

# Final Project: Restaurant Finder Web Application

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## 1. Abstract:

To implement a web application that will let the user to perform CRUD operations on the different collections from the User Interface. To render the data from the back-end and view it in the front-end in a readable manner. To implement a NoSQL database for the back-end. To perform data visualisations on the data available.

## 2. Introduction:

This section gives an overview of what technologies have been used, what is the project structure and the different collections used for storing the data.

### 2.1 Technology Stack:

The below technologies were used to develop the web application:

- Front-End: HTML, CSS, Bootstrap and Ninja
- Back-End: Python, MongoDB, Flask

### 2.2 Project Structure:

The source code of the project is divided into three sub-directories:

- static/css – Contains the CSS style sheets that are to be rendered when the HTML pages are loaded.
- template – Contains all the HTML page templates for the web application.
- app.py – Contains the python code that makes use of Flask and MongoDB to build the backend of the web application.

### 2.3 Collections:

The web applications' backend is built using MongoDB as the database. The web applications' database consists of three collections in total, namely:

- **users\_table:** Contains information about the different users that are making use of the web application. It contains the below columns:
  - firstname, lastname, username, email, password
- **restaurants\_table:** Contains information about the different restaurants that are available in the local area. It contains the below columns:
  - restaurant\_name, cuisine\_type, address, phone\_number, price\_range
- **reviews\_table:** Contains information about the reviews that a user gives to a particular restaurant. It contains the below columns:
  - restaurant\_name, review, rating

## 3. CRUD Operations:

**3.1 Creating a new User:** The sign-up page takes the user information from the HTML form. The data is then stored as a JSON object in the users\_table when an API call is made on the click of the Sign Up button.



### Sign Up

First Name

Last Name

Username

Email

Password  
 Please fill in this field.

Already have an account? Login [here](#).

Screenshot 1: Signup Page

The user can also access the web application by logging in once they have signed up. The application checks whether the given information is in the users\_table or not. If it is present, the user is redirected to the Home page. If the user is not present in the database, the user is redirected to the Sign Up page.



