Restaurant Reservation and Recommendation System

DMDD project
Group Name: R3

Group Members:

1. **Anjali Kshirsagar (002743547)**
2. **Gayatri Kenkare (002743776)**
3. **Snehal Padekar (002737903)**
4. **Mahek Gangadia (002797094)**

Description:

- A restaurant recommendation and reservation system is the goal of the project. It serves as a forum for food enthusiasts.
- The algorithm will consider the user's food preferences and then make recommendations for good restaurants in close surroundings.
- This advice will only take into account factors like price, food quality, ratings from previous customers, accessibility, ambiance, etc.
- After selecting the restaurant, the user can make a table reservation. The reservation system includes options for making reservations at particular restaurants, canceling reservations, changing reservation details, etc.
- This system's goal is to give users suggestions for the best restaurants in their area. This system can give people some suggestions; also you can get others' opinions from this site.
- By evaluating restaurants, you can suggest diners to other people in addition to browsing others' reviews.
- There are various methodologies for searching restaurants in this system, including searching by zip code, kind, keyword, price, and recommendations.

Scope and Motivation

Motivation:

- Being international students, we have a hard time finding a decent restaurant that is both within our budget and conveniently located. As a result, we had the idea to build a system where users could check out a restaurant's menu and other details and reserve a table. Making a recommendation system will help users find a good restaurant within their budget.

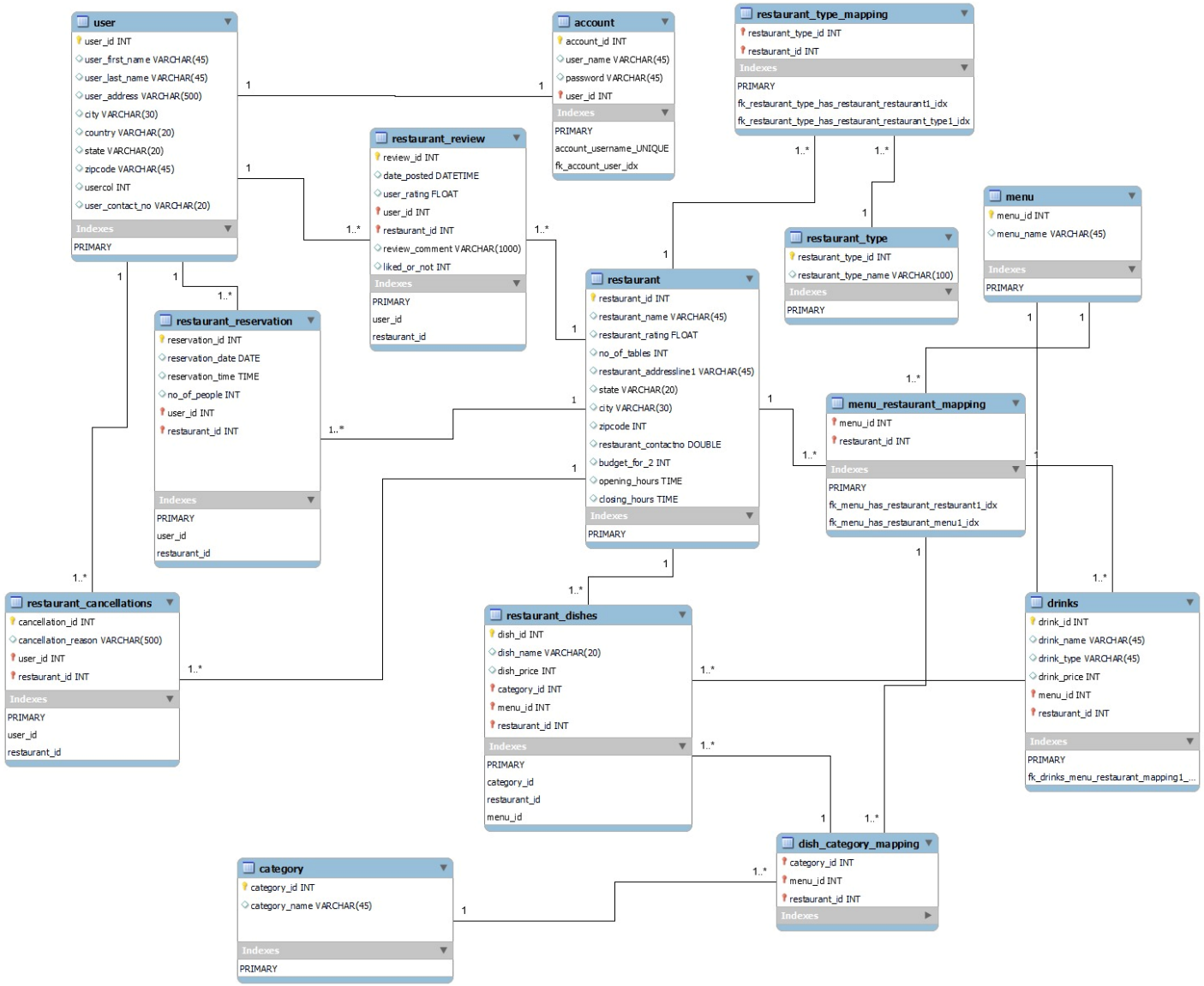
Scope:

- The user can browse through the restaurants and view the reviews. They can post reviews for the restaurant after logging in or signing up for the system. The project offers two primary features. The recommendation module comes first, followed by the reservation module. The project's scope is limited to just the eateries in Boston City. The recommendation module will be able to respond to a variety of user inquiries, like "A decent restaurant serving Burgers", The reservation module offers a variety of features, including the ability to reserve a table at a restaurant, cancel a reservation, or check for review for any restaurant.

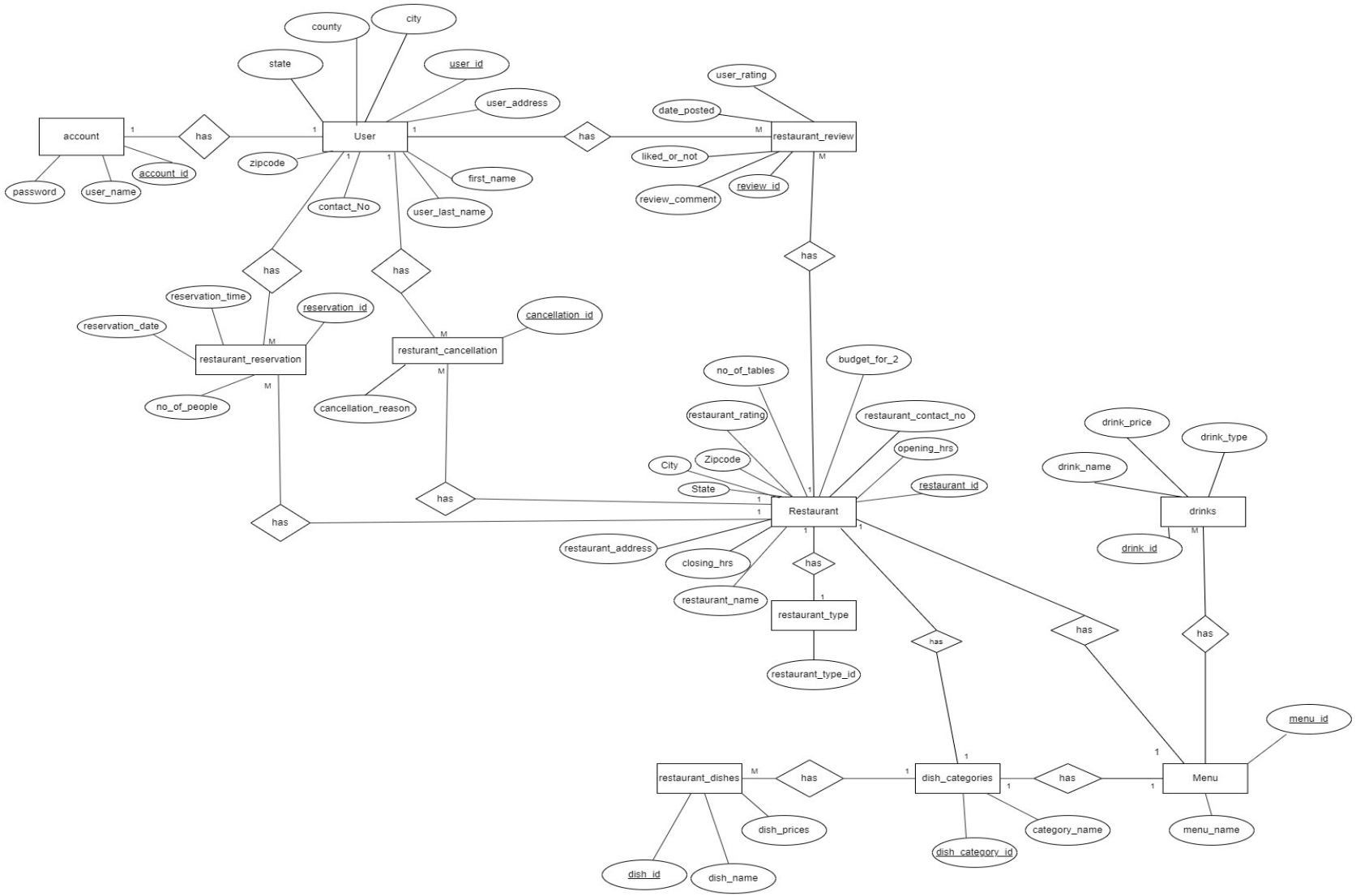
Source of Data for our Database:

- We scraped information about restaurants from Google.
- To scrape data, Selenium and Chrome web drivers were utilized.
- Data has been scraped from three sources.
    1. Google
    2. Food Menu Prices Website
    3. Kaggle
- Google is the first source, and the website food menu prices are the second. The restaurant data was directly taken from Google. Google will look up the restaurant, and information on the closest restaurants will be collected.
- The information about the restaurant, such as the review, the type of restaurant, the address, the phone number, the hours of operation, etc.
- The information, including meal categories, items, and their costs, is scraped from a website's food menu prices. Both websites' data is real-time and extremely accurate.
- The information is dynamic and valid. The third source is Kaggle. We have taken a few datasets from Kaggle related to user comments and restaurant reservation details.

Physical Model:



ER Diagram:


county
city
state
user_id
user_address
account
has
User
has
user_rating
date_posted
restaurant_review
zipcode
liked_or_not
account_id
first_name
password
user_name
review_comment
review_id
contact_No
user_last_name
has
has
has
reservation_time
reservation_id
cancellation_id
reservation_date
restaurant_reservation
resturant_cancellation
no_of_tables
budget_for_2
restaurant_rating
restaurant_contact_no
drink_price
drink_type
opening_hrs
drink_name
City
Zipcode
State
restaurant_id
no_of_people
cancellation_reason
has
Restaurant
drinks
has
restaurant_address
closing_hrs
has
drink_id
restaurant_name
restaurant_type
has
has
has
restaurant_type_id
menu_id
restaurant_dishes
has
dish_categories
has
Menu
dish_prices
category_name
menu_name
dish_category_id
dish_id
dish_name

Tables Created for this system:

- restaurant
- restaurant_type
- restaurant_type_mapping
- account
- menu
- menu_restaurant_mapping
- user
- Restaurant_dishes
- drinks
- category
- dish_category_mapping
- restaurant_review
- restaurant_reservation
- restaurant_cancellation

