SOFTWARE ENGINEERING

Lab Report

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September 16, 2019

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1. PROJECT OVERVIEW

Online food ordering is the process of ordering food through the restaurant's own website or mobile app, or through a multi-restaurant's website or app. A customer can choose to have the food delivered or for pick-up. The process consists of a customer choosing the restaurant of their choice, scanning the menu items, choosing an item, and finally choosing for pick-up or delivery. Payment is then administered by paying with a credit card or debit card through the app or website or in cash at the restaurant when going to pick up. The website and app inform the customer of the food quality, duration of food preparation, and when the food is ready for pick-up or the amount of time it will take for delivery.

Thapar JAC's is an online food delivery system aimed for use at TIET campus. The targeted users are the students and faculty, the residents of the campus. Initially, the restaurants that'll be included are the ones currently on campus grounds.

A customer requires login and password to login to the system. He or she may then browse the various food products offered by the different restaurants. If he or she finds any to his or her liking, an order may be placed on his or her end.

The restaurant then receives the order details and decides whether to accept or reject the order. After that confirmation, the customer is given the option to whether pay using an online service or opt for cash on delivery,

Now, a delivery personnel is assigned to that order, and the necessary details regarding the delivery are provided. That person picks up the order from the restaurant. The customer receives this information and is able to track the delivery product in real time, including its position on the map. When the food is delivered, the delivery personnel confirms the delivery and the relevant information is updated in the database.

The restaurant has the ability to change anything in its menu at any time, as per what is available and what is not.

There is a governing entity, an administrator who manages everything. He or she can add or remove restaurants and view all data related to the system. The administrator also has his/her own credentials for login.

Thapar JAC's aims to ease the process of online food ordering for TIET residents. This will also act as a boost for the campus-based restaurants.

2. PROJECT REQUIREMENTS

2.1 FUNCTIONAL REQUIREMENTS

1. The customer should be able to view the menu/food items offered by different restaurants.
2. The restaurant should be able to make any changes to their menu at any time.
3. The customer should login with correct credentials before placing an order.
4. The administrator should be able to add or remove any restaurant from the database at any given time.
5. The administrator should be able to easily access/view reports of the activities occurred.
6. The delivery personnel will receive the order after it has been confirmed by the restaurant.
7. After a successful delivery, the confirmation will be sent by the delivery personnel.
8. Records of every transaction will be properly maintained in a database.
9. An order can only be accepted/confirmed by the corresponding restaurant, and only then will the delivery personnel be alerted.
10. After the acceptance of the order, the customer will receive a confirmation for the same.

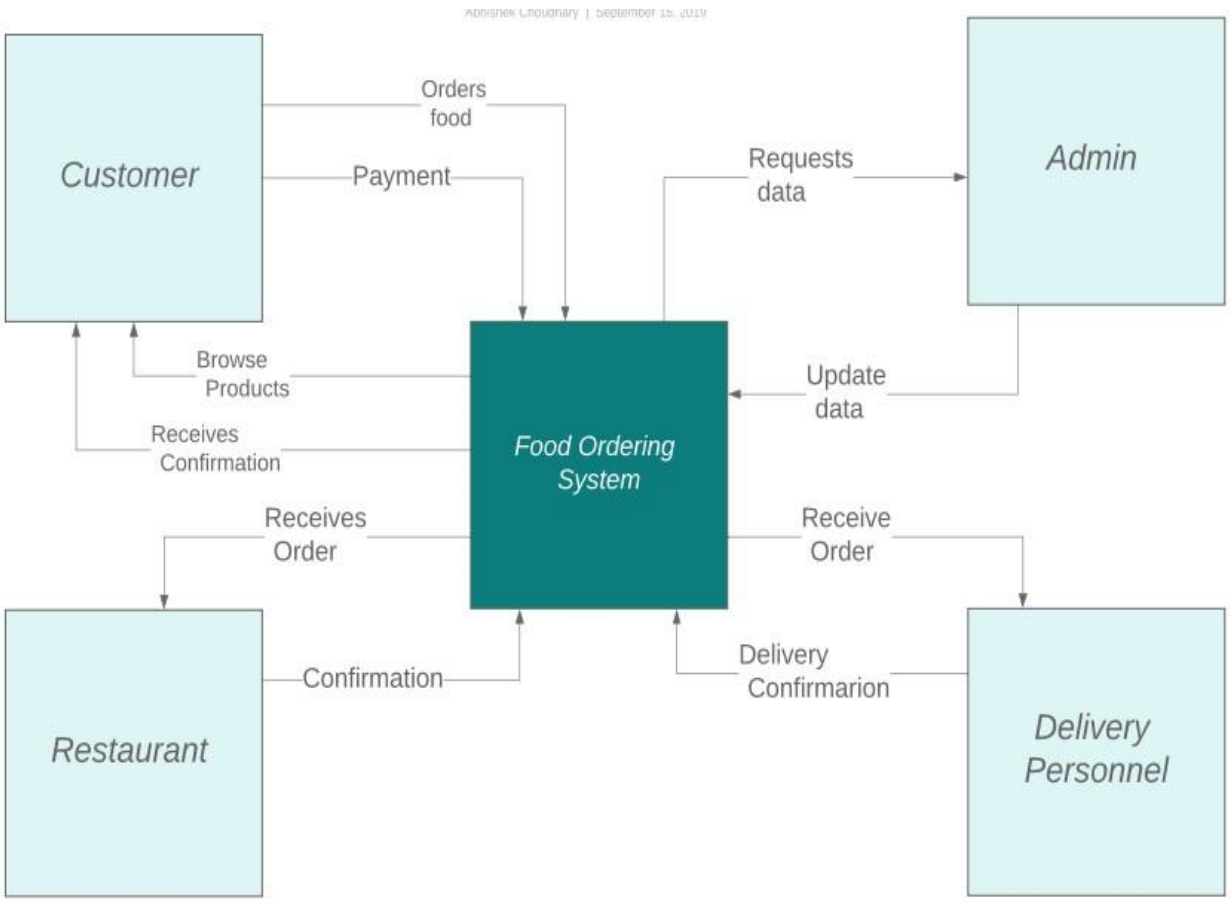
2.2 NON-FUNCTIONAL REQUIREMENTS

1. The system should be overall secure, and need credentials to be accessed.
2. The system should be accessible on multiple types of devices and operating systems.
3. The system should be reliable and there should be no errors or ambiguity.
4. More functionalities could be added over time and UI can be changed, adding to the scalability and flexibility of the product.
5. The interface should be minimalistic and captive.
6. Response time should be low.
7. Data redundancy should be avoided.

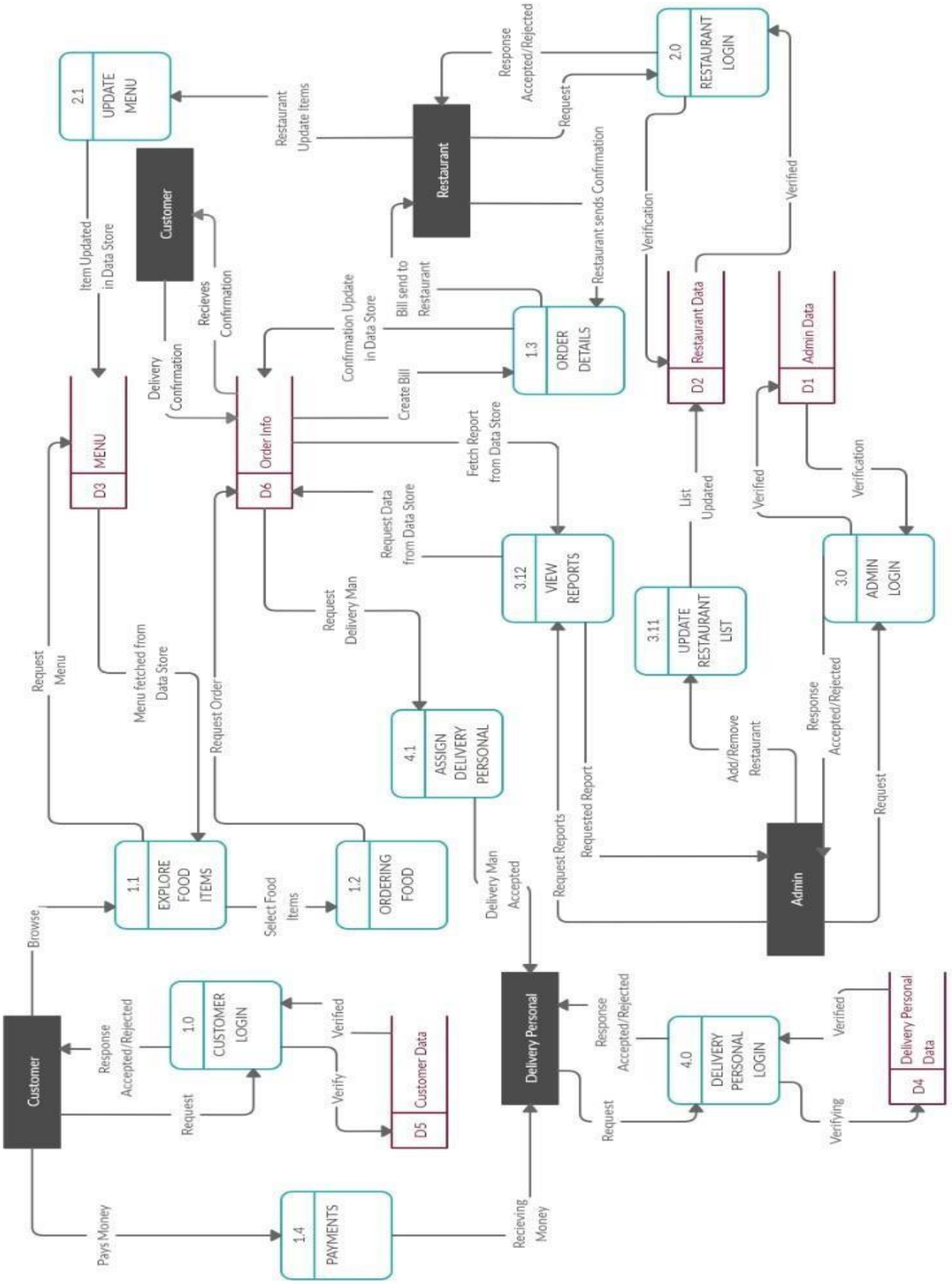
3. STRUCTURED ANALYSIS

3.1 DATA FLOW DIAGRAMS

3.1.1 DFD Level 0



3.1.2 DFD Level 1



3.1.3 Data Dictionary

3.1.3.1 Data Store

1.Customer

It stores information about customer.

