



Coursera Capstone Project

The Battle of Neighbourhoods

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Problem



- James is a very good cook and he specializes in Thai food.
- He wants to open a new Thai restaurant in Melbourne city.
- There are more than 300 suburbs (Neighbourhoods) in Melbourne city.
- James does not know in which suburb he should open his new restaurant, so he has a profitable business.

Introduction of Melbourne

- Melbourne is one of the world's most liveable and multicultural cities.
- Melbourne is also world-renowned for the quality of its food.

The World's 10 Most Liveable Cities

Melbourne is finally knocked off the top spot



Source: The Economist Intelligence Unit

Note: Toronto, Tokyo share 7th place.

Bloomber

Data acquisition

- A geographical data about all the suburbs in all the states of Australia is downloaded from the following URL.

https://www.matthewproctor.com/australian_postcodes

	id	postcode	locality	state	long	lat	dc	type	status	sa3	sa3name	sa4	sa4name	region
0	230	200	ANU	ACT	0.000000	0.000000	NaN	NaN	NaN	NaN	NaN	NaN	NaN	R1
1	21820	200	Australian National University	ACT	149.118900	-35.277700	NaN	NaN	Added 19-Jan-2020	NaN	NaN	NaN	NaN	R1
2	232	800	DARWIN	NT	130.836680	-12.458684	NaN	NaN	Updated 6-Feb-2020	70101.0	Darwin City	701.0	Darwin	R1
3	233	801	DARWIN	NT	130.836680	-12.458684	NaN	NaN	Updated 25-Mar-2020 SA3	70101.0.	Darwin City	701.0	Darwin	R1
4	234	804	PARAP	NT	130.873315	-12.428017	NaN	NaN	Updated 25-Mar-2020 SA3	70102.0	Darwin Suburbs	701.0	Darwin	R1

Data Cleaning

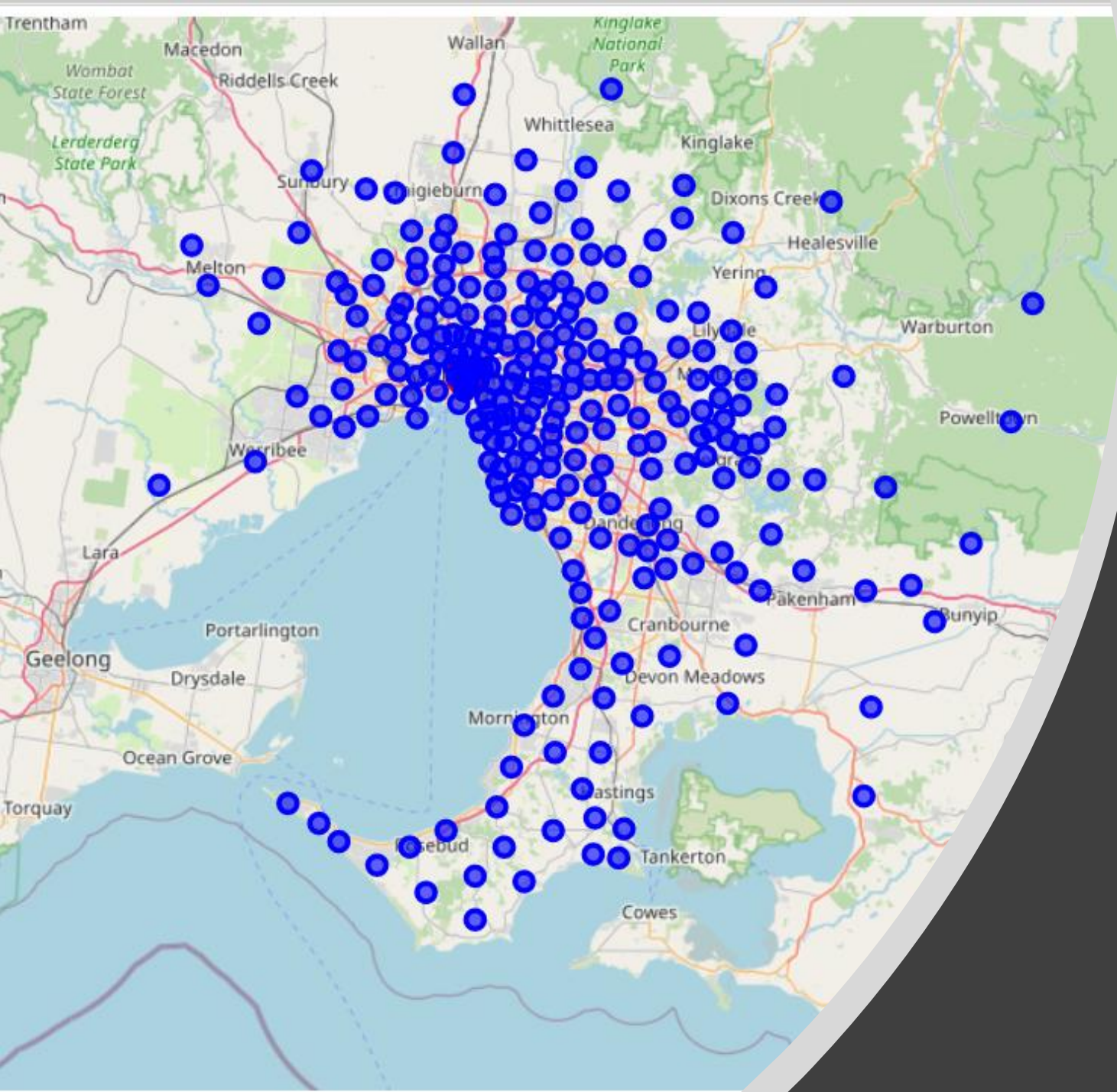
- The data is cleaned by dropping the unnecessary columns and filter the data for the state of Victoria.