### Login

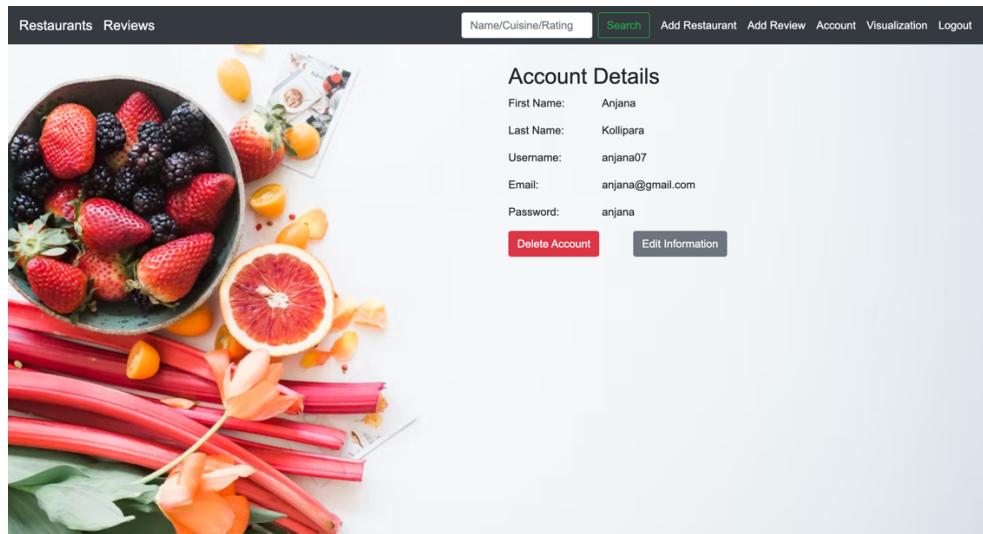
Username

Password

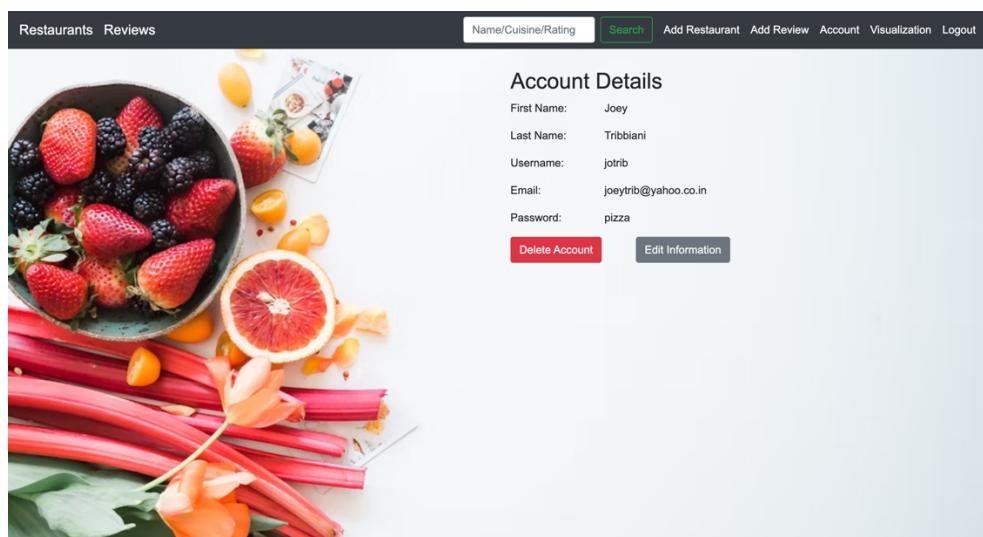
Don't have an account? Sign up [here](#).

Screenshot 2: Login Page

**3.2 Retrieving the User information:** You can find the user information in the Account section of the web application. The user information is specific to the user currently logged in.

