

# THE BATTLE OF NEIGHBOURHOODS

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KYLE BAO | IBM DATA SCIENCE CAPSTONE



# BUSINESS PROBLEM

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- Singapore has a diverse and multicultural food scene.
- To open a new restaurant in Singapore, one needs the following information:
  - Density of similar competitors
  - Locations with opportune demand
  - Proximity to public transportation / MRT (subway) train stations
- To address these problems, I provide a dataset and map visualisations of the various restaurants and eateries within a 500m distance from all the MRT train stations.

# DATA

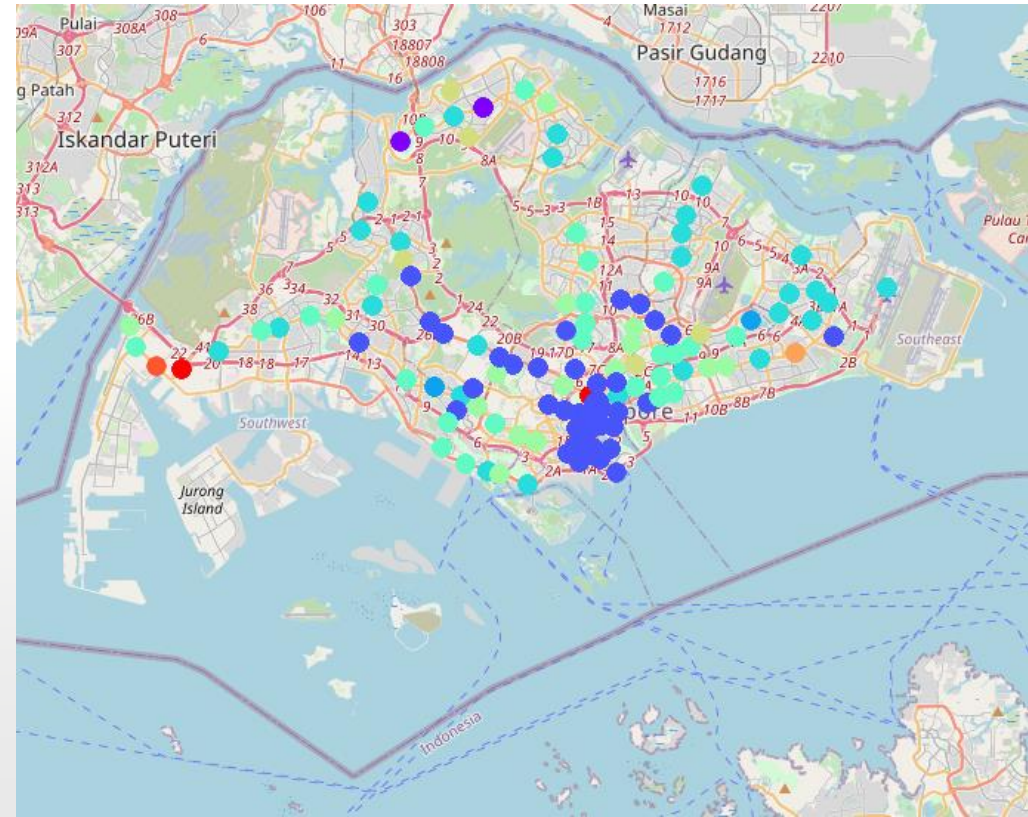
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- Wikipedia Page of list of MRT Stations in Singapore
  - Remove subheadings
  - Remove unopened / future-planned stations
  - Remove translated station names; only English names kept
- Foursquare API data of restaurants around each station
  - 500m radius
  - Only restaurant data extracted to save API calls
  - Restaurant categories data extracted

# K-MEANS CLUSTERING OF STATIONS

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- Grouped stations according to the top 10 types of restaurants near each station
- Use K-Means to cluster the stations into 10 groups





# MAPPING OUT CATEGORIES OF RESTAURANTS

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- Created a mapping visualisation function
- Takes in a search term, e.g. *<Indian Restaurant>*, and displays all the Indian restaurants on the map
- Allows for quick visualisation of which locations have less competitors
- Restaurants are blue dots
- MRT train stations are red dots

