

# **Capstone Project - Finding the best area for opening Thai restaurant in Sydney**

**by**

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# Adding value by pinpointing the best location.

- ▶ Sydney is a big city with thousands of restaurant. So data science is needed to find the best location.
- ▶ Google API and Foursquare as a source of data.

# Background

- ▶ Findings from other study
  - ▶ Relationship between population density and restaurant density.
  - ▶ Preferences of Thai restaurant over other food.
  - ▶ Thai and Malaysian food are substitute of each other.
- ▶ Hence, the criteria in this analysis.
  - ▶ The area must not already have either Thai or Malaysian restaurant nearby.
  - ▶ Given the first condition is met, the area with more number of restaurants

# Data

- ▶ Sources
  - ▶ Google API
  - ▶ Foursquare
- ▶ Data cleaning and feature selection
  - ▶ Format the address name

# Sample of dataframe after cleaning

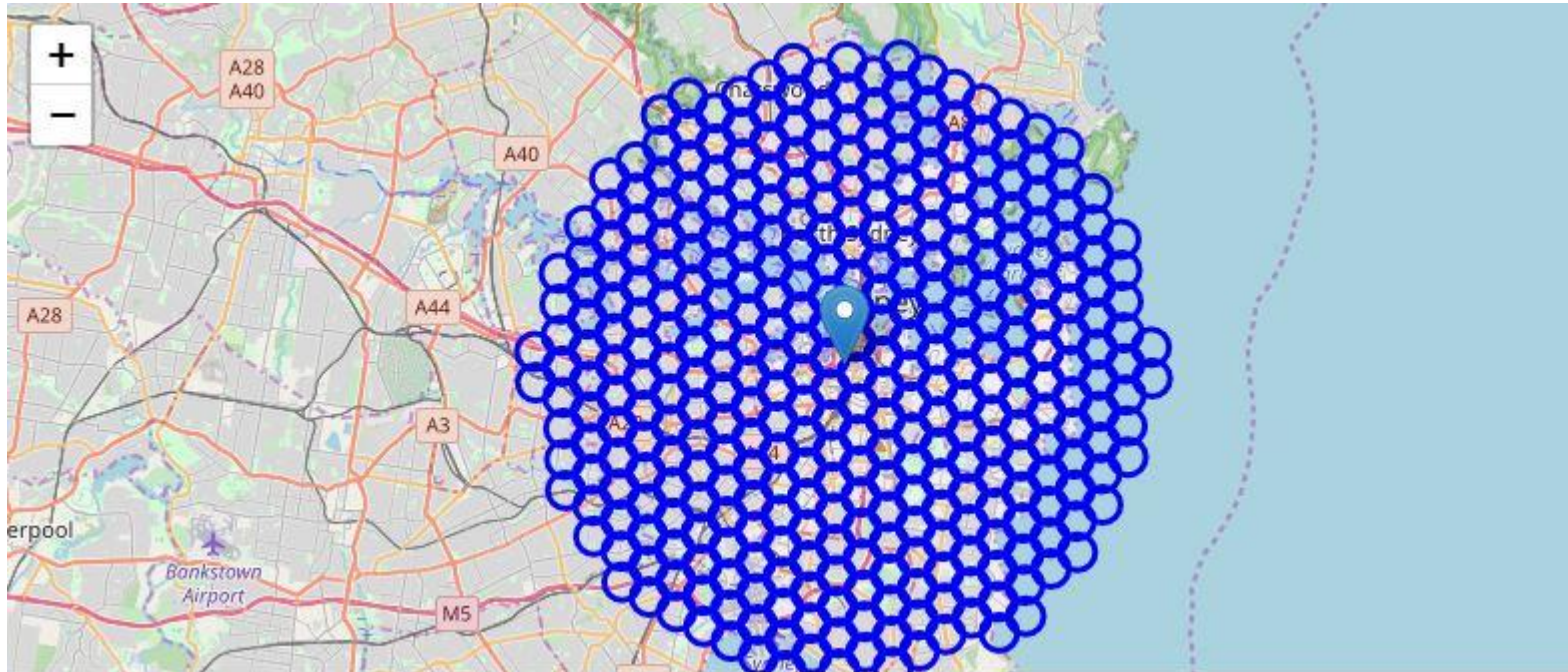
	Address	Latitude	Longitude	X	Y	Distance from center
0	1 Addison Rd, Manly NSW 2095	-33.811318	151.281864	4.673447e+06	-1.524991e+07	11984.990613
1	Reef Beach Track, Balgowlah Heights NSW 2093	-33.807150	151.272504	4.674647e+06	-1.524991e+07	11680.753400
2	24 Condamine St, Balgowlah Heights NSW 2093	-33.802983	151.263147	4.675847e+06	-1.524991e+07	11494.346436
3	5 Plant St, Balgowlah NSW 2093	-33.798815	151.253791	4.677047e+06	-1.524991e+07	11431.535330
4	65 Peacock St, Seaforth NSW 2092	-33.794647	151.244438	4.678247e+06	-1.524991e+07	11494.346436
5	79A Gurney Cres, Seaforth NSW 2092	-33.790479	151.235086	4.679447e+06	-1.524991e+07	11680.753400
6	7 Bampi Pl, Castle Cove NSW 2069	-33.786310	151.225736	4.680647e+06	-1.524991e+07	11984.990613
7	Hole in Wall Track, Manly NSW 2095	-33.824336	151.291582	4.671647e+06	-1.524887e+07	11711.532778
8	Hospital Rd, Manly NSW 2095	-33.820168	151.282220	4.672847e+06	-1.524887e+07	11208.925015
9	Balgowlah NSW 2093	-33.816000	151.272860	4.674047e+06	-1.524887e+07	10816.653826

