Places to eat at while in Australia

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Introduction

Last year over 9 million tourists travelled to Australia to experience the different sights, sounds and cultures that it has to offer. While these people are here, they want to try the various foods that the country has, but they won't want to eat at places that serve low quality food.

This project will aim to provide these tourists with a visualisation of the top-rated food outlets in the 5 major cities of Australia. This will include finding the top-rated restaurants within a certain distance from the reference point. To make it more convenient and easier for travellers access these places, the reference point in each city will be the city's main train station.

Data

Foursquare API will be used to collect the ratings of food outlets and restaurants within a certain radius of the 5 reference points in the major cities of Australia: Sydney, Melbourne, Brisbane, Perth and Adelaide. The amount of venues in each city will be limited to 50 as that is the maximum that Foursquare can provide to a user. This data will then be refined to only include places with a rating.

Methodology

1. Load in required libraries and Foursquare API credentials so that the data can accessed.
2. Create a function that allows us to access various venue details for a given venue id and place it into a table if it has a rating. For this project we only require the rating.
3. Access the coordinates of a given address in the given city.
4. A search query is used to find the train station within 500 metres of the given address. The search is limited to 10 results.
5. The corresponding URL is then defined.
6. The GET request is used on all URL's to collect the information from Foursquare API.
7. After using the GET request, the information is then transformed into a pandas data frame.
8. The data frame is then filtered to only include the required details in an easy to read format.
9. The next step was to access the exact coordinates of the train station.
10. The search query is now used to find restaurants within 500 metres of the train station. The search is limited to 50 results. This limit is the maximum set by Foursquare.

11. Steps 5 - 8 is repeated to create a data frame that lists the restaurants, their location details and their proximity to the train station.
12. A data frame is then created that contains the venue id's of all the restaurants found.
13. The penultimate step is to construct a data frame that shows the restaurant with its rating. If a restaurant didn't have a rating, the defined function would not include that restaurant in the data frame.
14. A set of summary statistics is then produced.

Steps 3 – 14 are repeated for each of the five cities.

Results

Melbourne

The Foursquare API was able to obtain 50 restaurants from its search of the area around Flinders St Station. Table 1 shows that there were 20 restaurants out of the 50 that contained a rating. The average rating of these restaurants is 6.685. The highest rated restaurant is Maha Restaurant at 8.1 while Feddish Café Bar & Restaurant is the lowest with a rating of 5.2 as shown in Table 2.

Sydney

In Sydney, Foursquare API was able to find 41 restaurants around Central Station. It is shown in Table 3 that 22 of these restaurants had a rating. Of the 22 restaurants, the highest rated was Nomad Restaurant at 8.9 while MillioRe Korean Fusion Restaurant was the lowest at 5.3. These restaurants had an average rating of 7.009. Table 4 shows that 50 percent of these restaurants have a rating greater than or equal to 7.

Brisbane

In Brisbane, Foursquare API was only able to find 8 restaurants within the given radius around Roma St Station. Out of the 8 restaurants, only 1 had a rating. This was Bishamon Japanese Restaurant with a rating of 8.4. As there was only 1 rated restaurant, summary statistics could not be calculated.

Perth

The Foursquare API URL was able to find 50 restaurants around Perth Station. Table 5 shows that 22 of these 50 restaurants had a rating with the average rating being 6.96. The restaurants with the lowest rating are Royal Seafood Restaurant and Govinda's Restaurant at 5.6. The Bonsai Restaurant Café & Lounge is the top-rated restaurant in the group at 8. Perth restaurants had a standard deviation of 0.681 meaning that most restaurants had a rating between approximately 6.3 and 7.6.

Adelaide

Foursquare API found 17 restaurants around the Adelaide Station. Within these 17 restaurants, Table 7 shows that only 6 of them contained a rating. The average rating of these 6 restaurants is 6.867. The highest rated restaurant is Pondok Daun Restaurant at 8.1 while the lowest rated is Shiki Japanese Restaurant at 5.7.

Discussion

The results show that Sydney had the greatest percentage of rated venues at 53.66 % and the highest average rating of the five cities. Sydney also had the highest rated restaurant at 8.9 while Melbourne had the lowest at 5.2. Melbourne also had the lowest average rating of the cities.