	postcode	locality	long	lat	council
0	3000	MELBOURNE	144.956776	-37.817403	Melbourne City
1	3001	MELBOURNE	144.956776	-37.817403	Port Phillip
2	3002	EAST MELBOURNE	144.982207	-37.818517	Melbourne City
3	3003	WEST MELBOURNE	144.949592	-37.810871	Melbourne City
4	3004	MELBOURNE	144.970161	-37.844246	Port Phillip

Melbourne Suburbs

- The Victoria's geographic data is sorted out to get a data of suburbs exist only in greater Melbourne area.

	postcode	suburb	council	lat	long
0	3000	MELBOURNE	Melbourne City	-37.817403	144.956776
1	3002	EAST MELBOURNE	Melbourne City	-37.818517	144.982207
2	3003	WEST MELBOURNE	Melbourne City	-37.810871	144.949592
3	3006	SOUTHBANK	Port Phillip	-37.823258	144.965926
4	3008	DOCKLANDS	Melbourne City	-37.814719	144.948039



Melbourne Suburbs on Map

Top venues in Melbourne suburbs

- A list of venues is fetched by using Foursquare API.
- There are 281 different venues in Melbourne city.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
2219	RYE, ST ANDREWS BEACH, TOOTGAROOK	-38.396077	144.827203	The Dunes	-38.400314	144.825927	Golf Course
2220	SORRENTO	-38.345527	144.739101	Sorento Beach Motel	-38.345351	144.740123	Motel
2221	SORRENTO	-38.345527	144.739101	St Paul's Road General Store	-38.347290	144.743008	Café
2222	SORRENTO	-38.345527	144.739101	Fusion Broadband	-38.345672	144.744219	Business Service
2223	HAMPTON PARK	-38.043995	145.264296	Club Teutonia - German-Australian Club	-38.043995	145.261979	German Restaurant

Number of Venues in each suburb

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude
ABBOTSFORD	21	21	21	21	21
ABERFELDIE, ESSENDON, ESSENDON WEST	4	4	4	4	4
AIRPORT WEST, KEILOR PARK, NIDDRIE	2	2	2	2	2
ALBANVALE, KEALBA, KINGS PARK, ST ALBANS	7	7	7	7	7
ALBERT PARK, MIDDLE PARK	24	24	24	24	24
ALBION, SUNSHINE, SUNSHINE NORTH, SUNSHINE WEST	20	20	20	20	20
ALPHINGTON, FAIRFIELD	4	4	4	4	4
ALTONA MEADOWS, LAVERTON, SEABROOK	9	9	9	9	9
ALTONA NORTH	2	2	2	2	2
ALTONA, SEAHOLME	4	4	4	4	4
ARDEER	2	2	2	2	2
ARMADALE	12	12	12	12	12
ASCOT VALE, MARIBYRNONG, TRAVANCORE	6	6	6	6	6
ASHBURTON, ASHWOOD	15	15	15	15	15
ASPENDALE, ASPENDALE GARDENS, BRAESIDE, MORDIALLOC, PARKDALE, WATERWAYS	3	3	3	3	3
ATTWOOD, WESTMEADOWS	11	11	11	11	11
AVONDALE HEIGHTS	2	2	2	2	2
BALACLAVA, ST KILDA EAST	25	25	25	25	25
BALWYN NORTH	2	2	2	2	2
BALWYN, DEEPPENE	4	4	4	4	4

