

---

# Final Project Restaurant Recommender System

*Prepared by: Chloe Phuong*

# Motivation

- Favorite restaurant is closed/fully booked
- Want to check out similar places



# Restaurant Recommender System

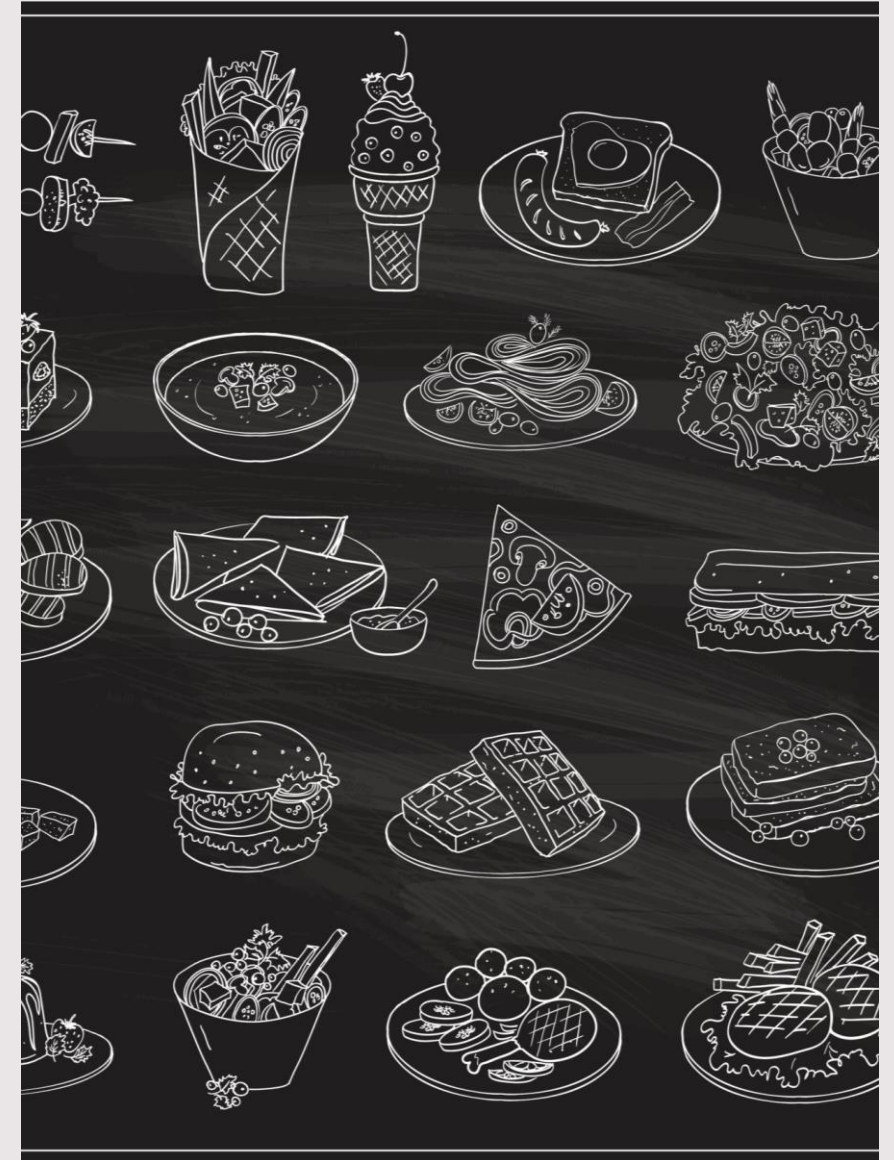
Input required:

- Restaurant's name
- Rating tolerance



Output:

- Restaurants with similar categories and review keywords



---

# Behind the Model



# Data Source

Yelp API:

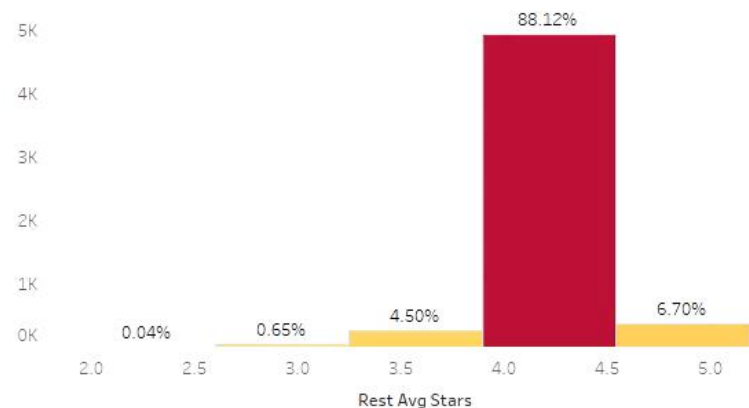
- Business info: business id, name, address, ratings, etc.
- Review info: business id, user id, review id, reviews, user's rating, etc.



