

Battle of the Neighbourhoods

Sydney, New South Wales, Australia



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The project is aimed at solving the problem of a Sydney local resident who has recently moved to a new suburb and wants to confirm the following

- Is the new suburb similar to the old suburb?
- Is the new suburb conducive for an active life in physical fitness activities?

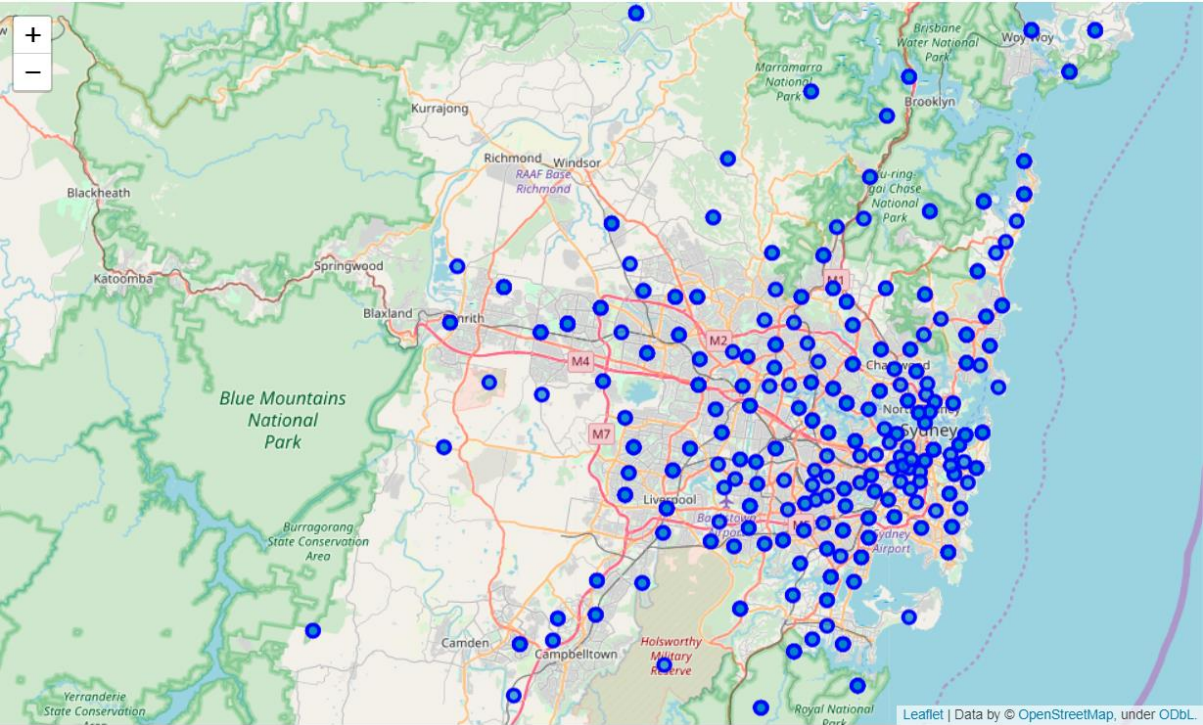
The old suburb is Parramatta, Sydney, Australia and the new suburb is Hornsby, Sydney, Australia.

Project steps

	Project phase	Status	Date	
0	Scope Verification	Completed	04/08/2019	
1	Data collection	Completed	04/08/2019	From public sites
2	Data consolidation	Completed	05/08/2019	Python
3	Data preparation	Completed	05/08/2019	
4	Data Visualization	Completed	06/08/2019	Folium
5	Clustering	Completed	06/08/2019	
6	Recommendations	Completed	07/08/2019	

Data preparation and visualization

- Merge dataset to get Postcode, Coordinates, Distance
- Covert data types to perform various activities



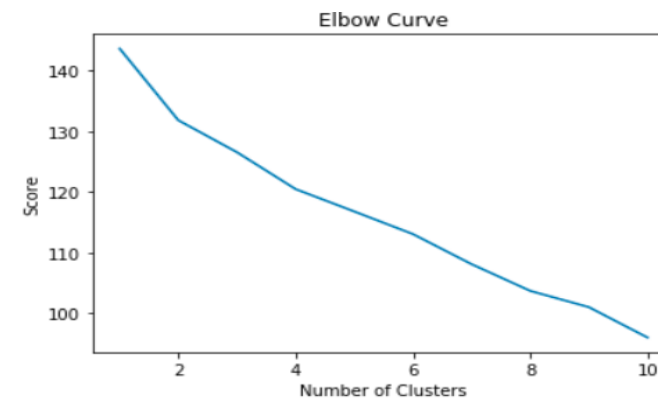
Sydney suburbs within 50 kilometres from city centre

	Postcode	Suburb	Distance	long	lat
959	2176	ABBOTSBURY	31.53	150.885260	-33.872014
957	2763	ACACIA GARDENS	31.18	150.895470	-33.725619
1108	2560	AIRDS	43.25	150.768408	-34.194216
774	2234	ALFORDS POINT	22.82	151.004412	-34.021938
458	2100	ALLAMBIE HEIGHTS	10.74	151.257781	-33.766409
...
665	2199	YAGOONA WEST	17.29	151.023171	-33.905586
894	2233	YARRAWARRAH	27.76	151.027919	-34.114626
764	2161	YENNORA	22.06	150.983724	-33.858335
802	2228	YOWIE BAY	23.63	151.101564	-34.037692
327	2017	ZETLAND	6.04	151.206316	-33.903892

