CS 411 Group Project - “SafeDine LA”

Group Member: Shuai Huang, Yueyang Chen, Runzhi Ma, Zhaoqi Xia

Summary:
Our project aims to develop an application that leverages the “Crime in Los Angeles from 2020 to Present” dataset, along with restaurant data in Los Angeles, to provide users with restaurant recommendations based on their personal preferences sorted by safety ratings. The primary problem we intend to address is helping residents and visitors make informed dining choices by factoring in the safety of the restaurant's location.

Description:
Our project will create a user-friendly application that addresses a critical concern for residents and visitors in Los Angeles - dining safety. Los Angeles is known for its diverse culinary scene, but the safety of restaurant locations can be a significant worry for patrons. We will utilize the “Crime in Los Angeles from 2020 to Present” dataset, which includes detailed information on crime incidents in various neighborhoods, to develop a robust safety assessment system.

The application will be designed with a simple and intuitive interface. Users will be able to input their preferences, such as preferred cuisine, budget, and location. The system will then combine this user input with crime data to generate a list of restaurant recommendations and map them to the real-world map. Each recommendation will come with a safety rating, calculated based on the historical crime data in the vicinity of the restaurant. This rating will provide users with a clear understanding of the safety level associated with each dining option.

Usefulness:

- **Comprehensive Restaurant Discovery:** SafeDine LA offers a comprehensive database of restaurants in Los Angeles, allowing users to discover dining options that match their preferences. Whether you’re craving a specific cuisine or searching for a highly-rated restaurant nearby, it provides a comprehensive result.
- **Personalized Restaurant Recommendations:** Our application allows users to set preferences and filters, enabling personalized restaurant recommendations. Users can filter by distance, price range, cuisine type, and even view restaurants on a map. This customization ensures that users find restaurants tailored to their preferences.
- **Real-Time Safety Data Integration:** What sets SafeDine LA apart is its integration with the "Crime in Los Angeles Data from 2020 to the present." Users can check the safety of a restaurant's location before dining out. If you plan to dine late at night, the application can recommend safer areas based on real-time crime data.
- **User-Friendly Map Interface:** Our user-friendly map interface displays restaurant locations and safety information intuitively. Users can quickly visualize restaurant

options and safety ratings on a map, making decision-making easier and more transparent.

- **Account Management:** Users can create personal accounts, allowing them to save favorite restaurants, access their search history, and receive personalized dining suggestions.
- **Comparison to Similar Applications:** While there are existing restaurant searching applications like Yelp, SafeDine LA stands out with its unique combination of restaurant search and real-time safety insights. Most searching apps focus solely on restaurant discovery, but we go a step further by integrating crime data to enhance user safety. Our goal is not just about finding great restaurants; our goal is to ensure that users can enjoy their dining experience with peace of mind.

Realness:

- Crime Data Source： We collect the crime data from https://docs.google.com/document/d/1MooPJXBgriqd8u6-VVVHF1sAybylevOhaAEtLZLUB_o/edit?usp=sharing which reflects incidents of crime in the City of Los Angels dating back to 2020.
- Restaurant Source: We collect the crime data from https://docs.google.com/document/d/1MooPJXBgriqd8u6-VVVHF1sAybylevOhaAEtLZLUB_o/edit?usp=sharing which restaurants information which are located in Los Angeles

Functionality:

We plan to create a database with 2 tables which contain the following information:

Rating: store the general rating information of the restaurants (from the restaurant source dataset)

- RestId INT: Primary Key to identify the restaurant
- RestRating REAL: the general rating of the restaurant
- CuisType VARCHAR(30): the type of cuisine that the restaurants serve
- Address VARCHAR(100): the address of the restaurants
- District VARCHAR(30): the district of the restaurants
- Price INT: the average price of a meal in the restaurant per person