Views Created for this system

- Dishprice
- Drinktable
- rescategory
- restype
- Userrating

Stored Procedures and Triggers Created for this system

- Searchby_budget
- Searchby_category
- Searchby_dishname
- Searchby_dishprice
- Searchby_drinktype
- Searchby_rating
- searchby_resturant_name
- Searchby_restype
- searchby_userrating
- Searchby_zip
- add_review_restaurant
- restaurant_reservation
- Restaurant_cancellation
- Updatenooftables (Trigger)
- Updatenooftables1 (Trigger)

Features:

1. Search for a Restaurant:

a) Search by budget

```
search_by_budget
Enter Budget : 30

 --- OUTPUT---
('Starbucks', 3.7, datetime.timedelta(seconds=25200), datetime.timedelta(seconds=75600), 26, '360 Huntington Ave, Boston, ',
2115, 'Boston', 'MA')

('Wendys', 3.9, datetime.timedelta(seconds=28800), datetime.timedelta(seconds=84600), 24, '157-A Massachusetts Ave, Boston,
', 2127, 'Boston', 'MA')

('Popeyes', 3.9, datetime.timedelta(0), datetime.timedelta(seconds=68400), 24, 'Northeastern University, 360 Huntington Ave,
Boston, ', 2115, 'Boston', 'MA')

('KFC', 3.6, datetime.timedelta(seconds=36000), datetime.timedelta(seconds=82800), 22, '695 Columbia Rd, Dorchester, ', 212
5, 'Boston', 'MA')

('Dunkin Donuts', 4.2, datetime.timedelta(seconds=28800), datetime.timedelta(seconds=50400), 17, 'Northeastern - Shillman Ha
ll, 115 Forsyth St, Boston, ', 2115, 'Boston', 'MA')

('Blaze Pizza', 4.5, datetime.timedelta(seconds=39600), datetime.timedelta(seconds=79200), 11, '1282 Boylston St, Boston, ',
2215, 'Boston', 'MA')
```

b) Search by rating

```
search_by_rating
Enter Rating : 4

 --- OUTPUT---
('Five Guys', 4.3, datetime.timedelta(seconds=39600), datetime.timedelta(seconds=79200), 41, '263 Huntington Ave, Boston, ',
2115, 'Boston', 'MA')

('Shake shack', 4.3, datetime.timedelta(seconds=39600), datetime.timedelta(seconds=79200), 43, '234-236 Newbury St, Boston,
', 2116, 'Boston', 'MA')

('Qdoba', 4.1, datetime.timedelta(seconds=37800), datetime.timedelta(seconds=82800), 33, '393 Huntington Ave Ste 101, Bosto
n, ', 2115, 'Boston', 'MA')

('Dunkin Donuts', 4.2, datetime.timedelta(seconds=28800), datetime.timedelta(seconds=50400), 17, 'Northeastern - Shillman Ha
ll, 115 Forsyth St, Boston, ', 2115, 'Boston', 'MA')

('Blaze Pizza', 4.5, datetime.timedelta(seconds=39600), datetime.timedelta(seconds=79200), 11, '1282 Boylston St, Boston, ',
2215, 'Boston', 'MA')

('Cheddars', 4.6, datetime.timedelta(seconds=36000), datetime.timedelta(seconds=72000), 41, '1638 Washington St, Boston, ',
2118, 'Boston', 'MA')
```

c) Search by drink type

```
Enter Drink type : Coffee

 --- OUTPUT---
('Starbucks', 'Caffe Latte Tall ', 'Espresso, Coffee & Tea', 2.95, 26, '360 Huntington Ave, Boston, ', 2115)

('Starbucks', 'Caffe Latte Grande ', 'Espresso, Coffee & Tea', 3.65, 26, '360 Huntington Ave, Boston, ', 2115)

('Starbucks', 'Caffe Latte Venti ', 'Espresso, Coffee & Tea', 4.15, 26, '360 Huntington Ave, Boston, ', 2115)

('Starbucks', 'Caffe Mocha Tall ', 'Espresso, Coffee & Tea', 3.45, 26, '360 Huntington Ave, Boston, ', 2115)

('Starbucks', 'Caffe Mocha Grande ', 'Espresso, Coffee & Tea', 4.15, 26, '360 Huntington Ave, Boston, ', 2115)

('Starbucks', 'Caffe Mocha Venti ', 'Espresso, Coffee & Tea', 4.65, 26, '360 Huntington Ave, Boston, ', 2115)

('Starbucks', 'White Chocolate Mocha Tall ', 'Espresso, Coffee & Tea', 3.75, 26, '360 Huntington Ave, Boston, ', 2115)

('Starbucks', 'White Chocolate Mocha Grande ', 'Espresso, Coffee & Tea', 4.45, 26, '360 Huntington Ave, Boston, ', 2115)
```

