



MELBOURNE or SYDNEY



Problem Statement

- **Which city is better? Melbourne or Sydney?**
- Why?
 - Because it's a great source of debate for Australian's from Sydney & Melbourne
 - Because it would be interesting to understand more about both cities from a tourists perspective
 - If you were opening up a restaurant you might be interested to understand which suburbs are best suited and/or under served?
- How?
 - Use the areas defined by Melbourne & Sydney city councils
 - Using data to compare suburbs/neighbourhoods in each city and across both
 - Foursquare API and ABS census data (2016) to create clusters (kmeans) and compare
 - Using data to compare a limited set of cafes, bars and restaurants and their ratings

Background: Melbourne v.s. Sydney

- Sydney city council comprises of 25 km² smaller than Melbourne city council at 37 km² but still has more café's then Melbourne. This could be because Melbournian's love their coffee and prefer to call the venue a coffee shop? (See Melbourne Venues)
- Both cities have a large number of café's, restaurants and bars of many varieties that indicate their cosmopolitan populations. Sydney is a more business focused city, attracts tourists who are only visiting one city in Australia and is older than Melbourne.
- Melbourne is Australia's sporting capital (at least if you follow cricket and Aussie rules – AFL). Sydney sports fans typically follow rugby first, everything else second. Melbourne hosts the Formula 1 every year as well as the Australian Open (Tennis).

Summary of Results

Venues across both cities: Top Venue Types in each city and surrounding neighbourhoods

Venues (Melbourne)

Melbourne Venues are dominated by Café's and Coffee Shops followed by bars. Very much confirming the reputation that Melbourne has for a great social culture.

Little Italy is within the Carlton Neighbourhood and contains many Italian Restaurants.

Everything looks good so far and confirms what we know about Melbourne

Top 10 Venue Types (Melb)

Venue Category	
Café	137
Coffee Shop	45
Bar	35
Italian Restaurant	32
Hotel	25
Japanese Restaurant	21
Park	20
Pub	18
Light Rail Station	17
Pizza Place	16

Top 10 Venue Types per Neighbourhood (Melb)

	Neighbourhood	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
0	Carlton	Café	Italian Restaurant	Bar	Coffee Shop	Wine Bar	Vegetarian / Vegan Restaurant	Japanese Restaurant	Ice Cream Shop
1	Carlton North	Café	Light Rail Station	Pub	Wine Bar	Bakery	Gastropub	Restaurant	Soccer Field
2	Docklands	Café	Coffee Shop	Korean Restaurant	Bar	Hotel	Thai Restaurant	Italian Restaurant	Seafood Restaurant
3	East Melbourne	Café	Coffee Shop	Hotel	Cricket Ground	Tennis Stadium	Thai Restaurant	Cocktail Bar	Wine Bar
4	Flemington	Electronics Store	Café	Dessert Shop	Department Store	Pizza Place	Portuguese Restaurant	Scenic Lookout	Supermarket
5	Flemington, Kensington	Café	Grocery Store	Pizza Place	Light Rail Station	Bakery	Hotel	Park	Pub
6	Melbourne	Café	Bar	Coffee Shop	Japanese Restaurant	Cocktail Bar	Park	Thai Restaurant	Italian Restaurant
7	North Melbourne	Café	Light Rail Station	Convenience Store	Pub	Bar	Grocery Store	Malay Restaurant	Performing Arts Venue
8	Parkville	Zoo Exhibit	Sculpture Garden	Park	Light Rail Station	Train Station	Restaurant	Football Stadium	Sushi Restaurant

Venues (Sydney)

Sydney has a similar list of venues across the city council with more pubs and parks than Melbourne. Italian Restaurants also feature prominently as do Thai Restaurants.

Within the top venues in each neighbourhood you can clearly see some differences such as Alexandria with a furniture store, gym, playground and pet store.

Top 10 Venue Types (Melb)

Venue Category	
Café	195
Bar	47
Coffee Shop	46
Pub	41
Park	37
Italian Restaurant	35
Thai Restaurant	34
Bakery	28
Pizza Place	25
Australian Restaurant	24

Top 10 Venue Types per Neighbourhood (Melb)

	Neighbourhood	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
0	Alexandria, Beaconsfield, Eveleigh	Café	Furniture / Home Store	Gym / Fitness Center	Liquor Store	Italian Restaurant	Playground	Electronics Store	Pet Store
1	Annandale	Café	Grocery Store	Park	Liquor Store	Pub	Bus Station	Burger Joint	Sushi Restaurant
2	Barangaroo, Dawes Point, Haymarket, Millers Po...	Café	Coffee Shop	Bar	Cocktail Bar	Shopping Mall	Speakeasy	Sandwich Place	Hotel
3	Camperdown	Café	Thai Restaurant	Pub	Pizza Place	Convenience Store	Modern Greek Restaurant	Pie Shop	Liquor Store
4	Centennial Park, Moore Park, Paddington	Café	Bar	Italian Restaurant	Park	Cricket Ground	Movie Theater	Pub	Restaurant
5	Chippendale, Darlington	Café	Bar	Coffee Shop	Bakery	Pub	Australian Restaurant	Italian Restaurant	Gymnastics Gym