# Methodology

## ► Steps

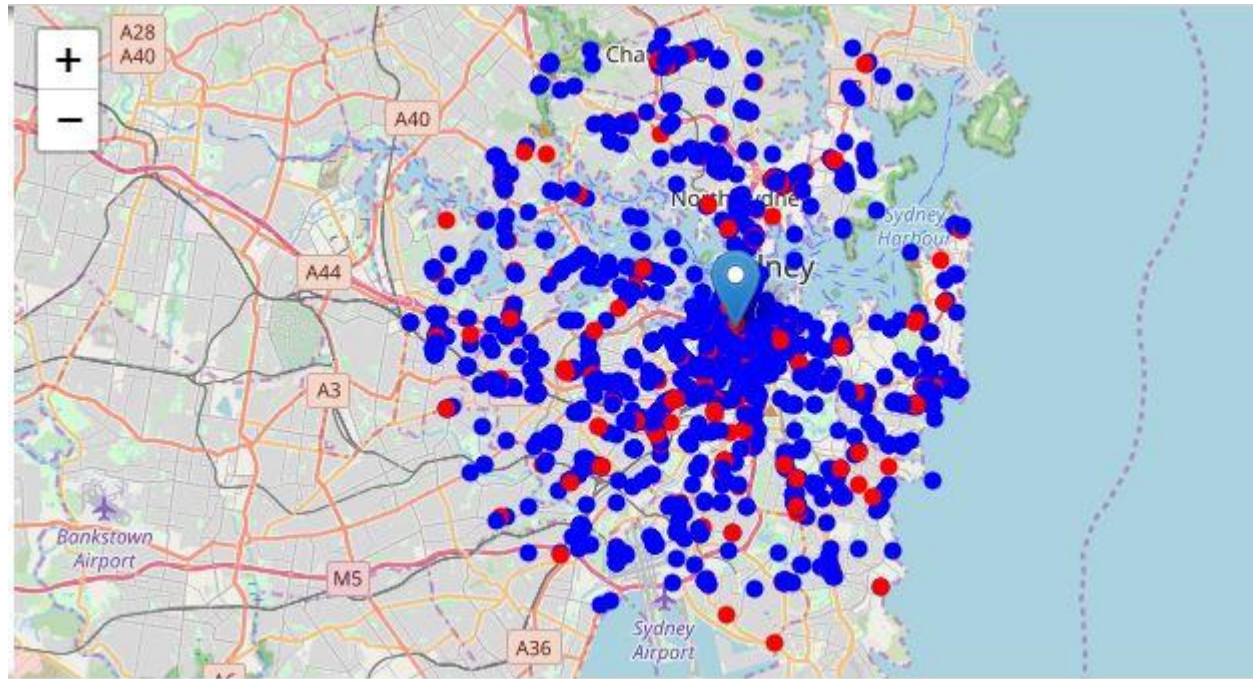
1. Build the grid to identify the area and its center
2. Get the list of restaurants in each area's vicinity
3. Visualise restaurants by its type (Thai/Malay and others)
4. Apply criteria to filter only the area that meet requirement
5. Pinpoint areas that meet with criteria in the heat map of density.