# FULL LIST OF 106 UNIQUE RESTAURANTS CATEGORIES IN DATASET

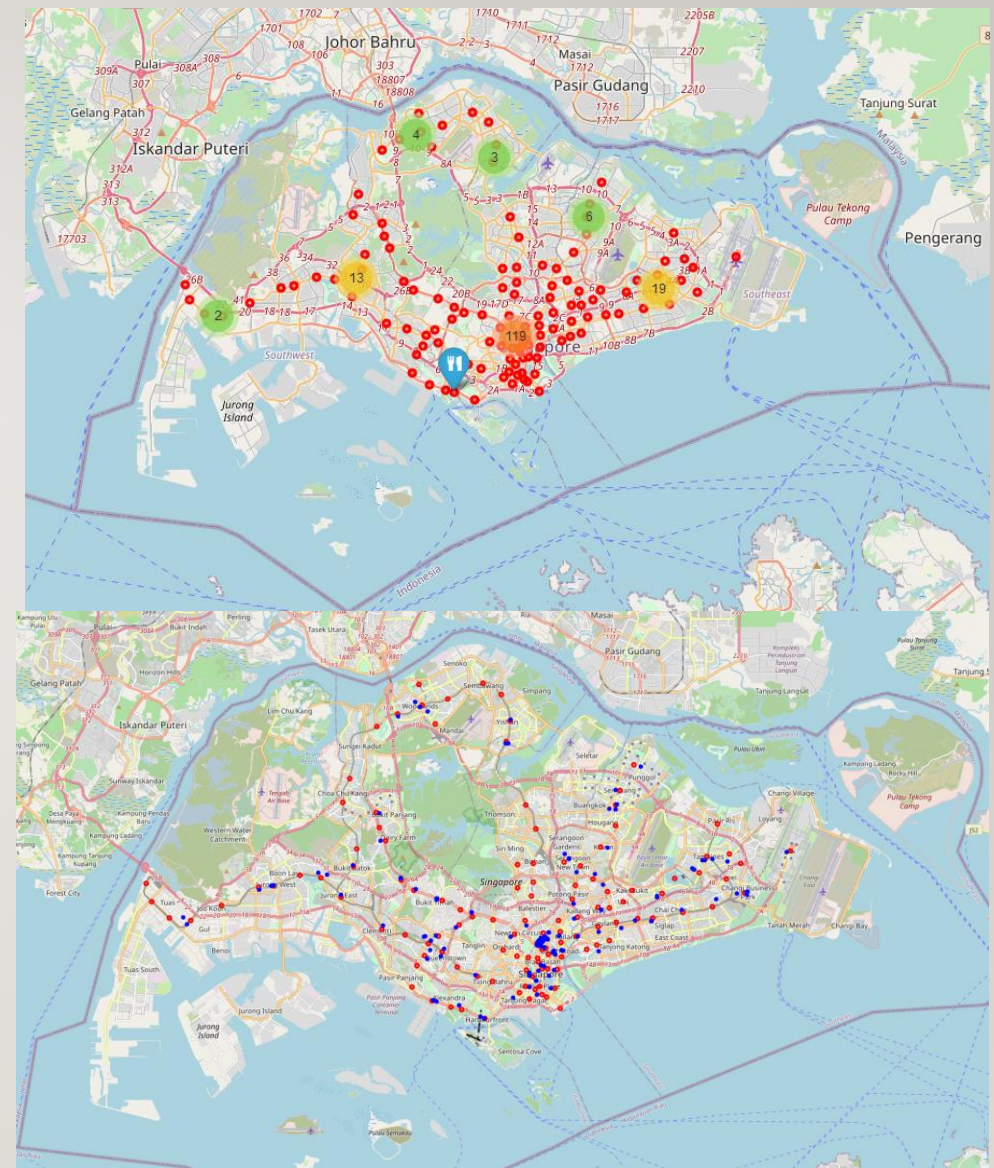
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Chinese Restaurant	Hot Dog Joint	Modern European Restaurant	Sushi Restaurant
Vegetarian / Vegan Restaurant	Taiwanese Restaurant	Hakka Restaurant	Cafeteria
Seafood Restaurant	Kebab Restaurant	Bagel Shop	Dim Sum Restaurant
Hotpot Restaurant	Austrian Restaurant	Cantonese Restaurant	Bistro
Café	Cha Chaa Teng	Peking Duck Restaurant	Malay Restaurant
Asian Restaurant	Yunnan Restaurant	Filipino Restaurant	Portuguese Restaurant
Fast Food Restaurant	Szechuan Restaurant	Swiss Restaurant	Comfort Food Restaurant
Diner	Persian Restaurant	Molecular Gastronomy Restaurant	Breakfast Spot
Indonesian Restaurant	Turkish Restaurant	Argentinian Restaurant	Mexican Restaurant
BBQ Joint	Churrascaria	Burrito Place	South Indian Restaurant
Noodle House	Indian Restaurant	Pet Café	Beijing Restaurant
Fried Chicken Joint	Korean Restaurant	Tapas Restaurant	Greek Restaurant
Hong Kong Restaurant	Italian Restaurant	Australian Restaurant	Cuban Restaurant
Middle Eastern Restaurant	Dumpling Restaurant	New American Restaurant	Macanese Restaurant
Shaanxi Restaurant	Food Court	Dongbei Restaurant	Satay Restaurant
Chinese Breakfast Place	Steakhouse	Manchu Restaurant	Japanese Restaurant
Vietnamese Restaurant	Japanese Curry Restaurant	North Indian Restaurant	Salad Place
French Restaurant	Buffet	Taco Place	Halal Restaurant
Shabu-Shabu Restaurant	Restaurant	Eastern European Restaurant	Sandwich Place
Soba Restaurant	Food Truck	Bakery	Soup Place
Creperie	Snack Place	Burger Joint	American Restaurant
Burmese Restaurant	Wings Joint	German Restaurant	Pizza Place
Donut Shop	Fujian Restaurant	Ramen Restaurant	Thai Restaurant
Spanish Restaurant	Poke Place	Peruvian Restaurant	Hainan Restaurant
Mediterranean Restaurant	Theme Restaurant	Southern / Soul Food Restaurant	Food
Deli / Bodega	Gastropub	African Restaurant	Fish & Chips Shop
English Restaurant	Food Stand		

