INFSCI 2710: DBMS PROJECT REPORT

FOOD DELIVERY APPLICATION

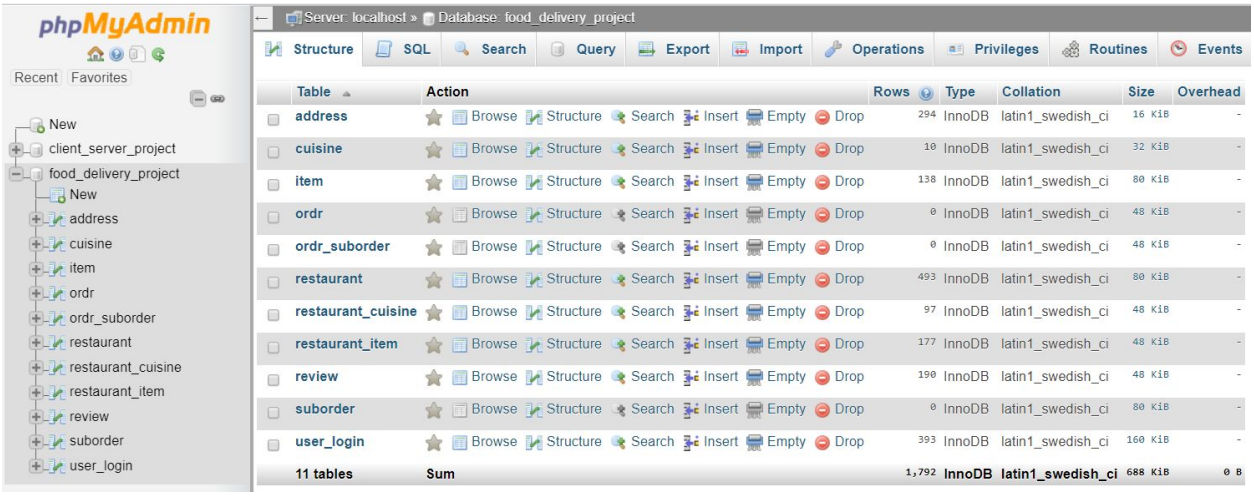
Basic introduction:

Our Food Delivery application enables a user to place orders for delivery. It allows them to pick menu items, place orders and specify a delivery address and delivery time. The user can select menu items based on different restaurant and cuisine choices.
There are two types of logins:

1. User login(customer).
2. Restaurant owner

The restaurant owner can add cuisines and different items under his restaurant.
The user can choose from different cuisines and select items from those restaurants.
The user can review the restaurants.

We have created the following tables:



We have used the following technologies-

Database: MySql
Backend: Java , Framework-Spring Boot
Frontend: HTML, CSS, Javascript

We implemented our server-side functionalities using REST web services and exposed them to the front-end. We used Hibernate to map Java objects to the MySQL database. We then consumed these services from the front-end by making REST calls in Javascript and built our HTML using this.

Assumptions:

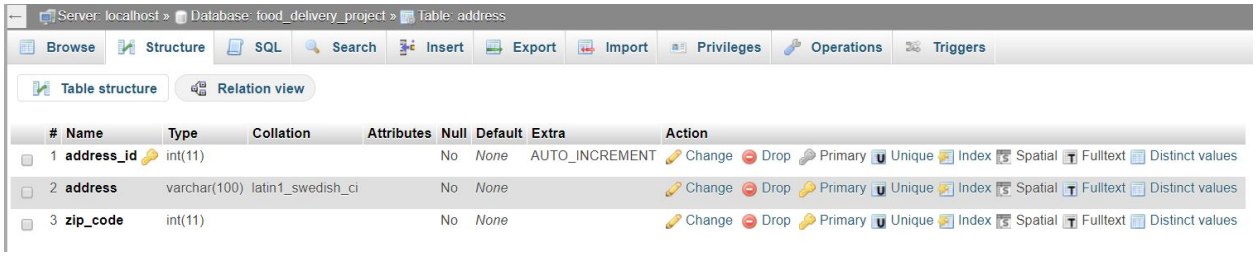
1.We are assuming that the users are already registered as one of the three type of possible membership:
Silver- Get 5% discount on 1 order per month by paying a monthly fee of $10.
Gold- Get 5% discount of 2 orders per month by paying a monthly fee of $20
Platinum- Get 5% discount on every order by paying a monthly fee of $28.

2. We have not creating a super admin. We are assuming that there exists a super admin who add and delete restaurants.
3. We are assuming that the payment gateway is already implemented.

Database Design:

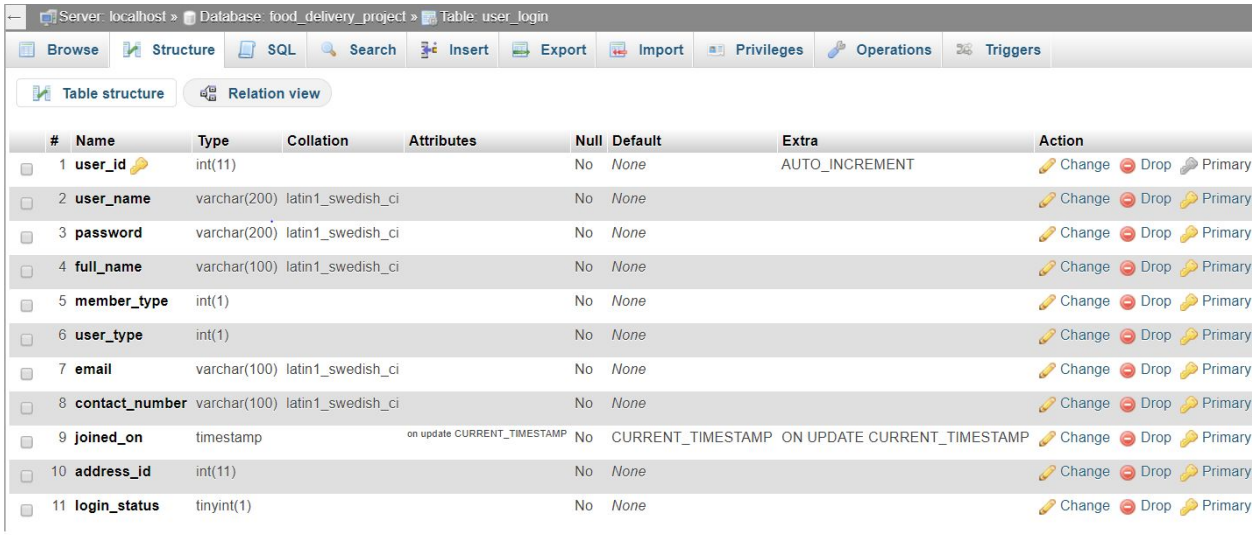
The detailed description of each table is given below:-

1.address



This table will contain all the addresses of the restaurants and the users.
We have 299 address rows in our database

2. user_login



This table consist of all the login details. The user or the restaurant will use the user_name and password to login into their account. While registration they have to fill the details like full_name, address, contact_number.

user_id is the primary key.
address_id is the foreign key which is used here from the address table.

user_type field can have 2 values(0 or 1)
0= user
1= restaurant owner
2=super admin (assumption)

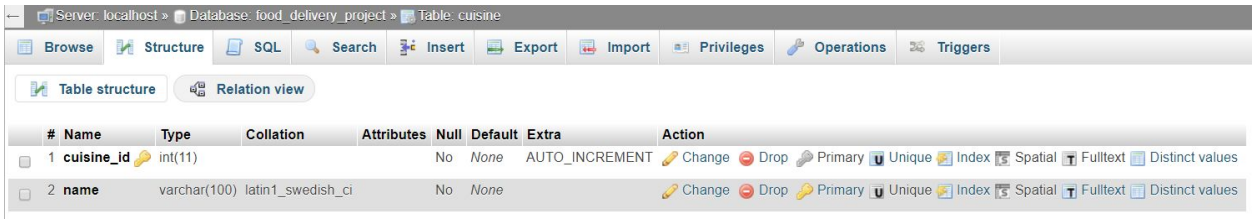
member-type field can have 3 values(1,2,3).
1= silver club member
2=gold club member
3=platinum club number

login_status shows us if the user or restaurant owner is logged in or not.

joined_on field shows the date when the user first created his or her account.
We have total 400 rows of user data in this table.

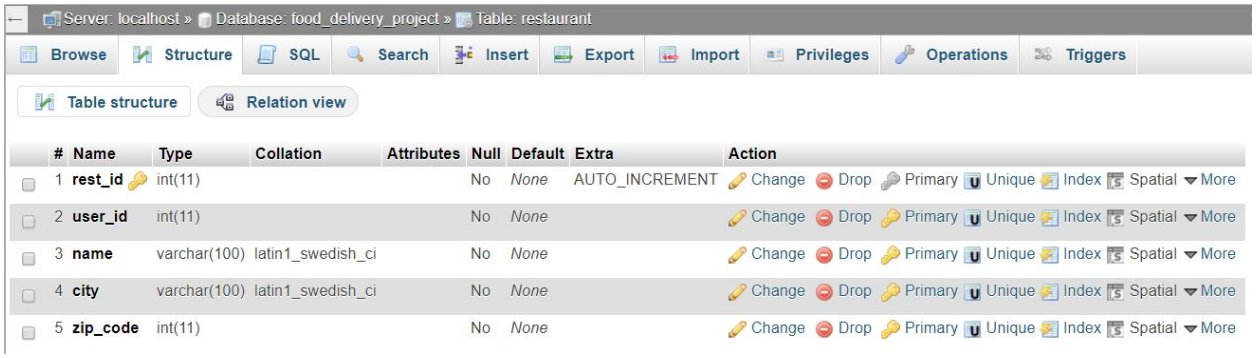
Our implementation might result in duplicate entries in the address column in the user_login table. So,we decided to create a new table called ‘address’ with foreign key(address_id) in user_login table, so that the second Normal form8 is satisfied.

