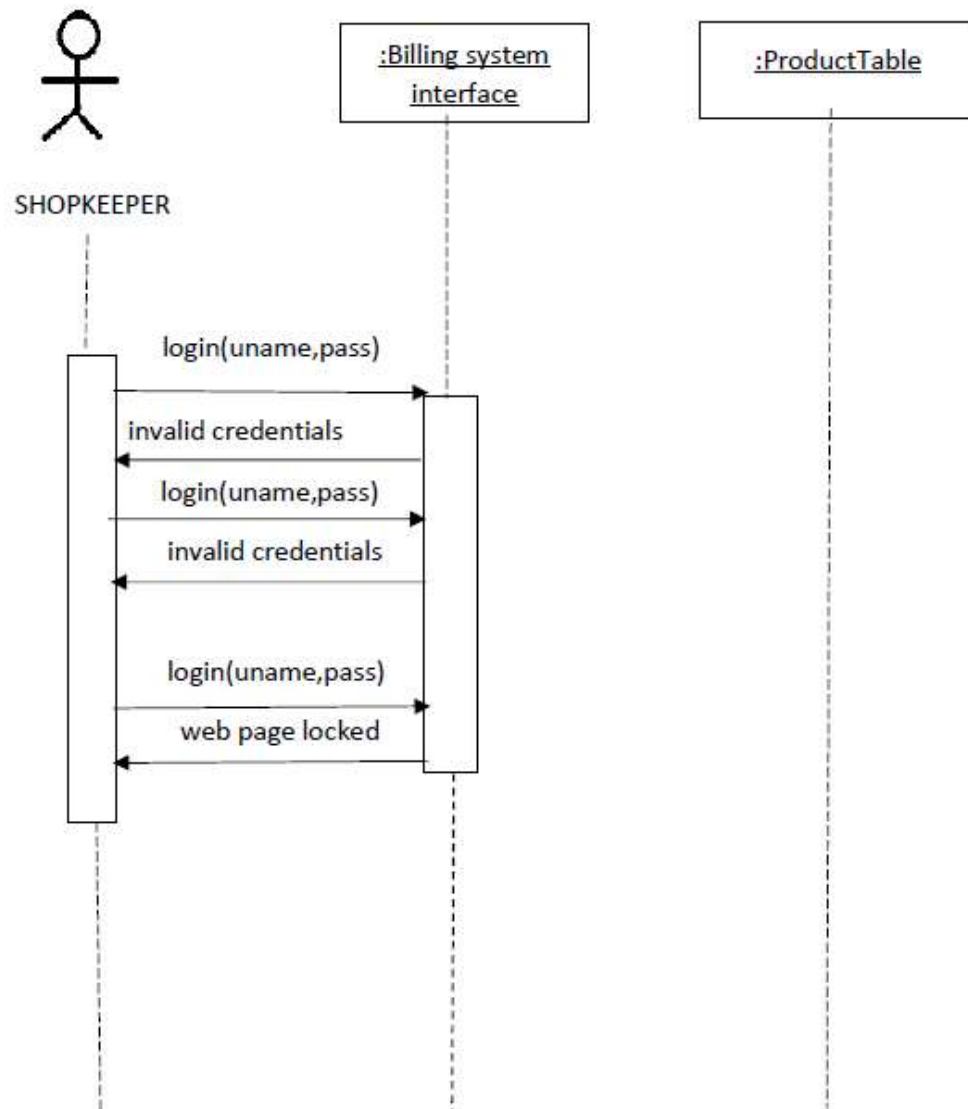
1.MANAGE PRODUCTS:

a. LOAD ITEM

SCENARIO:

- Shopkeeper enters username and password. Clicks on login.
- Shopkeeper is validated.
- Home page is displayed. Shopkeeper selects Manage products.
- Click on add product. Enter product details.
- Click on save. The product details are stored in database.
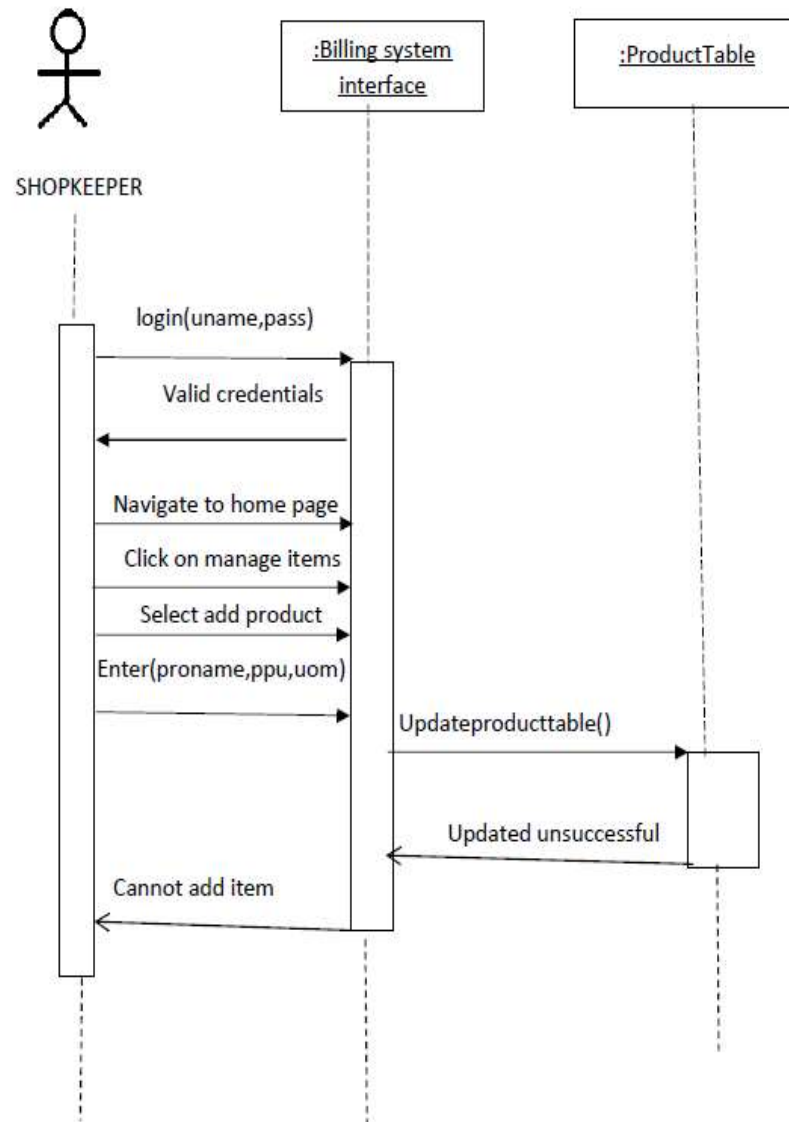- The update status is alerted to the shopkeeper.