Ten most common venues in suburbs

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	ABBOTSFORD	Café	Pub	Convenience Store	Japanese Restaurant	Park	Garden	Greek Restaurant	Grocery Store	Thrift / Vintage Store	Rock Climbing Spot
1	ABERFELDIE, ESSENDON, ESSENDON WEST	Food & Drink Shop	Café	Gym / Fitness Center	Coffee Shop	Flea Market	Fishing Spot	Fish Market	Fish & Chips Shop	Filipino Restaurant	Egyptian Restaurant
2	AIRPORT WEST, KEILOR PARK, NIDDRIE	Scenic Lookout	Gym / Fitness Center	Eastern European Restaurant	Electronics Store	Entertainment Service	Eye Doctor	Falafel Restaurant	Farmers Market	Fast Food Restaurant	Field
3	ALBANVALE, KEALBA, KINGS PARK, ST ALBANS	Pharmacy	Bus Station	Grocery Store	Asian Restaurant	Vietnamese Restaurant	Bakery	Portuguese Restaurant	Fishing Spot	Flea Market	Fish Market
4	ALBERT PARK, MIDDLE PARK	Café	Beach	Ice Cream Shop	Italian Restaurant	Pier	Fast Food Restaurant	Seafood Restaurant	Fishing Spot	Breakfast Spot	Supermarket

Suburbs having a Thai restaurant in their venues

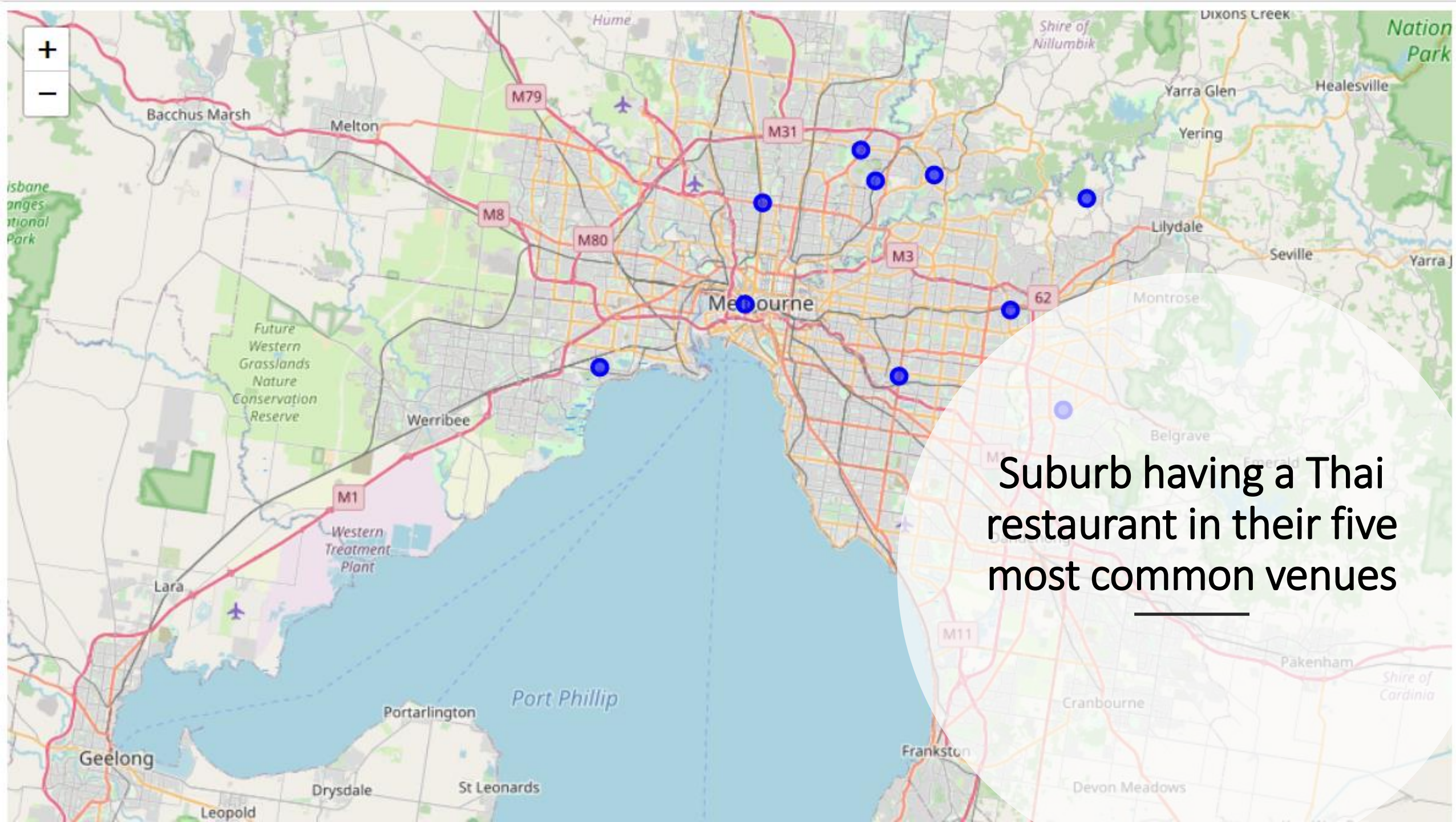
- All the suburbs having Thai restaurants are falling in cluster 1.
- There are 19 suburbs having a Thai restaurant in the ten most common venues.