3.cuisine



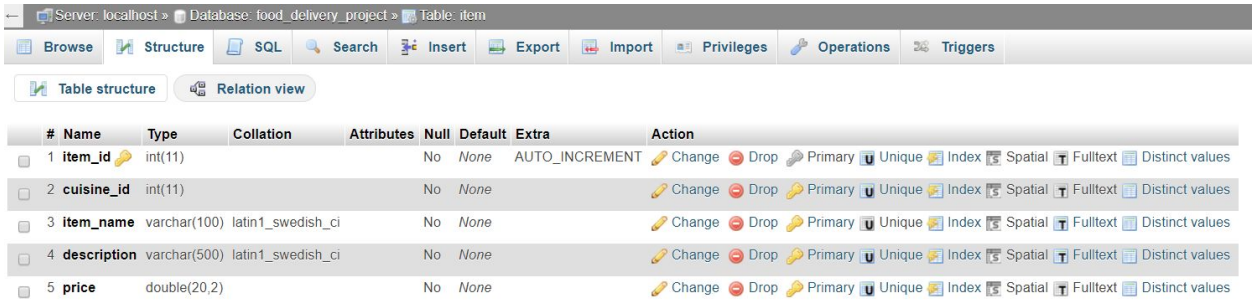
This table will contain the list of the different cuisines from which the user can choose.
In this table we have listed 10 cuisines.

4.restaurant



This table contains the list of restaurants along with their names and addresses. This also contains the user_id(foreign key) who is the owner of the particular restaurant. There are total 500 restaurants listed in this table.

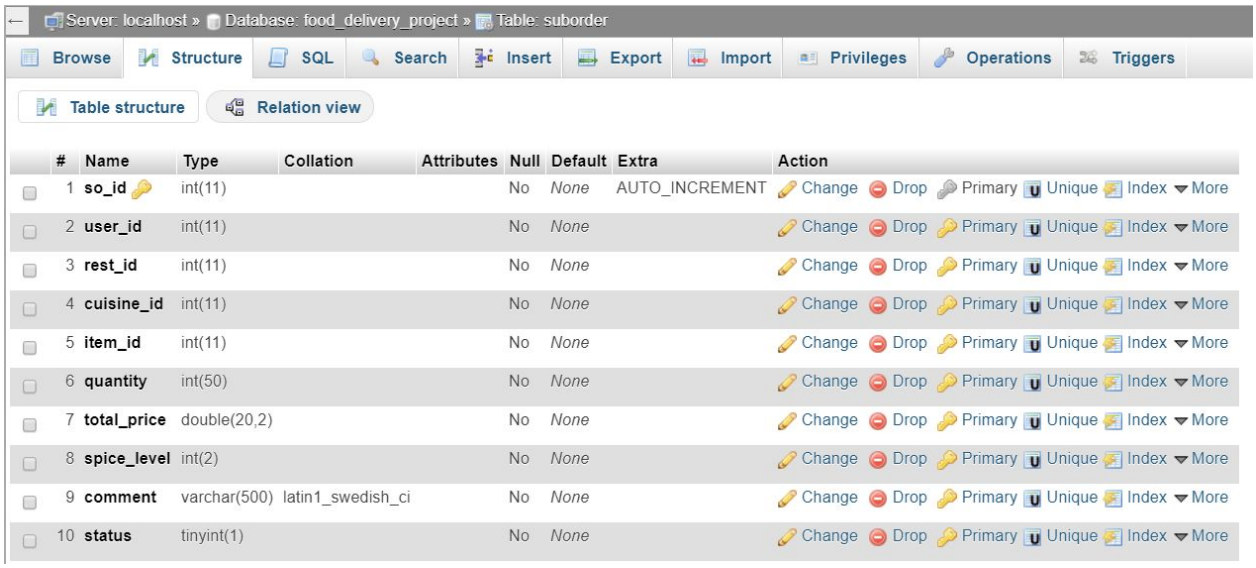
5.item



This table consist of the list of items available in all the restaurants. Along with their name,description and the price.

Item_id is the primary key in this table.
cuisine_id is the foreign key used in this table from the cuisine table to show which item belongs to which cuisine.
We have 140 items listed in this table which belong to different cuisines.

6.suborder

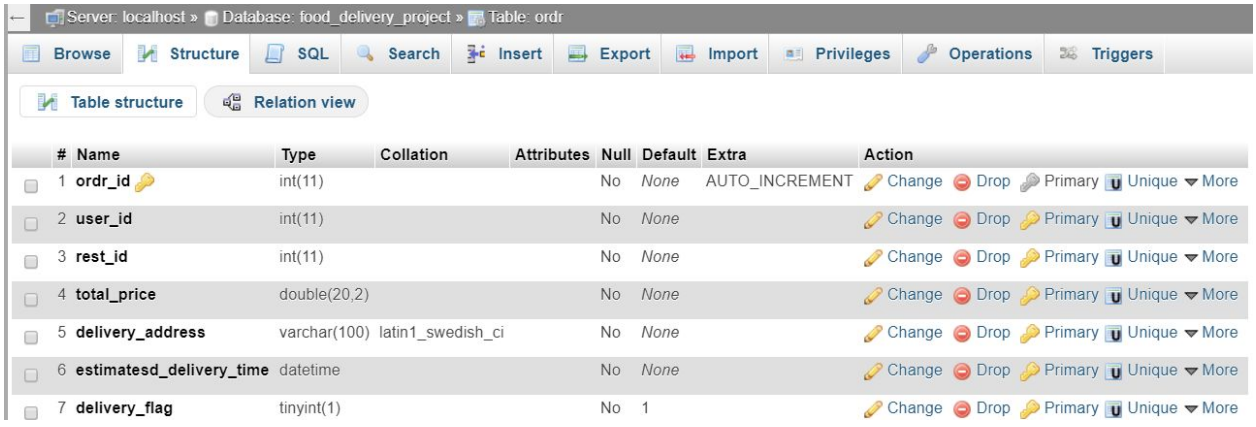


#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	so_id	int(11)			No	None	AUTO_INCREMENT	Change Drop Primary Unique Index More
2	user_id	int(11)			No	None		Change Drop Primary Unique Index More
3	rest_id	int(11)			No	None		Change Drop Primary Unique Index More
4	cuisine_id	int(11)			No	None		Change Drop Primary Unique Index More
5	item_id	int(11)			No	None		Change Drop Primary Unique Index More
6	quantity	int(50)			No	None		Change Drop Primary Unique Index More
7	total_price	double(20,2)			No	None		Change Drop Primary Unique Index More
8	spice_level	int(2)			No	None		Change Drop Primary Unique Index More
9	comment	varchar(500)	latin1_swedish_ci		No	None		Change Drop Primary Unique Index More
10	status	tinyint(1)			No	None		Change Drop Primary Unique Index More

This table will consist each suborder that means if a user chooses one item then it will be treated as a suborder. Along with the order the user will provide the quantity, spice level and comments if required for that specific item. Total price here means the item price multiplied by the quantity.
Status field is a boolean type which tells the status of the items added to the cart

This table consist of 4 foreign keys :
user_id from the user_login table,session_id from the session_details table,3rest_id from the restaurant table and cuisine_id from the cuisine table.

7.ordr

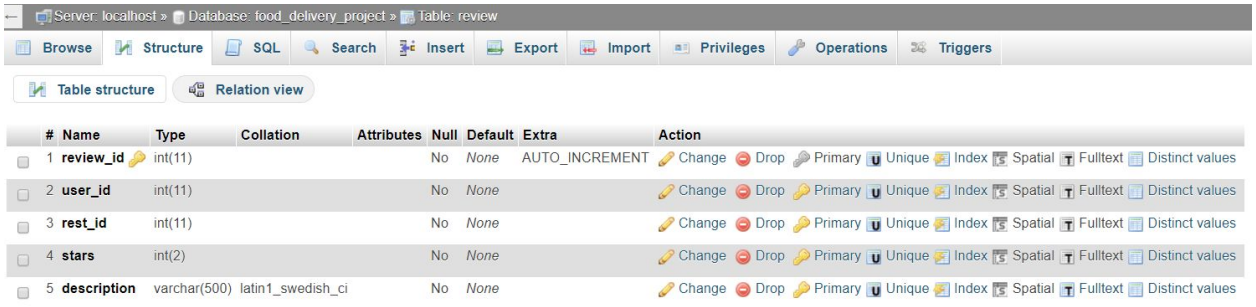


#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	ordr_id	int(11)			No	None	AUTO_INCREMENT	Change Drop Primary Unique More
2	user_id	int(11)			No	None		Change Drop Primary Unique More
3	rest_id	int(11)			No	None		Change Drop Primary Unique More
4	total_price	double(20,2)			No	None		Change Drop Primary Unique More
5	delivery_address	varchar(100)	latin1_swedish_ci		No	None		Change Drop Primary Unique More
6	estimatesd_delivery_time	datetime			No	None		Change Drop Primary Unique More
7	delivery_flag	tinyint(1)			No	1		Change Drop Primary Unique More

This table will consist of the final order of the user along with the total price, delivery address and the estimated delivery time.