	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	ABBOTSBURY	Pub	Café	Grocery Store	Women's Store	Diner	Fish & Chips Shop	Field	Fast Food Restaurant	Farmers Market	Falafel Restaurant
1	ACACIA GARDENS	Convenience Store	Bus Station	Women's Store	Discount Store	Fish Market	Fish & Chips Shop	Field	Fast Food Restaurant	Farmers Market	Falafel Restaurant
2	ALLAMBIE HEIGHTS	Bus Station	Women's Store	Diner	Fish Market	Fish & Chips Shop	Field	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Electronics Store
3	ALLAWAH	Thai Restaurant	BBQ Joint	Pub	Train Station	Electronics Store	Dog Run	Donut Shop	Dumpling Restaurant	Eastern European Restaurant	Women's Store
4	ARNCLIFFE	Middle Eastern Restaurant	Intersection	Paper / Office Supplies Store	Café	Grocery Store	Tunnel	Australian Restaurant	Falafel Restaurant	Electronics Store	Eastern European Restaurant

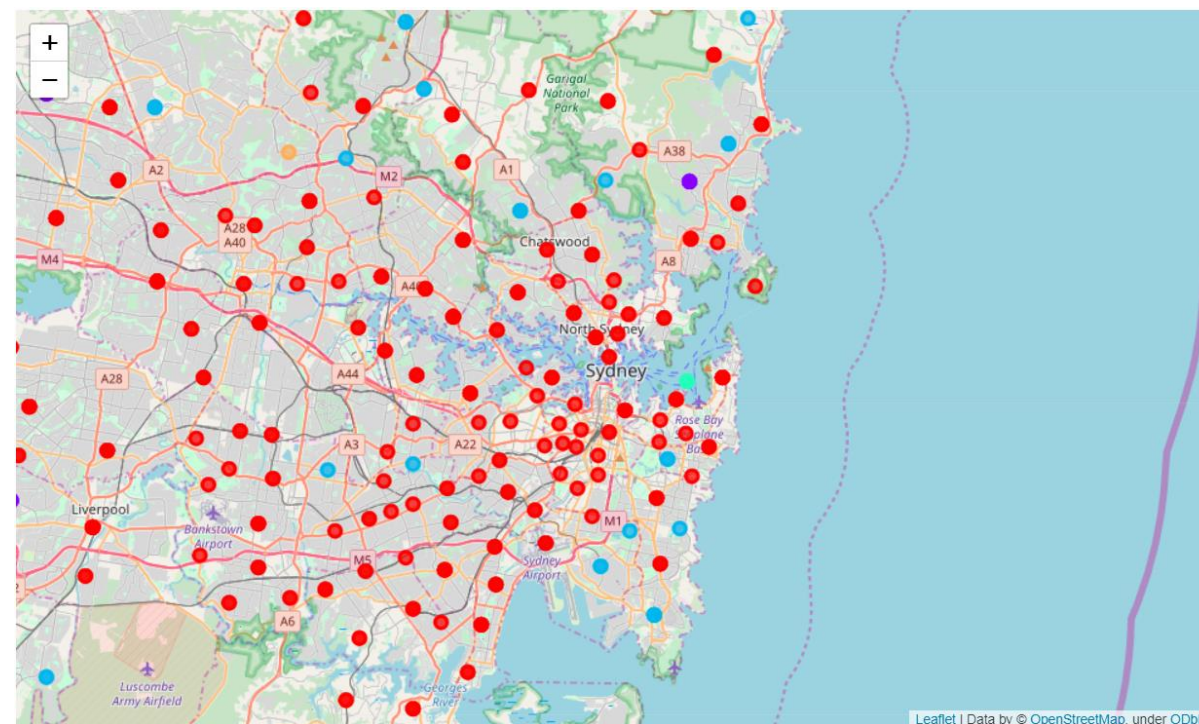
Most popular venues for a suburb

In order to find the optimum K, an elbow method is used and arrived at an optimum K values to be 5, to cluster around 600 suburbs. The output is not so much of an elbow, but an optimum value is chosen



Cluster Analysis:

- Most of the Sydney clusters are similar in nature, as this is evident from plethora of red dots
- Parramatta and Hornsby are a different suburb, as they belong to a different clusters.
- Looking closely into the common venues for Parramatta and Hornsby, it is evident that the culture and lifestyle of the suburb are different. Parramatta is largely into Food and eating out whereas Hornsby is about fitness and outdoor activities.



We started the exercise with two questions to be answered. Let us revisit the questions and check whether the clustering algorithm has answered these.

1. Is the new suburb similar to the old suburb?

From the clustering algorithm, we find that the Parramatta and Hornsby are **not similar**. Parramatta's common venues are related to cafes and restaurants, whereas Hornsby is all about playgrounds, sports clubs and fields.

2. Is the new suburb conducive for an active life in physical fitness activities?

From the clustering algorithm, we can see that Hornsby **will satisfy** the person's appetite for outdoor and fitness activities as three of the top four common venues are related to fitness activities.

Thank you



Questions?