SEQUENCE DIAGRAM:
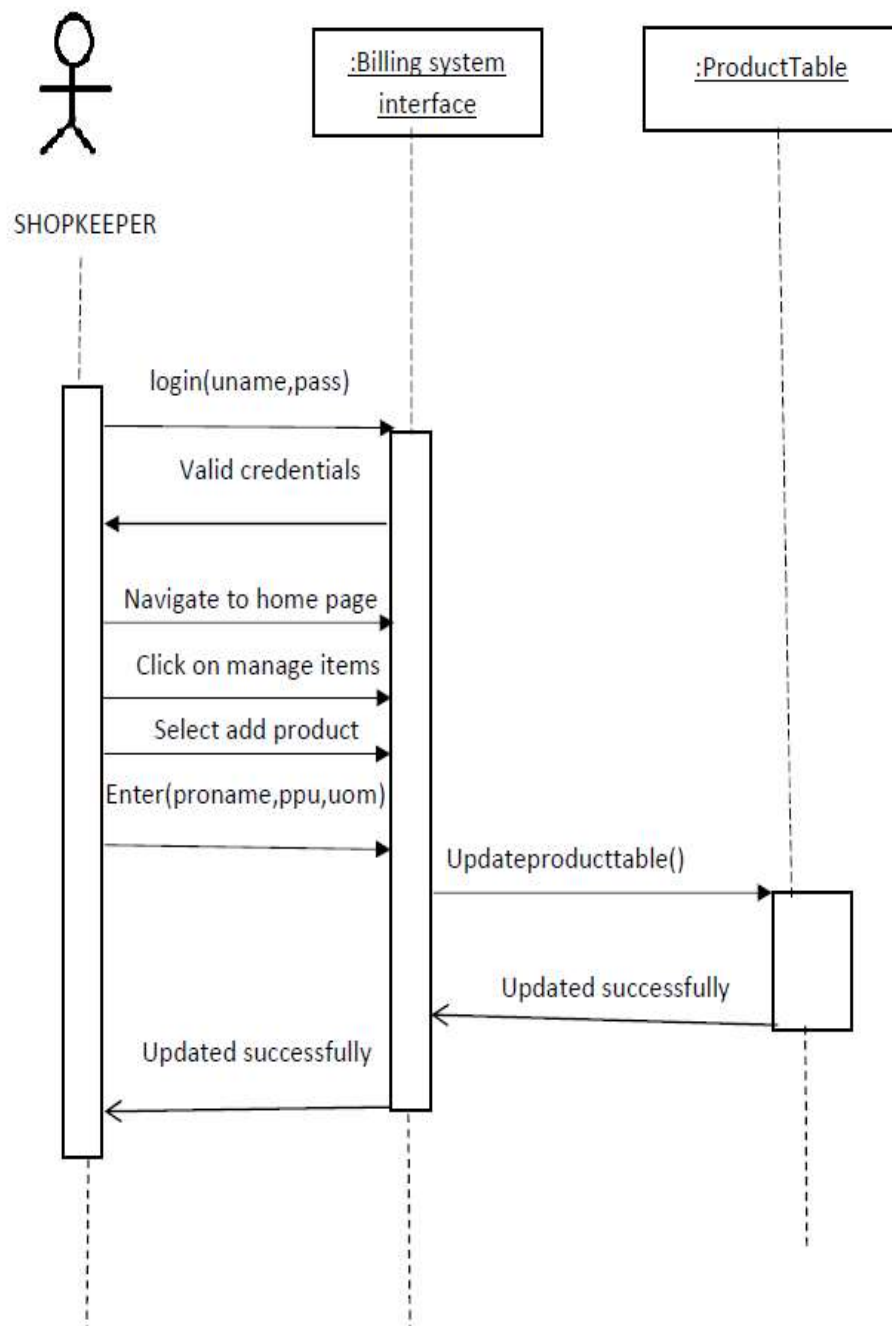
**ALTERNATE FLOW (AFTER INVALID CREDENTIALS ENTERED IN 1ST ATTEMPT)**
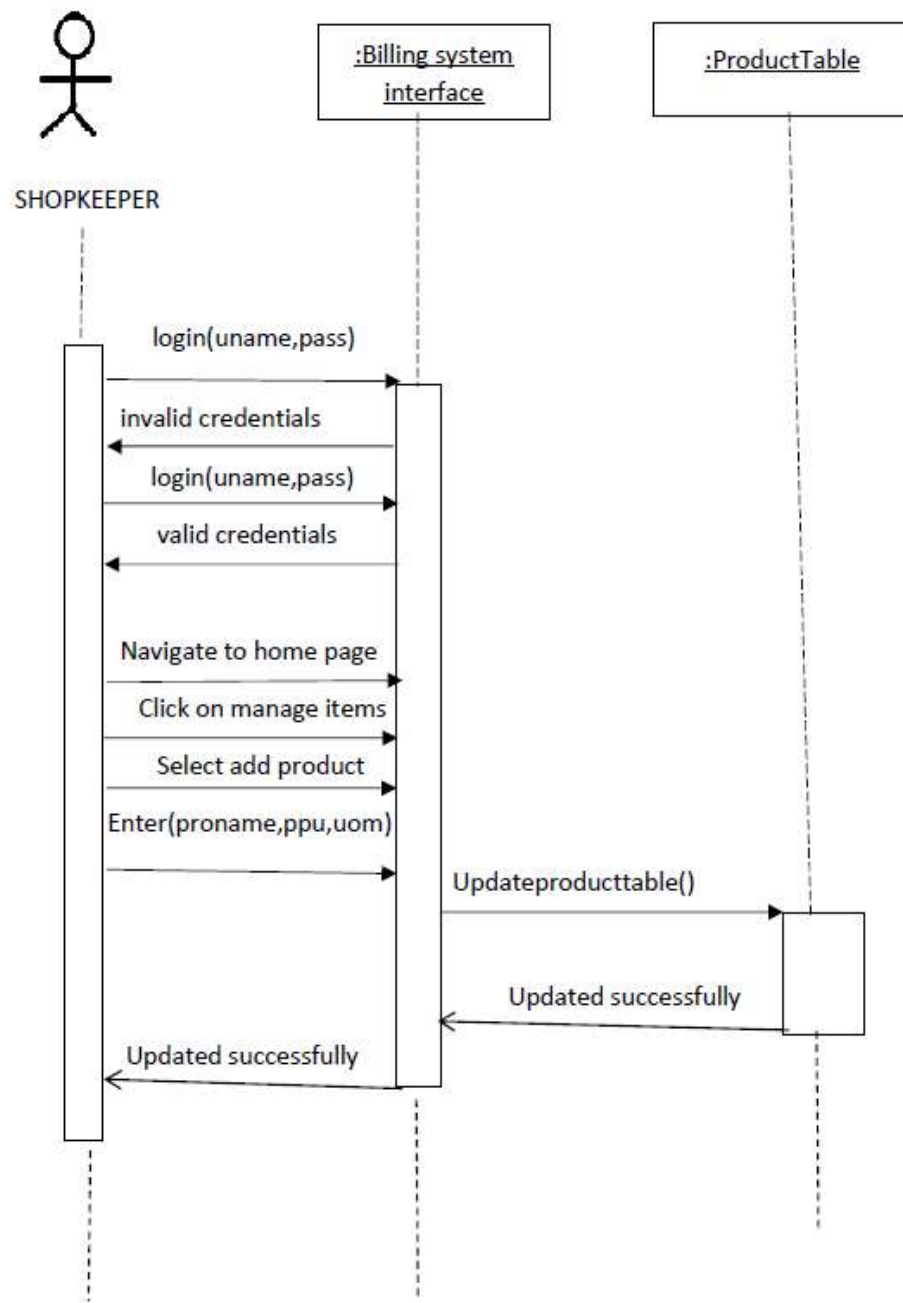
**ALTERNATE FLOW (AFTER INVALID CREDENTIALS ENTERED IN 2nd ATTEMPT)**
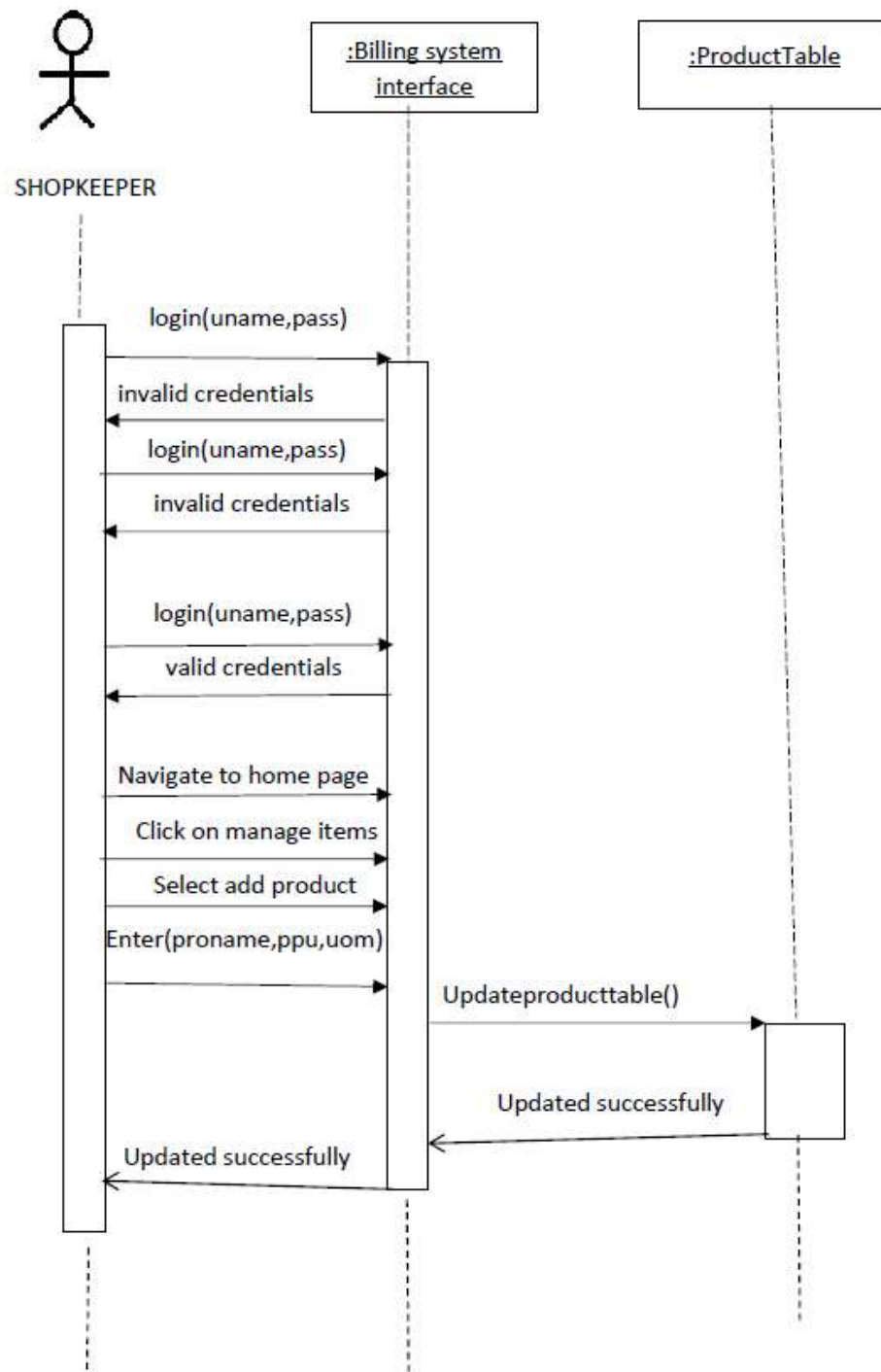
ALTERNATE FLOW (AFTER INVALID CREDENTIALS ENTERED IN 3rdATTEMPT)

ALTERNATE (AFTER PRODUCT TABLES UPDATE UNSUCESSFUL)

b. REMOVE PRODUCT

SCENARIO:

- Shopkeeper enters username and password. Clicks on login.
- Shopkeeper is validated.
- Home page is displayed. Shopkeeper selects Manage products.
- Select a product to be removed.
- Click on remove. The software asks for conformation.
- The product details are updated in database.
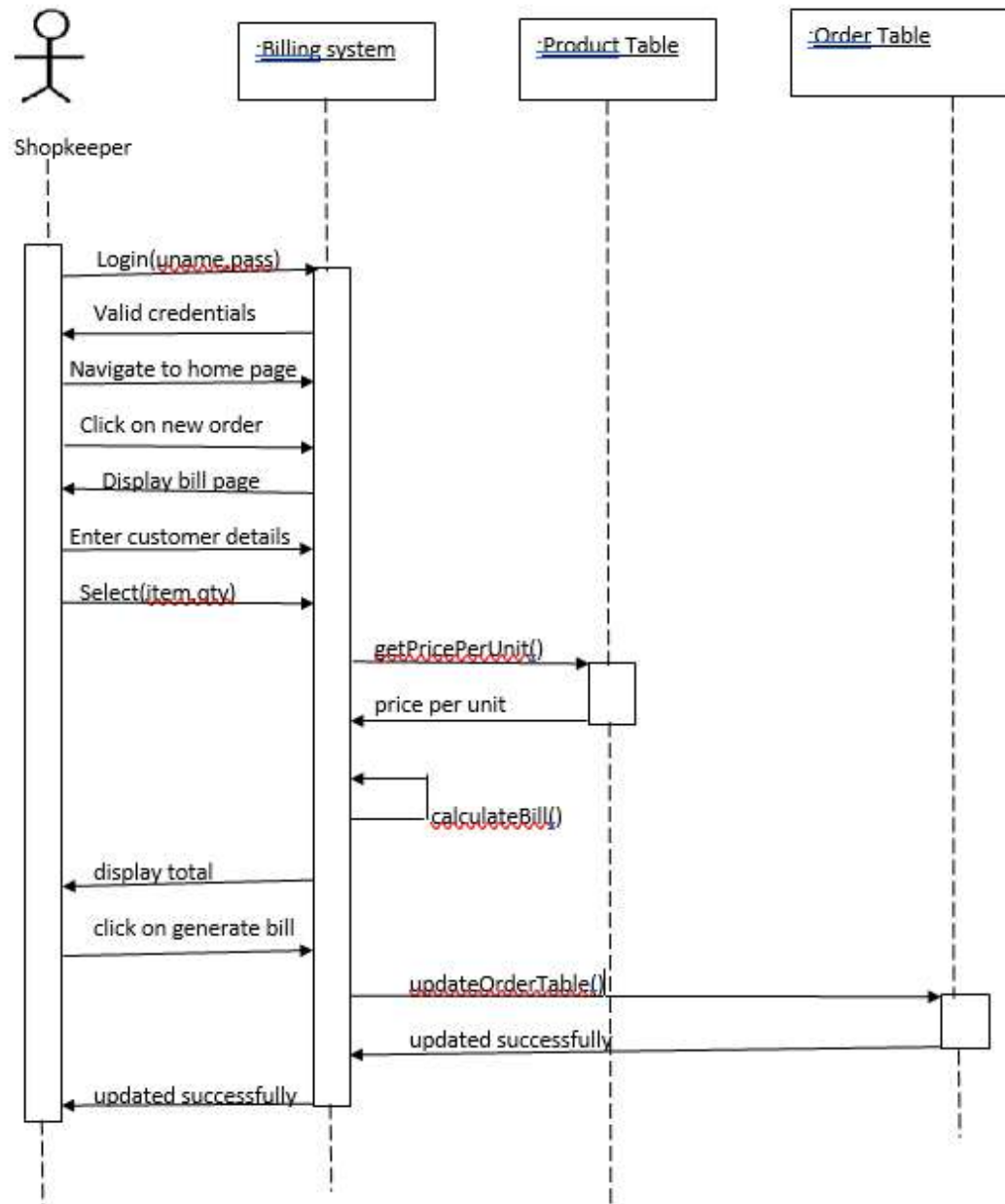- The update status is alerted to the shopkeeper.