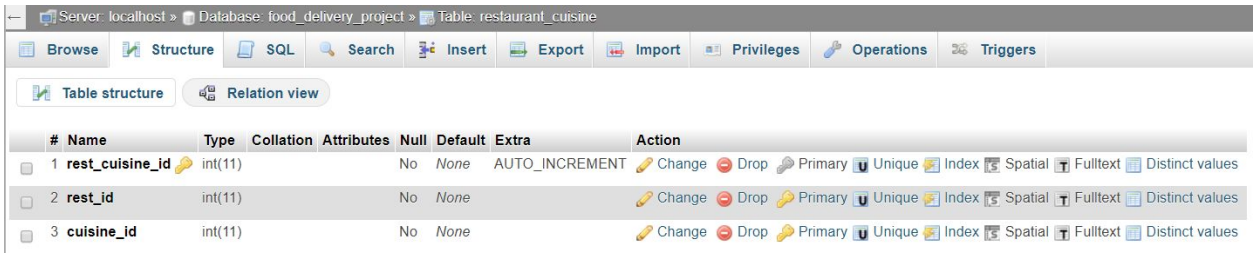
order_id id the primary key in this table.
user_id and rest_id are foreign keys from the user_login and restaurant tables respectively.

8.review



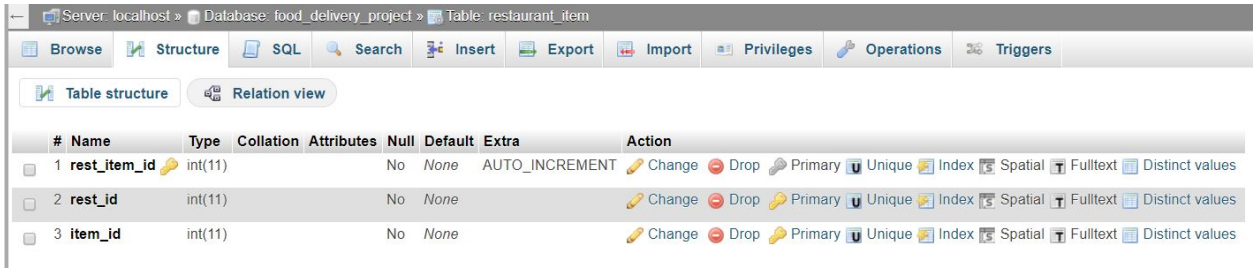
This table consist the reviews given by the user to the different restaurants. The user can give upto 10 stars to a restaurant. The user can also add any comments in description.
Here there are 2 foreign keys :
user_id from the user_login table
rest_id from the restaurant table
There are total 200 reviews in the table.

9.restaurant_cuisine



This is the junction table which we have created with both the foreign keys rest_id from the restaurant table and the cuisine_id from the cuisine table. This shows which cuisines are available in the different restaurants.
There are 100 rows in this table.

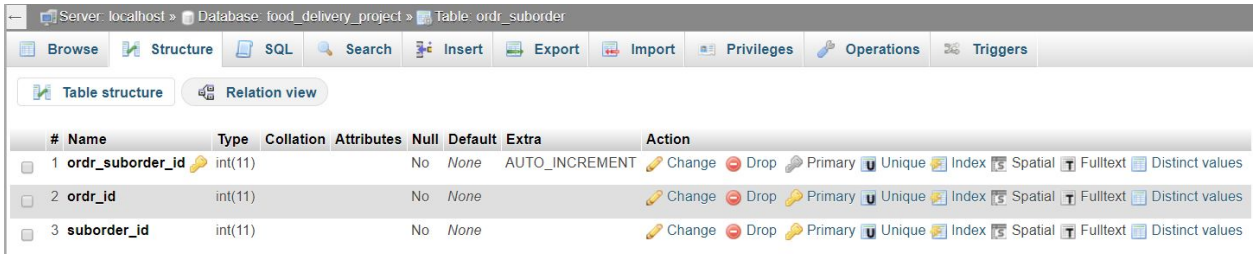
10. restaurant_item



This is a junction table which consists of the foreign keys rest_id from the restaurant table and the item_id from the item table. This table shows the list of items which are available in different restaurants.

There are 180 entries in this table.