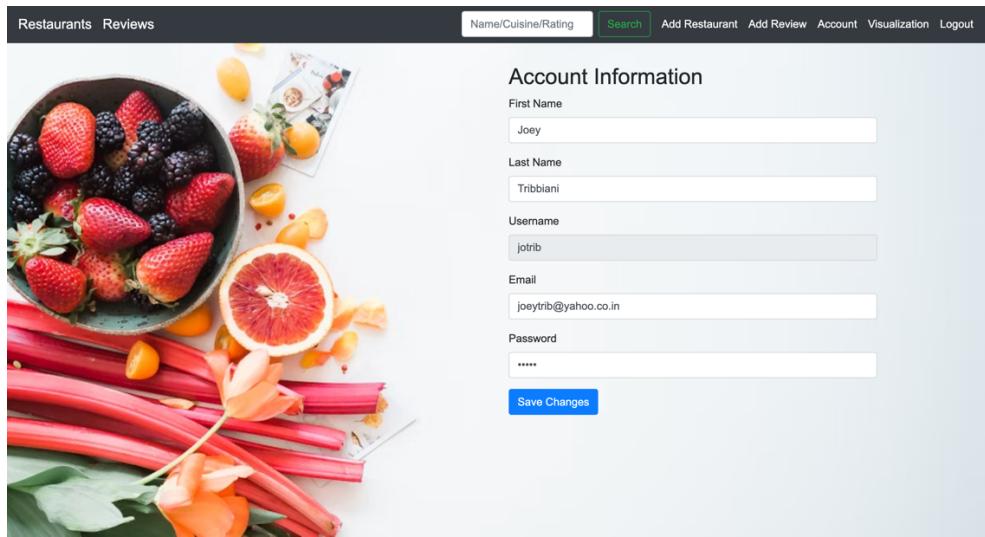


Screenshot 3: User 1 Account Details



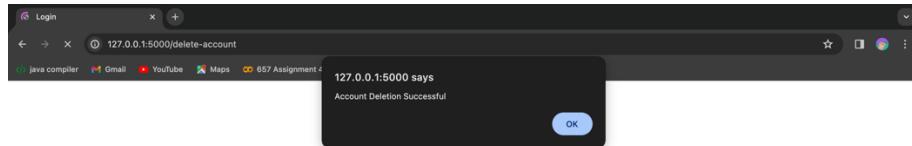
Screenshot 4: User 2 Account Details

**3.3 Updating the User Information:** You can update the user information from the UI by clicking on the Edit Information button in the Account page of the particular user. The user is then redirected to an HTML page that contains the current information in an editable format. The user can make changes as pleased and save the changes.

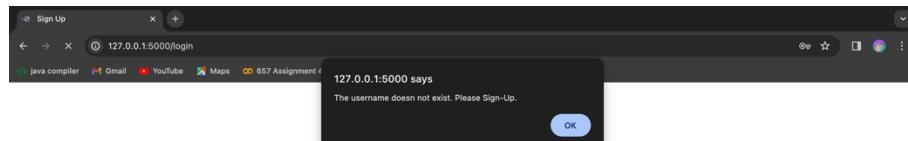


Screenshot 5: Update Account Information Page

**3.4 Deleting an Account:** If the user no longer wishes to continue to make use of the web application, they can simply delete their account by clicking on the Delete Account button available in the Account page. When the same user tries to login using the deleted account credentials, they will be restricted from doing so.



Screenshot 6: Account Deletion Successful



Screenshot 7: Error when accessing the Deleted Account

**3.5 Adding a New Restaurant:** A user can add information about a restaurant by making use of the Add Restaurant option available in the navigation bar of the website. The user is then redirected to a page where the restaurant information is to be filled.