CustomerID number(5) Primary Key

FirstName varchar2(100)

LastName varchar2(100)

EmailId varchar2(100)

Password varchar2(100)

Location varchar2(100)

City varchar2(100)

State varchar2(100)

DOB Date

MobileNumber varchar2(100)

2.Admin

Stores information about Admin.

AdminID number(5) Primary Key

FirstName varchar2(100)

LastName varchar2(100)

EmailID varchar2(100)

Password varchar2(100)

MobileNumber varchar2(100)

3.Delivery Personal

Stores information about Delivery Personal

DPID number(5) Primary Key

FirstName varchar2(100)

LastName varchar2(100)

EmailID varchar2(100)

Password varchar2(100)

MobileNumber varchar2(100)

VehicaleNumber varchar2(100)

4.Orders

Stores information about orders.

Order_Id number(10) primary key

Price Number(6,2)

Restaurant_Id Number(10)

Customer_Id Number(10)

Email_Id varchar2(100)

Restaurant_Confirmation varchar2(5)

Delivery_Confirmation varchar2(5)

5.Menu

Stores Menu of a Restaurant.

Food_Id Number(10) primary key

Food_Item varchar2(50)

Restaurant_Id Number(10)

Availability varchar2(5)

Price Number(6,2)

6.Restaurant:

Stores information related to the restaurants

Restaurant_Id number(10) primary key

Name varchar(50)

Opening_Time timestamp

Closing_Time timestamp

Rating number(3,1)

Location varchar(100)

3.1.3.2 Processes

1.

Name of the Process : Customer Login

Inward Dataflow : Request, Verified

Outward Dataflow : Verify, Response Accepted/Rejected

Description : Customer login into its account which is verified by checking entries in database.

2.

Name of the Process : Explore Food Items

Inward Dataflow : Browse, Menu fetched from Data Store

Outward Dataflow : Request Menu, Select food item

Description : Customer uses UI to search for restaurant and its menu.

3.

Name of the Process : Ordering Food

Inward Dataflow : Select food items

Outward Dataflow : Request order

Description : Customer selects food items he/she wants to order and then places order.

4.

Name of the Process : Order Details

Inward Dataflow : Create bills, Restaurant sends confirmation

Outward Dataflow : Confirmation Update in Data Store, Bill send to Restaurant Description : Restaurant recieves order, generates bill and sends order confirmation to the customer.

5.

Name of the process: Update menu

Inward Dataflow: Restaurant update items

Outward Dataflow: Items updated in data store

Description: The restaurant is able to make changes to the menu visible to the customers using this facility.

6.

Name of the process : Restaurant Login

Inward Dataflow: Request, Verified

Outward Dataflow: Response Accepted/Rejected, Verification

Description: The restaurant must login with correct credentials before it can make any further changes. This process is used to login to the system.

7.

Name of the process : Delivery Personnel Login

Inward Dataflow : Request,Verified

Outward Dataflow : Response Accepted/Rejected, Verifying

Description : The delivery personnel enters his/her credentials which are then matched with the entries of the data store and if the details are correct then the delivery personnel gets successfully login.

8.

Name of the process : Assign Delivery Personnel

Inwad Dataflow : Request Delivery Man

Outward Dataflow : Delivery Man accepted

Description : There will be a broadcast acceptance message for all the delivery personnel to accept the order for delivery.

9.

Name of the process : Admin Login

Inwad Dataflow : Request,Verification

Outward Dataflow : Response Accepted/Rejected, Verified

Description : The admin will enter his/her credentials which are then verified from the preentered credentials of the admin.

10.

Name of the process : View Reports

Inwad Dataflow : Request Report,Fetch Data Report from Data Store

Outward Dataflow : Request data from data store,requested report

Description : The admin will request for reports of sales of different restaurant. The request will then be sent to the orders data store and then the corresoponding requested reports will be fetched and sent to the admin.

11.

Name of the process : Updare Restaurant List

Inwad Dataflow : Add/Remove Restaurant

Outward Dataflow : List updated

Description : The admin by using this process can add or remove the restaurants from the restaurant data store.

12.

Name of the Process : Payments

Inward Dataflow : Pays Money

Outward Dataflow : Recieveing Money

Description : Customer selects mode of payment and pays it to delivery personal.

3.1.3.3 Data Flow

1. Name of the DF : Request Starting Point : Customer

Ending Point : Customer Login

Description : Customer types username and password.

2. Name of the DF : Verify

Starting Point : Customer Login

Ending Point : Customer Data

Description : Username and Password are matched in database.

3. Name of the DF : Verified

Starting Point : Customer Login

Ending Point : Customer Data

Description : Verification is sent back.

4.Name of the DF : Response Accepted/Rejected

Starting Point : Customer Login

Ending Point : Customer

Description : Verification response is recieved by customer.

5. Name of the DF : Browse

Starting Point : Customer

Ending Point : Explore Food Items

Description : Customer requests data of food items available.

6. Name of the DF : Request Menu

Starting Point : Explore Food Items

Ending Point : MENU Datastore

Description : Menu is requested from database.

7. Name of the DF : Menu fetched from Data Store

Starting Point : MENU Datastore

Ending Point : Explore Food Items

Description : Menu is fetched from database and presented to customer.

8. Name of the DF : Select food item

Starting Point : Explore Food Items

Ending Point : Ordering Food

Description : Customer selects his/her food of preference and its quantity.

9. Name of the DF : Request Order

Starting Point : Ordering Food

Ending Point : Order Info

Description : Order request is send from customer to restaurant.

10. Name of the DF : Pays Money

Starting Point : Customer

Ending Point : Payments

Description : Customer selects mode of payment and transfers money to delivery personal.

11.

Name of the DF : Recieves Money

Starting Point : Payments

Ending Point : Delivery Personal

Description : Delivery Personal recieves money.

12.Name of the DF: Response Accepted/Rejected

Starting point: Restaurant Login

Ending point: Restaurant

Description: This data flow concludes the login process for the restaurant. Response is accepted when the credentials entered by the user match the data in the database.

13. Name of the DF: Request

Starting point: Restaurant

Ending point: Restaurant Login

Description: The restaurant enter its credentials while attempting to log in to its account.

14. Name of the DF: Verification Starting point: Restaurant Login

Ending point: Restaurant Data

Description: The data entered by the restaurant is matched with the data in the database.

15. Name of the DF: Verified

Starting point: Restaurant data

Ending point: Restaurant Login

Description: The response after matching the credentials is sent back.

16. Name of the DF: Restaurant update items

Starting point: Restaurant

Ending point: Update menu

Description: The restaurant sends the new menu data to be updated.

17. Name of the DF: Item updated in data store

Starting point: Update menu

Ending point: Menu data store

Description: The changes made by the user are reflected in the database.

18. Name of the DF: Bill sent to restaurant

Starting point: Order Details

Ending point: Restaurant

Description: Order and bill details are received by the restaurant.

19. Name of the DF: Restaurant sends confirmation

Starting point: Restaurant

Ending point: Order Details

Description: Restaurant confirms/rejects the order.

20. Name of the DF: Create Bill

Starting point: Order Info datastore

Ending point: Order details

Description: The billing details are sent to the restaurant.

21. Name of the DF: Confirmation update in datastore

Starting point: Order Details

Ending point: Order Info Datastore

Description: The data if the restaurant has confirmed the order is updated in the datastore

22.Name of DF:Request

Starting Process:Delivery Personnel

Ending Process:Delivery Personnel Login

Description:Username,Password are sent to the delivery personnel login process.

23.Name of DF:Verifying

Starting Process:Delivery Personnel Login

Ending Process:Delivery Personnel Data

Description:Username,Password which is to be matched with the data store

24.Name of DF:Verified

Starting Process:Delivery Personnel Data

Ending Process:Delivery Personnel Login

Description:Confirmation of yes/no

25.Name of DF:Response Accepted/Rejected

Sarting Process:Delivery Personnel Login

Ending Process:Delivery Personnel

Description:a confirmation yes/no is sent to the delivery personnel whether the entered credentials are correct.

26.Name of DF:Delivery man Accepted

Starting Process:Assign delivery personnel

Ending Process:Delivery Personnel

Description:Order details,Acceptance message

27.Name of DF:Request Delivery Man

Starting Process:Order info

Ending Process:Assign Delivery Personnel

Description:Order details,Acceptance message

28.Name of DF:Request

Starting ProcessL:Admin

Ending Process:Admin Login

Description:Username,Password are sent to the admin login process.

29.Name of DF:Verifying

Starting Process:Admin Login

Ending Process:Admin Data

Description:Username,Password which is to be matched with the data store

30.Name of DF:Verified

Starting Process:Admin Data

Ending Process:Admin Login

Description:Confirmation of yes/no

31.Name of DF:Response Accepted/Rejected

Sarting Process:Admin Login

Ending Process:Admin

Description:a confirmation yes/no is sent to the delivery personnel whether the entered credentials are correct.

32.Name of DF:Add/remove Restaurant

Starting Process:Admin

Ending Process:Update Restaurant List

Description:Restaurant Id to add or removed from the restaurant data store

33.Name of DF:List Updated

Starting Process:Update Restaurant List

Ending Process:Restaurant data

Description:Restaurant Id to add or removed from the restaurant data store

34.Name of DF:Request Reports

Starting Process:Admin

Ending Process:View Reports

Description:Restaurant Id whose reports are required to the admin

35.Name of DF: Request data from data store

Starting Process: View Reports

Ending Process: Order Info

Description: Restaurant Id whose reports are required to the admin

36. Name of DF: Fetch report from datastore

Starting Process: Order info data store

Ending Process: View Report

Description: The report details to be viewed by the admin.

