

How to Open a Successful Restaurant

SWS3023 Group 2

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Introduction

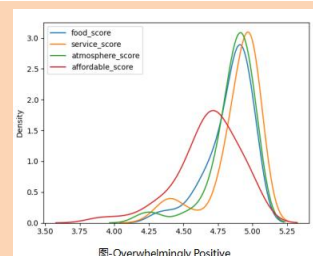
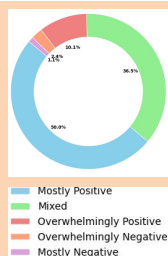
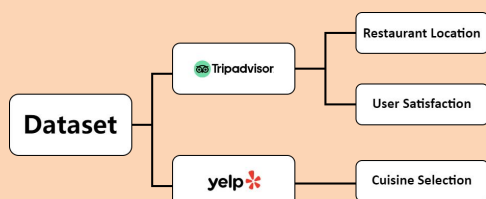
In the post-pandemic era of economic downturn, opening a restaurant is a highly risky venture. However, restaurants still remain the top choice for both locals and foreign tourists in Singapore when dining out, indicating a **vast market potential**.

By mining restaurant data from **Tripadvisor** and **yelp**, we propose reliable strategies to reduce the risk of restaurant failures and bankruptcies.



Framework

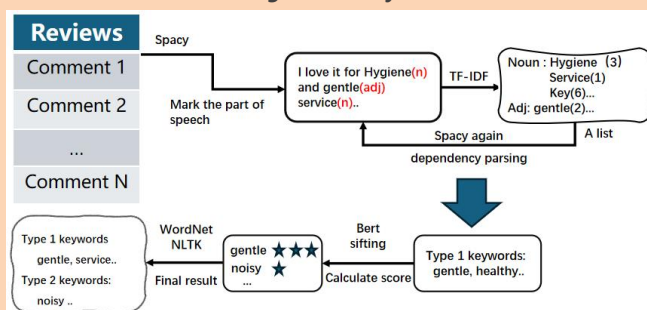
Scraping detailed information on ratings and number of reviews for **8,551 restaurants** from TripAdvisor and **4,642 reviews** from Yelp, we aim to provide reliable strategies for restaurant operators focusing on three key aspects: **restaurant location**, **user satisfaction** and **cuisine selection**.



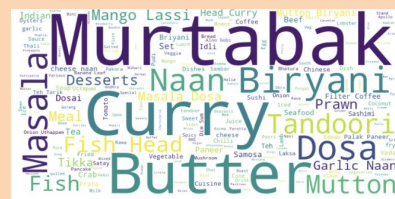
We explored the characteristics of restaurants with a 90%+ 5star rating, compared them with the average restaurant.

Cuisine

First, We apply **TF-IDF** to extract key nouns and adjectives. Then use **BERT** calculates sentiment scores, filtering keywords (positive > 0.23, negative < -0.7). Finally using **WordNet** and **NLTK** to generate keywords.



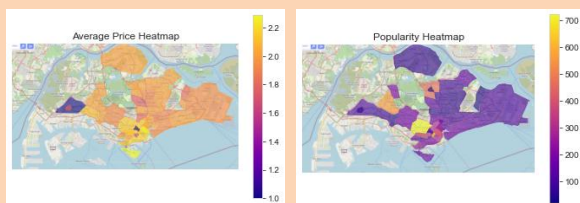
word cloud of recommended Indian cuisine



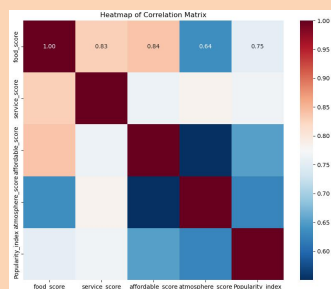
Location

We scraped Tripadvisor data on the average number of reviews, average ratings, and average prices for **8,551 restaurants across 40 regions**.

By manually annotating geographic data on LabelMe, we created a **Geojson** file and used them to generate heatmaps to find out ideal location for a restaurant.



Satisfaction



The ratings of food, service, atmosphere, affordability reflect customers' satisfaction with different details of the restaurant.

We used this data to create a heat map and found that **food and service** have the greatest correlation with restaurant ratings.

Conclusion

- Bukit Batok, Orchard, and Ang Mo Kio are **ideal locations** for opening a restaurant.
- To provide customers with the best experience, it's essential to maintain high quality in food, service, and ambiance, with **no obvious shortcomings**.
- Through our system, we can know the **most popular cuisine**. it can serve as a reference for opening a restaurant.
- Due to the limited time, there might not be enough samples under a few labels, resulting in some flaws.