WITH UPDATION OF PRODUCT TABLE SUCCESSFUL
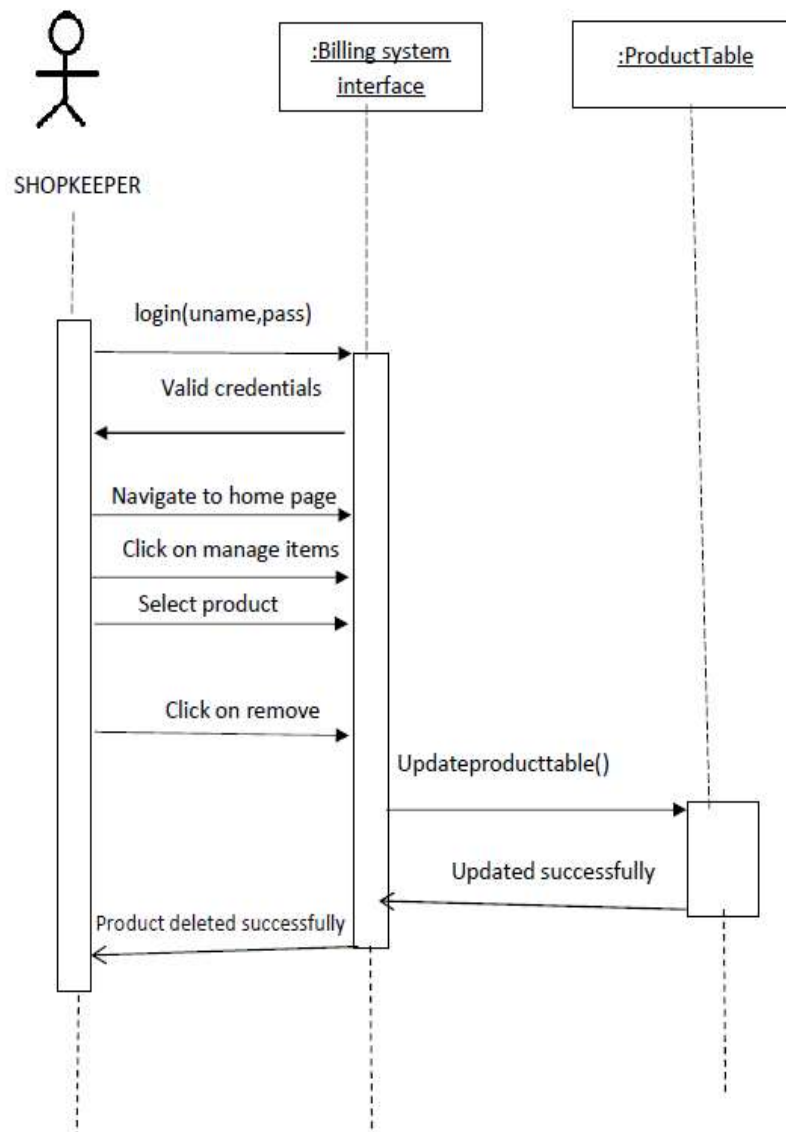
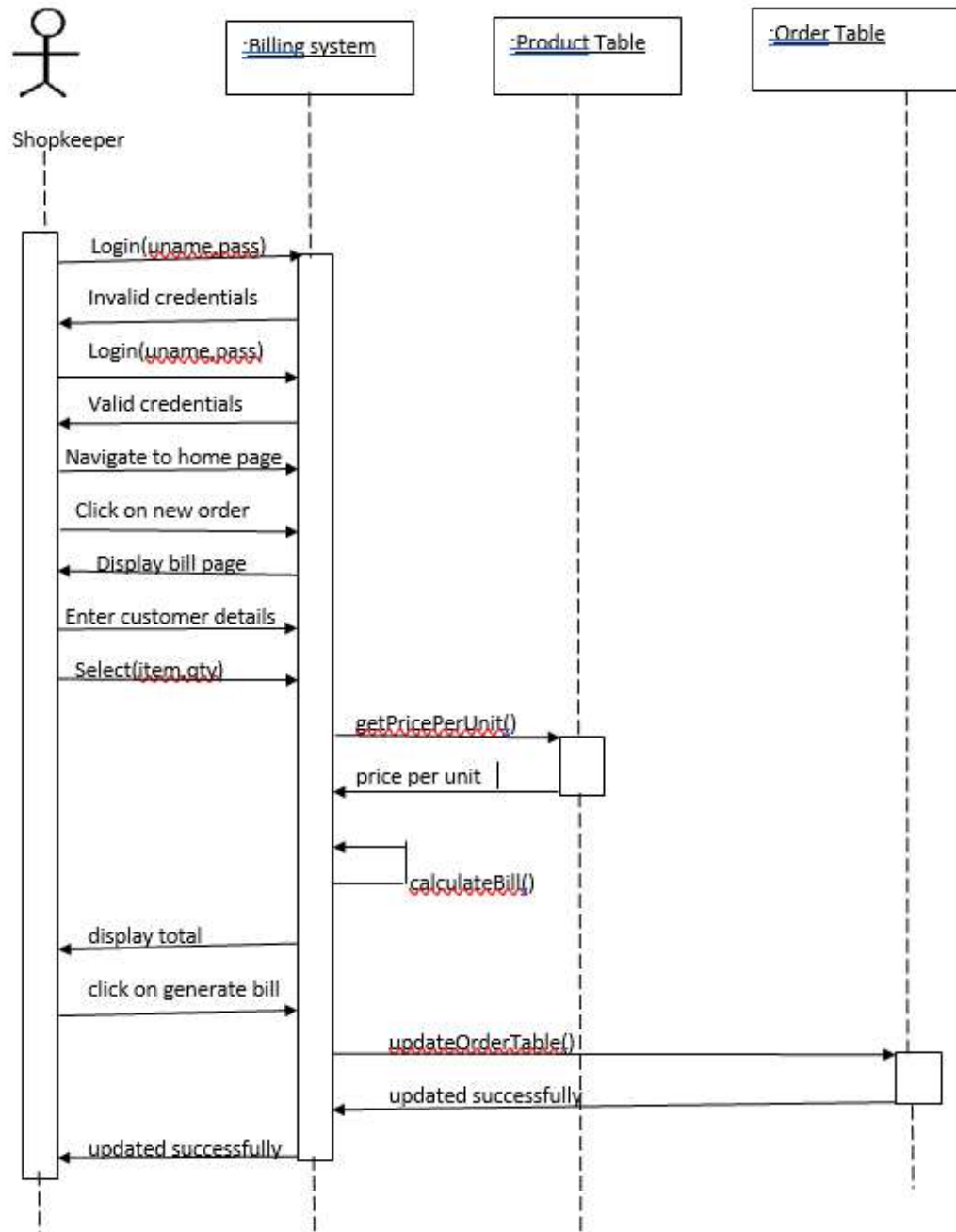**REMOVE PRODUCT (WITH UPDATION OF PRODUCT TABLE UNSUCCESSFUL)**
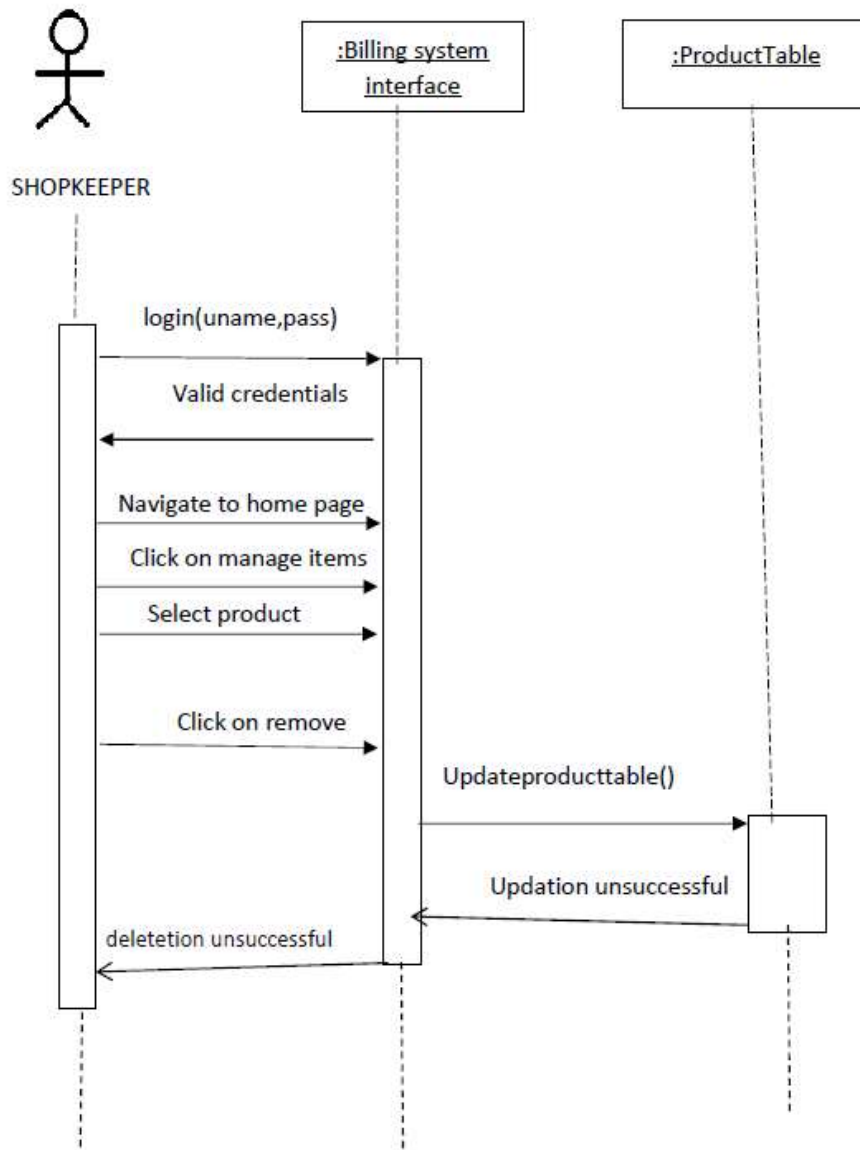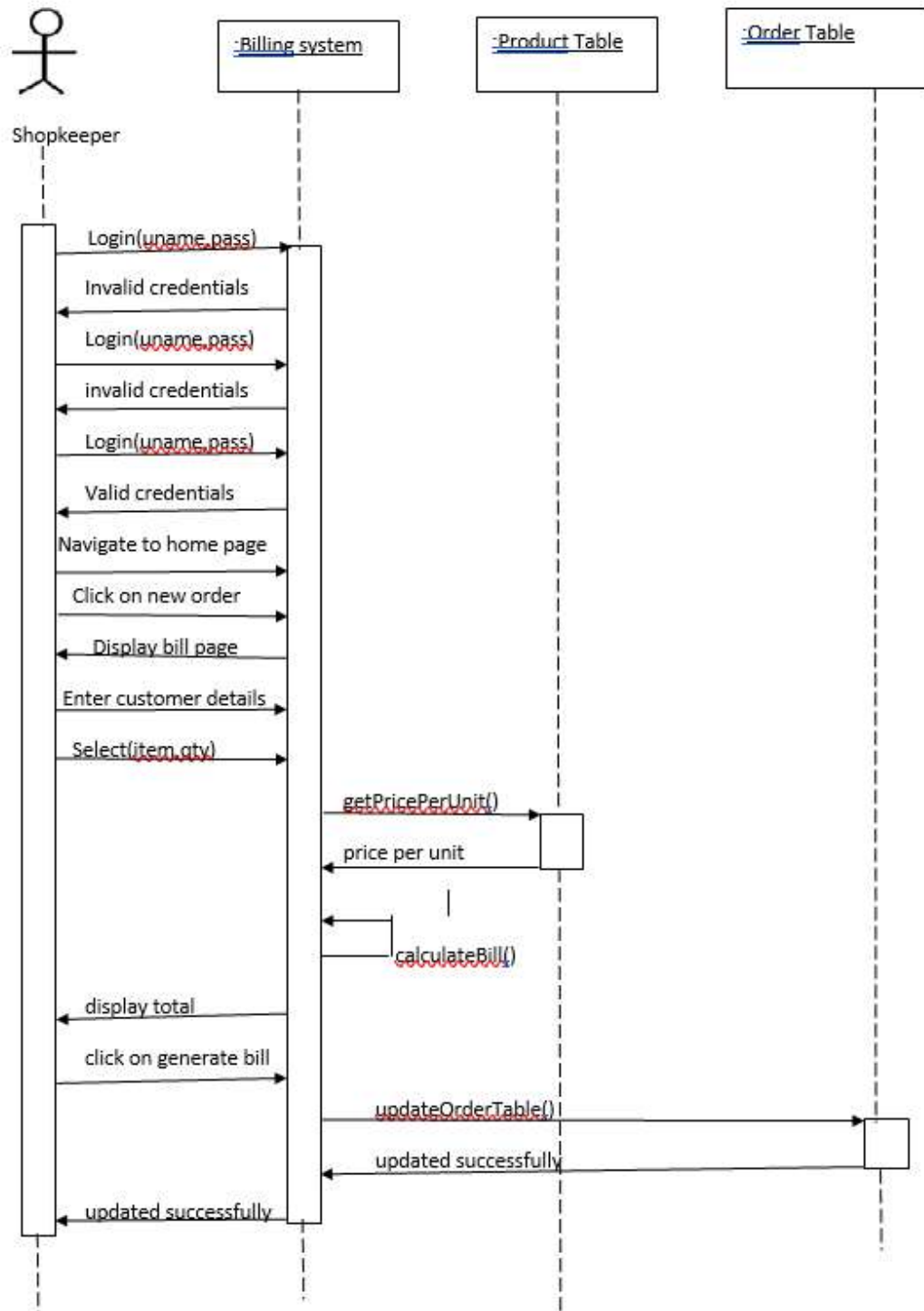
2. SELL ITEM (BASIC FLOW)