Clustering/Segmentation

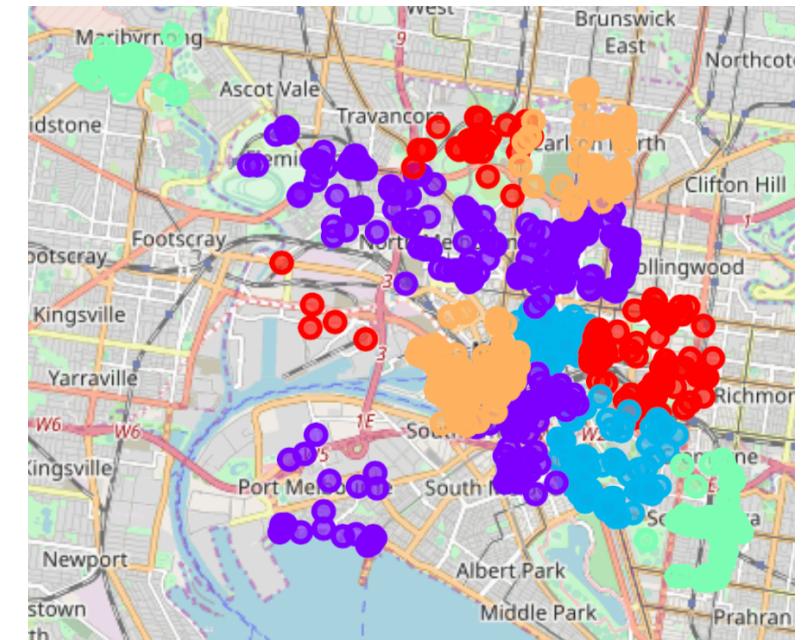
Review of clustering neighbourhoods based on their venue types and basic statistics (ABS 2016 postcode summary statistics)

Neighbourhood Clusters/Segments

Melbourne

The clusters represent some interesting results, but also seem consistent with the venue data available for each area.

- **Red:** includes the MCG Cricket/Football Stadium, Tennis Stadium, Zoo, Parks, etc (in both areas – the docks is a little weird)
- **Purple:** covers the majority of Melbourne and represents areas with many restaurants and cafes (and are more residential than other areas)
- **Orange:** this covers Docklands and North Carlton. It is an interesting combination
- **Green:** interesting too, includes an old favourite with an upcoming area of Melbourne

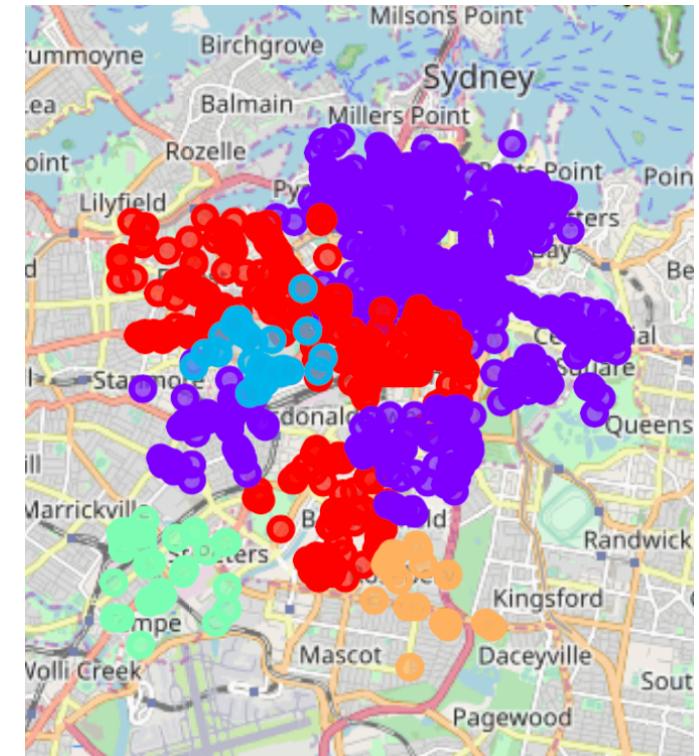


Neighbourhood Clusters/Segments

Sydney

I know a lot less (so hard to confirm what the data is saying) about Sydney, but can see that the clusters here look more like a wave as we move further away from the CBD.