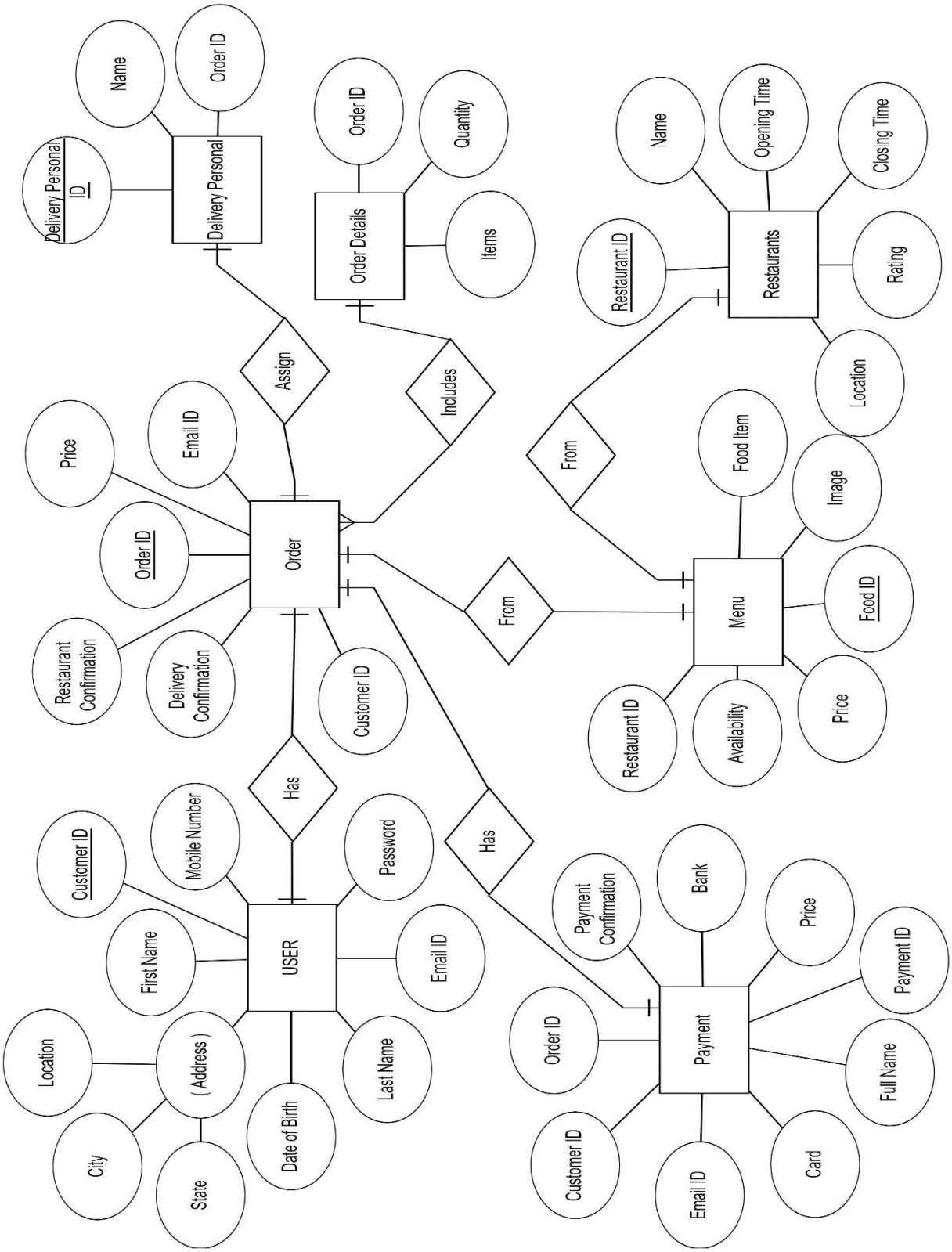
37.Name of DF: Requested Report

Starting Process: View Reports

Ending Process: Admin

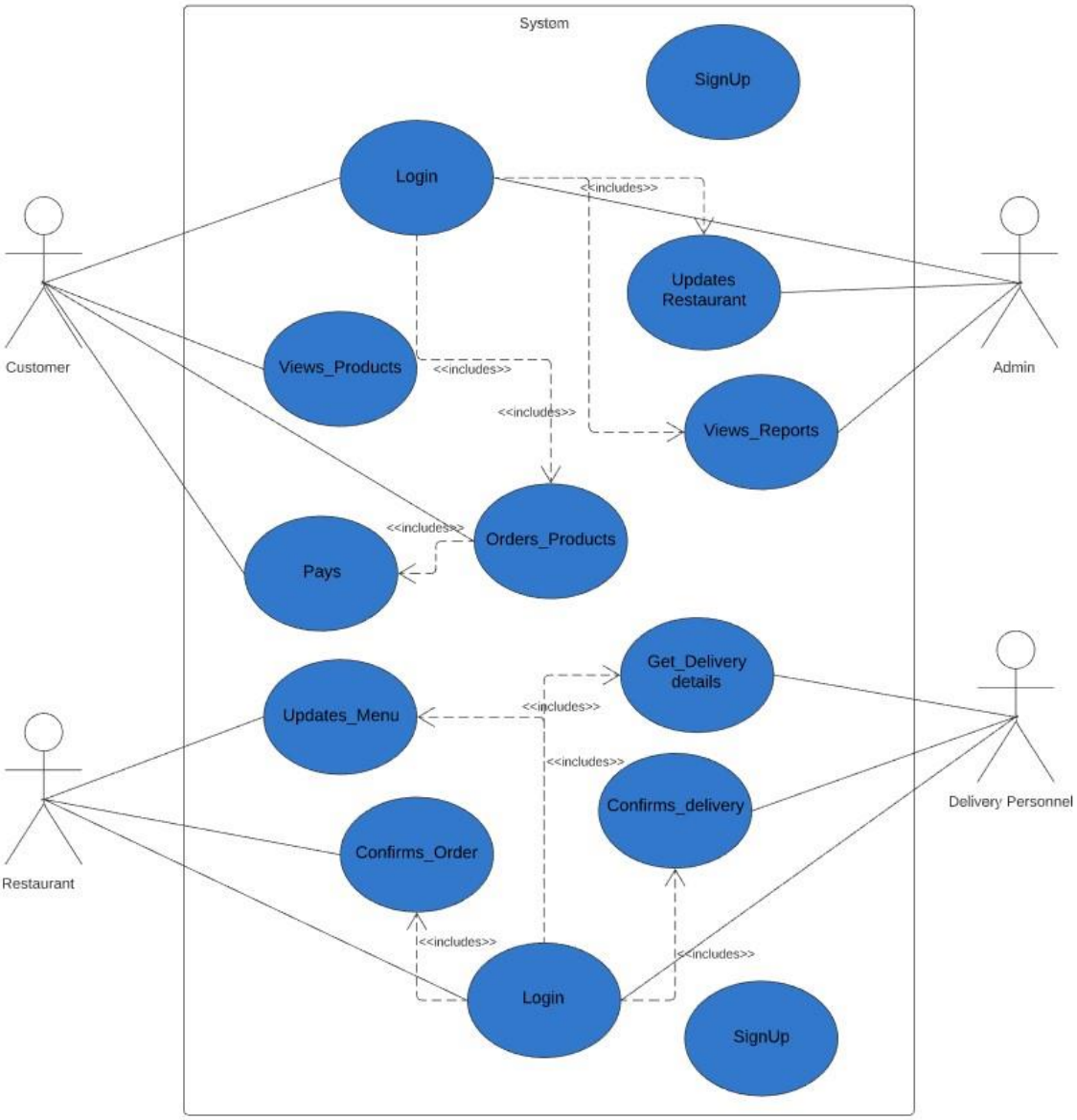
Description: The report details including restaurant id sales.

3.2 ER Diagram



4. OBJECT ORIENTED ANALYSIS 4.1

USE CASE DIAGRAM



4.2 USE CASE TEMPLATE

4.2.1 Use case template for edit menu functionality.

1. Use case title: Edit Menu

2. Abbreviated use case title: Edit Menu

3. Use case id: 2

4. Actors: Restaurant

5. Description:

    Using this function, the Restaurant can edit the menu they want the customers to see. Changes may be made in the type of items offered or the price of an item.

    5.1 Pre-Conditions: The restaurant must be logged in to access this feature.

    5.2 Task sequence:

        1. The user clicks on change menu option, on the restaurant account page.

        2. The user makes the necessary changes to the menu.

        3. The user then clicks the upload button to push changes to the database.

    5.3 Post Conditions:

        1. The customers are now able to see the new menu.

        2. The user may make further changes or logout of the account.

6. Modification History: Date 16-September-2019

7. Author: Abhishek Choudhary

4.2.2 Use case scenario for edit menu functionality

1.(SA) The user is asked to login in to the system.

2.(AA) The user inserts his/her user id and password.

3.(SR) If the credentials match the data in the database, access to edit is granted for that particular restaurant.

4.(SA) The user is redirected to the restaurant account, where he or she can make the desired changes.

5.(AA) The user chooses the change menu option.

6.(SR) The user is prompted to edit the menu, and an upload button is displayed.

7.(AA) The user makes the necessary changes.

8.(AA) The user then clicks on upload button.

9.(SR) The system prompts to confirm the changes that have been made.

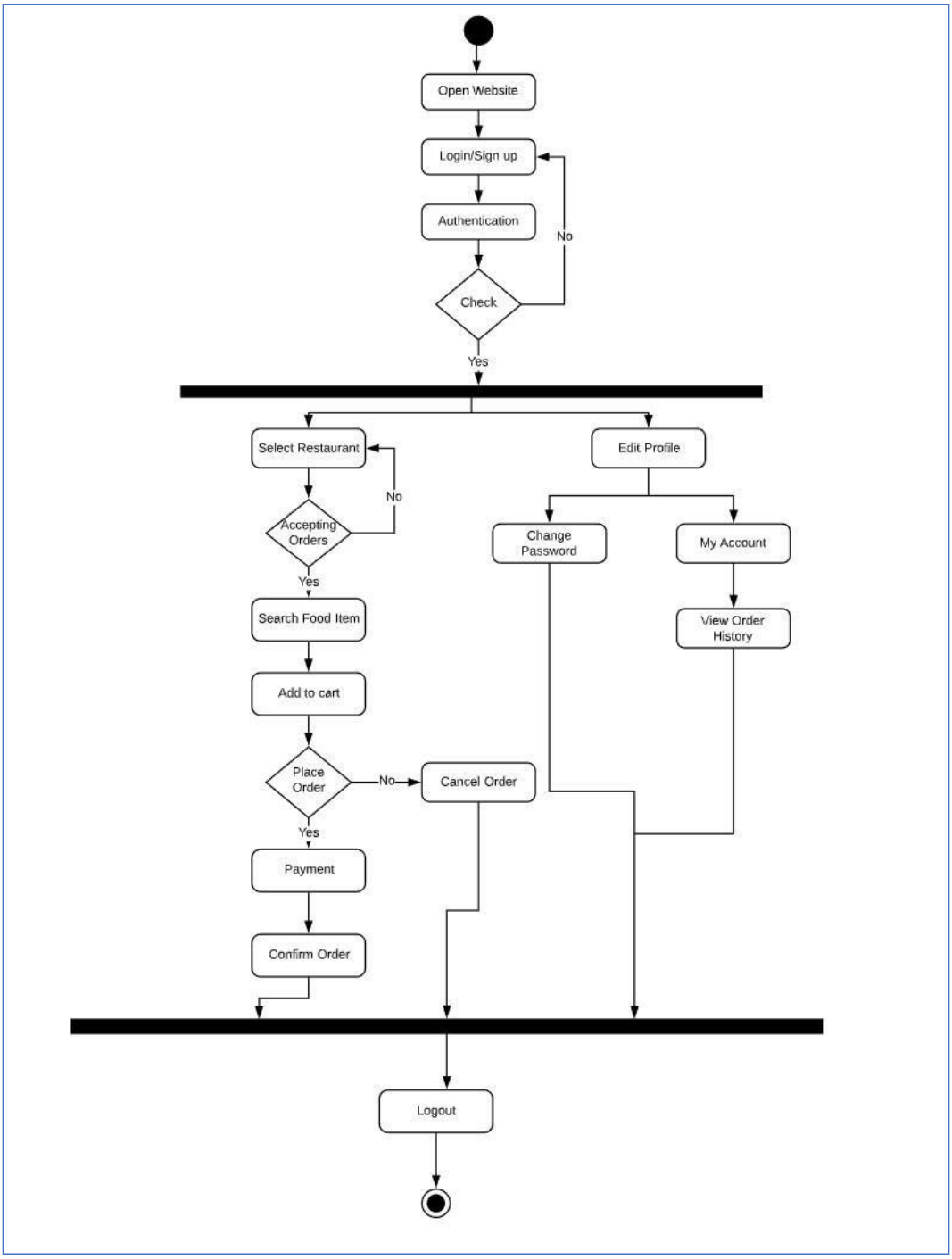
10.(AA) The user confirms the changes.

