Moving to Australia, Which city is best for Arabic Food?

Table of Contents

Introduction

I am an Australian citizen but lived all my life in Jordan and the UK, and I am planning to move to Australia for good, but a serious question arises which is which city should I move to first?

And here we need to take into account the priorities/criteria of the person moving which can be: crime-rate, hospitals, schools ratings, real-estate prices and so on.

For me personally, my highest priority is which city has the highest density of Arabic food, because frankly I can't live without my Arabic food. So the problem we aim to solve in this project is to analyse the Arabic restaurants stores' locations in the major Australia cities and find the best place for Arabic lovers like me to go to.

Lots of people are migrating to various states of Australia and needed lots of research for good real estate prices and good schools for their kids. This project can be easily tweaked to give a comparative analysis of neighbourhoods/cities for those people who are looking for better place to live. The comparative analysis will look at one or multiple variables like ease of accessing to Cafe, School, Super market, medical shops, grocery shops, mall, theatre, hospital, likeminded people, school according to ratings, crime rates of that particular area, road connectivity, weather conditions, good management etc.

Data

I will use the FourSquare API to collect data about locations of Arabic Food Restaurants in 5 major Australian cities which are: Sydney, Melbourne, Canberra, Perth, Queensland, and Brisbane.

We will need data about different venues in different cities. In order to gain that information we will use "Foursquare" locational information. Foursquare is a location data provider with information about all manner of venues and events within an area of interest. Such information includes venue names, locations, menus and even photos. As such, the foursquare location platform will be used as the sole data source since all the stated required information can be obtained through the API.

After finding the list of neighbourhoods, we then connect to the Foursquare API to gather information about venues inside each and every City. For each city, we have chosen the radius to be 10 km from the center, well because I don't like living in the outskirts.

The data retrieved from Foursquare contained information of venues within a specified distance of the longitude and latitude of the postcodes. The information obtained per venue are as follows: Venue, Name of Venue, Venue Latitude, Venue Longitude, and Venue Category.

Methodology

My main target here is to asses which city would have the highest Arabic Food Restaurant density. I used the Four Square API through the venues channel. I used the near query to get venues in the cities. Also, I use the CategoryID to set it to show only Arabic Restaurant Places. An Example of my requests:

https://api.foursquare.com/v2/venues/explore?&client_id=&client_secret=&v=20200505&Sydney, AU&limit=100&categoryId='I will place the ID for Arabic Restaurantshere'`

I need to find the Category Id to place in the query. Also, Foursquare limits us to maximum of 100 venues per query. Moreover, I repeated this request for the 5 studied cities and got their top 100 venues. I saved the name and coordinate data only from the result and plotted them on the map for visual inspection.

With all that information we can calculate the center of all the coordinates of restuarants in each city and we can assume this is the mean center of the city. Then we calculate the mean Euclidean distance from each value to the center of the city. That way we have an indicator of which city has the highest density of Arabic restuarants. (This is very similar to the K-Means Clustering Approach but with fewer steps.

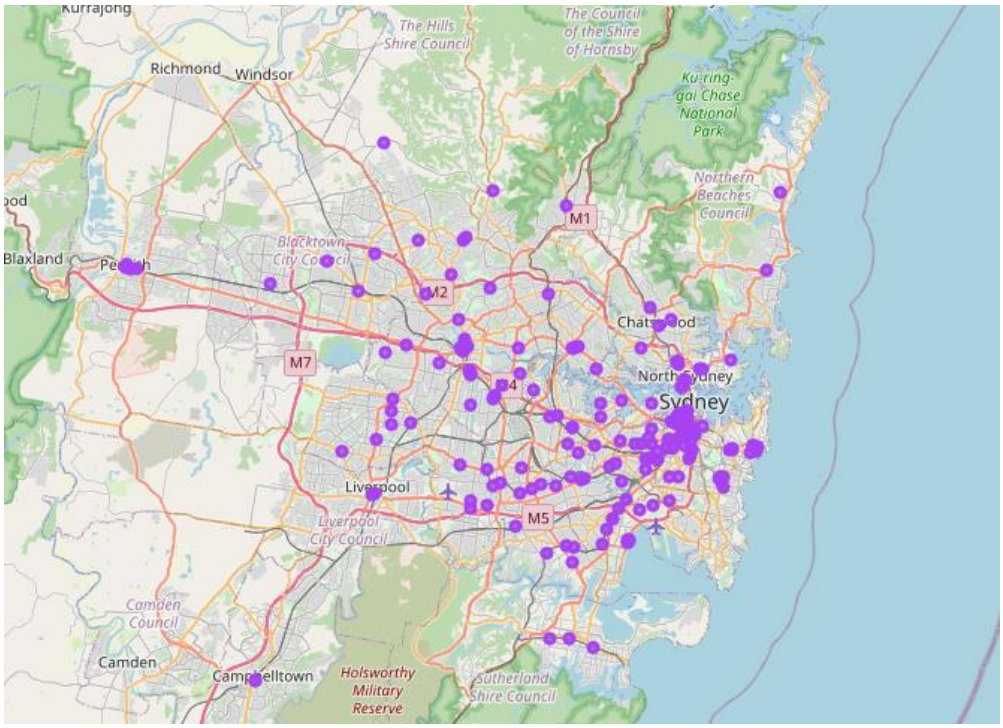
Results

We can visualise that all the cities have a lot of Arabic foot restaurants. The following here are the number of restaurants in each city:

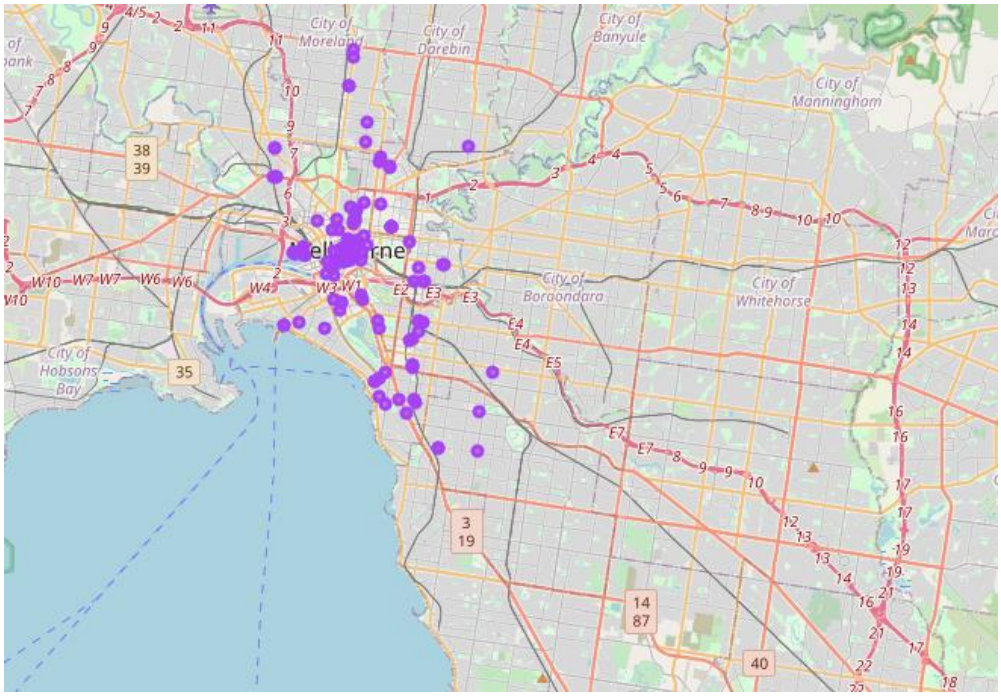
- Sydney, NSW, Australia = 214
- Melbourne, VIC, Australia = 121
- SA, Australia = 32
- ACT, Australia = 26
- Perth, WA, Australia = 57

We can visualise them by geoplot generated with folium:

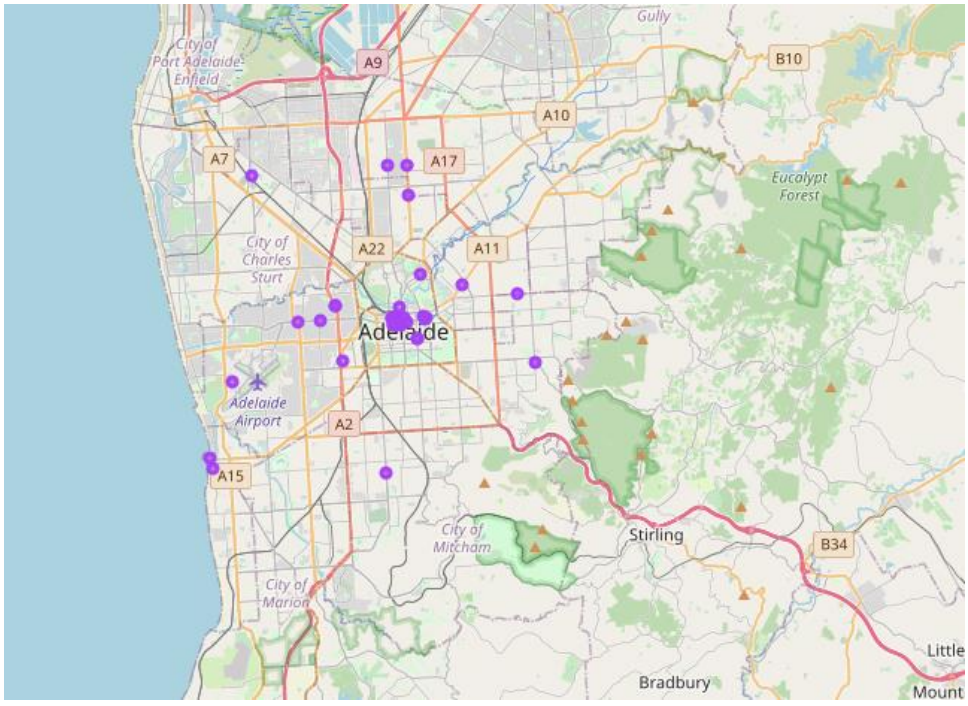
Sydney:



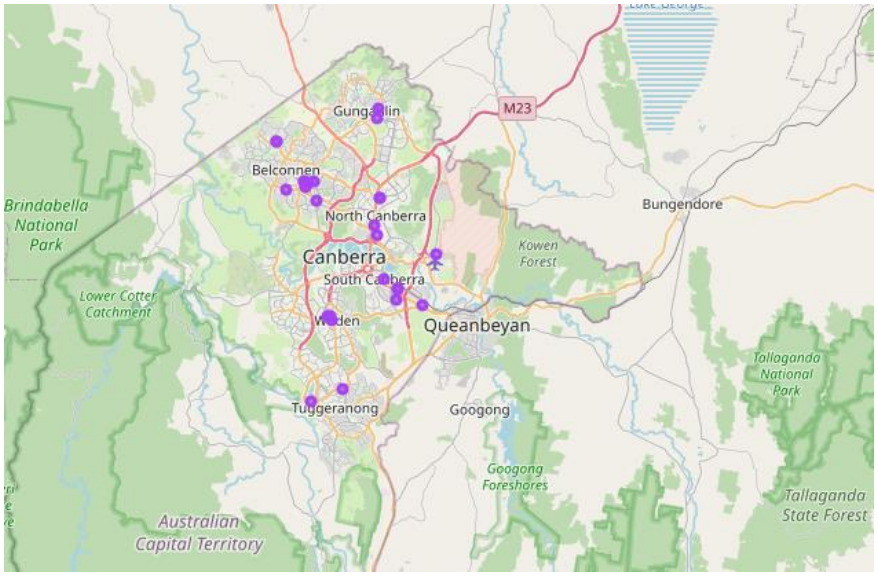
Melbourne:



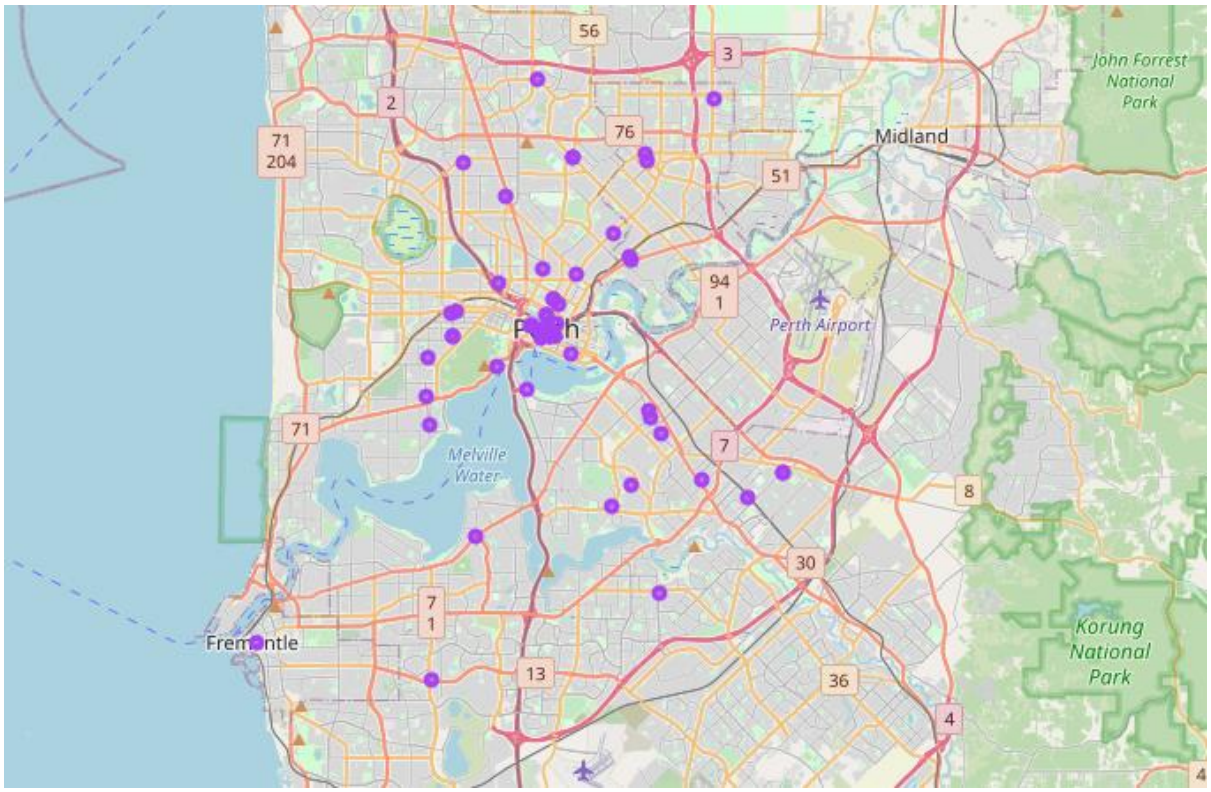
Adelaide:



Canberra:



Perth:



We can see that Only Melbourne, Sydney and Perth have a decent amount of Middle Eastern restaurants. At 214 for Sydney and 121 for Melbourne and 57 in Perth and we are only going to account for these because they have the highest number of restaurants. So we will disregard, Canberra and Adelaide.

So next e find the average distance between the venues to the mean coordinates of the venues in each city. Our assumption is that the mean coordinates is the city centre, so we get these results of MDMC:

- Sydney, NSW, Australia: 0.11356511981114739
- Melbourne, VIC, Australia: 0.03625154274065976
- Adelaide, SA, Australia: 0.04356485899492711
- Canberra, ACT, Australia: 0.07245730562157879
- Perth, WA, Australia: 0.041156309893264506

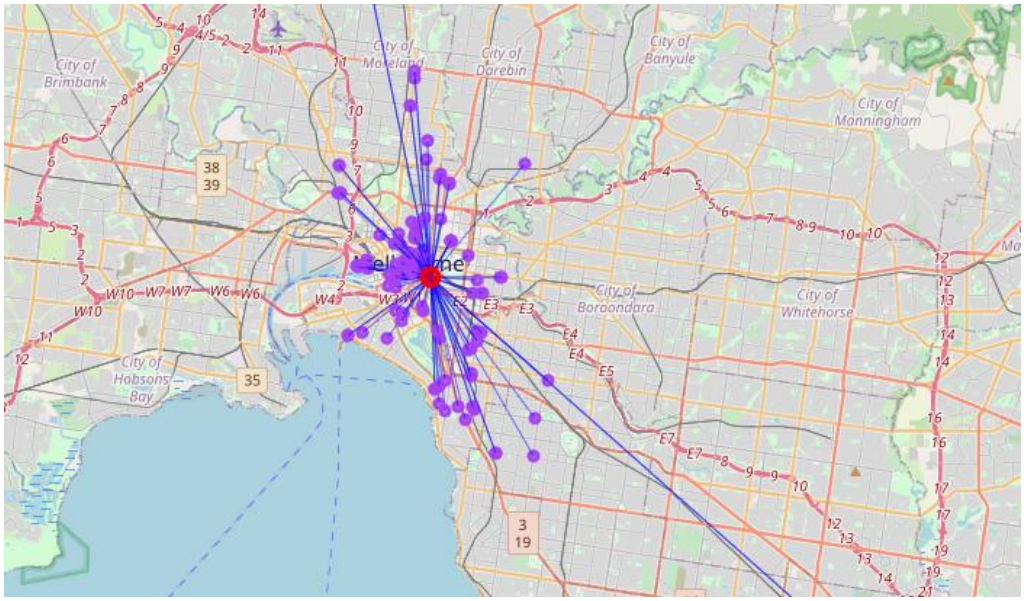
So now because Sydney has way higher venues than any other cities it is unfair to compare its MDMC with Melbourne. So we disregard its furthest restaurants (112 restaurants), and we get an MDMC of 0.07116531880653676 for Sydney.

Discussion

Firstly we have disregarded Canberra and Adelaide for their lack of restaurants and variety.

Secondly, let's compare the MDMC of Melbourne and Perth, Even though Perth's number of restaurant is lower than Melbourne which should usually give a better MDMC. From the list of MDMC we can see that Melbourne has a lower MDMC which means it has a higher density and quantity of Arabic Food Restaurants than Perth. Which immediately makes Perth a pure loser.

Finally, even by disregarding 112 furthest restaurants from Sydney, the MDMC resulted is still higher than that of Melbourne. Which gives us a winner "Melbourne"



Conclusion

The Experiment turned out to be very useful. Not only for knowing where our preferred restaurants are, but by switching few things in the query we can compare different areas by many things. If you are using this data for choosing your city it's better to live or rent close to the centre coordinated that we calculated.

Future works on this can be a very dense code that takes in tens of your priorities and the makes you list them by most important to least important and then finds you the city that fits more to your way of life.