SCENARIO:

- Shopkeeper enters username and password. Clicks on login.
- Shopkeeper is validated.
- Home page is displayed. Shopkeeper selects new order.
- Enter customer name. Click on add more.
- Shopkeeper selects the product and quantity.
- The software calculates total automatically.
- After all the products of order is entered. Click on generate.
- The transaction details are stored in database.
- The transaction status is alerted to the shopkeeper.

SEQUENCE DIAGRAM:

ALTERNATE FLOW (WITH VALID CREDENTIALS IN 2nd ATTEMPT)

Shopkeeper | :Billing system | :Product Table | :Order Table

- Login(uname,pass)
- Invalid credentials
- Login(uname,pass)
- Valid credentials
- Navigate to home page
- Click on new order
- Display bill page
- Enter customer details
- Select(item,qty)
- getPricePerUnit()
- price per unit
- calculateBill()
- display total
- click on generate bill
- updateOrderTable()
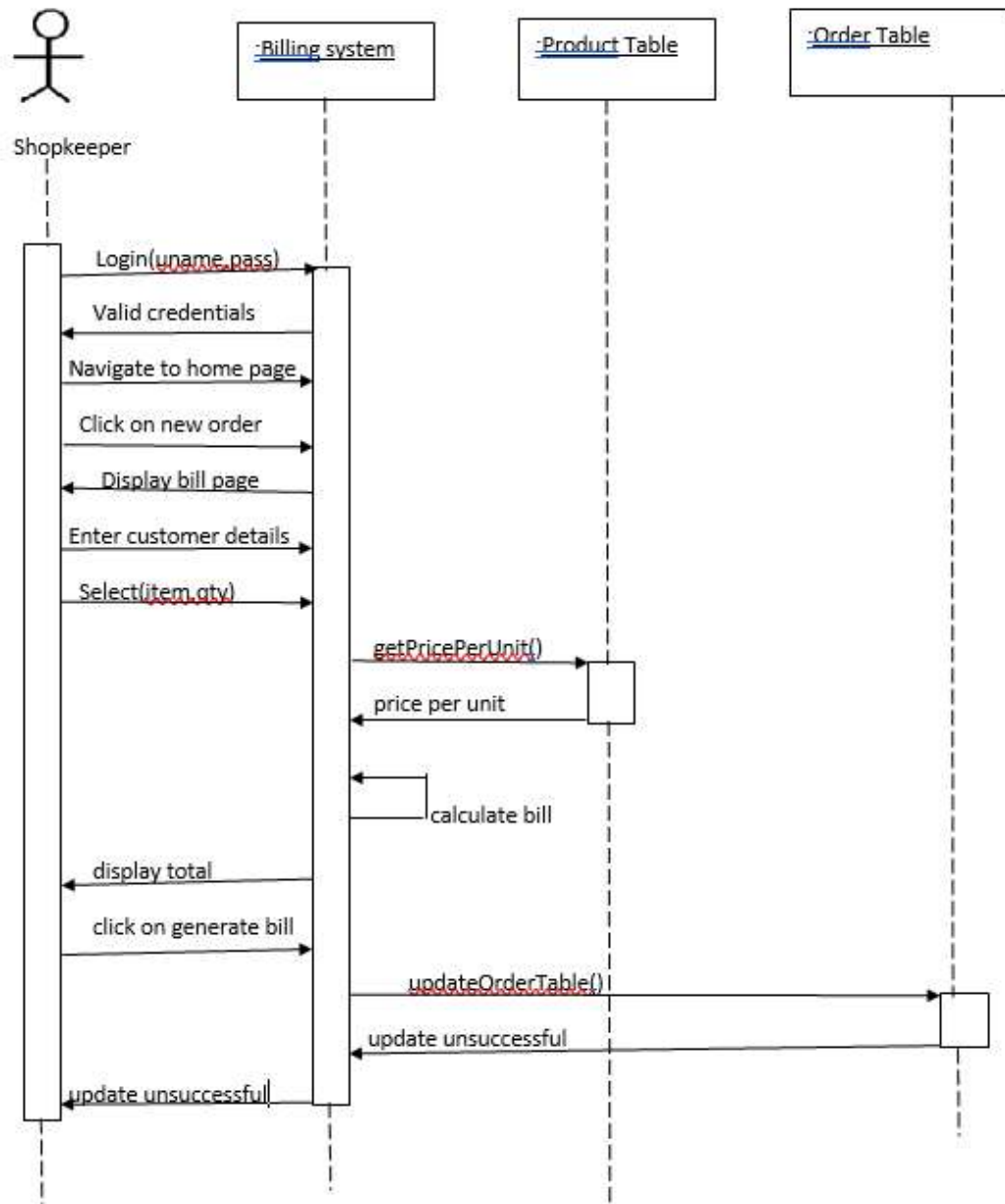- updated successfully
- updated successfully

ALTERNATE FLOW (WITH VALID CREDENTIALS IN 3RD ATTEMPT)