11.(SA) The system pushes the changes to the database, and the new menu is now visible to the customer.

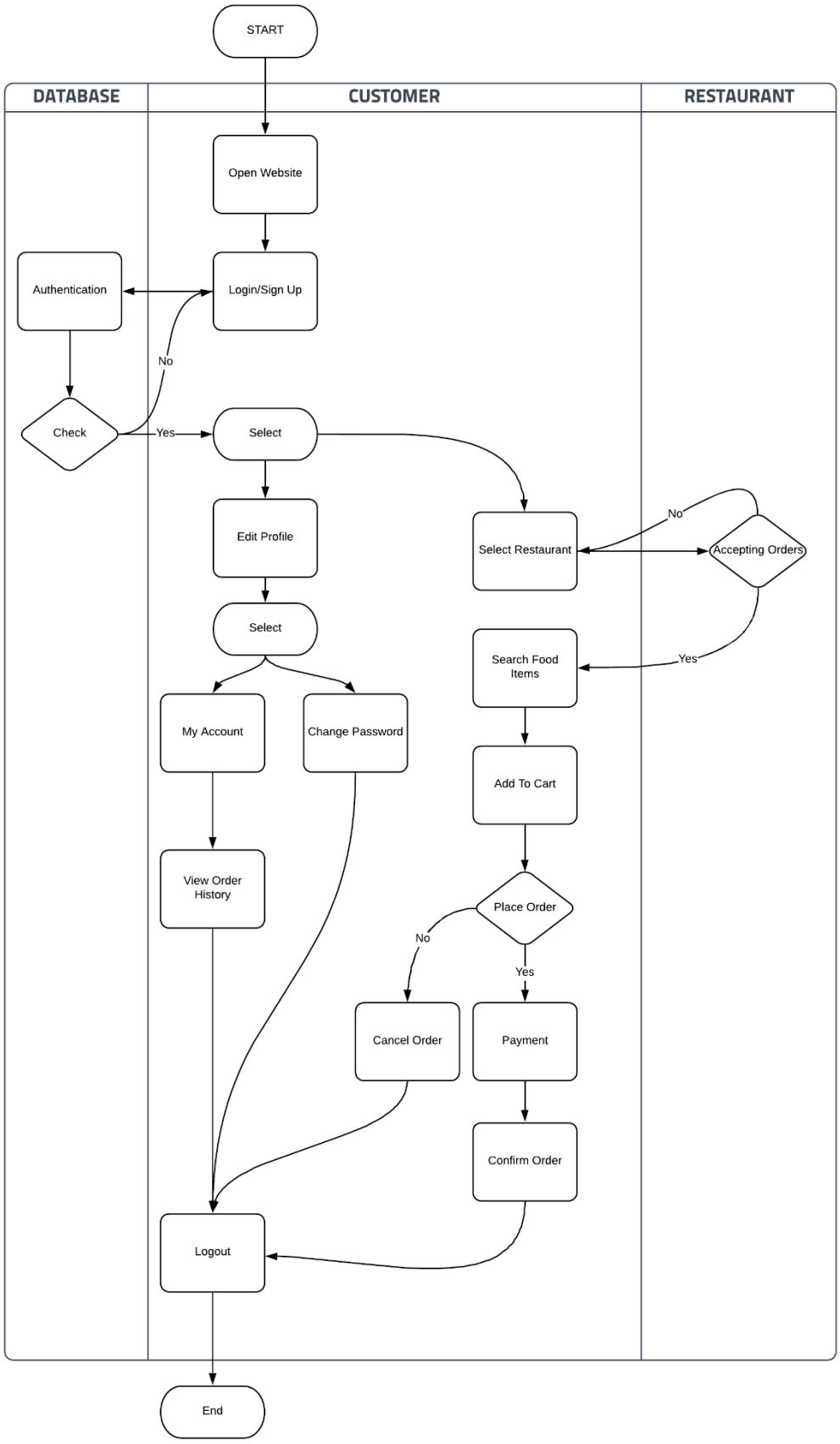
12.(SR) A success message is displayed if the changes have been made.

10.(SR) The system now redirects to restaurant account page, awaiting further changes.