# Maps - Grid (with Sydney's townhall as a center of all)



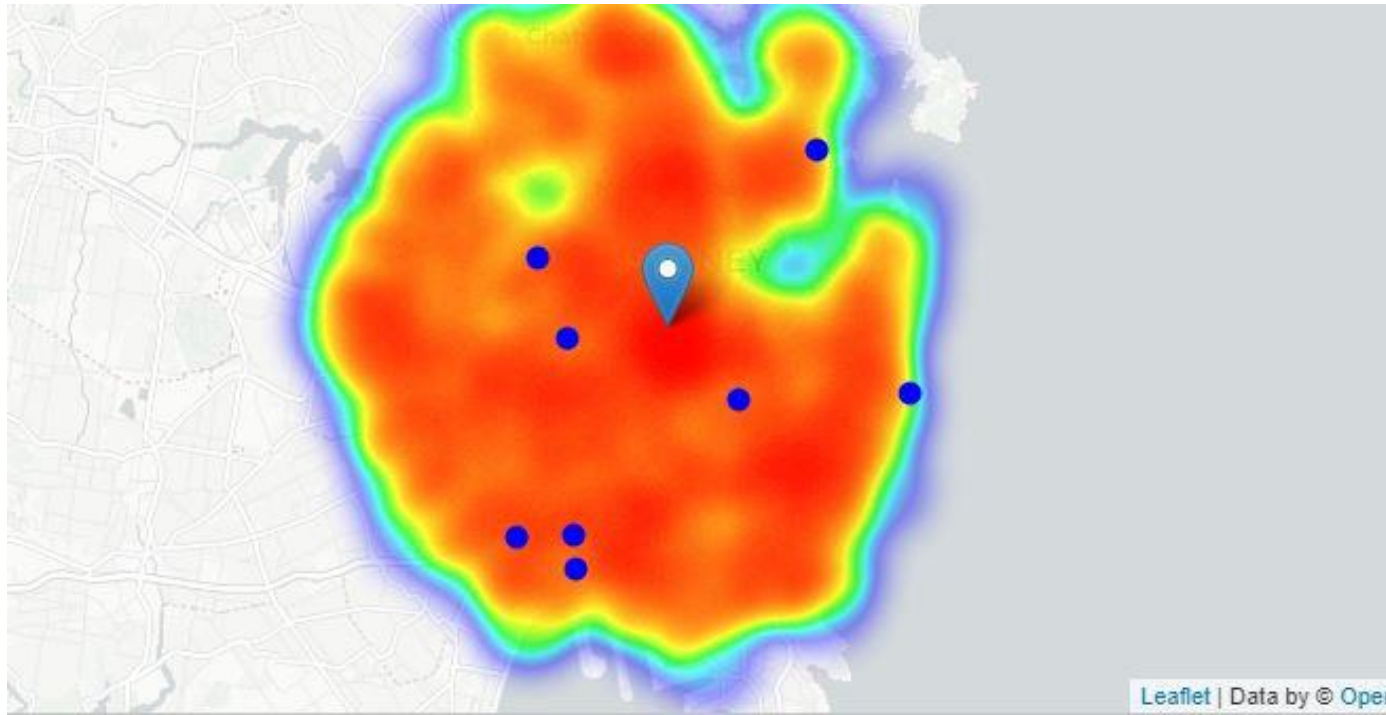


# Maps - Restaurants





# Maps - candidate restaurants with density heat



# Result and Discussion

- ▶ We have identified 8 potential areas that meet with our criteria for selecting location.
- ▶ The blue dots of the 8 candidates were presented along with the heat map representing restaurant density in the area. Given the criteria and everything else equal, the blue dot situated in the more 'heated' area would be considered more preferable.
- ▶ There are other factors to considering in picking the best one from these candidate depending on the final preference of the stakeholders , i.e. which class of restaurant (low-mid-high) to open.

# Conclusion

- ▶ The good location to open Thai restaurant should be one in the area that have high density of restaurant (representing high population density) but no Thai and Malaysian restaurant in the area yet.
- ▶ The findings in this analysis will have to be used along with other factors depending on final preferences of the stakeholders, i.e. whether the restaurant would be high-end or mid-end.