A screenshot of the Yelp business page for "Richmond Station". The header shows the restaurant's name, a 4.5-star rating from 895 reviews, and status as "Claimed", "\$\$\$", and "Canadian (New)". It also displays the hours "Open 4:30 PM - 10:30 PM" and a "See hours" link. A "Write a review" button and "Add photo", "Share", and "Save" options are visible. The "Menu" section lists popular dishes: "Station Burger" (56 Photos, 71 Reviews), "Quinoa Salad" (17 Photos, 35 Reviews), "Beef Tartare" (24 Photos, 31 Reviews), and "Beet Chutney f" (7 Photos, 31 Rev). A "Website menu" link is also present. The "Location &amp; Hours" section includes a map showing the location at 1 Richmond Street W, Toronto, ON M5H 3W4, and a table of hours: Mon-Fri 4:30 PM - 10:30 PM (marked "Open now"), Sat 3:30 PM - 10:30 PM, and Sun 3:30 PM - 10:30 PM. A "Get directions" button and "Edit business info" link are at the bottom. On the right, contact information for richmondstation.ca and (647) 748-1444 is shown, along with a "Get Directions" link. A "You Might Also Consider" section lists "Rosemary &amp; Thyme Family Restaurant" and "Oyster Mine".

# Data Overview

User Rating Distribution



Restaurants Distribution



Categories

- noodles chinese
- japanese asian fusion
- canadian new
- gastropubs
- korean beer bar
- italian
- thai
- japanese pubs
- thai desserts
- japanese sushi bars
- peruvian
- cocktail bars breakfast
- canadian new tapassmall
- italian sandwiches cocktail
- mexican

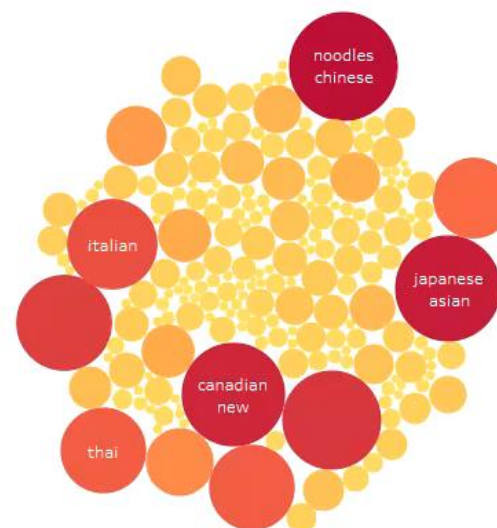
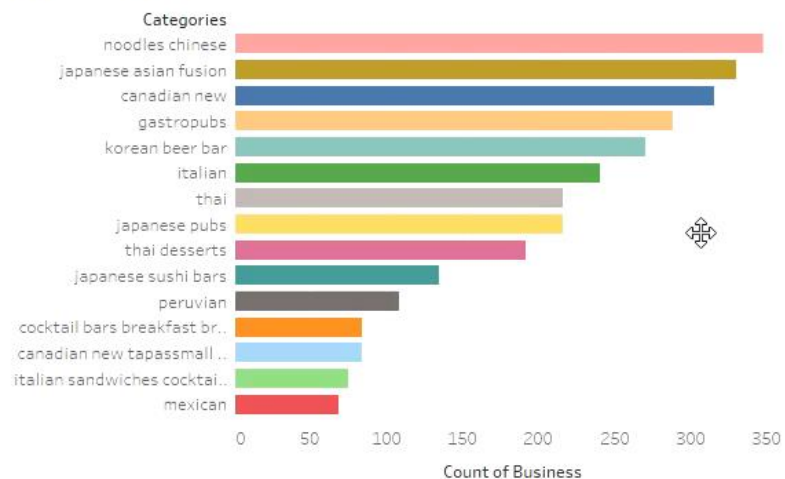
Rest Avg Stars

- 2
- 3
- 3.5
- 4
- 4.5
- 5

Count of Categories



Top Categories



---

# Technologies, Languages, Tools and Algorithms



## Technologies

Visual Studio Code

Tableau

GitHub

Streamlit



## Languages

Python



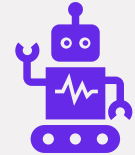
## Tools

Jupyter Notebook

Pandas libraries

Sklearn

Nltk



## Algorithms

TFIDF Vectorizer

Cosine similarity

# Model Training

## Restaurant Recommender System

Enter a restaurant name **STEP 1**

Rating Tolerance **STEP 2**



Get Recommendations **STEP 3**

- Content-based model focuses on matching user preferences with restaurant attributes.
- Analyzes categories, user reviews and ratings to understand the underlying patterns
- Using TF-IDF to transform keywords into vectors
- Using Cosine-similarity score to compare and classify the outcome



---

# Demo Run

# Restaurant Recommender System

Enter a restaurant name



Rating Tolerance



Get Recommendations

---

# Future Development

Use bigger data set that can enable more search power

Explore advanced recommendation techniques to enhance the recommender system. Such as collaborative or hybrid models, deep-learning model.

---

# Thank you

The background of the slide is a dark navy blue. It is decorated with a pattern of diagonal stripes and circles in various colors including teal, olive green, brown, and purple. The stripes and circles vary in width and orientation, creating a dynamic, abstract visual effect. Two thin white horizontal lines are positioned near the top and bottom edges of the slide.