Restaurant Details

Restaurant Name  
Test1

Cuisine Type  
Indian

Address  
Address1

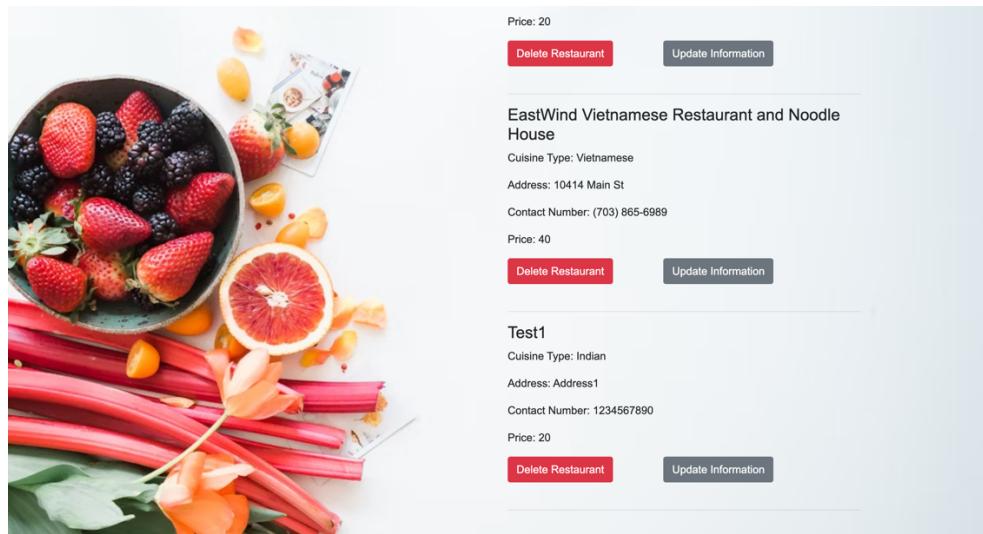
Contact  
1234567890

Price  
20

Add

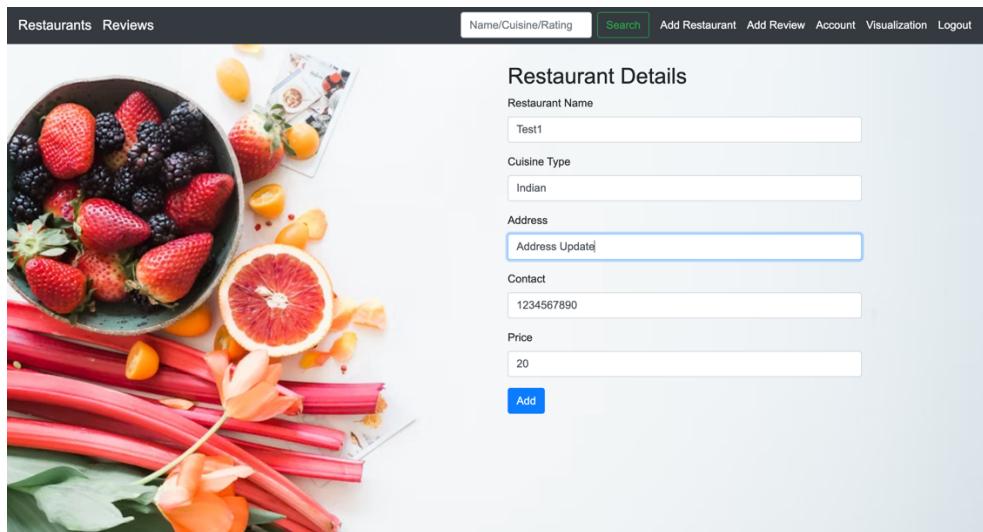
Screenshot 8: Adding a New Restaurant

Once all the information is typed in, the user can click the Add button which in turn makes an API call to the insert functionality of the restaurant collection. Once the restaurant is inserted into the collection, you can view it on the website by scrolling to the bottom of the page.

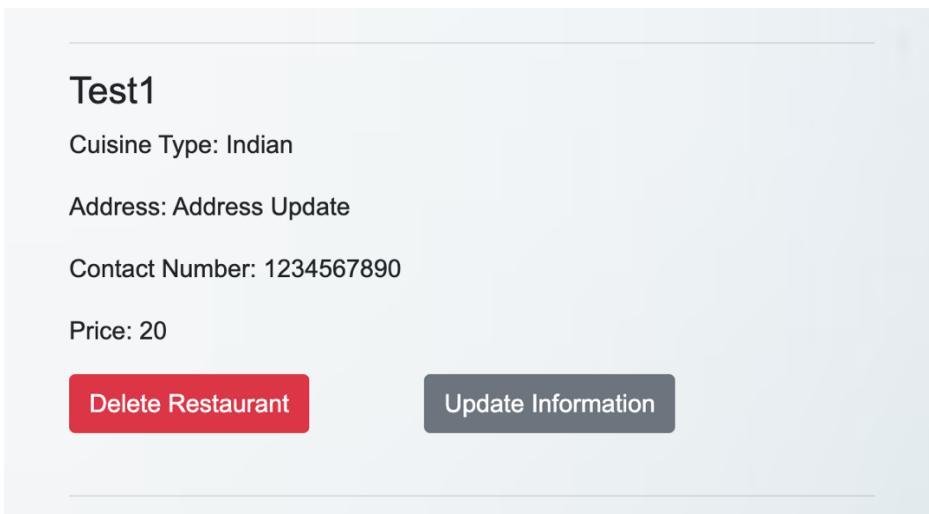


Screenshot 9: New Restaurant Added

**3.6 Updating the Restaurants' Information:** You can update the restaurants' information from the UI by clicking on the Update Information button in the Restaurant page. The user is then redirected to an HTML page that contains the current information in an editable format. The user can make changes as pleased and save the changes.