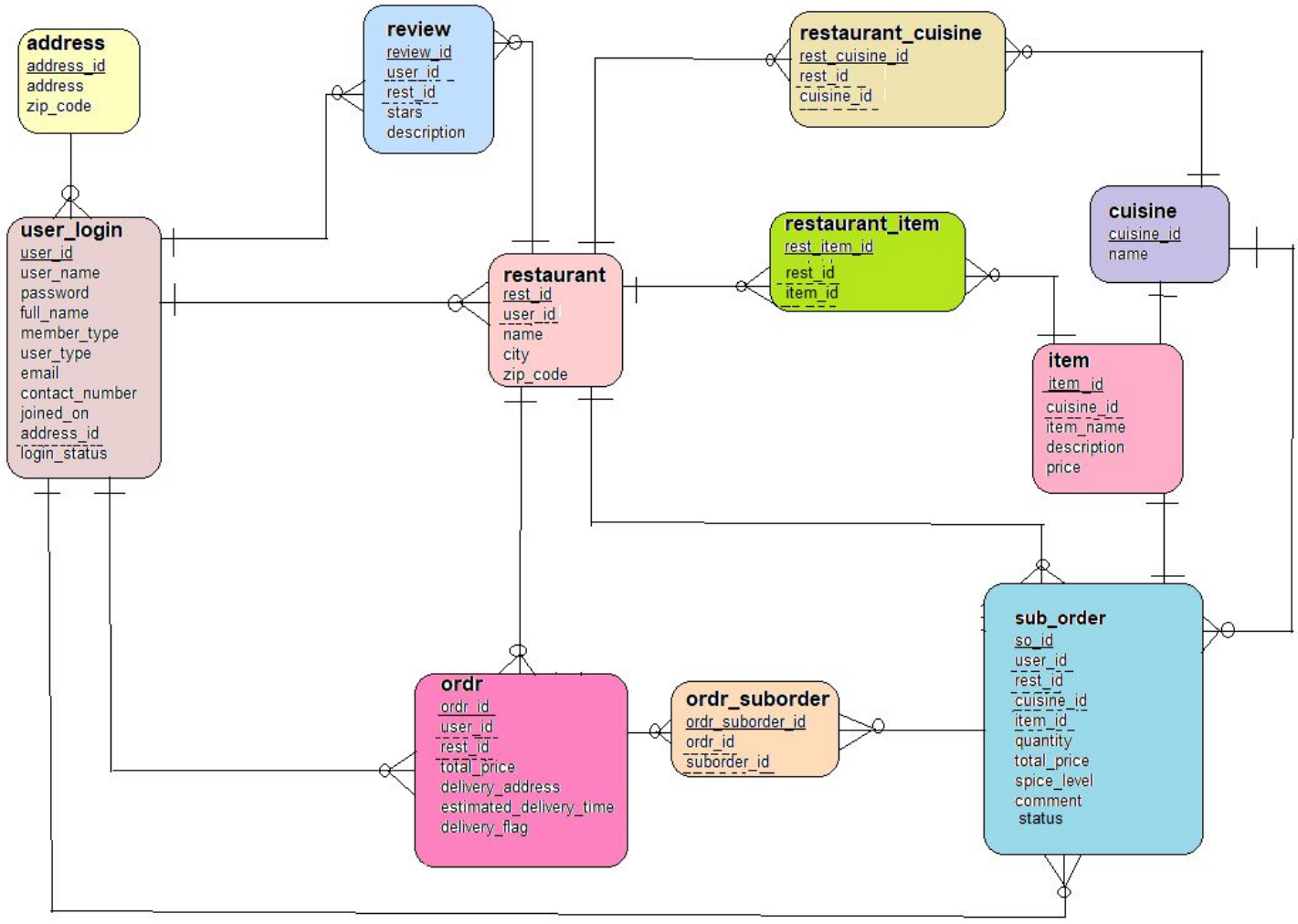
11. ordr_suborder



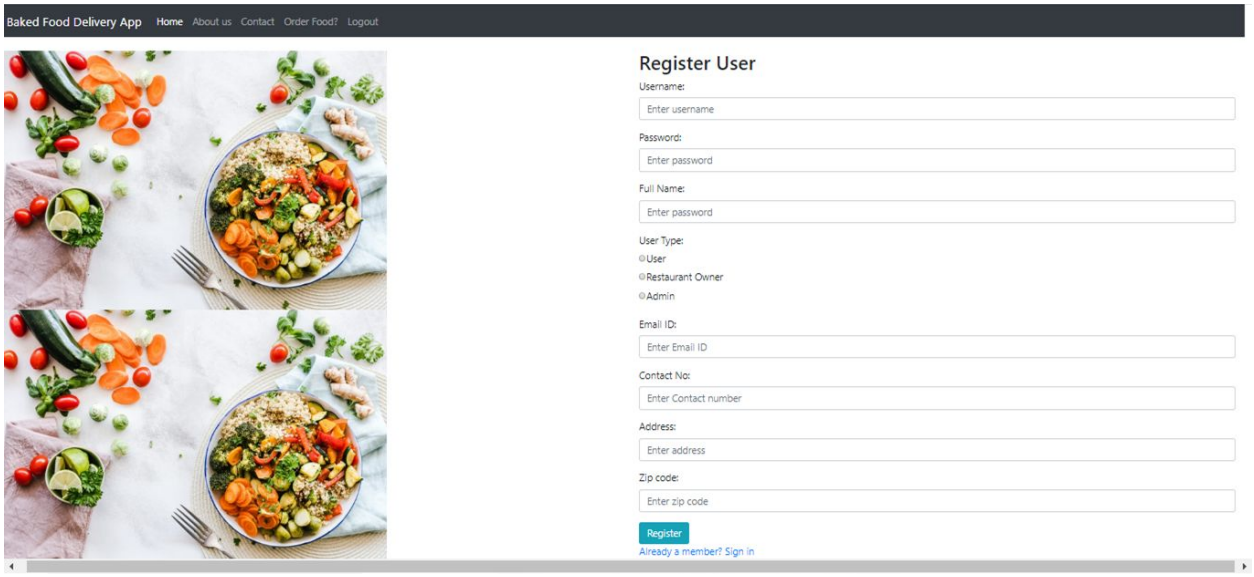
#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	ordr_suborder_id	int(11)			No	None	AUTO_INCREMENT	Change Drop Primary Unique Index Spatial Fulltext Distinct values
2	ordr_id	int(11)			No	None		Change Drop Primary Unique Index Spatial Fulltext Distinct values
3	suborder_id	int(11)			No	None		Change Drop Primary Unique Index Spatial Fulltext Distinct values

This is a junction table which consist of two primary keys ordr_id which belongs to ordr table and the suborder_id which belongs to the suborder table. This is a list which shows that which suborders belong to which order.

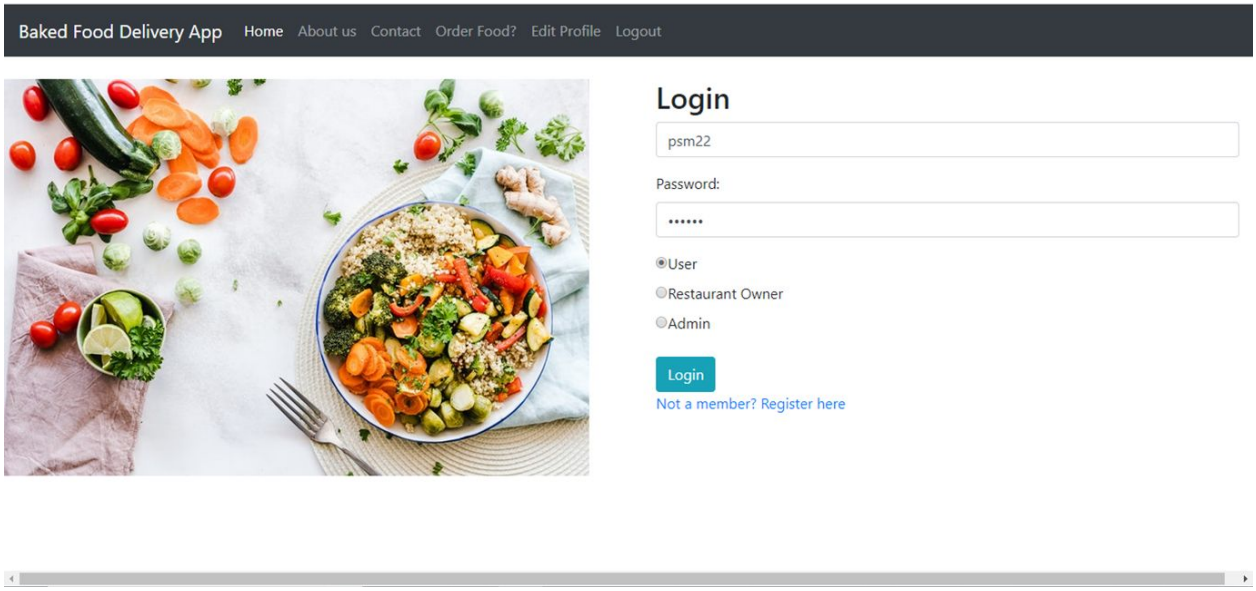
ER Diagram:



Application screenshots and flow:



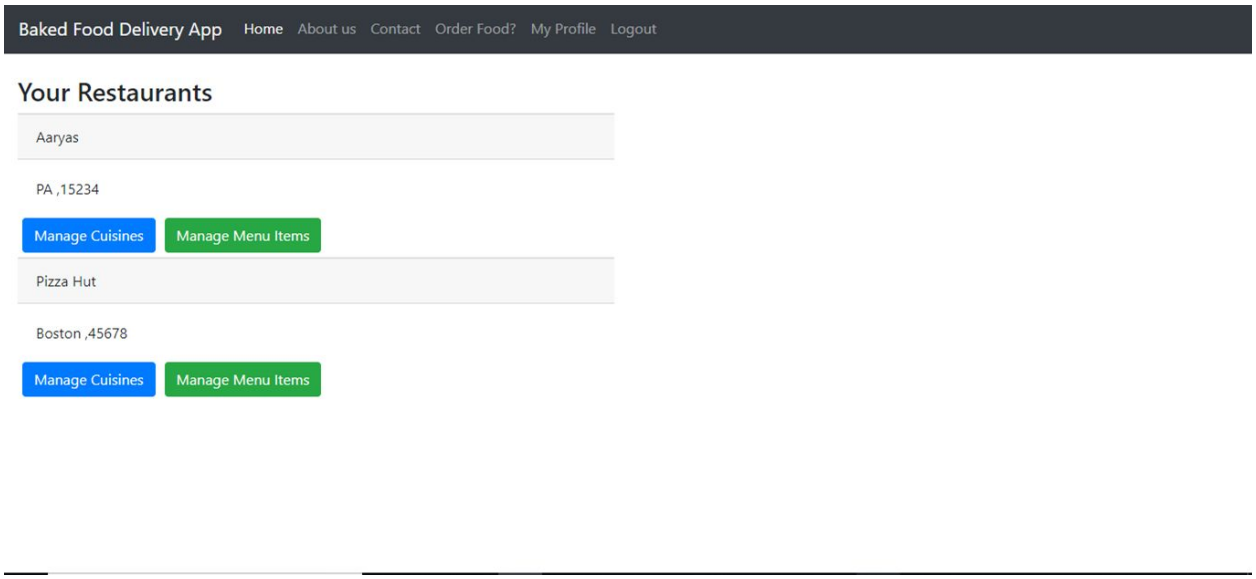
User registration page where the user can sign up by entering his/her details



Login page for the user. Username and Password are validated against the database.

User type: Restaurant owner

Restaurant owner home page. View restaurants page, where the restaurant owner can view all the restaurants owned by him.



Fig(a)