ALTERNATE FLOW (AFTER ENTERING INVALID CREDENTIALS IN ALL 3 ATTEMPTS)
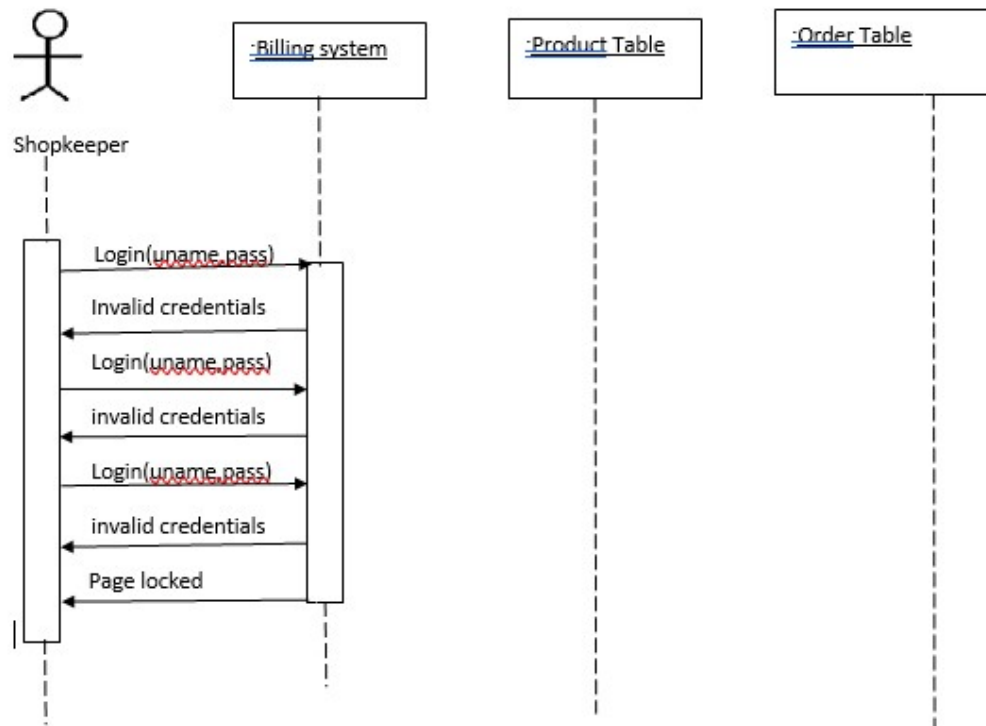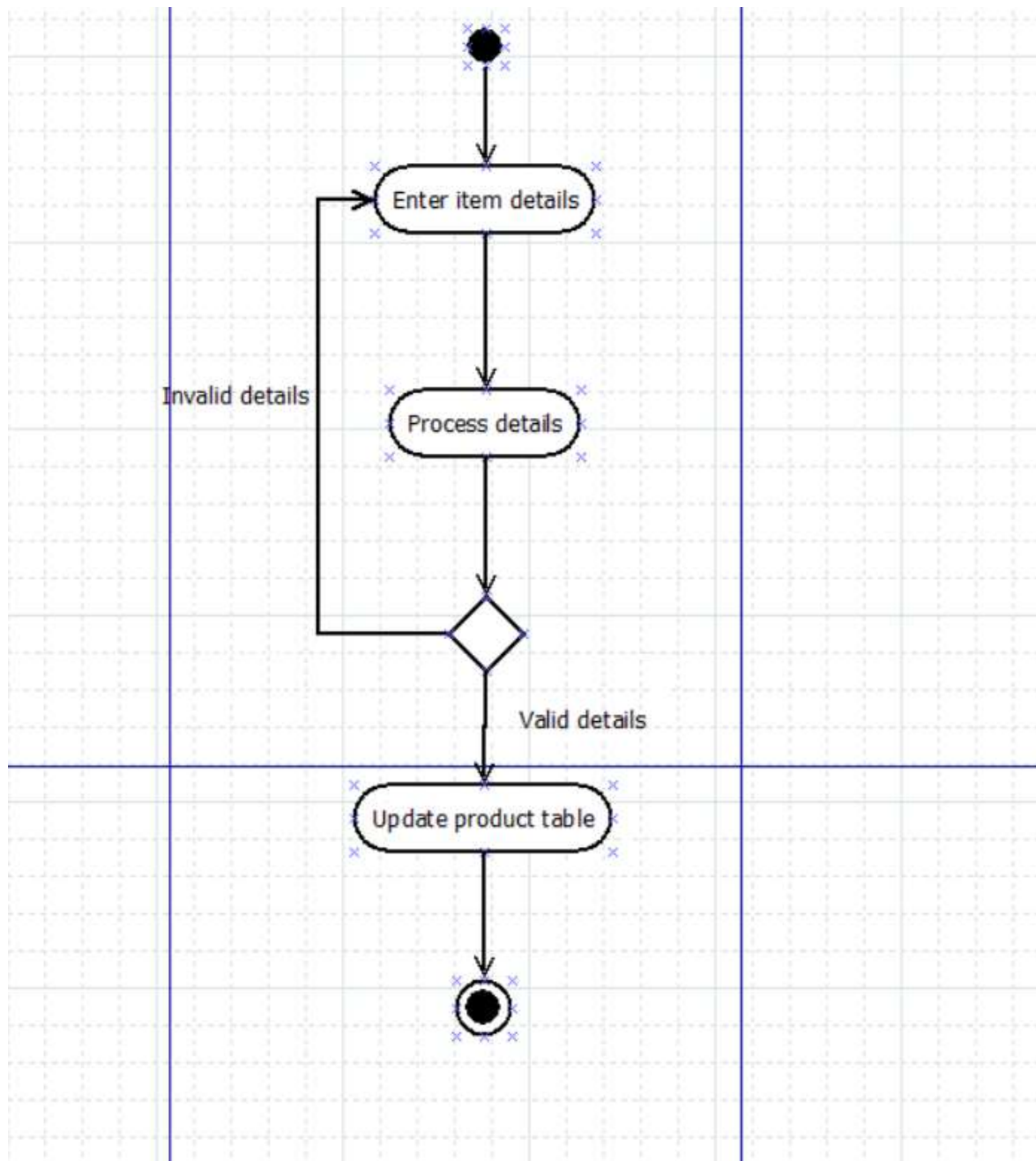
ALTERNATE FLOW (WITH TRANASACTION TABLE UPDATION UNSUCCESSFUL)

3.MAINTAIN DETAILS

3(1) UPDATE PRODUCT TABLE

1(a) LOAD ITEM

1(b) REMOVE THE ITEM
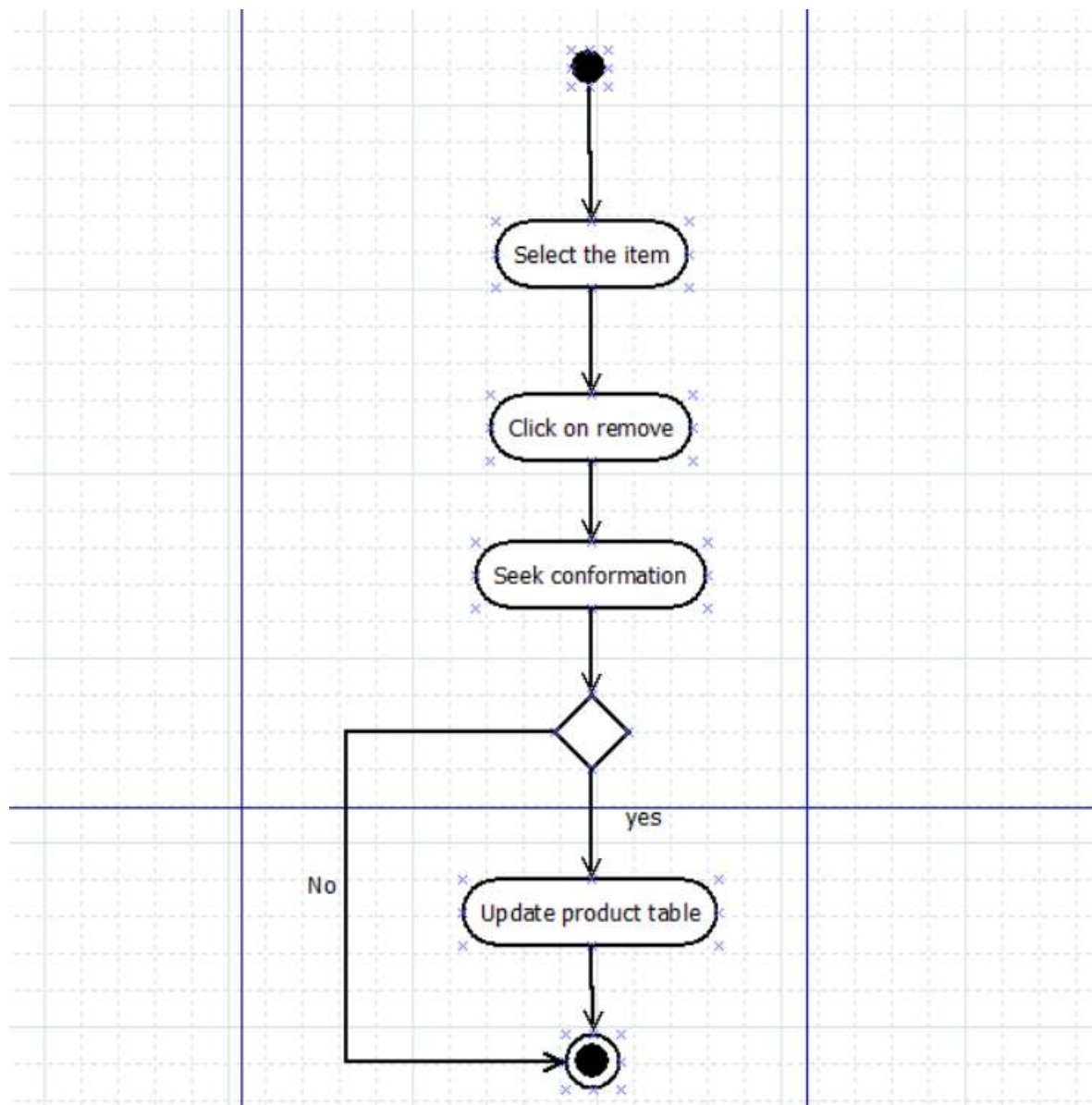
3(2) UPDATE THE ORDER TABLE

