

THE CLASSIFICATION OF SUBURBS IN VICTORIA, AUSTRALIA

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Introduction

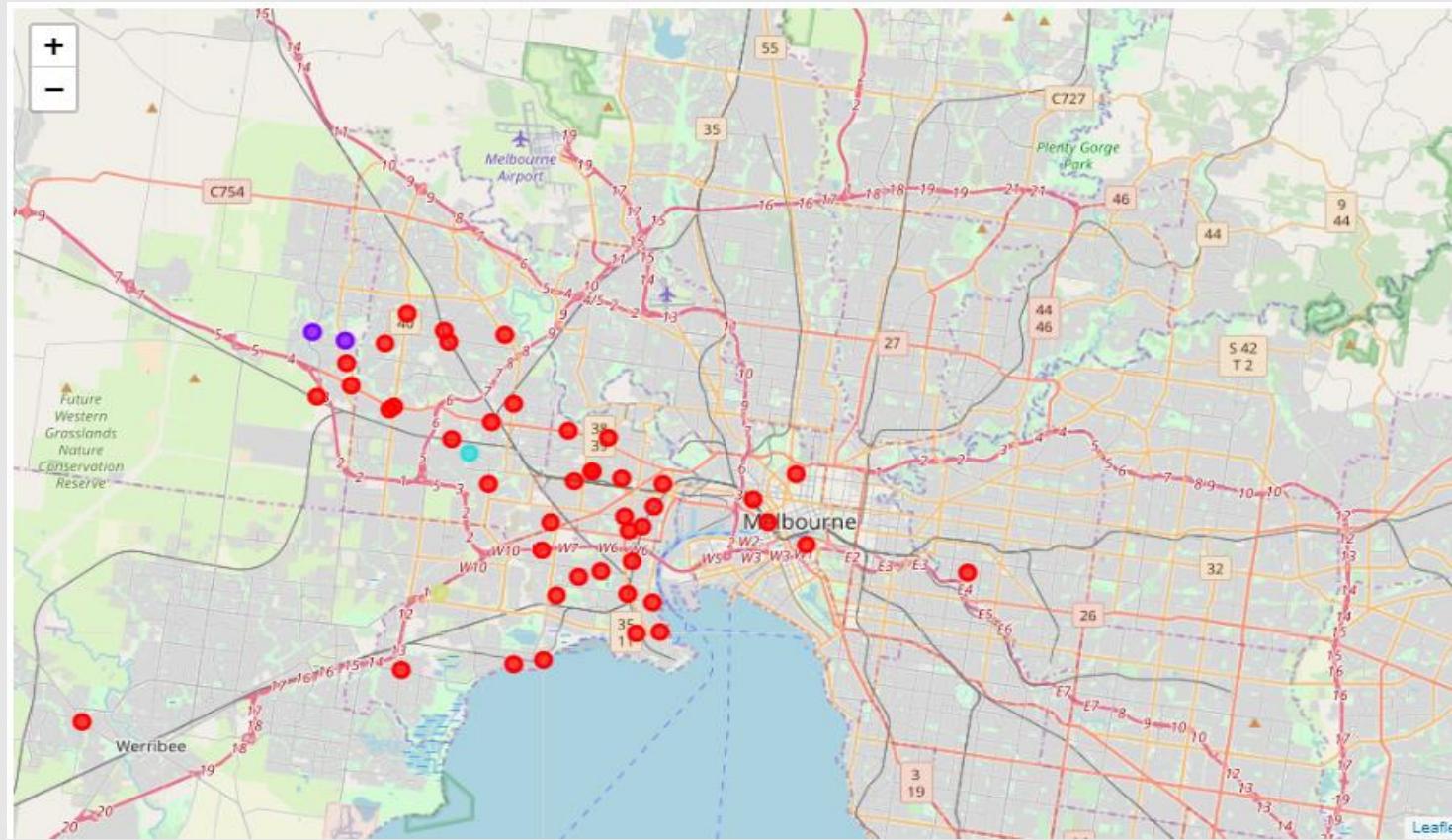
- In this project we will try to compare different suburbs in Victoria, Australia.
- This report will be targeted to people interested in moving into one of the suburbs in Victoria, Australia.
- For analysis purposes, we will group the suburbs based on the occurrences of venues from different categories, this will then be converted into a easily understandable visual representation that shows the distribution of different types of suburbs so that the individuals interested in moving into the suburbs in Victoria can choose the best type of suburb that suits their needs.