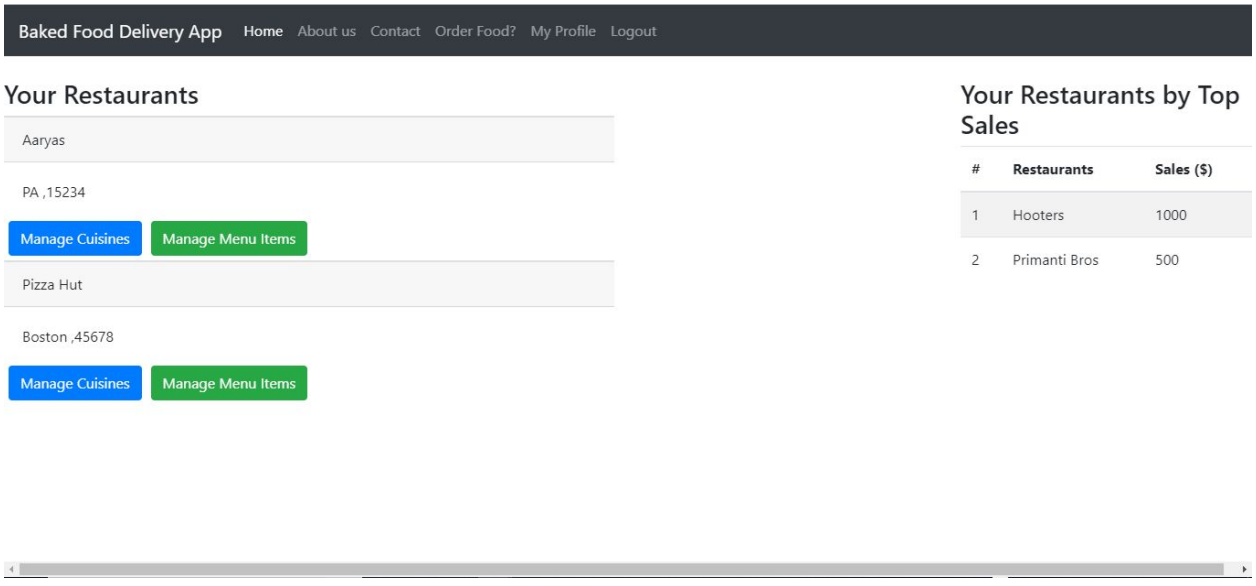
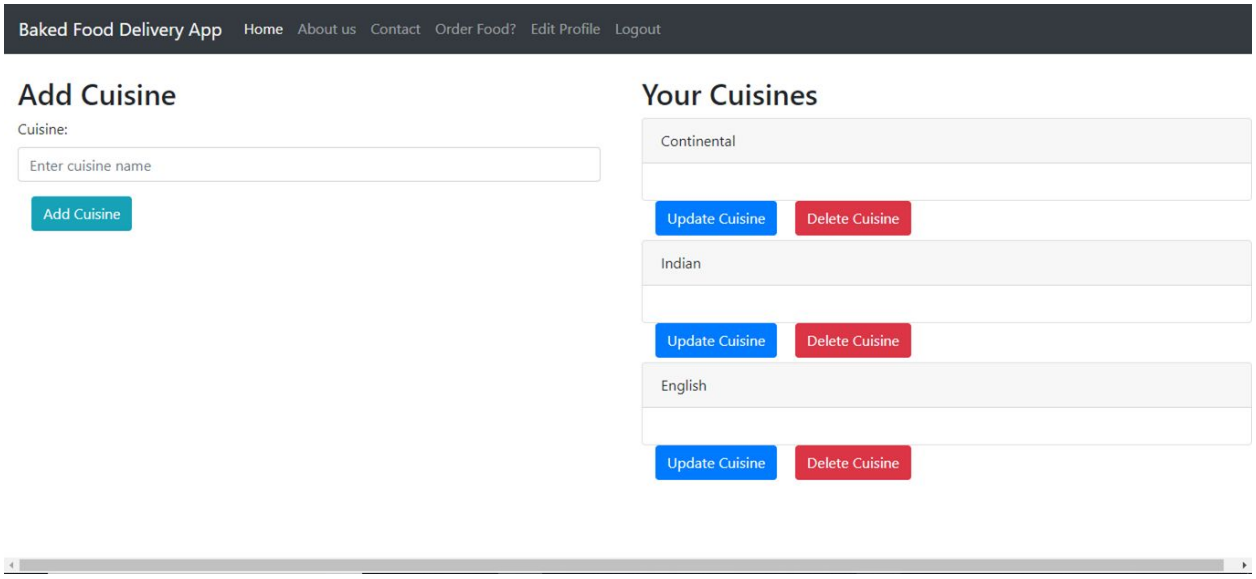
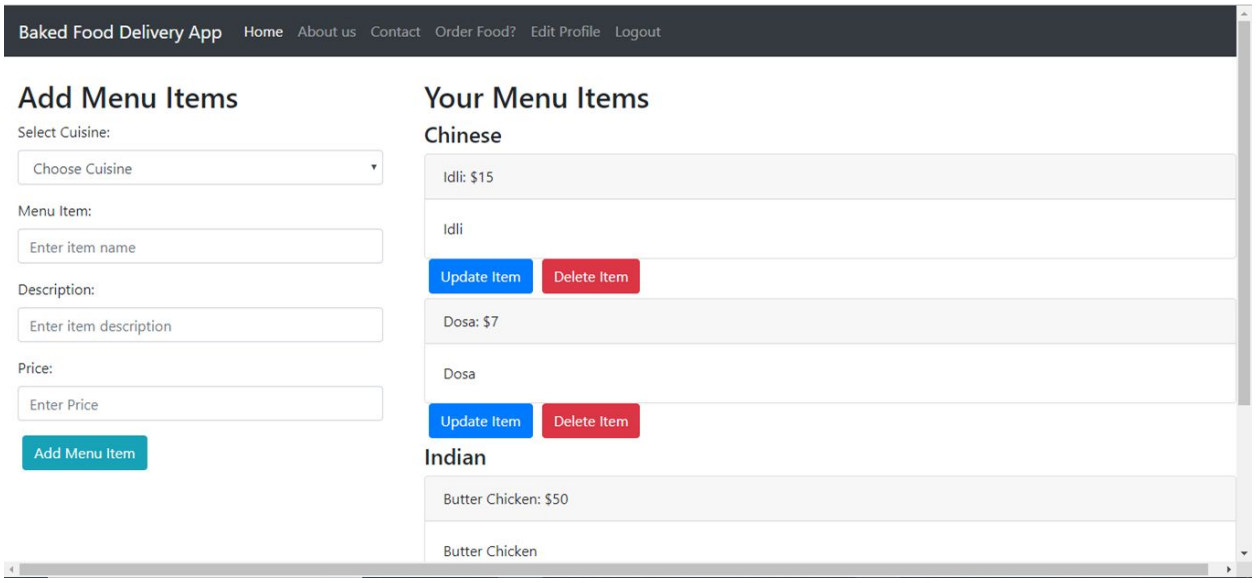


Fig. To view the restaurant with the top sales



Fig(b)

Add/manage cuisine. The restaurant owner can add/view/update/delete cuisines under a restaurant here.



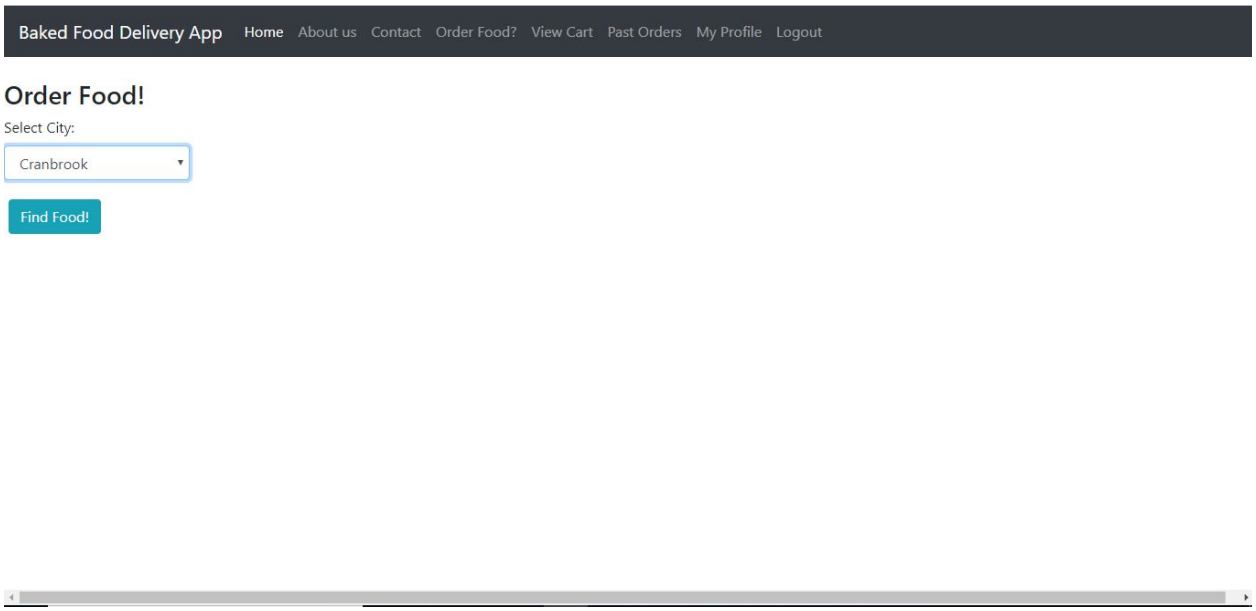
Fig(a)

Add/manage items. The restaurant owner can add/view/update/delete items under a cuisine and a restaurant here.

A typical implementation:

1. Restaurant Owner homepage has a list of restaurants that he owns. For every restaurant, the owner can add Cuisines and menu items to a given restaurant as shown in Fig (a)
2. On selecting Manage Cuisines, the restaurant owner is redirected to a page where he can create new cuisines as well as manage existing cuisines as shown in Fig(b)
3. On selecting Manage Items, the restaurant owner is redirected to a page where he can create new items as well as manage existing items under a cuisine