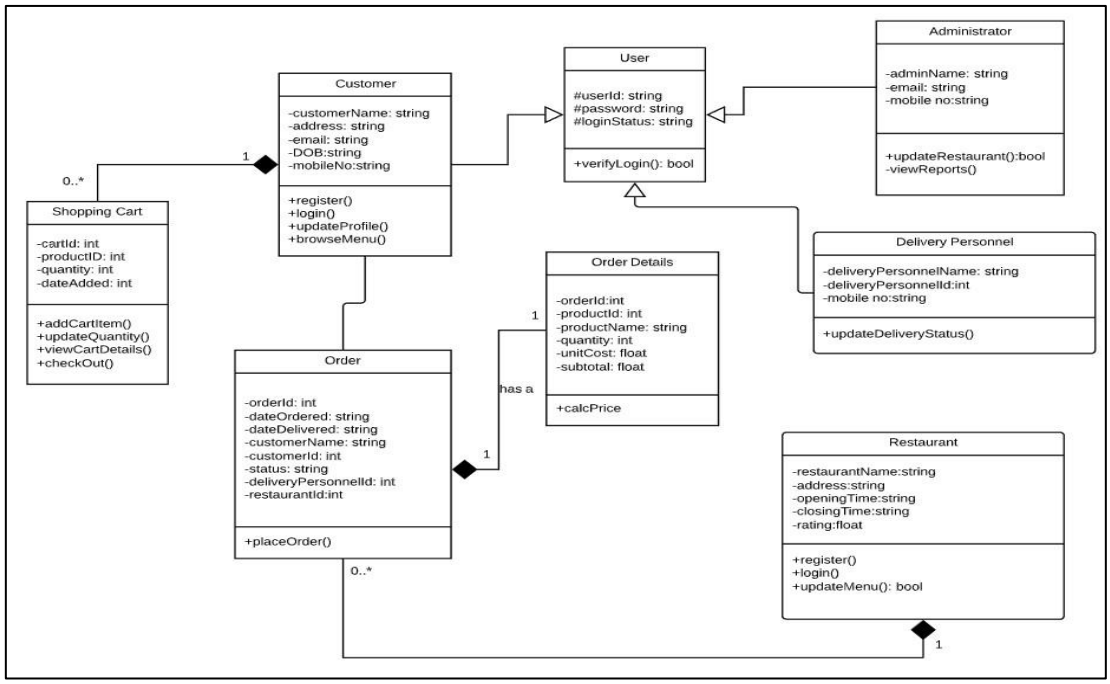
ACTIVITY DIAGRAM



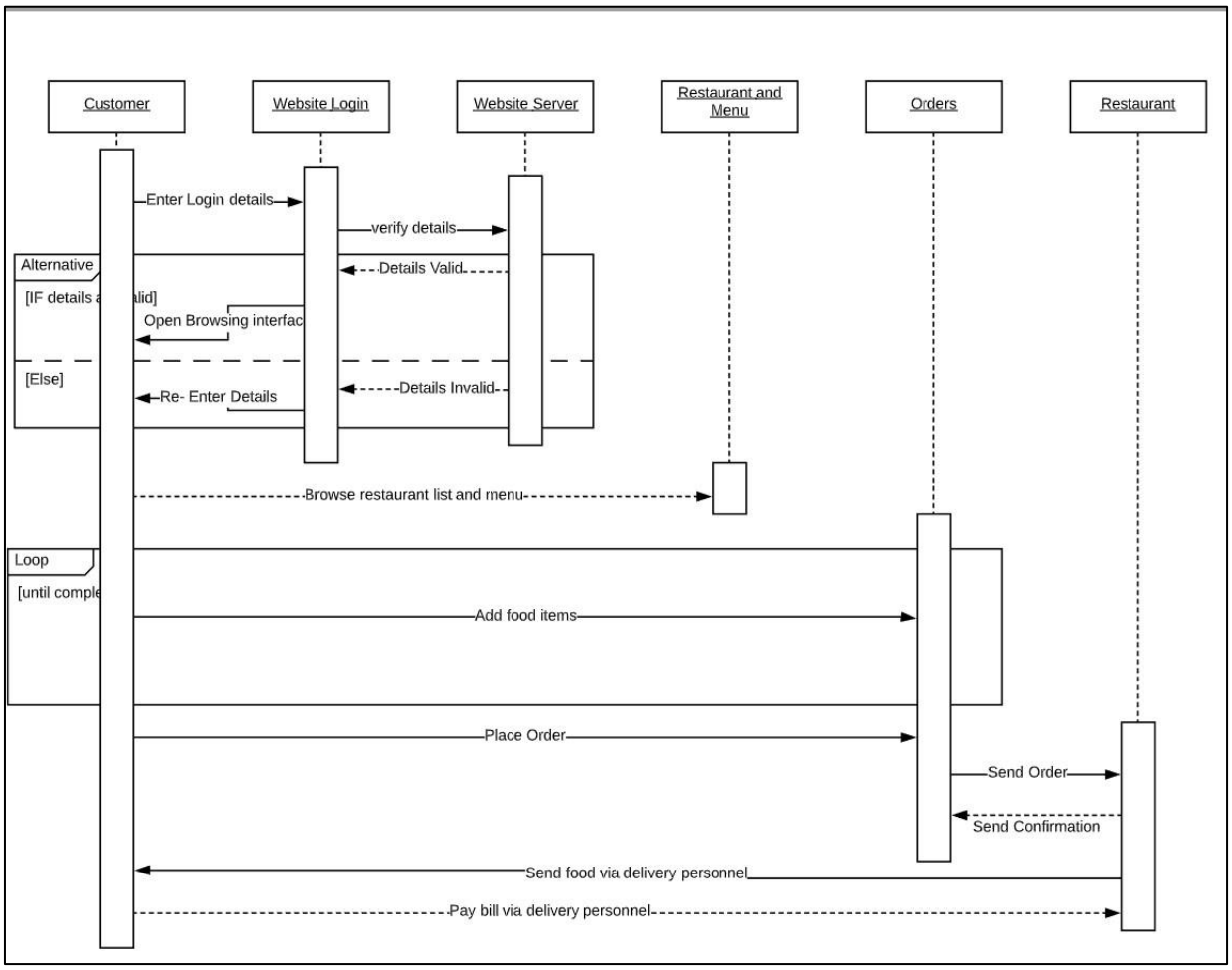
SWIMLANE DIAGRAM



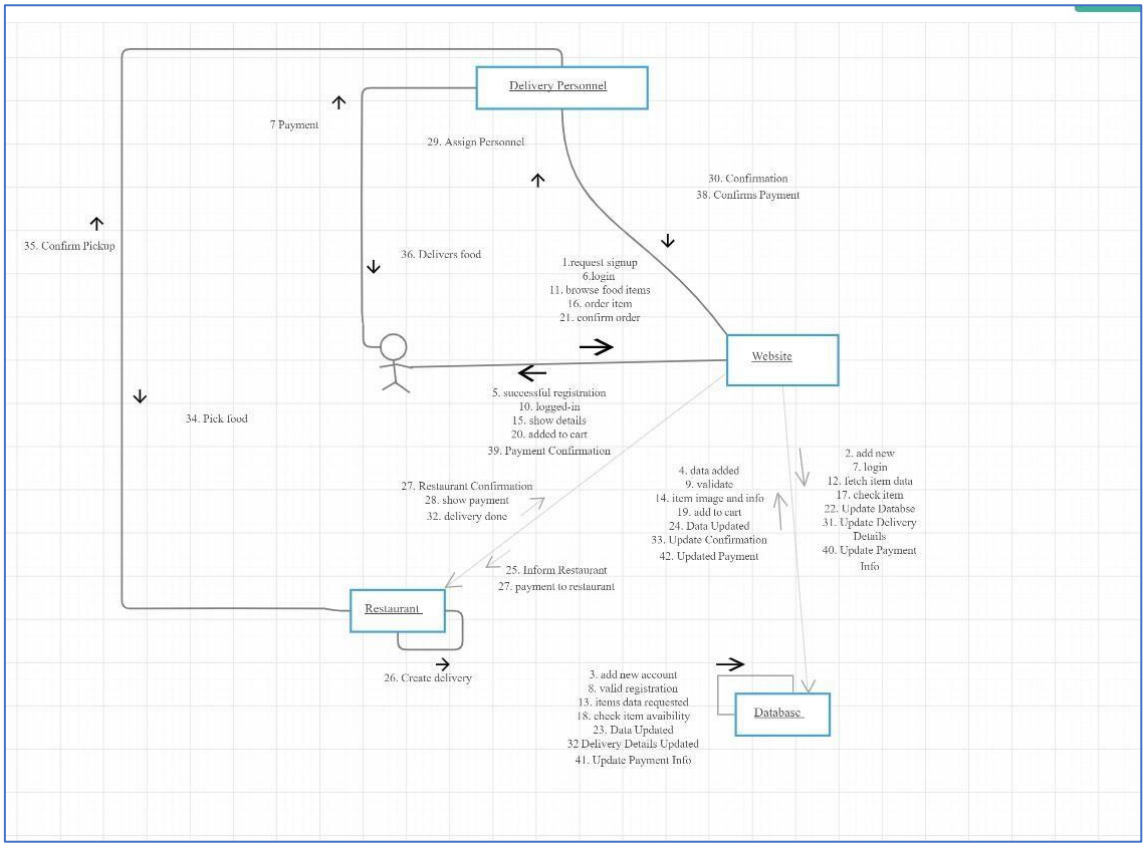
CLASS DIAGRAM



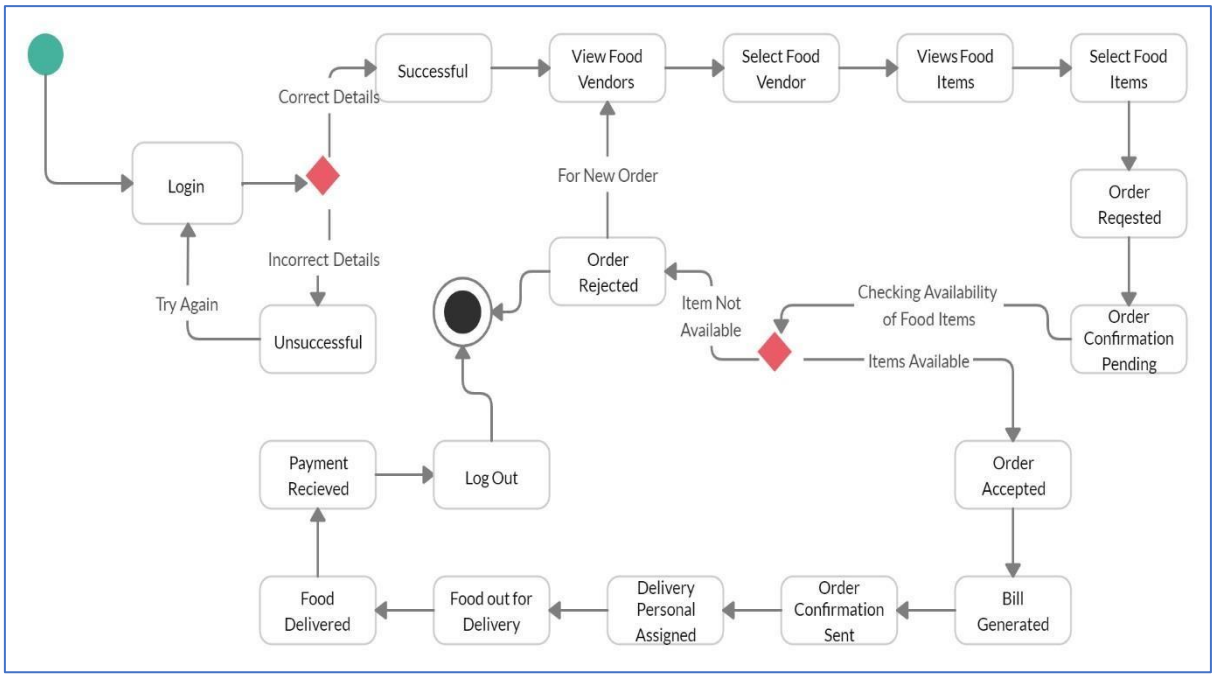
SEQUENCE DIAGRAM

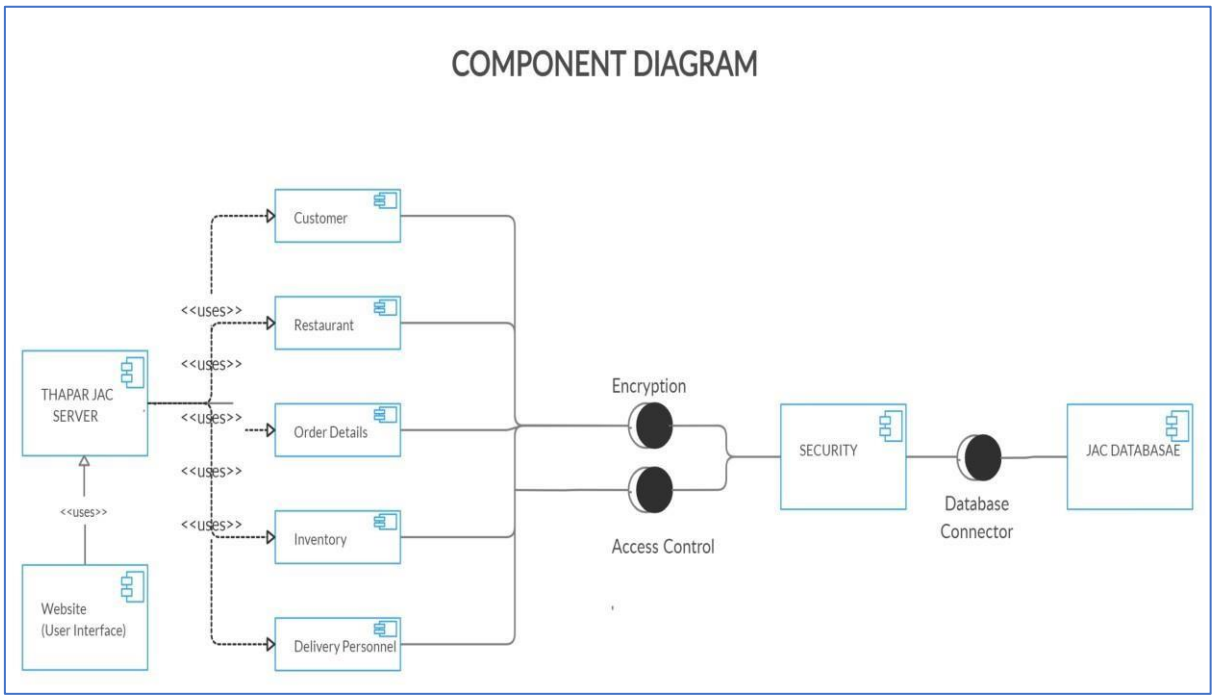


COLLABORATION DIAGRAM

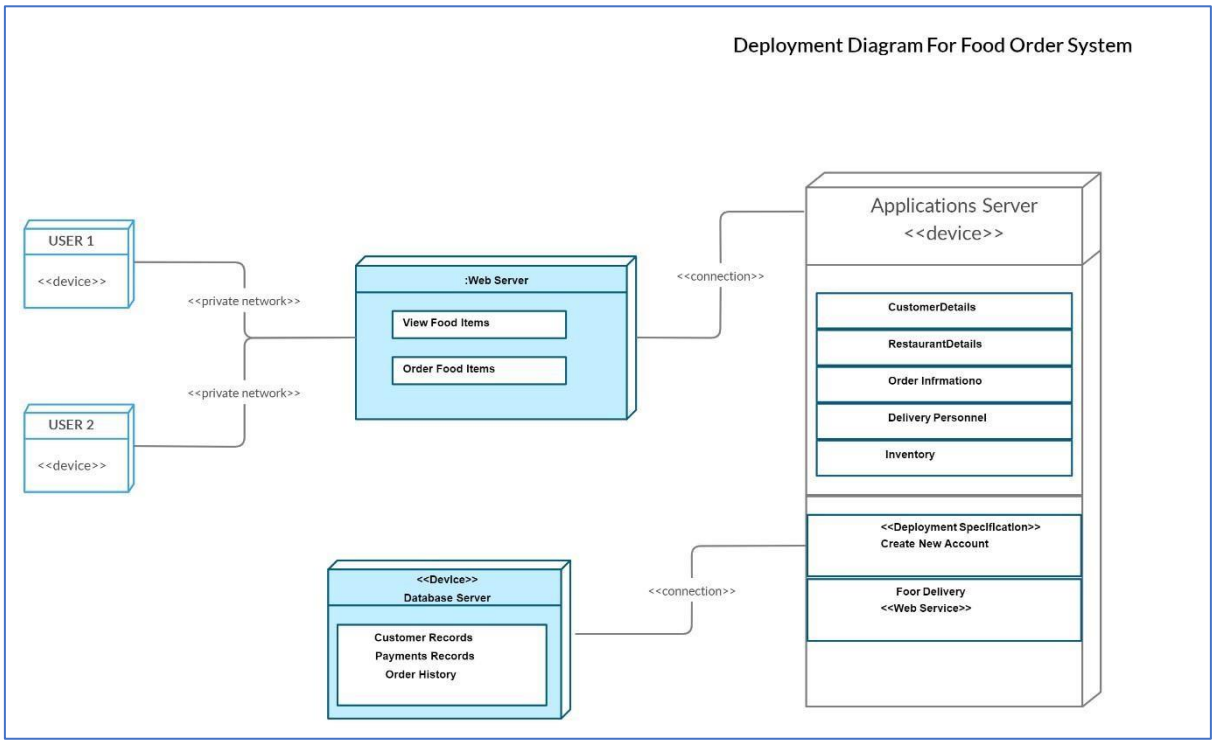


STATE DIAGRAM





DEPLOYEMENT DIAGRAM



TESTING

TEST PLAN

Path testing is sometimes referred to as basis path testing and now you know why. A basis set is a set of linearly independent test paths. Any path through the control flow graph can be formed as a combination of paths in the basis set. I should note that the basis set is not unique. In fact, a number of different basis sets can be derived for a given procedural design. First you have to know the total number of nodes. This is simple to calculate:

- Nodes = Decision + Processes

Nodes are where anything can happen and so the full count of nodes are those places where decisions are being made and those places where a specific algorithm or bit of logic is being performed. There are then three equations that you can use to calculate the independent paths.

- Independent Paths = Edges – Nodes + 2
- Independent Paths = Regions + 1
- Independent Paths = Decisions + 1