Data acquisition and cleaning

- The names and geographical locations of the suburbs in Victoria, Australia are obtained using a csv file called 'Australian_Post_Codes_Lat_Lon.csv'. The csv file could be found from the following link: <http://www.corra.com.au/australian-postcode-location-data/>
- Coordinate of the central city of the Victoria State, Melbourne will be obtained using Google Maps API geocoding.
- The venues in each suburb, their associated categories and their geographical location will be obtained using Foursquare API
- There are 16080 rows and 7 features in the raw dataset.
- Cleaned data contains 51 rows and 3 features

Results

- The distribution and clustering of suburbs



Results – cluster 0

	suburb	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	WEST MELBOURNE	Café	Platform	Train Station	Theater	Food Court	Bus Stop	Bar	Wine Shop	Australian Restaurant	Bagel Shop
1	SOUTHBANK	Bar	Theater	Café	Italian Restaurant	Performing Arts Venue	Grocery Store	Art Gallery	Australian Restaurant	Steakhouse	Hotel
2	DOCKLANDS	Café	Coffee Shop	Restaurant	Hotel	Shopping Mall	Sandwich Place	Pizza Place	Pub	Bar	Japanese Restaurant
3	UNIVERSITY OF MELBOURNE	Café	Coffee Shop	Athletics & Sports	Pub	Hotel	College Cafeteria	Juice Bar	Lounge	Food Court	Electronics Store
4	FOOTSCRAY	Vietnamese Restaurant	Asian Restaurant	Café	Bakery	Platform	Bar	Coffee Shop	Sandwich Place	Chinese Restaurant	Light Rail Station
5	SEDDON	Café	Bakery	Wine Shop	Supermarket	Gastropub	Liquor Store	Park	Dance Studio	Pizza Place	Gym
6	SEDDON WEST	Grocery Store	Fish & Chips Shop	Gym	Playground	Department Store	Cupcake Shop	Thai Restaurant	Food & Drink Shop	Shopping Mall	Supermarket
7	BROOKLYN	Café	Electronics Store	Food Truck	Wine Shop	Fish & Chips Shop	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Dumpling Restaurant	Food
8	KINGSVILLE	Café	Convenience Store	Miscellaneous Shop	Skate Park	Soccer Field	Fast Food Restaurant	Fish & Chips Shop	Sandwich Place	Supermarket	Thai Restaurant
9	KINGSVILLE WEST	Grocery Store	Fish & Chips Shop	Gym	Playground	Department Store	Cupcake Shop	Thai Restaurant	Food & Drink Shop	Shopping Mall	Supermarket
10	MAIDSTONE	Gym	Shopping Mall	Café	Latin American Restaurant	Electronics Store	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Dumpling Restaurant	Flower Shop
11	TOTTENHAM	Accessories Store	Train Station	Liquor Store	Cupcake Shop	Department Store	Dessert Shop	Diner	Discount Store	Donut Shop	Flower Shop
12	WEST FOOTSCRAY	Indian Restaurant	Café	South Indian Restaurant	Grocery Store	Fried Chicken Joint	Electronics Store	Fish & Chips Shop	Fast Food Restaurant	Farmers Market	Falafel Restaurant
13	YARRAVILLE	Café	Pizza Place	Grocery Store	Fish & Chips Shop	Burger Joint	Cambodian Restaurant	Farmers Market	Lounge	Coffee Shop	Gift Shop
14	YARRAVILLE WEST	Sandwich Place	Skate Park	Miscellaneous Shop	Kids Store	Fish & Chips Shop	Farmers Market	Falafel Restaurant	Electronics Store	Dumpling Restaurant	Wine Shop
15	NEWPORT	Café	Pizza Place	Grocery Store	Ice Cream Shop	Convenience Store	Bagel Shop	Thai Restaurant	Park	Beer Garden	Dumpling Restaurant
16	SOUTH KINGSVILLE	Pizza Place	Fish & Chips Shop	Restaurant	Bakery	Dry Cleaner	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Electronics Store	Dumpling Restaurant
17	SPOTSWOOD	Café	Bakery	Gas Station	Breakfast Spot	Train Station	Golf Course	Post Office	Pub	Dry Cleaner	Farmers Market

Common venues include:

Bus stop, train stations – suitable for those who prefer to take public transports

Park, playground, dance studio – may suit families with children

Markets, shopping malls – convenient for everyday life

Results – cluster 1

	suburb	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
38	CAROLINE SPRINGS	Athletics & Sports	Wine Shop	Dumpling Restaurant	Flower Shop	Fish & Chips Shop	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Electronics Store	Dry Cleaner
40	DEER PARK NORTH	Athletics & Sports	Child Care Service	Wine Shop	Dumpling Restaurant	Fish & Chips Shop	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Electronics Store	Dry Cleaner

The most common venues:

Athletics & sports – suitable for sporty individuals

Farmers market – convenient for everyday life

Results – cluster 2 & 3

Cluster 2

suburb	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
26 GLENGALA	Pizza Place	Food	Deli / Bodega	Department Store	Dessert Shop	Diner	Discount Store	Donut Shop	Dry Cleaner	Dumpling Restaurant

Cluster 3

suburb	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
48 LAVERTON NORTH	Furniture / Home Store	Wine Shop	Dumpling Restaurant	Fish & Chips Shop	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Electronics Store	Dry Cleaner	Food

Since there is only one suburb being categorised into cluster 2 and cluster 3, we can not identify a clear feature for suburbs in these clusters, in this case those suburbs will be classified as 'others'.

Conclusion

- The suburbs in cluster 0 are more suitable for families with children due to its provision of public transports and facilities for entertainment.
- The suburbs in cluster 1 are more suitable for individuals who enjoy sports, since the most common venues belong to the category of ‘athletics and sports ’.
- The suburbs in cluster 2 and 3 require further in-depth analysis since their features remain unknown.