Screenshot 10: Updating the Restaurant Information

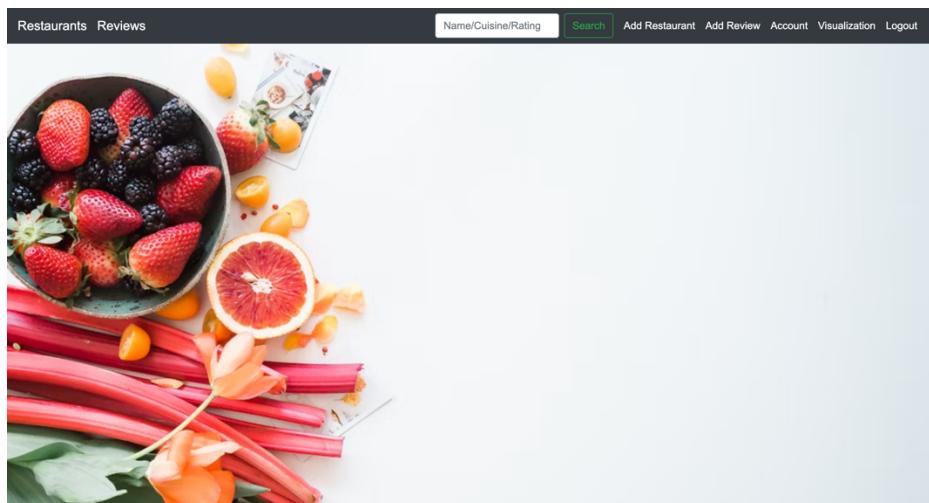


Screenshot 11: After Updating the Restaurant Information

**3.7 Deleting a Restaurant:** The user can delete a restaurant from the UI by making use of the Delete Restaurant button provided. An API call is made to the delete functionality and that restaurant is deleted from the restaurants collection. It no longer appears in the restaurant page. This API call deletes all the reviews of the particular restaurant from the reviews collection as well. Searching for the deleted restaurant will result in an empty page.