2. Make a Reservation:

```
Would you like to continue ? (yes:y/Y, no: n/N) : Y

Select Among the Following Tasks
Task 1 : Review a Restaurant
Task 2 : Reserve a table at Restaurant
Task 3 : Cancel Reservation

Enter your choice : 2
Reserve a table at a restaurant
Enter restaurant name : Qdoba
Enter user first name : Lenna
Enter no of people : 5
Enter Date (YYYY-MM-dd) : 2022-12-20
Enter Time (HH:MM:SS) : 20:00:00

 --- OUTPUT---

Restaurant Details Before reservation
(1010, 'Qdoba', 4.1, '(617) 450-0910', datetime.timedelta(seconds=37800), datetime.timedelta(seconds=82800), 33, '393 Huntin
gton Ave Ste 101, Boston, ', 'Boston', 'MA', 2115, 8)


Reservation Deatils
(9034, 3, datetime.timedelta(seconds=73425), datetime.date(2022, 1, 11), 1006, 2041)


Restaurant Details After reservation
(1010, 'Qdoba', 4.1, '(617) 450-0910', datetime.timedelta(seconds=37800), datetime.timedelta(seconds=82800), 33, '393 Huntin
gton Ave Ste 101, Boston, ', 'Boston', 'MA', 2115, 7)


End Task
```

3. Give a Review for a Restaurant

```
Select Among the Following Tasks
Task 1 : Review a Restaurant
Task 2 : Reserve a table at Restaurant
Task 3 : Cancel Reservation

Enter your choice : 1
Review a Restaurant
Enter restaurant name : Qdoba
Enter user first name : Lenna
Enter review comment : Liked it!
Did you like the restaurant? (yes:1,no:0) : 1
Enter user rating : 4

 --- OUTPUT---

Review Details:
(7011, 'Liked it!', 1, 4.0, datetime.date(2022, 12, 14), 1010, 2004)


End Task
```

4. Cancel the Reservation

```
Would you like to continue ? (yes:y/Y, no: n/N) : Y

Select Among the Following Tasks
Task 1 : Review a Restaurant
Task 2 : Reserve a table at Restaurant
Task 3 : Cancel Reservation

Enter your choice : 3

Cancel a Reservation
Enter cancellation reason : Plan cancelled
Enter restaurant name : Qdoba
Enter reservationId : 9034

 --- OUTPUT---

Restaurant Details Before cancellation
(1010, 'Qdoba', 4.1, '(617) 450-0910', datetime.timedelta(seconds=37800), datetime.timedelta(seconds=82800), 33, '393 Huntin
gton Ave Ste 101, Boston, ', 'Boston', 'MA', 2115, 7)


Cancellation Details
(8037, 'Plan cancelled', 1010, 2004)


Restaurant Details After cancellation
(1010, 'Qdoba', 4.1, '(617) 450-0910', datetime.timedelta(seconds=37800), datetime.timedelta(seconds=82800), 33, '393 Huntin
gton Ave Ste 101, Boston, ', 'Boston', 'MA', 2115, 8)


End Task
```

Conclusion

The proposed Restaurant Reservation and Recommendation system fulfills all the requirements of the user like searching for a restaurant, restaurant reservation and cancellation of any reservation made for the restaurants in Boston city. Thus the system allows users to easily browse through the system and check for any specific requirements he has and get restaurant details accordingly.

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