4 MAINTAIN SYSTEM
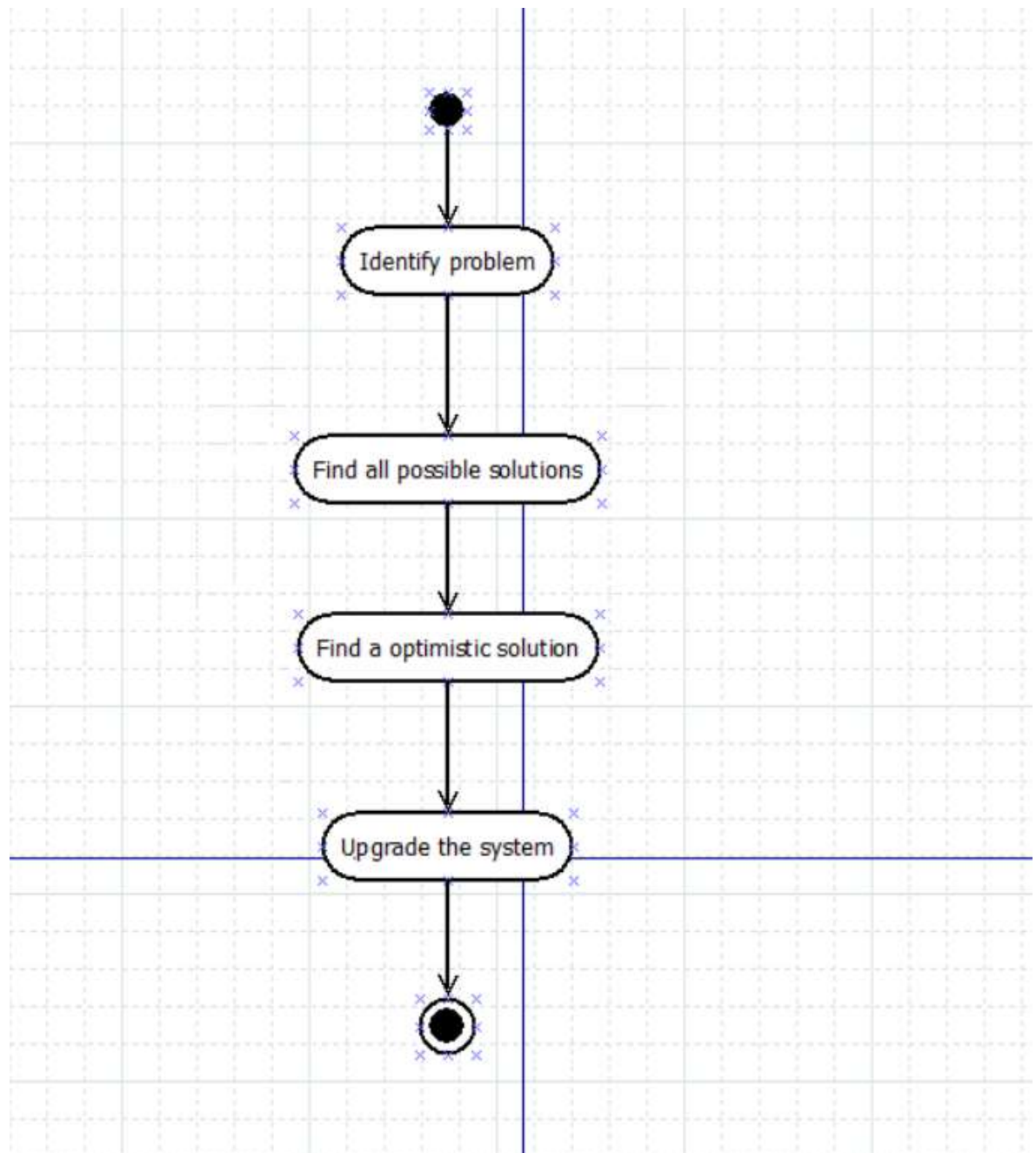
CHAPTER-8

WIREFRAMES
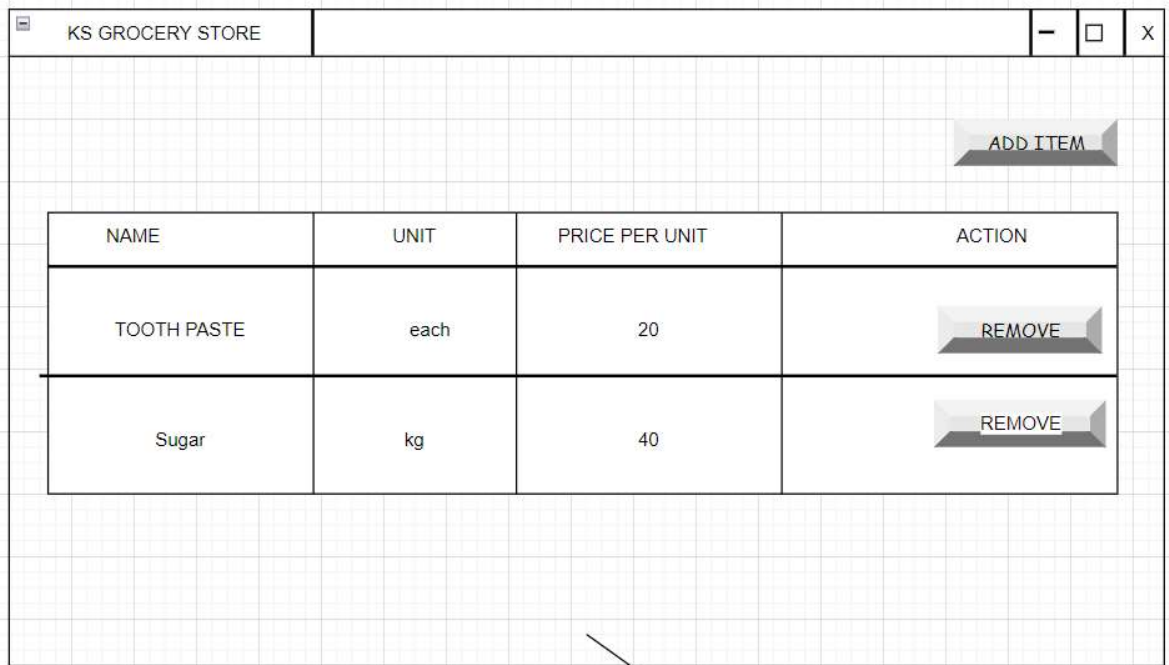
1. LOGIN PAGE
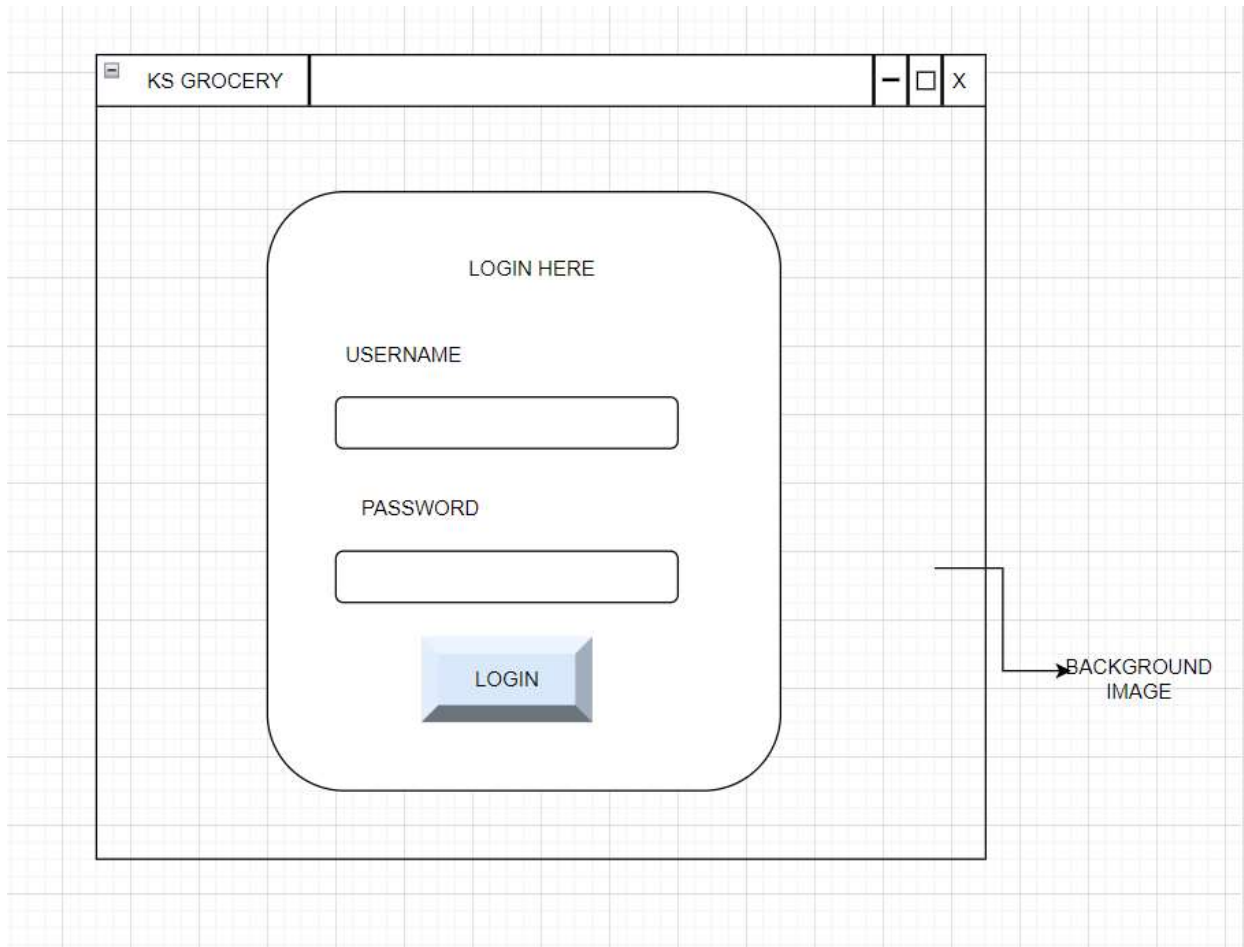
2. HOME PAGE

3. MANAGE PRODUCTS PAGE

| | KS GROCERY STORE | | | | − □ X |

ADD ITEM
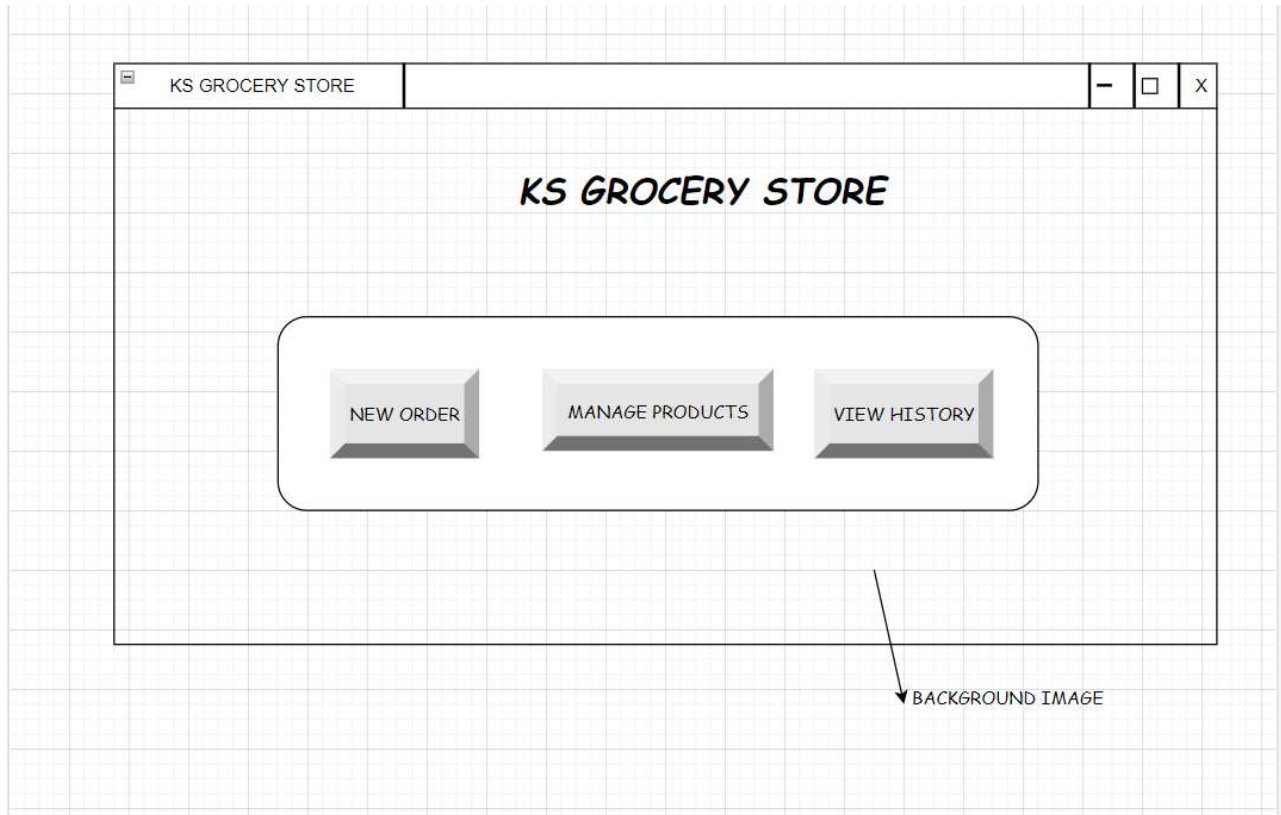
NAME	UNIT	PRICE PER UNIT	ACTION
TOOTH PASTE	each	20	REMOVE
Sugar	kg	40	REMOVE