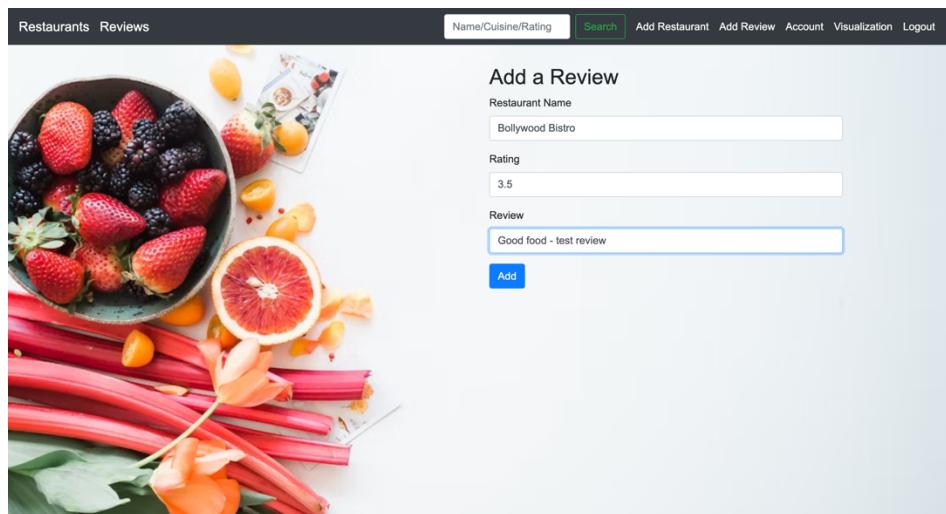


Screenshot 12: Searching for a Deleted Restaurant



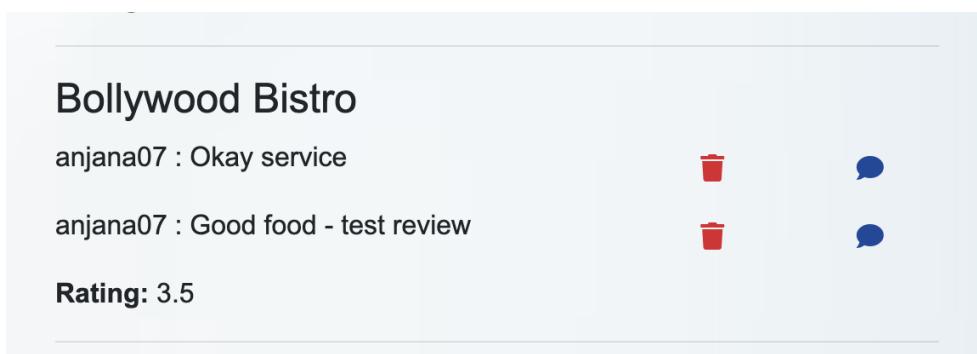
Screenshot 13: Empty Page

**3.8 Adding a Review:** A user can add a review about a restaurant by making use of the Add Review option available in the navigation bar of the website. The user is then redirected to a page where the review information is to be filled.



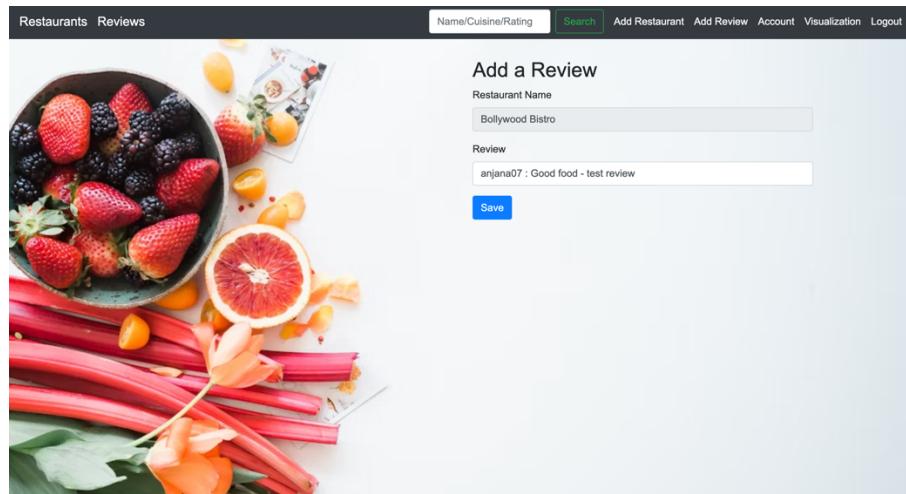
Screenshot 14: Add a Review Page

On clicking the Add button, the user is redirected to the Review page that contains the reviews of all the restaurants and their ratings.



Screenshot 15: Review Added

**3.9 Updating a Review:** You can update the restaurants' review from the UI by clicking on the Comment FA icon button next to that particular review. The user is then redirected to an HTML page that contains the current information in an editable format. The user can make changes as pleased and save the changes.



Screenshot 16: Update Review

## Bollywood Bistro

anjana07 : Good food - test review update

**Rating:** 3.5

Screenshot 17: After Updating

**3.10 Deleting a Review:** The user can delete a review from the UI by making use of the Trash FA icon button provided next to the particular review. An API call is made to the delete functionality and that review is deleted from the reviews collection. It no longer appears in the review page.