User Type: User



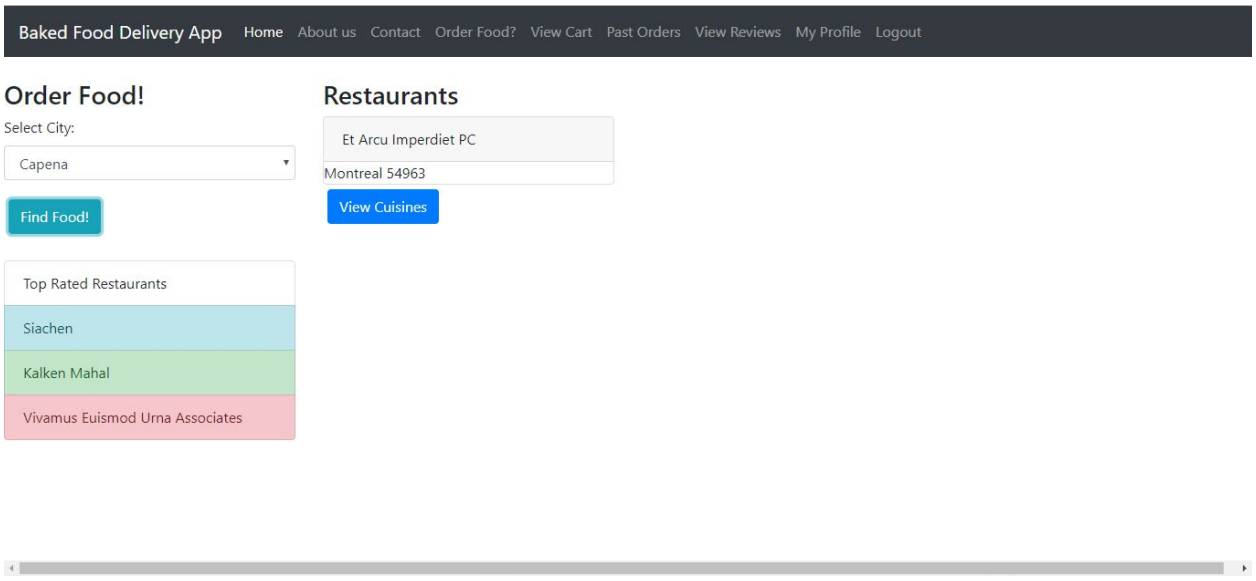
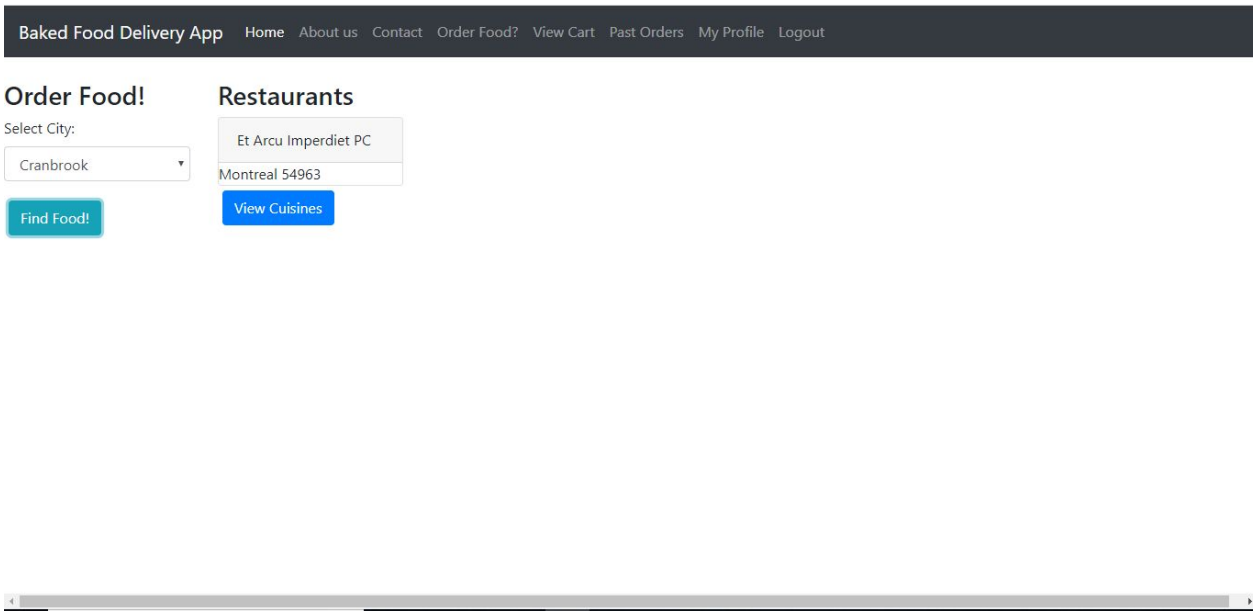
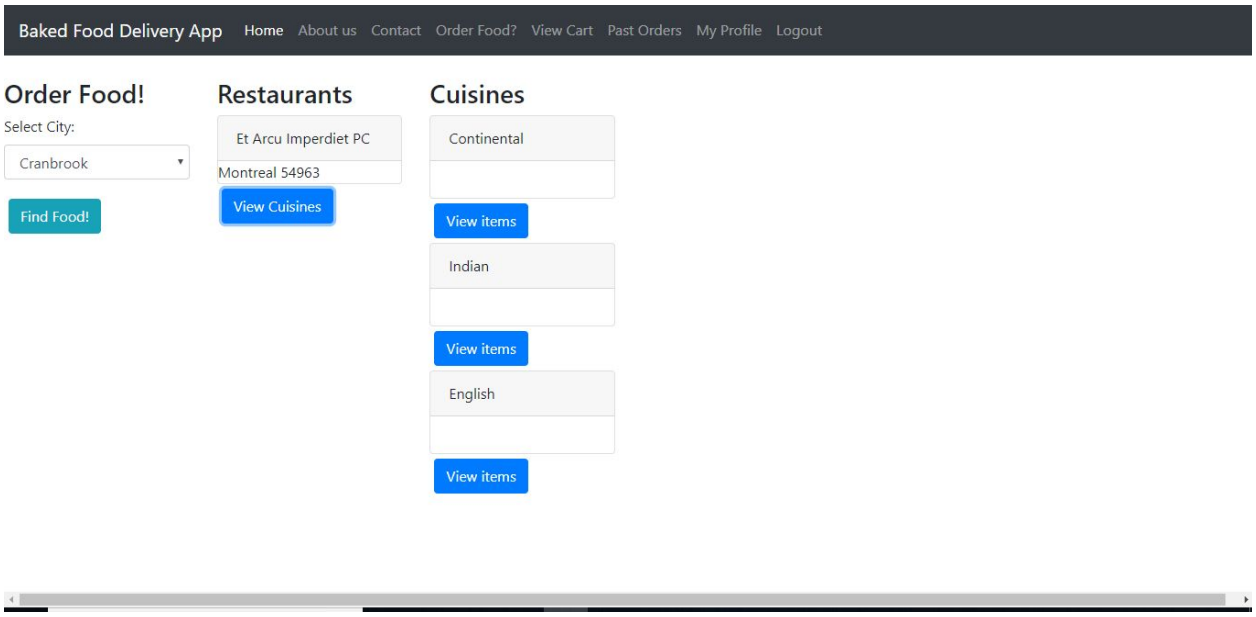