- **Purple:** Covers the main CBD, popular Harbour venues and extends up through Paddington also popular with restaurants and bars.
- **Red:** Lower density living, but similar features to purple. More focused on specific eating/drinking strips than the CBD
- **Orange:** Closer to parks and airport, less densely populated and more grocery stores
- **Green:** More industrial area closer to the airport



Battle of the Cities (CBD)

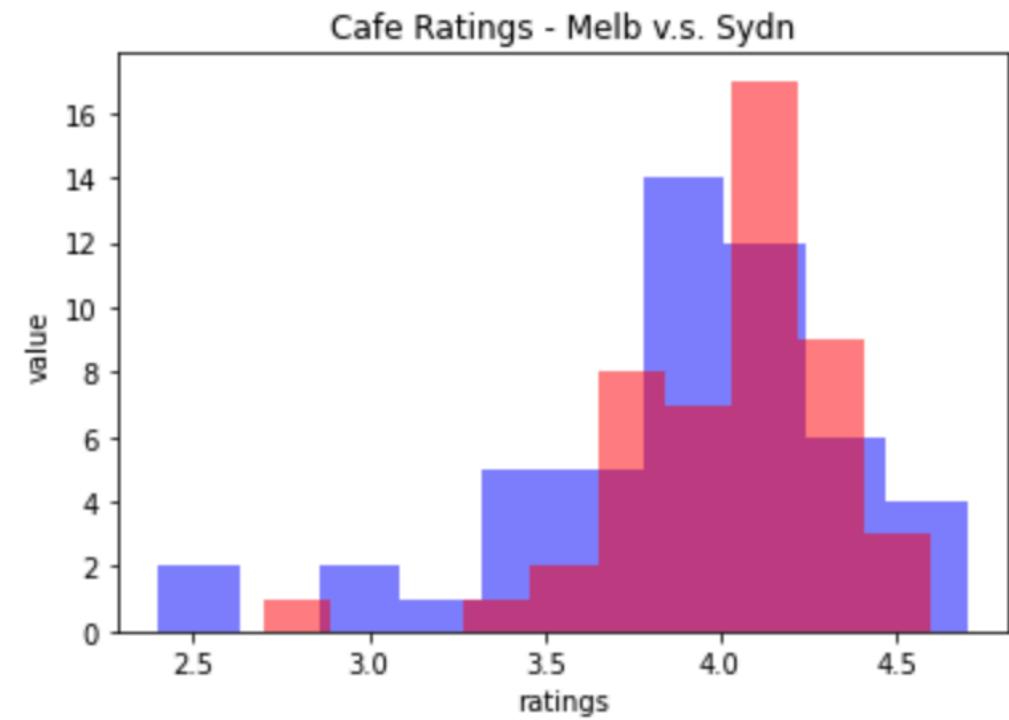
The next couple of slides show a summary of venue types and their ratings as provided by google users. The point of reference for these comparisons is the geocoder's centroid (lat/long) returned for the main postcode (Melbourne = 3000, Sydney = 2000)

Cafes

Melbourne (blue) vs. Sydney (red)

Both cities have some great café's with Melbourne having the highest scoring café, but Sydney's data skewed towards the top end.

Overall it looks quite even for both cities when it comes to cafes. I'm going to call this one a draw.

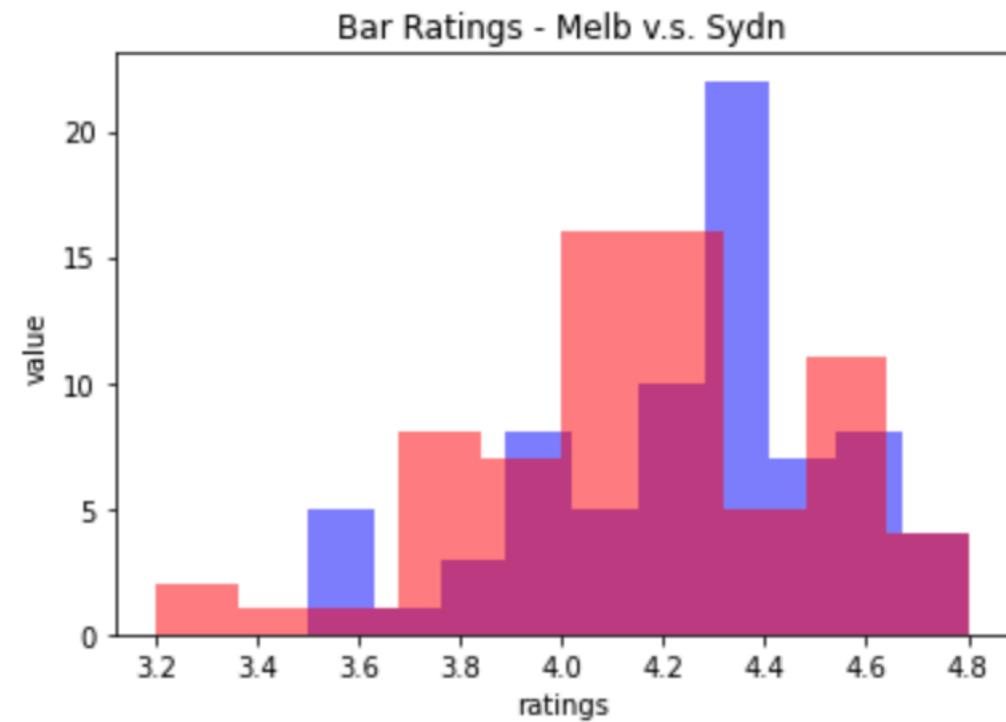


Bars

Melbourne (blue) vs. Sydney (red)