# INDIAN RESTAURANTS

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- Dense in the downtown area
  - Higher population density
  - More diverse Central Business District
  - Near Little India MRT station
- More opportunities in heartlands in the North, Northeast, and West

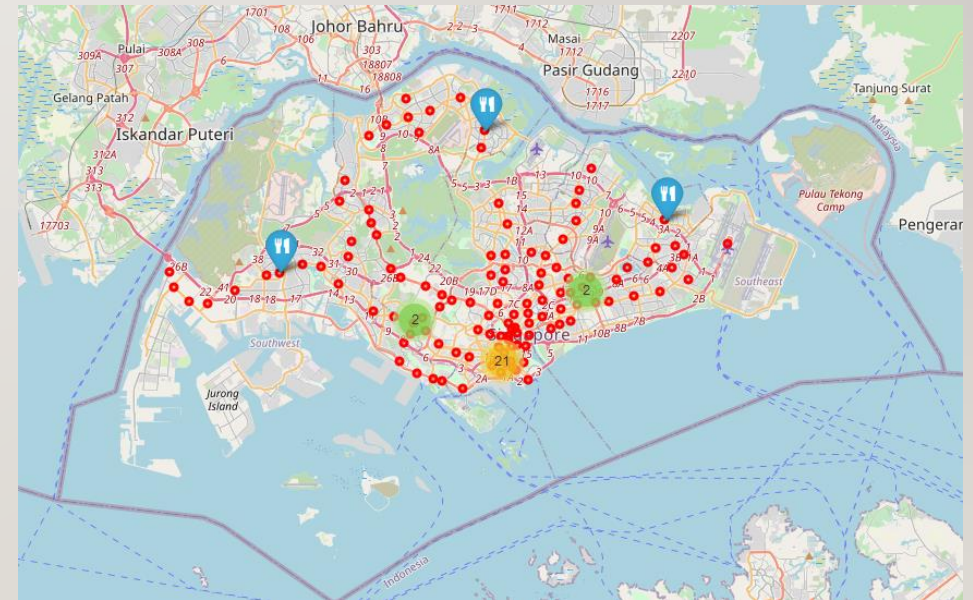
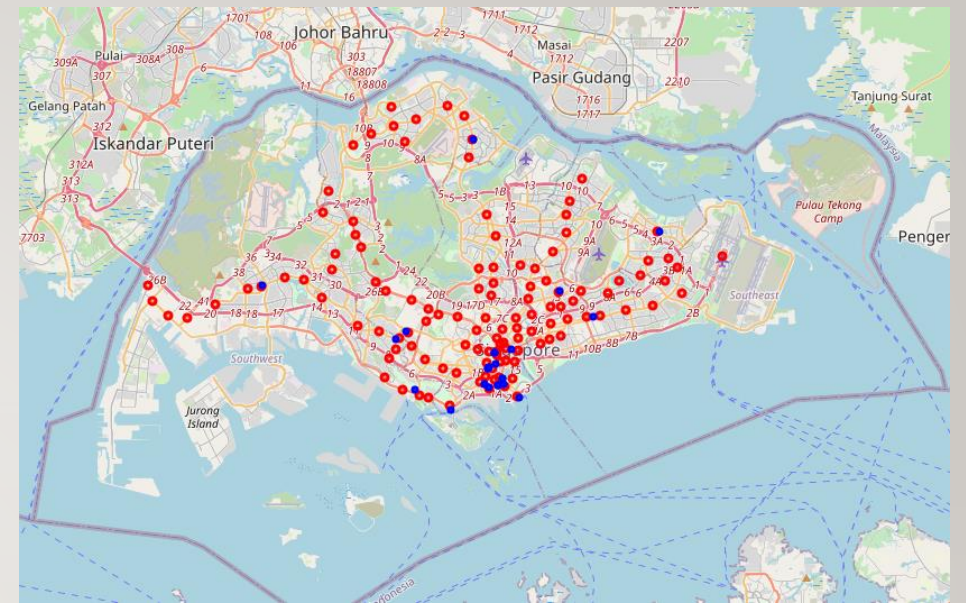




# MEXICAN RESTAURANTS

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- Very few Mexican restaurants in Singapore that are within 500m of a MRT train station
  - 28 in our dataset
- Plenty of opportunities





# CONCLUSIONS AND EXTENSIONS

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- Fix potential overlaps in categorisation of restaurants
- Use Premium Foursquare API to extract each restaurant's ratings, and then use clustering to see which MRT train station has the highest rated restaurants nearby