BACKGROUND IMAGE

4. NEW ORDER PAGE
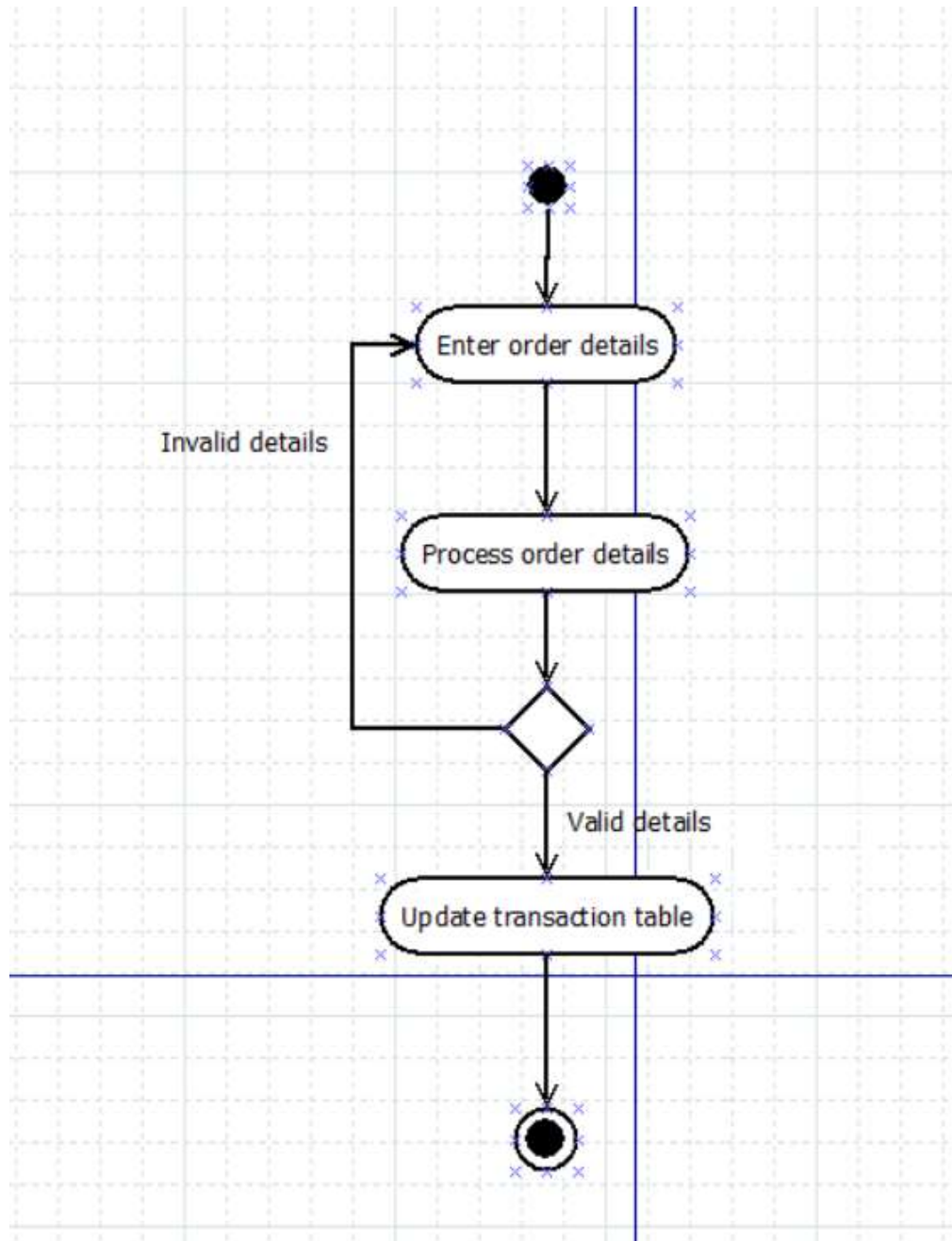

KS GROCERY STORE			− □ X

NEW ORDER

⊟ CUSTOMER NAME

PRODUCT	PRICE	QUANTITY	TOTAL	ADD MORE

REMOVE

TOTAL

NEW ORDER   GENERATE BILL

BACKGROUND IMAGE

4. NEW ORDER PAGE

5. TRANSACTION HISTORY PAGE

KS GROCERY STORE   — □ X

DATE	ORDER NUMBER	CUSTOMER NAME	TOTAL COST
MON, 12 NOV 2021 13:01:00 GMT	1	SUDHA	90.00 Rs
MON, 15 NOV 2021 16:11:50 GMT	2	ARUN	.20.00 Rs
		TOTAL	110.00 Rs

BACKGROUND IMAGE

6. ADD NEW ITEM

CHAPTER-9 (TEST CASES)

#	TS1
Title	Verify the "User login" feature
Description	To test the different scenarios that might arise while a user is trying to login

#	Summary	Dependency	Pre-condition	Post - condition	Execution-steps	Expected output
TC1	Verify that shopkeeper is able to login with correct user-name and password		Shopkeeper's username and password is registered Username is ksstore Password is ks#123	Shopkeeper Logged in	- Type in username - Type in password - Click on login button	Shopkeeper navigated to home page
TC2	Verify that shopkeeper is not able to login with invalid credentials		Shopkeeper's Username or password other than ksstore and ks#123 resply	Shopkeeper not logged in	- Type in username - Type in password - Click on login button	Alert message saying login failed only 2 attempts remaining
TC3	Verify that shopkeeper is not able to login with invalid credentials twice	TC2	Shopkeeper's Username or password other than ksstore and ks#123 resply	Shopkeeper not logged in	- Type in username - Type in password - Click on login button	Alert message saying login failed only 1 attempt remaining
TC4	Verify that shopkeeper is not able to login with invalid credentials twice	TC3	Shopkeeper's Username or password other than ksstore and ks#123 resply	Shopkeeper not logged in	- Type in username - Type in password - Click on login button	Alert message saying that login failed, page locked try after some time.
TC5	Verify that shopkeeper is not able to login without entering credentials		Shopkeeper does not enter username or password	Shopkeeper not logged in	- Do not enter either username or password or both - Click on login	Alert message saying that Enter credentials

| #	TS2
Title	Verify the "Manage products" feature
Description	To test the different scenarios that might arise while shopkeeper trying to update the product table

#	Summary	Dependency	Pre-condition	Post - condition	Execution-steps	Expected output
TC1	Verify that valid data entered is updated in the product table of database		Enter the product details like product name, unit of measure, price per unit like Rice, kg,40 resply	The data updated in product table	- Type in product name - Type in unit of measure - Type in price per unit - Click on save button	Alert message saying that data updated successfully
TC2	Verify that invalid data entered is not updated in the product table of database		Enter the product details like product name, unit of measure, price per unit like Rice, kg, -40 resply	The data is not updated in product table	- Type in product name - Type in unit of measure - Type in price per unit - Click on save button	Alert message saying that data updation unsuccessful Re-enter data
TC3	Verify that shopkeeper is able to delete the selected item from product table		List of items displayed to shopkeeper	Item deleted	- Select item - Click on remove button	Alert message saying Item deleted successfully

#	TS3
Title	Verify the "Maintain Transaction Details" feature
Description	To test the different scenarios that might arise while shopkeeper is making transaction