Again both cities scoring well and achieving the top score of 4.8. In this case Melbourne's bar ratings are skewed towards the higher end and Sydney's are more normal, with Sydney also scoring the lowest rating too.

It is pretty even, but Melbourne slightly edges out Sydney here.

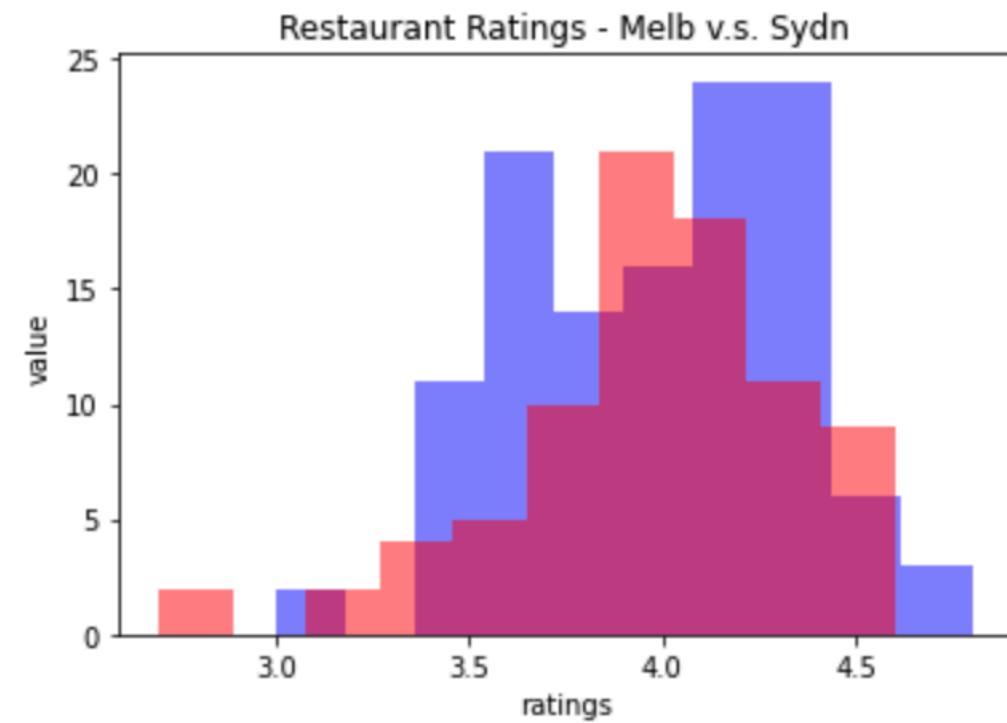


Restaurants

Melbourne (blue) vs. Sydney (red)

Melbourne scores the highest score for restaurants and has two peaks suggesting some good and not so good restaurants. Sydney's data is however slightly skewed towards the higher end.

I think Melbourne slightly edges out Sydney here, what do you think?



Summary

	Melbourne	Sydney
Bars	Winner (by a whisker)	Close
Cafes	Draw	Draw
Restaurants	Winner (by a whisker)	Close
General		
Winner	Melbourne: 2/3 categories	

Disclaimer: I'm from Melbourne and I love Sydney but there are a lot of assumptions and limitations of the analysis for various reasons. I've summarized some assumptions, limitations and excuses on the next page to try and explain. All in all a very close result and could go either way depending on the coordinates used to select the venues (perhaps filtering out bars from restaurants, etc).

Limitations, assumptions, excuses

- Assumed that Sydney/Melbourne city council zones were appropriate for comparison. Both miss key parts that people would normally consider essential parts of each city, but had to limit the analysis in some way.
- Foursquare venues listed in Australian seem somewhat limited, compared with the volume listed with google. Also, tourist volumes to each city may vary resulting in biases within each data set.
- Google unfortunately limits venue search to 60 (over multiple pages)
 - I was able to manually move around the CBD (or part of to do a quick comparison but ultimately ran out of time to do more)
- Would have been great to add some additional data from open data sources available. Ultimately this because a timely exercise of looking for data and thinking about how it could be used.
- Probably need to provide some normalization of the neighbourhood statistics