The summary statistics showed that Perth had the lowest standard deviation of the five cities. This means that most restaurants had a rating close to the mean. Adelaide was the opposite and had a high standard deviation. This though could be a result of only having 6 restaurants to measure whereas the other 3 cities had 20 or more.

As Brisbane only contained one restaurant with a rating, it wasn't used in any comparisons with the other cities.

Conclusion

This project utilised Foursquare API to collect information on restaurants in the five major cities of Australia. It was found that Sydney had the highest average rating of restaurants found in this program.

The comparisons between the cities could be improved if the radius was adjusted in each city to allow Foursquare to obtain the same number of restaurants for each location. As Brisbane and Adelaide in this comparison are quite low compared to Melbourne, Sydney and Perth, it is difficult to properly analyse them.

Different results could also be obtained by changing the radius to a larger distance if the visitor would like to travel further away or by changing the initial search point.

Appendices

	ID	Name	Rating
0	5036122fe4b0853eeba6e6ec	Saké Restaurant and Bar	7.7
1	4b058747f964a520928822e3	Feddish Cafe Bar & Restaurant	5.2
2	4b05874cf964a520f78922e3	West Lake Restaurant	7.0
3	4c10bdba3ce120a1a37c081c	Allegro Restaurant	6.7
4	4b05874df964a5204c8a22e3	Gopal's Pure Vegetarian Restaurant	8.0
5	4c0ae0bea1b32d7fdb2a9af0	Alice's Thai Restaurant	6.9
6	4da81819a86e68edb7d4bc2a	Rainbow Buffet Restaurant	5.5
7	4d1417e2bb64224b6f3daa65	Shanghai Dynasty Restaurant	5.9
8	4b307875f964a520c0f924e3	Flora Indian Restaurant	6.1
9	54c2df00498e782c16f5d1b9	Platform 270 Restaurant & Bar	7.4
10	4b6f69aff964a5208bef2ce3	Strozzi Restaurant	6.2
11	4b05874ef964a520b78a22e3	Melba Restaurant	7.4
12	4b823baef964a520c0cd30e3	Hako Japanese Restaurant	6.6
13	54dd0cca498e74285a5146a3	1932 Cafe And Restaurant	6.1
14	4b06292af964a52052e922e3	Maha Restaurant	8.1
15	5388296a498e46ffbbbc48a8	Wagaya Restaurant	6.3
16	572afed1498e358118689f5a	Saké Restaurant and Bar	6.2
17	4b058745f964a520f08722e3	Chloe's Bar - Young & Jacksons	7.8
18	4b4c3b12f964a520e7af26e3	Il Tempo	6.7
19	4b5d6be6f964a5208a5c29e3	Southgate	5.9

Table 1: Melbourne Restaurant Ratings

	Rating
count	20.000000
mean	6.685000
std	0.837462
min	5.200000
25%	6.100000
50%	6.650000
75%	7.400000
max	8.100000

Table 2: Melbourne Restaurant Summary Statistics

	ID	Name	Rating
0	4b058766f964a520729022e3	Zilver Restaurant	7.7
1	4b058766f964a520939022e3	Marigold Restaurant 富麗宮 (Marigold Restaurant)	7.1
2	550a8849498ec17e9c53dd60	nel. restaurant	7.6
3	4b5d5e0cf964a520005b29e3	Harry's Singapore Chilli Crab Restaurant	6.7
4	4b3021d8f964a5209ff624e3	Daruma Japanese Restaurant	6.4
5	51650720e4b03b1860bbb7aa	Wandee Thai Restaurant	6.6
6	4da96e946a2303012ef3f90f	Four Elements Restaurant	6.2
7	4c836e4274d7b60c45b989d8	Capital Thai Restaurant	6.4
8	4b49c386f964a5205a7326e3	MillioRe Korean Fusion Restaurant	5.3
9	4c2c581877cfe21e9de4b5f1	Encasa Restaurant	7.1
10	4b05fb2af964a520dde622e3	Taste Baguette	7.6
11	5246b40e498eac323b64db5c	Nomad Restaurant	8.9
12	4b46e9c2f964a520852926e3	D'lish Wrap & Roll	6.1
13	4cd225447b6854819a54cbf8	Lestari	7.5
14	4d379b19803ba35dc57394fc	The Eight 八樂居	6.8
15	4b12025af964a520248823e3	Phở Gia Hội	7.0
16	4b058766f964a520709022e3	Chinese Noodle House 北方麵家	7.0
17	4b0f3d9bf964a520bf6023e3	Phở Pasteur	6.4
18	4e48ffd4c65bd6ffbeb21916	Caysorn (เกสร อาหารปักษ์ใต้) (Caysorn)	7.7
19	4c0efc352466a593ba0c7a21	@Bangkok (Na Bangkok)	7.1
20	4b0f28dff964a520d25f23e3	The Forresters	6.5
21	4c8a12b73dc2a1cd3b5ca932	Porteño	8.5