Technical Note: Those three equations are from graphing theory and they are used to calculate the number of linearly independent paths through any structured system. These three equations and the theory of linear independence are the work of a Dutch scholar named Claude Berge who introduced them in his work *Graphs and Hypergraphs,* which was published in 1973. Specifically, Berge's graph theory defines the *cyclomatic number* v(G) of a strongly connected graph G with N nodes, E edges, and one connected component. This cyclomatic number is the number of linearly independent paths through the system. I bring all this up not because it really matters but mainly because you might have heard the term

"cyclomatic complexity" thrown around.a

TEST REPORT

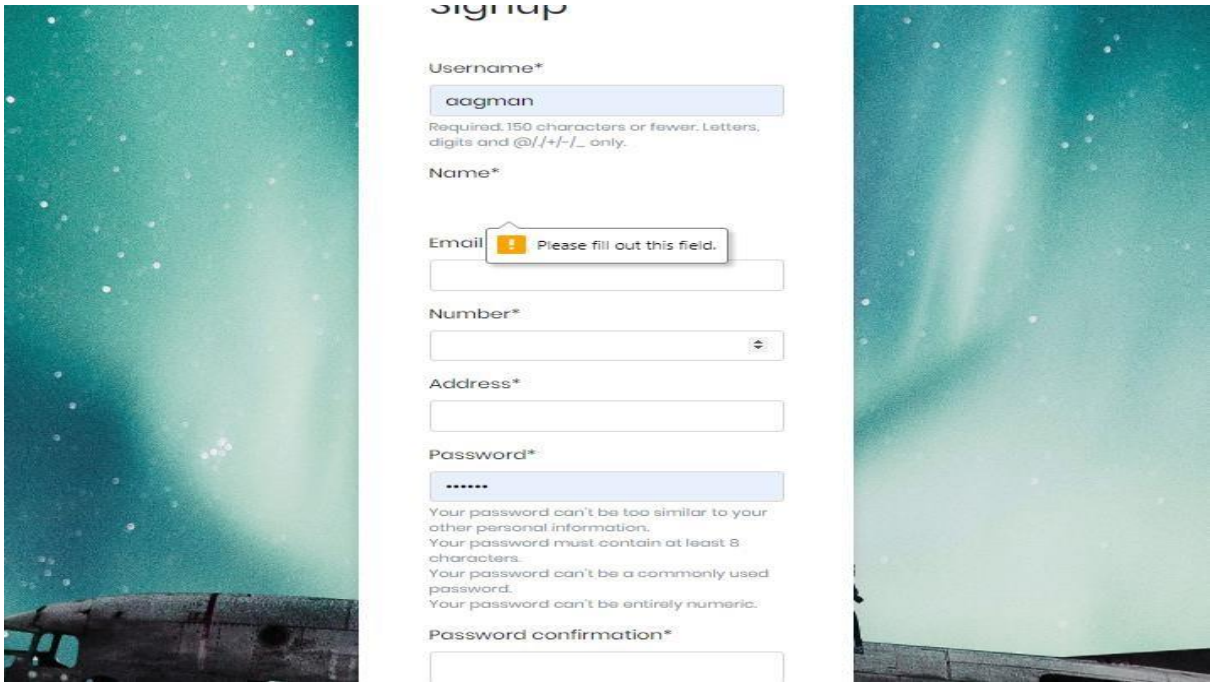
Code

1. Open website
2. If user selects login
3. Opens login page
4. If credentials are correct
5. Logged in
Goto 13
Else
6. Information entered is incorrect. Prompt to enter again.
Goto 3
Else if user selects signup
7. Redirect to Signup page
8. Enter Credentials
9. If accepted:
Goto 5
Else:
Information incorrect. Prompt to enter again.
Goto 7
Else
11. Browse products
18. If orders/ add to cart:
12. Goto 3
13 Redirect to home page
14. If user views product:
15. Open product description
25. If add to cart:
16. Open Cart
Goto 17
Else:
Goto 13
Else if user clicks on cart
30. Goto 16
17. If user clicks checkout:
Goto 19
Else goto 13
19. If user submits order:
21. Generate bill
22. If user clicks on Confirm order:
23. Generate Order ID
Goto 13
Else:
Goto 13
Else:
Goto 13
24. Else if user clicks on logout