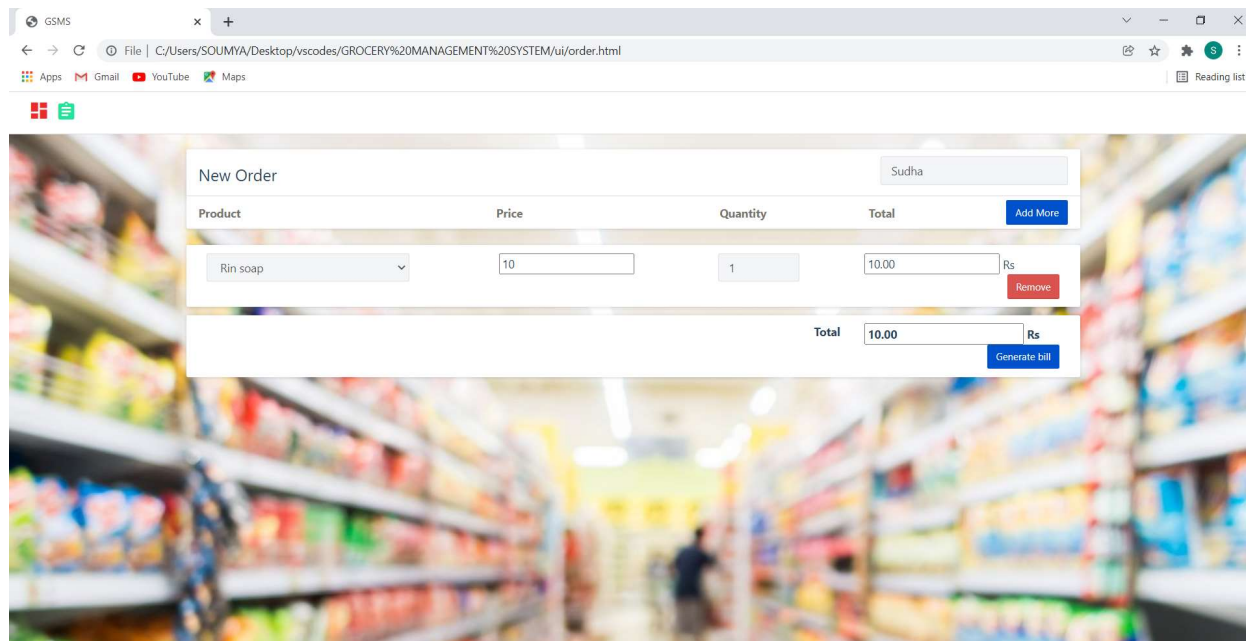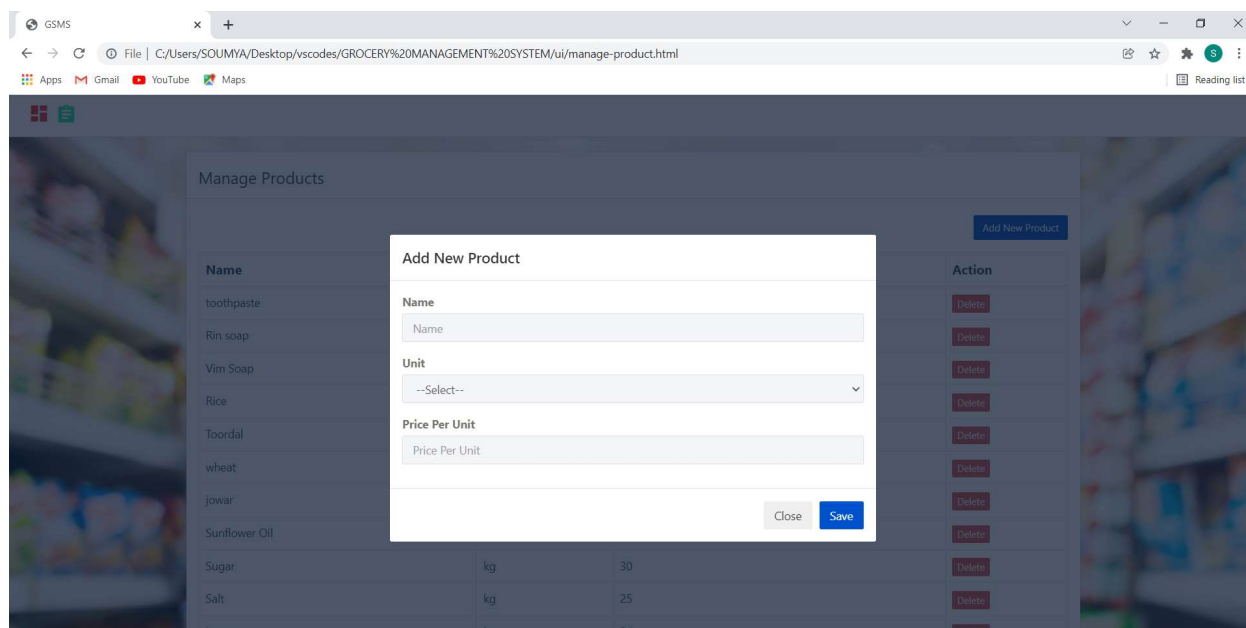| #	Summary	Dependency	Pre-condition	Post - condition	Execution-steps	Expected output
TC1	Verify that valid data entered is updated in the order table of database		Enter the customer's name, product details like product name, quantity like Suma, Rice,5 resply	The data updated in order table	• Type in Customer name • Select product • Select quantity • Click on generate bill button	Alert message saying that transaction complete
TC2	Verify that invalid data entered is not updated in the order table of database		Does not enter the customer's name, and enter product details like product name, quantity like Rice,5 resply	The data is not updated in order table	• Do not type customer name • Select product • Select quantity • Click on generate bill button	Alert message saying that data incomplete so transaction failed

CHAPTER-10

SCREENSHOTS
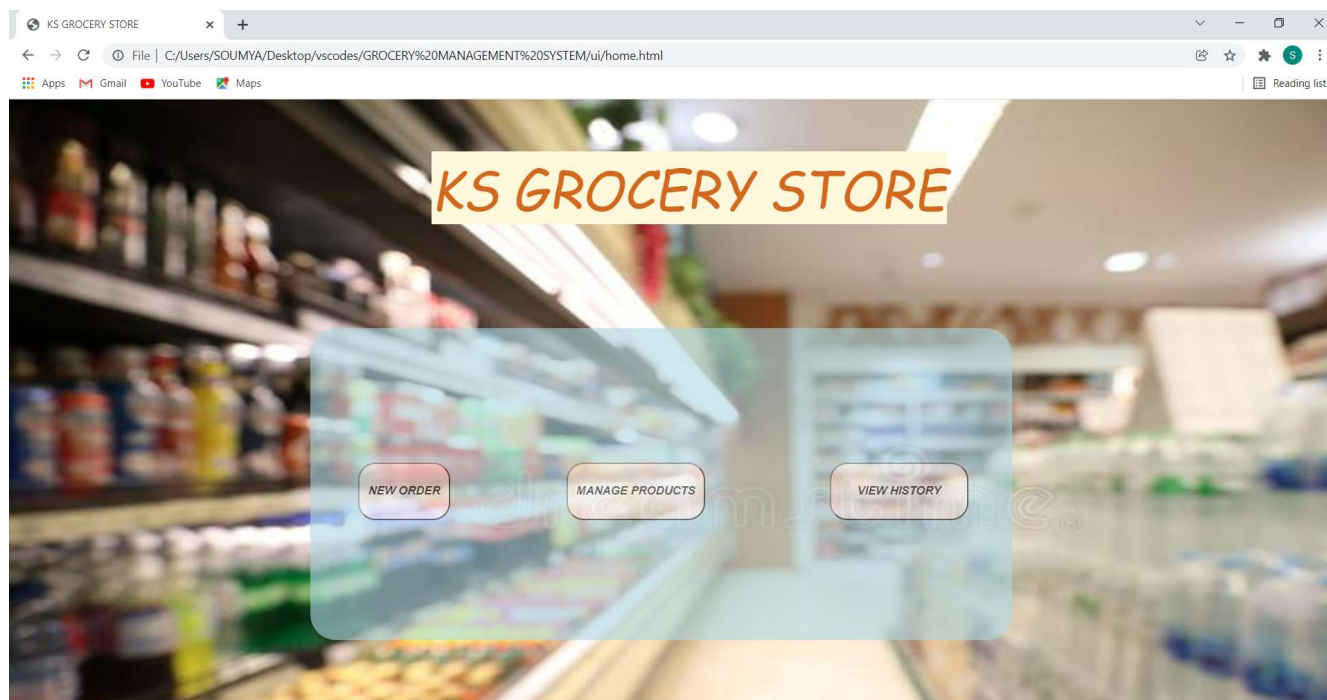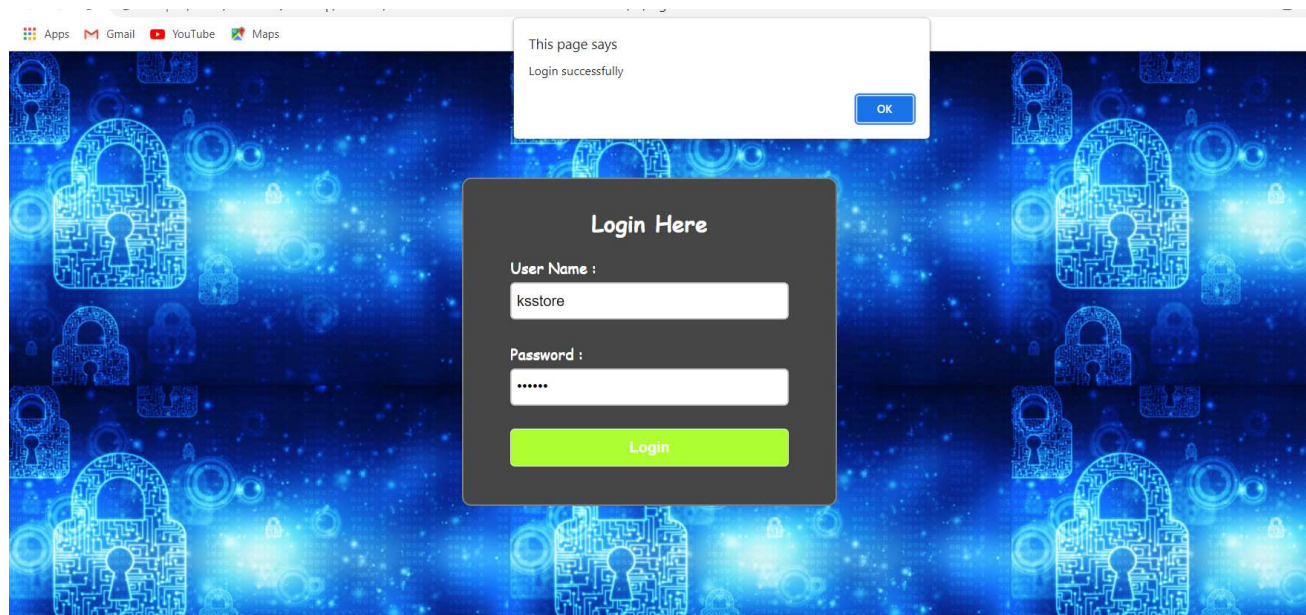
KS Grocery Store

Date	Order Number	Customer Name	Total Cost
Mon, 15 Nov 2021 00:00:00 GMT	1	dhaval	300.00 Rs
Thu, 23 Dec 2021 13:54:26 GMT	14	Sania	20.00 Rs
Thu, 23 Dec 2021 13:54:36 GMT	15		0.00 Rs
Thu, 23 Dec 2021 13:56:00 GMT	16	Shanbhavi	180.00 Rs
Thu, 23 Dec 2021 13:56:46 GMT	17	Sangeeta	775.00 Rs
Thu, 23 Dec 2021 13:58:59 GMT	18	Suchita	72.00 Rs
		Total	1347.00 Rs

Manage Products

Add New Product

Name	Unit	Price Per Unit	Action
toothpaste	each	30	Delete
Rin soap	each	10	Delete
Vim Soap	each	15	Delete
Rice	kg	45	Delete
Toordal	kg	55	Delete
wheat	kg	35	Delete
jowar	kg	40	Delete
Sunflower Oil	kg	130	Delete
Sugar	kg	30	Delete
Salt	kg	25	Delete
jeera	kg	24	Delete

Manage Products

Add New Product

Add New Product

Name

Name

Unit

--Select--

Price Per Unit

Price Per Unit

Close   Save

Name			Action
toothpaste			Delete
Rin soap			Delete
Vim Soap			Delete
Rice			Delete
Toordal			Delete
wheat			Delete
jowar			Delete
Sunflower Oil			Delete
Sugar	kg	30	Delete
Salt	kg	25	Delete
jeera	kg	24	

New Order

Sudha

Product	Price	Quantity	Total	Add More
Rin soap	10	1	10.00 Rs	Remove

Total   10.00   **Rs**

Generate bill

CONCLUSION:

Here in this project, we built software for real Clint named as KS grocery store a grocery store management system which performs all operations related to grocery store like adding item, deleting item updating, maintaining all the transaction history and bill calculation.

REFERENCES:

- Fundamentals of Software Engineering, Rajib Mall, Prentice-Hall of India, 3rd Edition, 2009