## Bollywood Bistro

anjana07 : Good food - test review update

anjana07 : Great restaurant

**Rating:** 4.0

Screenshot 18: Before Deleting

## Bollywood Bistro

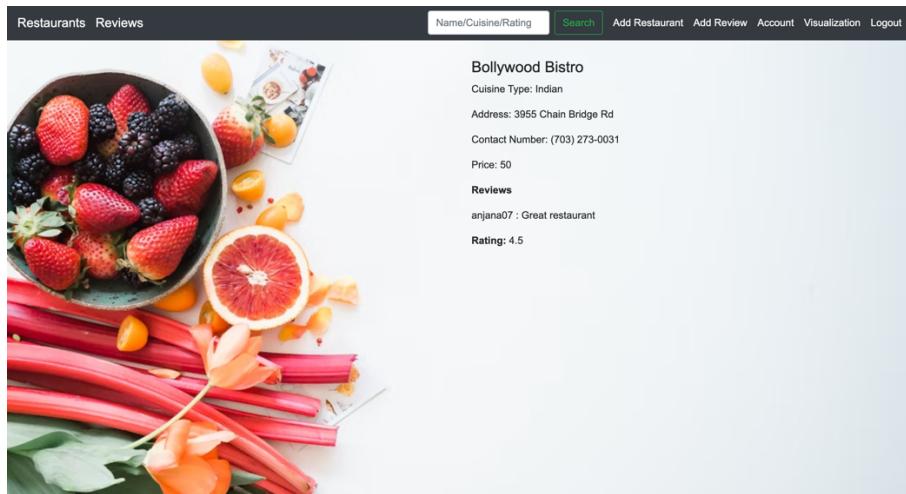
anjana07 : Great restaurant

**Rating:** 4.5

Screenshot 19: After Deleting

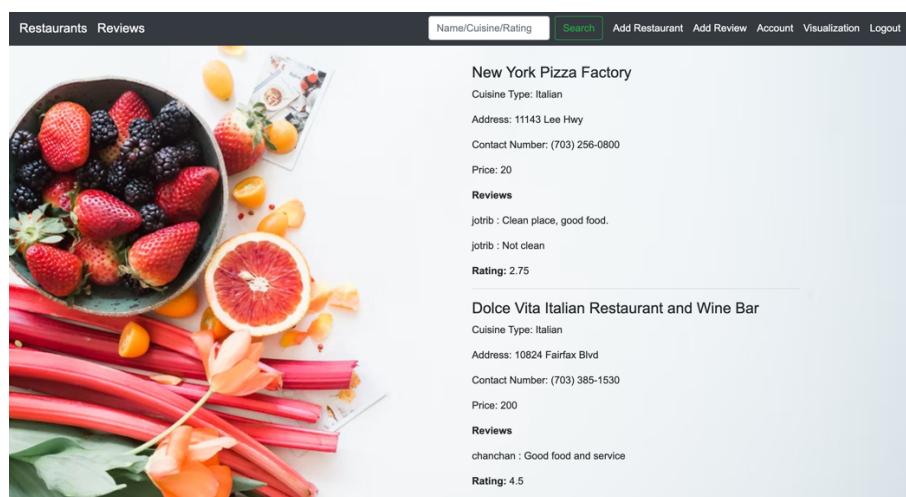
**4. Search Queries:** The web application also has a search feature which will let the user search a particular restaurant based on restaurant name, cuisine type or ratings.

**4.1 Search by Restaurant Name:** You can provide a particular restaurants' name in the search box. Once the Search button is clicked, an API call is made to the search functionality and all the information about the restaurant searched is rendered in the front-end.



Screenshot 20: Search result for Restaurant Name

**4.2 Search by Cuisine Type:** You can provide a particular cuisine type in the search box. Once the Search button is clicked, an API call is made to the search functionality and all the information about all the restaurants that serve this cuisine are rendered in the front-end.



Screenshot 21: Search result for Cuisine Type

**4.3 Search by Rating:** You can provide a number in the search box. Once the Search button is clicked, an API call is made to the search functionality and all the information about all the restaurants that have a rating greater than the given rating are rendered in the front-end.