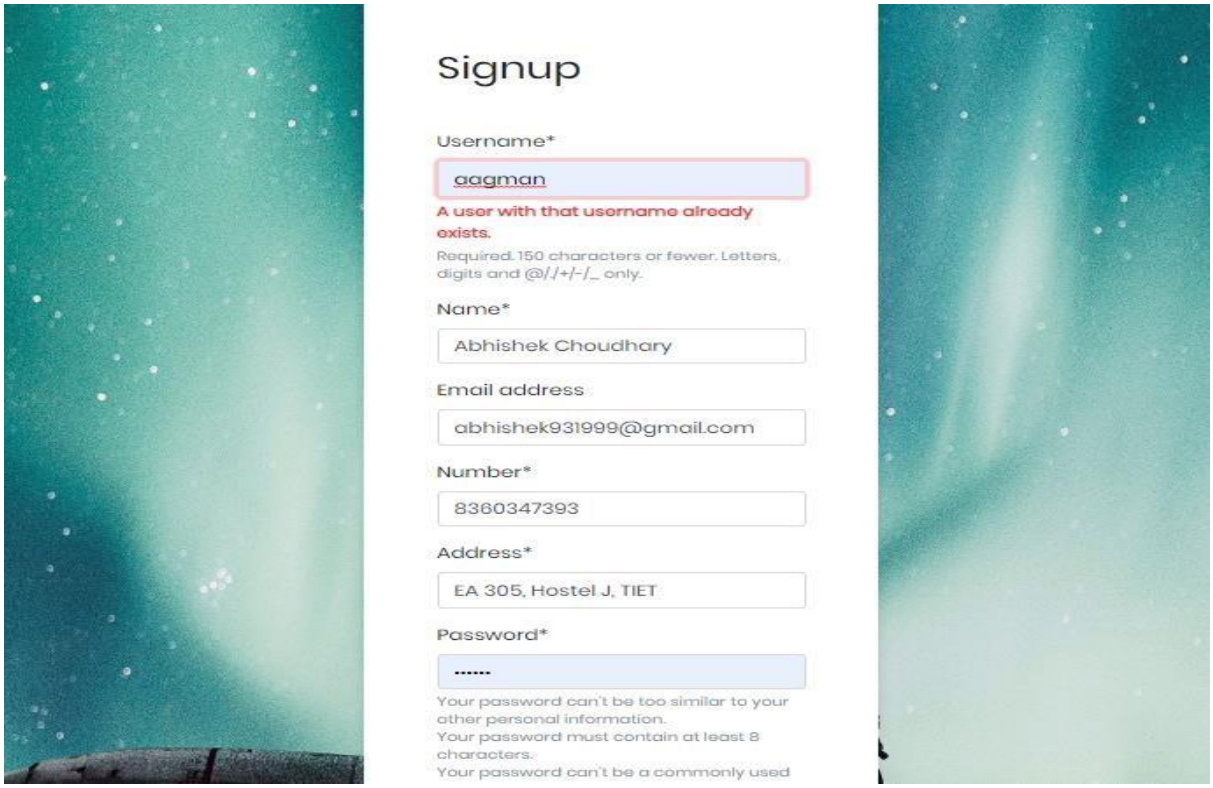
SCREENSHOT FOR TESTING OF PRODUCTS

1.Sign Up Testing

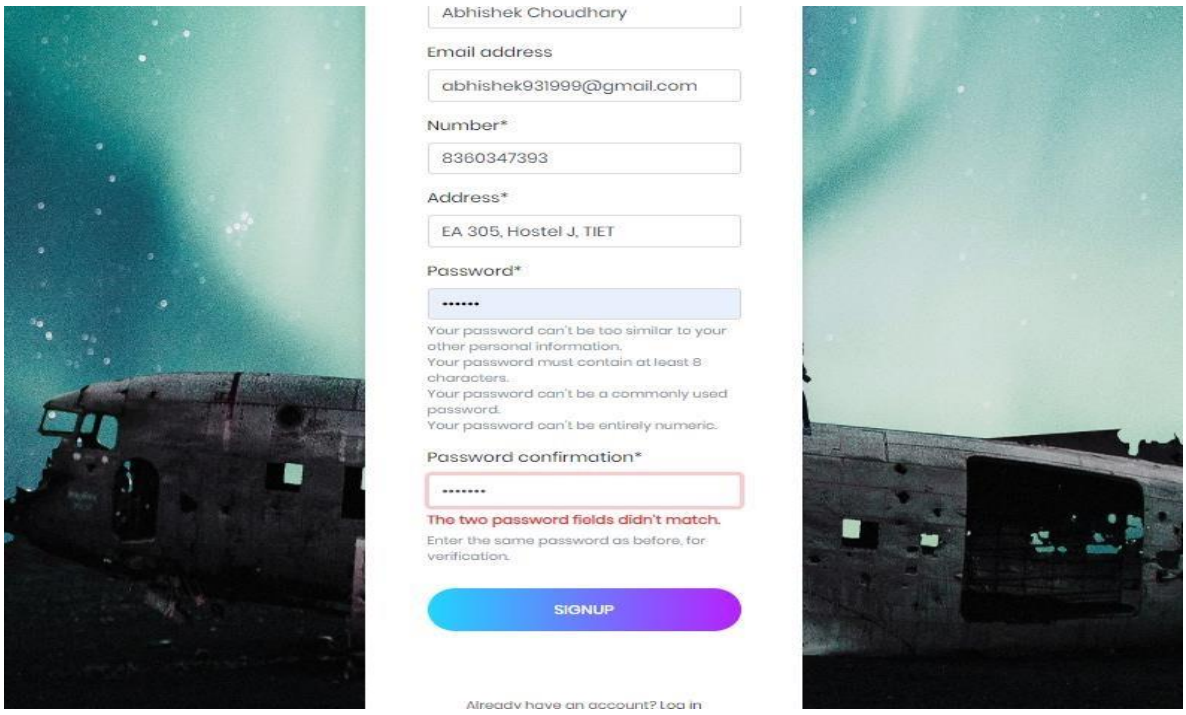
Screenshot 1



Screenshot 2

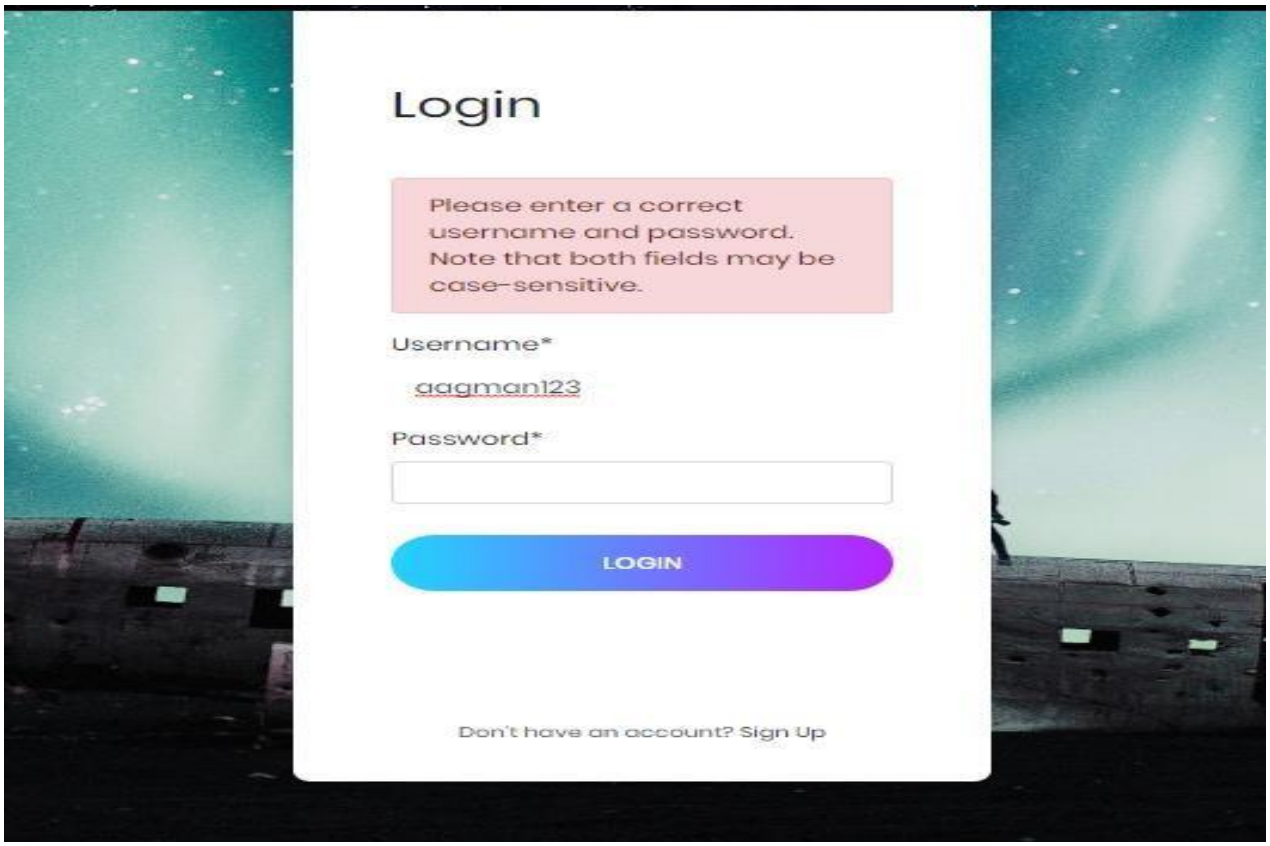


Screenshot 3

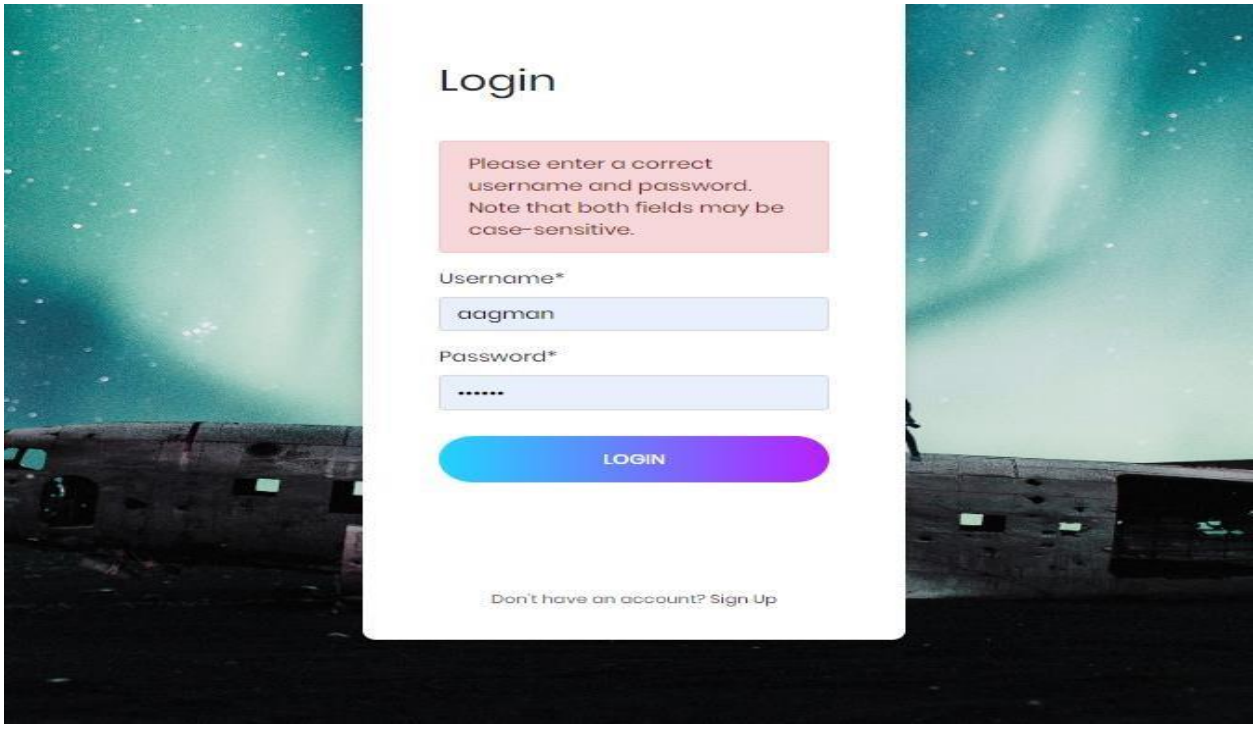


2.Login Testing