Table 3: Sydney Restaurant Ratings

	Rating
count	22.000000
mean	7.009091
std	0.810590
min	5.300000
25%	6.425000
50%	7.000000
75%	7.575000
max	8.900000

Table 4: Sydney Restaurant Summary Statistics

	ID	Name	Rating
0	55ed79a3498e6eaf2fbcebde	Canton Bay Chinese Restaurant Northbridge 喜粤海鲜酒家	7.3
1	4b61256cf964a5201b0b2ae3	Dragon Palace & Karaoke Restaurant	7.1
2	4c2c5bd38abca5938c940120	Miss Maud Smorgasbord Restaurant	7.4
3	4b74d676f964a520adf42de3	Restaurant Jun 純	7.7
4	4b5ae606f964a52065d928e3	The Bonsai Restaurant Cafe & Lounge	8.0
5	4b9a2124f964a5204da035e3	Singapore Restaurant	7.7
6	4b6c411ef964a520e82b2ce3	City Garden Chinese Restaurant	7.0
7	4b8e4464f964a520691d33e3	Uncle Billy's Chinese Restaurant	6.9
8	4c6f5cdf9c6d6dcb0990cf7a	Poppo Korean & Japanese Restaurant	7.7
9	5349fd1d498ed98253ec6a6c	Fortune Five Chinese Restaurant	7.0
10	4c60da4c90b2c9b6cbef3d22	Levant Restaurant	7.4
11	4b860ccef964a520a77e31e3	C Restaurant	7.2
12	4b6e2c88f964a520a2af2ce3	Northbridge Chinese Restaurant	7.1
13	54c8f062498e98ce039df87d	Brotzeit German Bier Bar & Restaurant	7.2
14	4d4bdc6bfe85a1cd57b196bf	Govinda's Restaurant	5.6
15	4d08447e1657a35dc1f12be7	Sentinel Bar And Grill Restaurant	7.6
16	4c504fcd2ba0ef3b741d59e8	Yoshiya Japanese Restaurant	6.3
17	4bdba5ee2a3a0f479645b0b6	Royal Seafood Restaurant	5.6
18	4bfba253ab180f477e08b4ce	Oleh Oleh Restaurant	6.6
19	50f57826e4b04f6ad10b066b	City Heart Indian Restaurant	5.8
20	4c0b6612ffb8c9b6593d6d61	Takaza Restaurant	6.6
21	4b6800b7f964a52090632be3	Seizan Japanese Restaurant	6.5

Table 5: Perth Restaurant Ratings

	Rating
count	22.000000
mean	6.968182
std	0.681306
min	5.600000
25%	6.600000
50%	7.100000
75%	7.400000
max	8.000000

Table 6: Perth Restaurant Summary Statistics

	ID	Name	Rating
0	4c9585a358d4b60c18863329	Jolly's Boathouse Restaurant	8.0
1	4dfb3b12483b085eeda37d6b	Shiki Japanese restaurant	5.7
2	54e59bf4498e9da2eb432fe3	Pondok Daun Restaurant	8.1
3	4c64d5c33f69c9b68cd689d9	Bollywood Indian Restaurant	5.8
4	4b57c976f964a520154128e3	Nando's	7.0
5	4badbca3f964a52026663be3	Cos Leigh St	6.6

Table 7: Adelaide Restaurant Ratings

	Rating
count	6.000000
mean	6.866667
std	1.038589
min	5.700000
25%	6.000000
50%	6.800000
75%	7.750000
max	8.100000

Table 8: Adelaide Restaurant Summary Statistics