Fig. To view the top rated restaurants

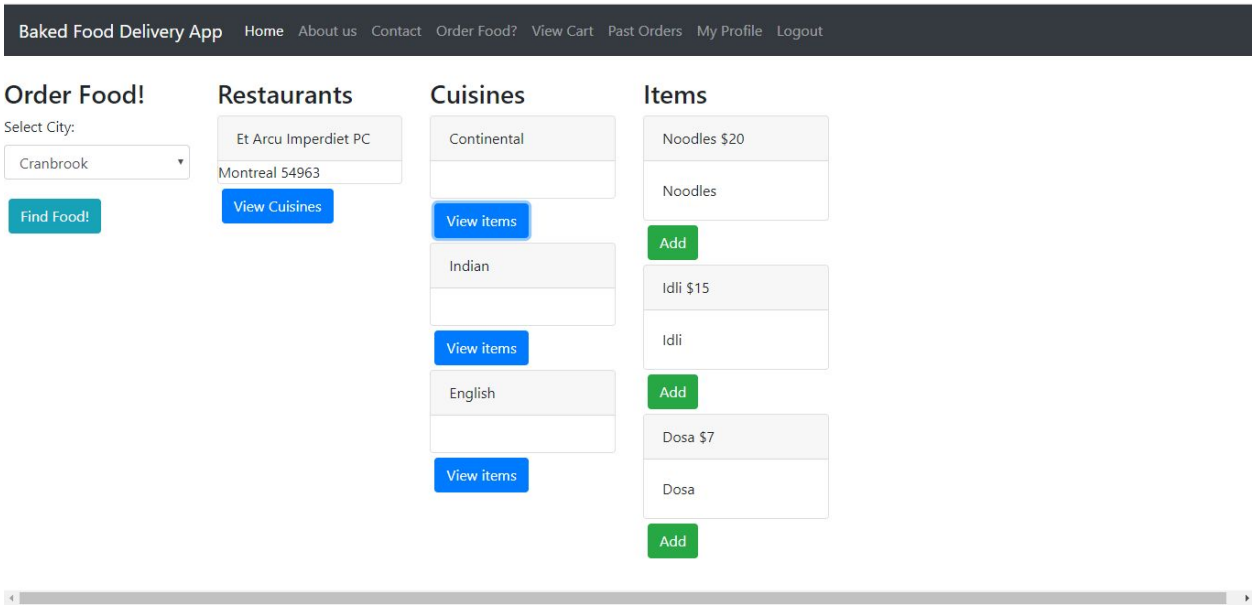
(a) Select city for placing order



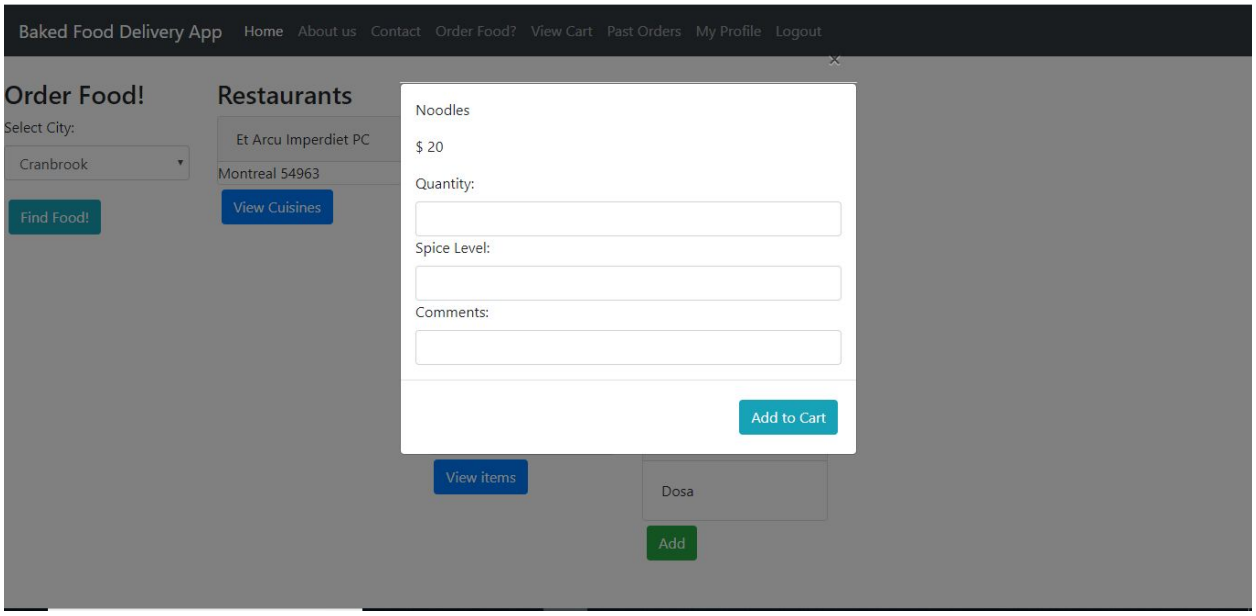
(b) Select restaurants under the chosen city



(c) Choose from a list of cuisines for a particular restaurant

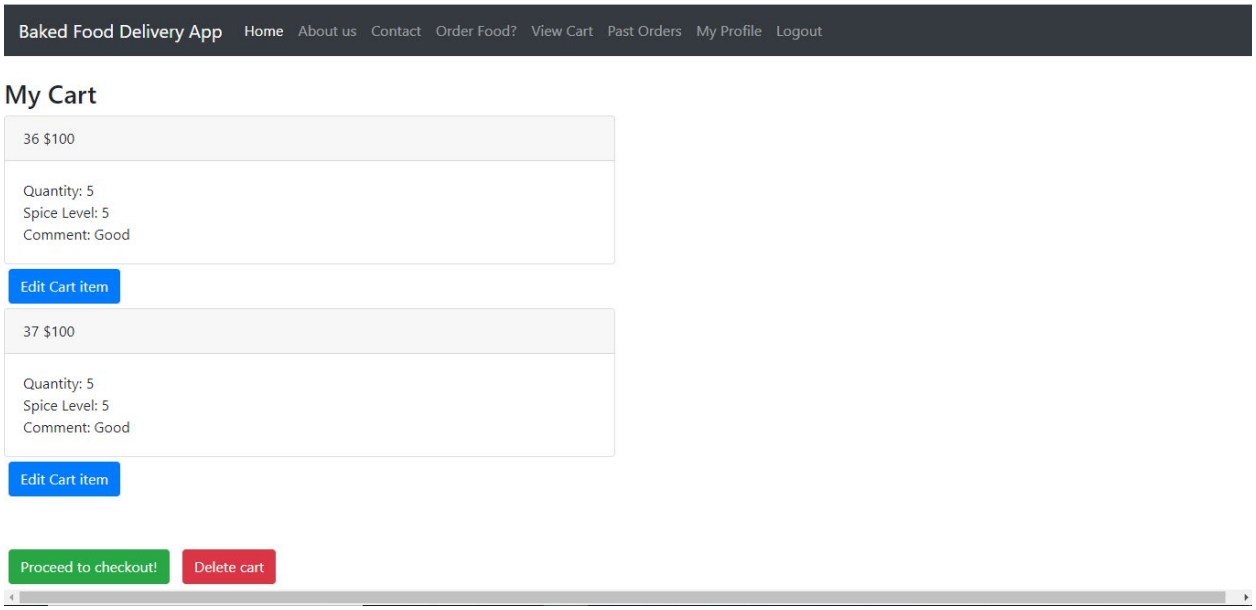


(d) Choose from a list of menu items under a cuisine and restaurant



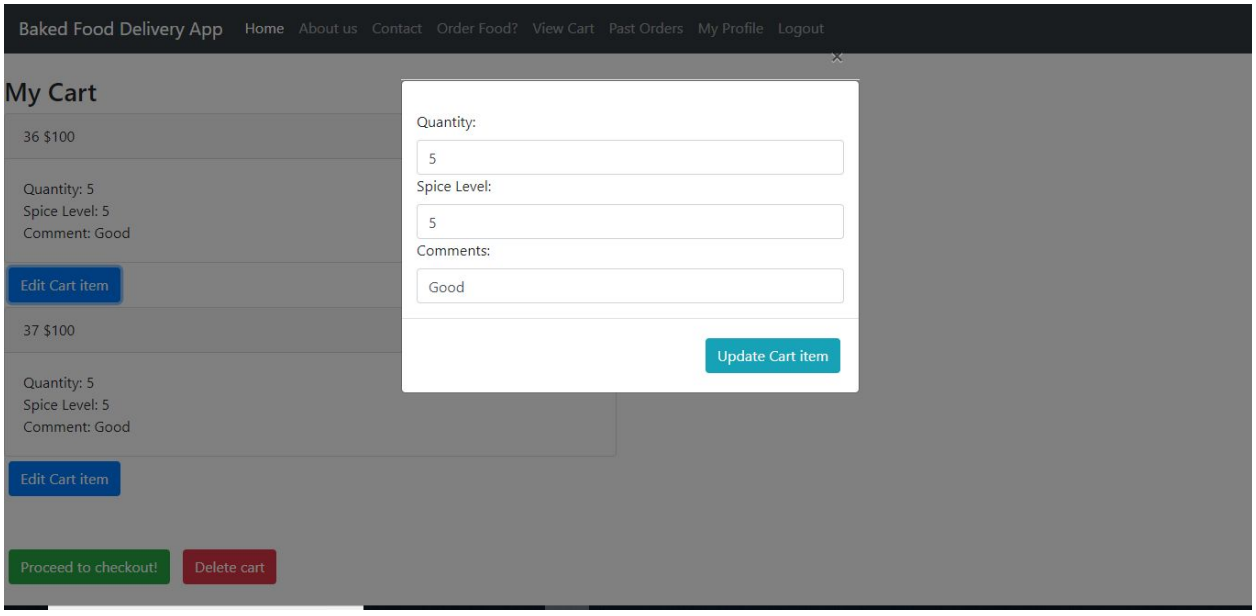
fig(e)

On clicking add to cart for a particular menu item, the user can decide upon the quantity of the order, the spice level and any special comments with respect to that particular menu item. Add to Cart allows users to add items to cart for future purposes as shown in fig(e).

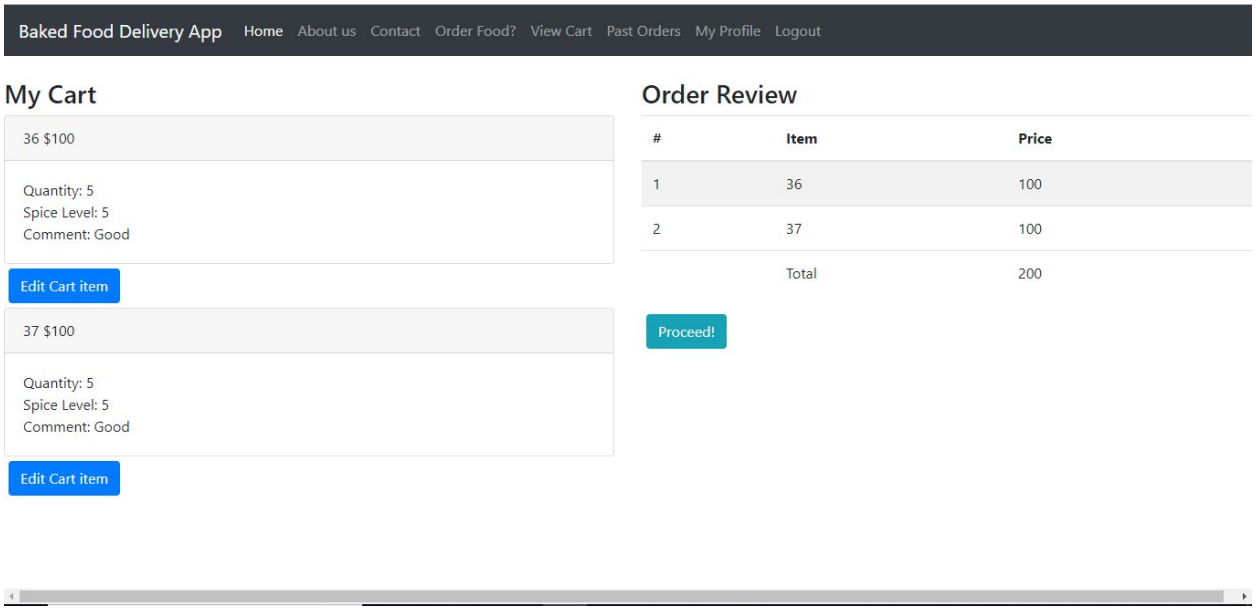


fig(f)