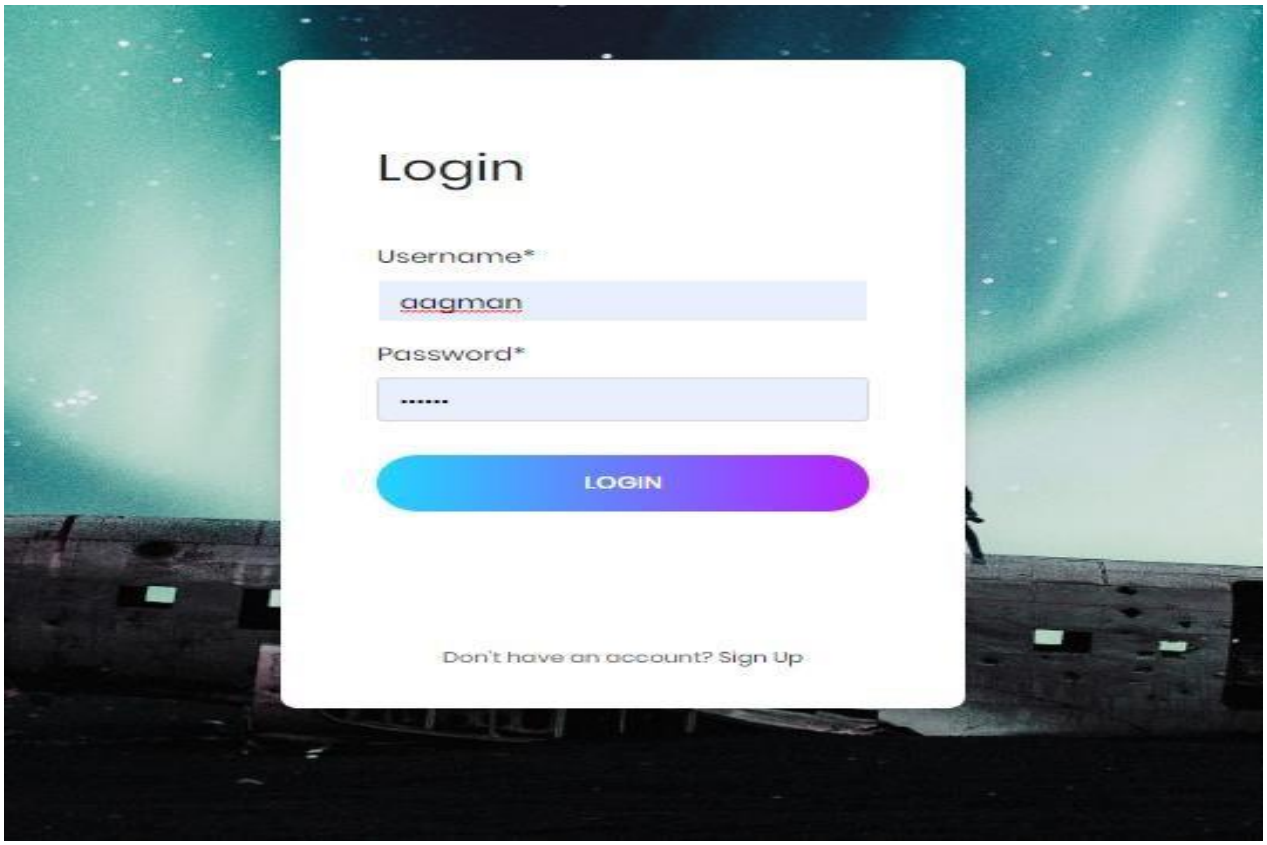
Screenshot 1



Screenshot 2

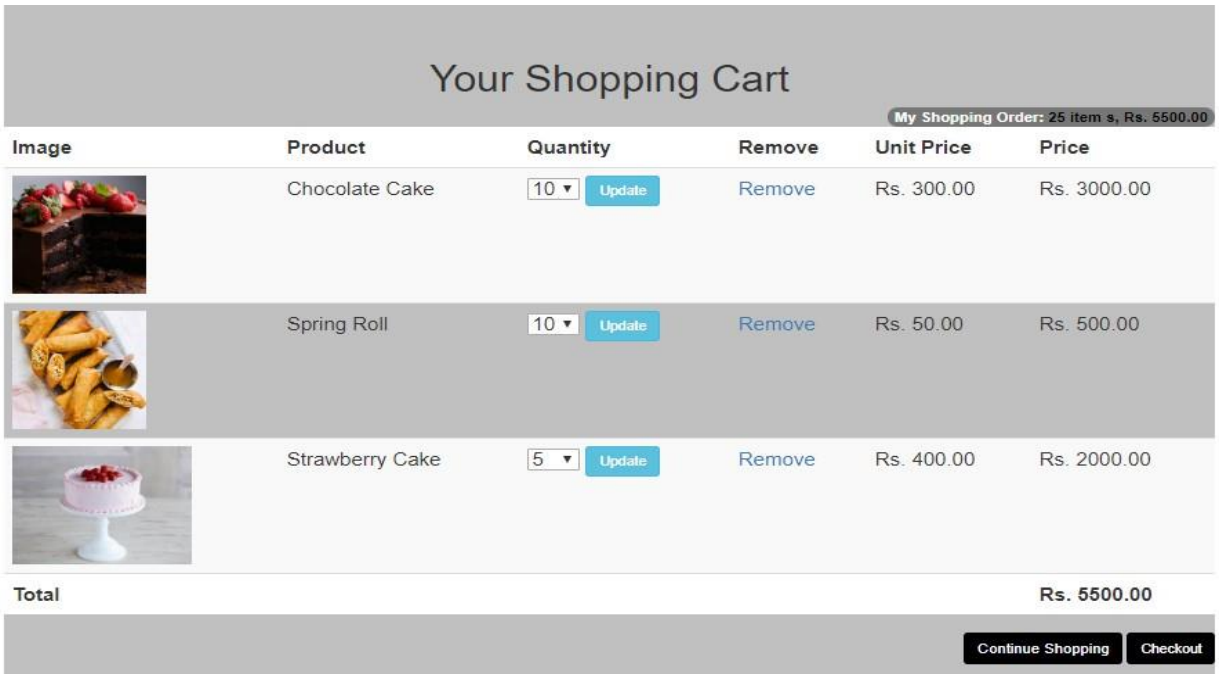


Screenshot 3

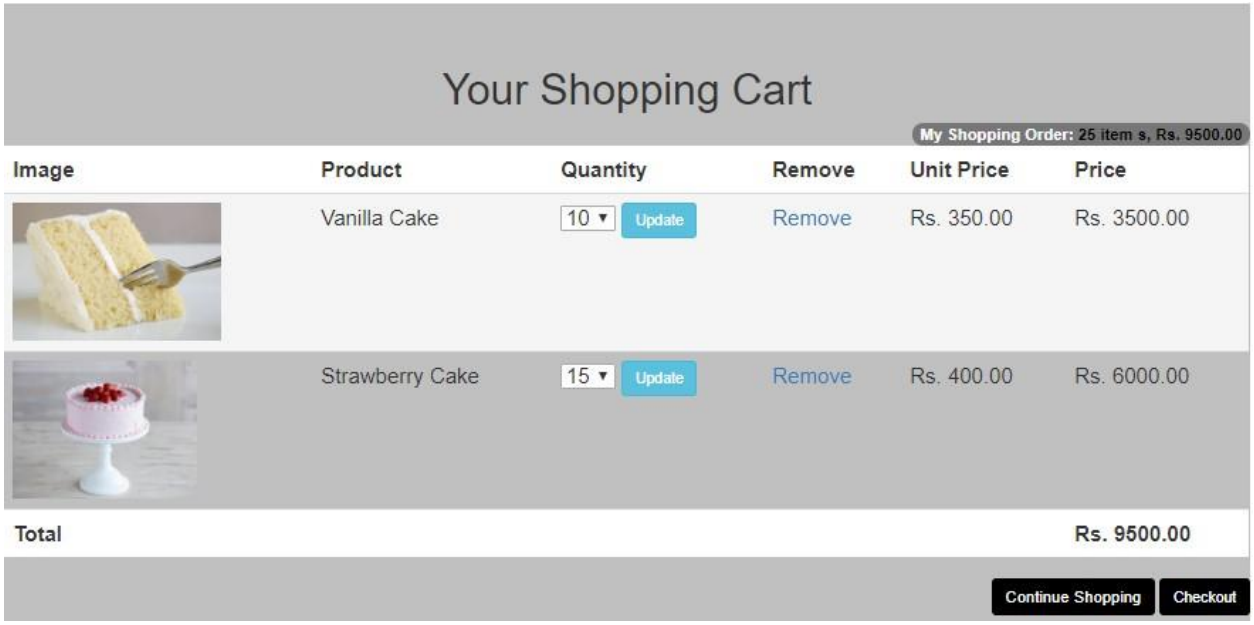


3.Shopping Cart Testing

Screenshot 1

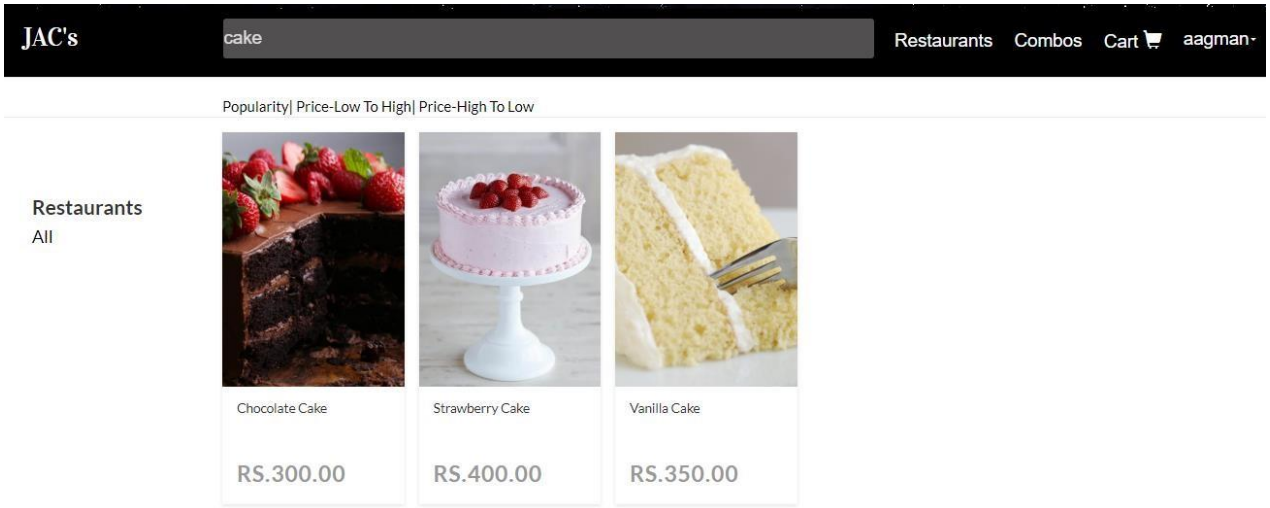


Screenshot 2



4.Search Bar Testing

Screenshot 1



Screenshot 2