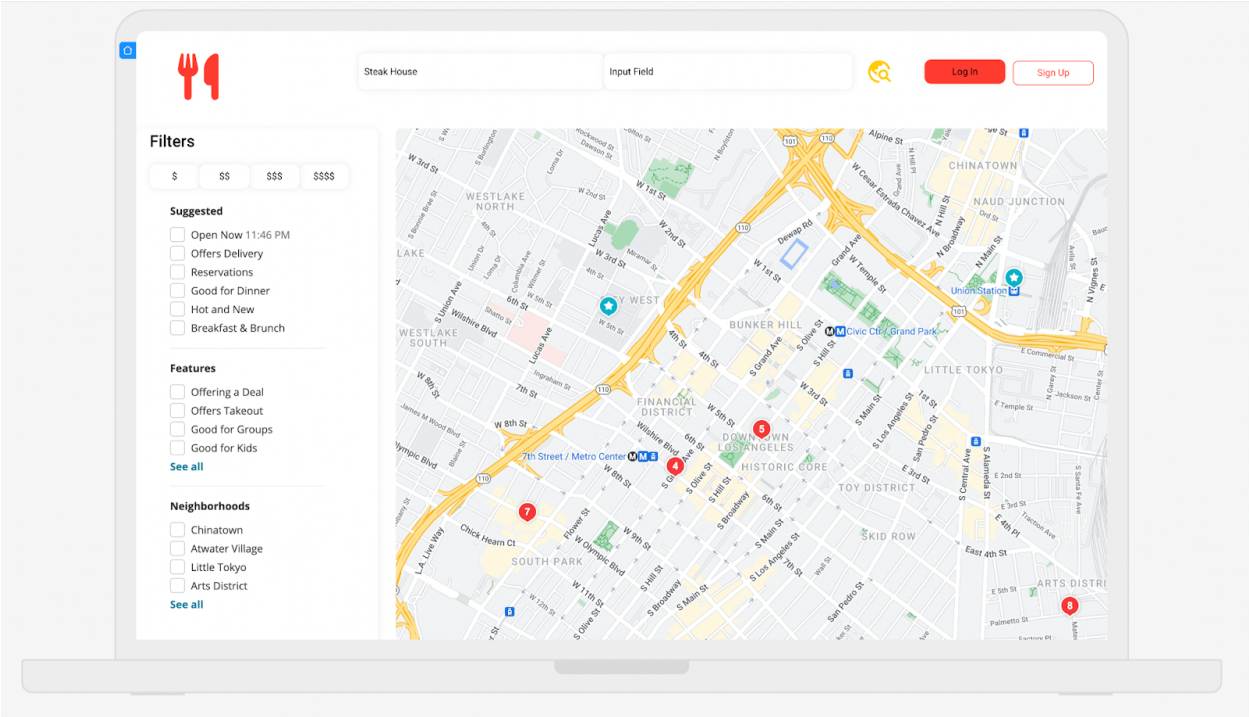
Crime: store the crime rate of the locations in Los Angeles (from the crime data source dataset)

- Address VARCHAR(100): the address of the location where crimes happened
- CrimeRate REAL: the crime rate of the location
- CrimeType VARCHAR(30): the type of crimes that have happened at that location
- District VARCHAR(30): the district of the location

With our application, users can do some simple filtering through checking the boxes on the left side of the screen, which include categories like cuisine type, location, crime rate, price level, etc. More complex functions include creating accounts and login/logout of the account, through which users can save their favorite restaurants and also the searching history. In addition, some of the features might be prioritized according to users' choices, so that the result of the filtering will be more personalized.

One of the cool components of our project is that users can use the map to get a visual representation so that they can better check the distribution of the restaurants and areas with lower crime rates. This will be achieved through computing the coordinates of different locations and restaurants, so that the map can be drawn to scale.

SafeDine LA is an innovative platform designed for Los Angeles residents and visitors, merging restaurant recommendations with safety ratings derived from crime data. Users can seamlessly sign up, search for restaurants based on various filters, including cuisine type and safety, and access detailed profiles of each establishment. An interactive map enhances the experience by visually displaying restaurant locations and their safety rankings. Beyond discovery, the platform promotes engagement, allowing users to save favorites, leave reviews, and get notified of safety rating changes. SafeDine LA stands out as a comprehensive dining guide, emphasizing both culinary delights and safety considerations.



Work Distribution:

Shuai Huang:

- Create tables for 'Rating' and 'Crime'.
- Integrate data sources (both for crime and restaurants) into the database.
- Develop procedures for updating the database with new data, ensuring no duplication.

Zhaoqi Xia:

- Design and implement the main search functionality.
- Develop algorithms to calculate and update safety ratings.
- Implement user registration, authentication, and personalized dashboard functionalities.

Yueyang Chen:

- Work on integrating the map interface with the backend systems, ensuring real-time data representation.
- Develop the "Safety Insights" feature.
- Design and maintain APIs for data fetching by the frontend, especially for real-time crime data.

Runzhi Ma:

- Develop systems to save user preferences, favorites, and search history.
- Implement the feedback and rating system for restaurants.
- Design the backend functionality for notifications on safety rating changes.