**Bollywood Bistro**  
Cuisine Type: Indian  
Address: 3955 Chain Bridge Rd  
Contact Number: (703) 273-0031  
Price: 50  
**Reviews**  
anjana07 : Great restaurant  
**Rating:** 4.5

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**Courtside Thai Cuisine**  
Cuisine Type: Thai  
Address: 3981 Chain Bridge Rd  
Contact Number: (703) 223-5400  
Price: 20  
**Reviews**  
rossg : Best Thai food in Fairfax.  
**Rating:** 5.0

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**Dolce Vita Italian Restaurant and Wine Bar**  
Rating: 5.0

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**Dolce Vita Italian Restaurant and Wine Bar**  
Cuisine Type: Italian  
Address: 10824 Fairfax Blvd  
Contact Number: (703) 385-1530  
Price: 200  
**Reviews**  
chanchan : Good food and service  
**Rating:** 4.5

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**Pad Thai Restaurant**  
Cuisine Type: Thai  
Address: 11199 Lee Hwy E  
Contact Number: (703) 591-2525  
Price: 40  
**Reviews**  
rossg : Good food  
**Rating:** 4.5

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**Red Hot and Blue**  
Cuisine Type: Irish

Screenshot 22: Search result for Rating

**4.4 Search by Username:** You can provide a username in the search box. Once the Search button is clicked, an API call is made to the search functionality and all the names of the restaurants reviewed by this user along with the reviews are displayed.



**Restaurants reviewed given by anjana07**

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**The Old Firestation**  
anjana07 : Good food

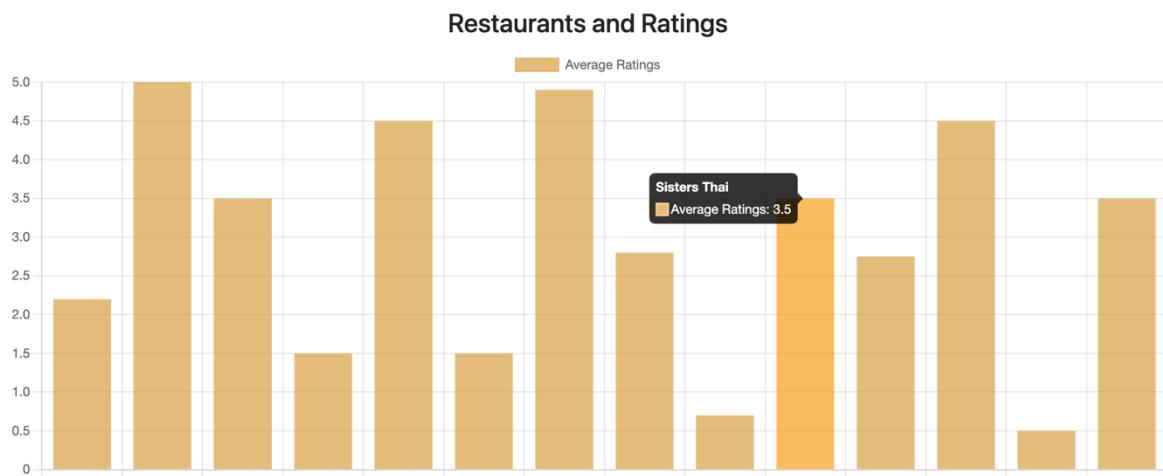
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**Bollywood Bistro**  
anjana07 : Amazing food

Screenshot 23: Search result for Username

**5. Data Visualisation:** You can view the different plots of the data in the Visualisation option available in the navigation bar.

**5.1 Bar Graph:** This shows a plot of the restaurants and their ratings. It is interactive and you can view the restaurant name and its rating by hovering over a particular bar.



Screenshot 24 : Bar Graph of Restaurants vs Ratings

**5.2 Pie Chart:** This shows the number of restaurants that serve the same type of cuisine. It is interactive and you can view the cuisine type and number of restaurants that serve this cuisine by hovering over a particular section of the pie chart.



Screenshot 25 : Pie Chart for Restaurants and Cuisines

**6. Conclusion:** In conclusion, the development of a web application with CRUD operations for various collections, backed by a NoSQL database, offers a robust and scalable solution for managing and presenting data. The implementation of a user-friendly interface enables seamless interaction, while the incorporation of data visualization tools enhances the user experience and provides valuable insights into the stored information.