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	WONGA PARK	Thai Restaurant	Tennis Court	Park	Grocery Store	Shopping Mall	Eastern European Restaurant	Egyptian Restaurant	Electronics Store	Entertainment Service	Eye Doctor
1	ASHBURTON, ASHWOOD	Thai Restaurant	Pharmacy	Sandwich Place	Kebab Restaurant	Convenience Store	Liquor Store	Fish & Chips Shop	Fast Food Restaurant	Italian Restaurant	Park
2	MACLEOD, YALLAMBIE	Café	Thai Restaurant	Train Station	Burger Joint	Fish & Chips Shop	Basketball Court	Park	Gym	Athletics & Sports	Flower Shop
3	ALTONA, SEAHOLME	Convenience Store	Café	Train Station	Thai Restaurant	Fast Food Restaurant	Electronics Store	Entertainment Service	Eye Doctor	Falafel Restaurant	Farmers Market
4	COBURG, COBURG NORTH	Café	Supermarket	Bakery	Thai Restaurant	Coffee Shop	Grocery Store	Middle Eastern Restaurant	Shopping Mall	Food Truck	Fast Food Restaurant
5	BUNDOORA, KINGSBURY	Supermarket	Pizza Place	Paper / Office Supplies Store	Thai Restaurant	Portuguese Restaurant	Flea Market	Fishing Spot	Fish Market	Fish & Chips Shop	Flower Shop
			Grocery		Thai		Farmers	Electronics	Entertainment		Falafel

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	WONGA PARK	Thai Restaurant	Tennis Court	Park	Grocery Store	Shopping Mall
1	ASHBURTON, ASHWOOD	Thai Restaurant	Pharmacy	Sandwich Place	Kebab Restaurant	Convenience Store
2	MACLEOD, YALLAMBIE	Café	Thai Restaurant	Train Station	Burger Joint	Fish & Chips Shop
3	ALTONA, SEAHOLME	Convenience Store	Café	Train Station	Thai Restaurant	Fast Food Restaurant
4	COBURG, COBURG NORTH	Café	Supermarket	Bakery	Thai Restaurant	Coffee Shop
5	BUNDOORA, KINGSBURY	Supermarket	Pizza Place	Paper / Office Supplies Store	Thai Restaurant	Portuguese Restaurant
6	KNOXFIELD	Bakery	Grocery Store	Skate Park	Thai Restaurant	Zoo Exhibit
7	DOCKLANDS	Café	Coffee Shop	Hotel	Restaurant	Thai Restaurant
	MONTMORENCY	Pub	Grocery Store	Burger Joint	Café	Thai Restaurant

Finalize the Suburbs

- There are 10 suburbs having a Thai restaurant is five most common venues.



Ranking of Suburbs

Rank	Suburb
1.	DOCKLANDS
2.	ALTONA, SEAHOLME
3.	ASHBURTON, ASHWOOD
4.	MACLEOD, YALLAMBIE

Conclusion

1. Docklands is ranked first though it has a Thai restaurant a fifth most common venue because it is very near to city center and big businesses have their offices in the city center. People from the other suburbs of the city travel daily to their jobs in the city center. Also, the other most common venues in this suburb are food-related. All these references show that this place has higher customer obtainability.
2. Altona, Seaholme is ranked second because this place has a beach and a seashore. People love to spend their free time on the beach and during their time on the beach, they like to dine outside. This place will provide James a good opportunity to introduce fine dining to the people.
3. Ashburton, Ashwood is ranked third because this place has a Thai restaurant as the first most common venue. This indicates that people in these suburbs love Thai food and would give a try to a new Thai food place.
4. Macleod, Yallambie is ranked fourth because they are making another cluster with Bundoora, Kingsbury, and Montmorency. This indicates that the Thai population lives around these areas and they love to enjoy their traditional food.