The user cart functionality gives the user the opportunity to edit items before placing the order.This page also allows the user to proceed to checkout if he finds that there are no changes required with respect to the menu items in the cart.
The user also has the option to delete the cart as seen in fig(f)

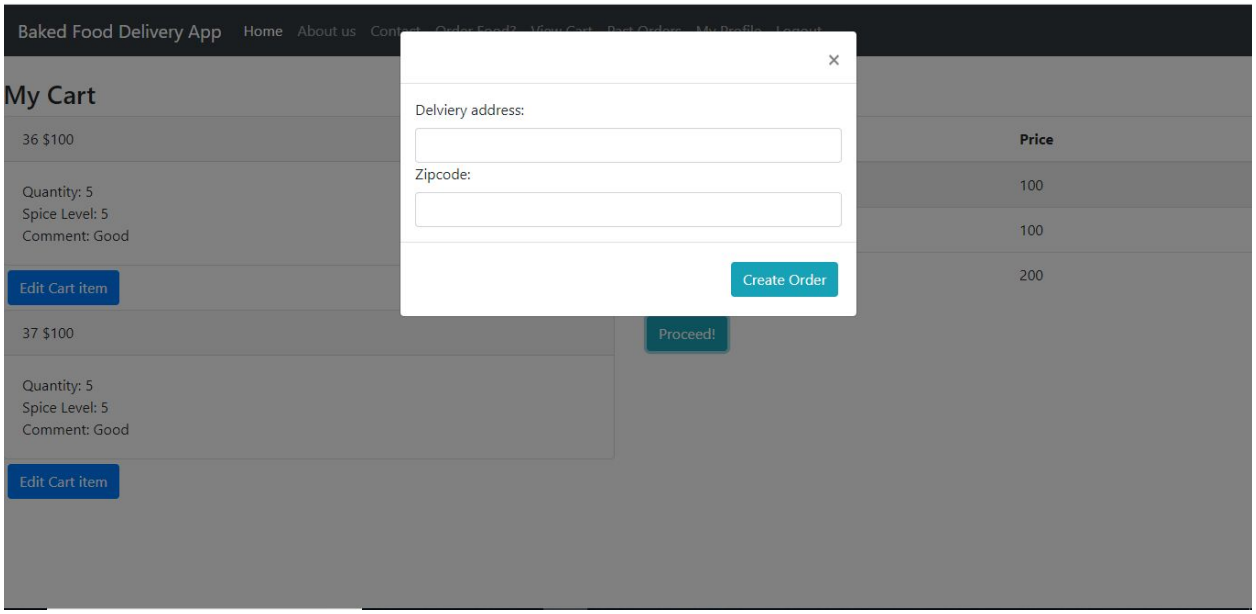


fig(g)



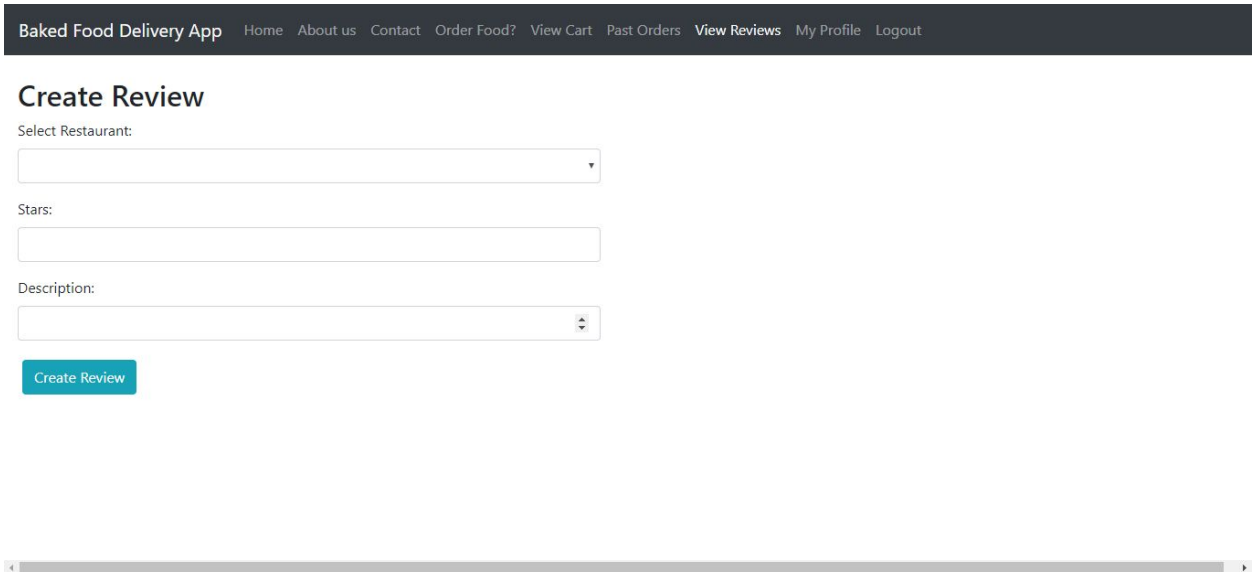
fig(h)

After clicking Proceed to Checkout, Order Review section shows the final order comprising of items and price associated with each item. It also shows the total price of the order and gives the user the option to go back or proceed with the order.



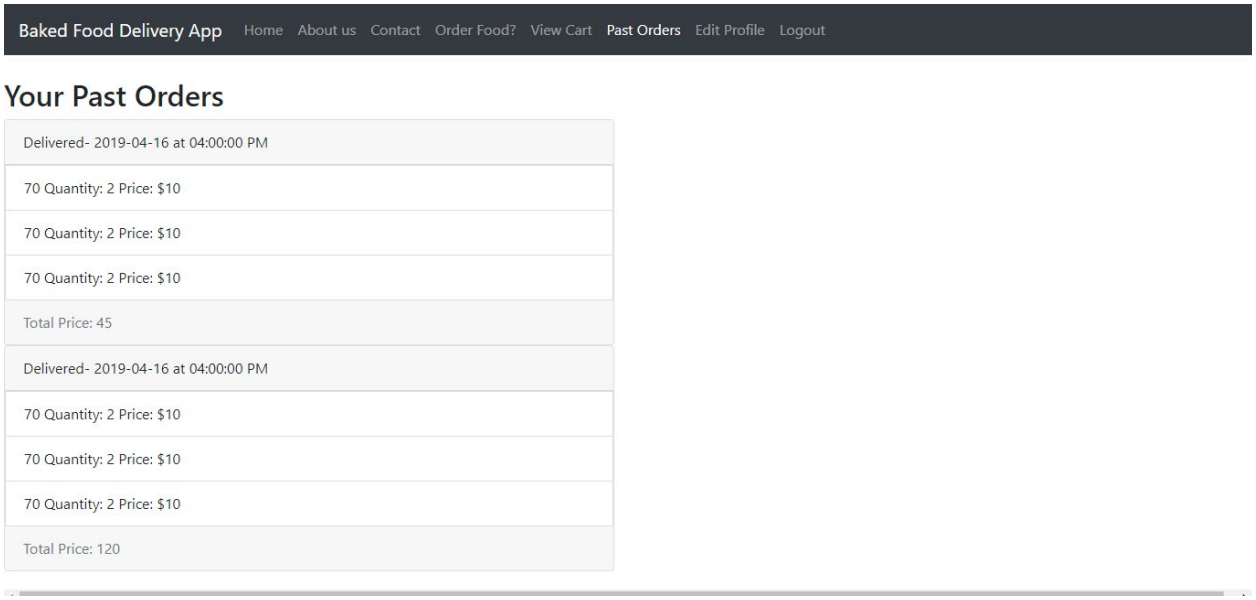
fig(i)

After Clicking Proceed, the user has to specify the delivery address and zip code before placing the order. On clicking Create Order, delivery time is estimated on the basis of the distance between the restaurant and delivery address zip codes by consuming a public REST API which returns the distance between the two zip codes. The user is prompted with a message stating whether the order was successful and the user is directed to the Past Orders page as shown in fig (i) and fig(j).



fig(j)

To create review of a restaurant



fig(k)

Past Orders page displays the orders placed by the user.

<u>A typical implementation:</u>

The order food functionality is present on the user home page itself for ease of access. (Primary function of user after logging in is to order food)

As seen from fig(a), user first selects the city to begin his order. Once a city is city is selected, the page displays the list of restaurants present in that city under the “Restaurants” section.

As seen from fig (b), user then selects the restaurant of his choice from a list of a restaurants available by selecting “Choose cuisines” functionality.

As seen from fig(c), Cuisines section shows the list of available cuisines for a selected restaurant. Upon selecting a particular cuisine,a list of items belonging to a particular cuisine is displayed under Items section as shown in fig(d)

The Add option allows user to add individual items to cart.

Testing Efforts:

1) We performed unit testing on the different pages in the application.

Limitations

1) Only 1 item can be added to a cart at a time.

Future Improvements:

1) Implementing recommendation systems employing Data mining and machine learning techniques.