

## Coursera Applied Data Science Capstone

# THE BATTLE OF AMSTERDAM

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### Introduction

Amsterdam is very popular for tourist. Every year approximately 5.3 mio tourist visit Amsterdam of which 4.3 mio foreign tourist. Total number of overnight stays per year is 9.8 mio. There are 413 hotels with a total of 54.9 thousand beds. But AirBnB is becoming very popular. The number of people who offer (professionally) their house/apartment/room (going forward grouped as "AirBnB-places") is growing every year.

### Business problem

If you want to rent an AirBnB-places, what are the best or most popular neighborhoods. And within the most popular neighborhood what are the kind of venues you can visit.

### Data and analyses

With data from Kaggle, I review which neighborhood is the most popular. Popular defined as the highest number of AirBnB-places, the neighborhood with highest number of highest rated AirBnB-places and the neighborhood where AirBnB-places have the highest location score. I check if there is any correlation between the different scores. I map the AirBnB-places using K-nearest neighbor to show on the map the key neighborhoods of Amsterdam. With the data of foursquare I will analyze the key venues in the key neighborhoods. The result of all the analyses will give Amsterdam's most popular neighborhood according to AirBnB users and what the key venues are in these neighborhoods.

After cleaning, the database contains 13412 different AirBnB-places.

## Rijksmuseum

The Rijksmuseum is the most famous and impressive museum in Amsterdam.

It's address is Museumstraat 1, 1071 XX Amsterdam, Netherlands.

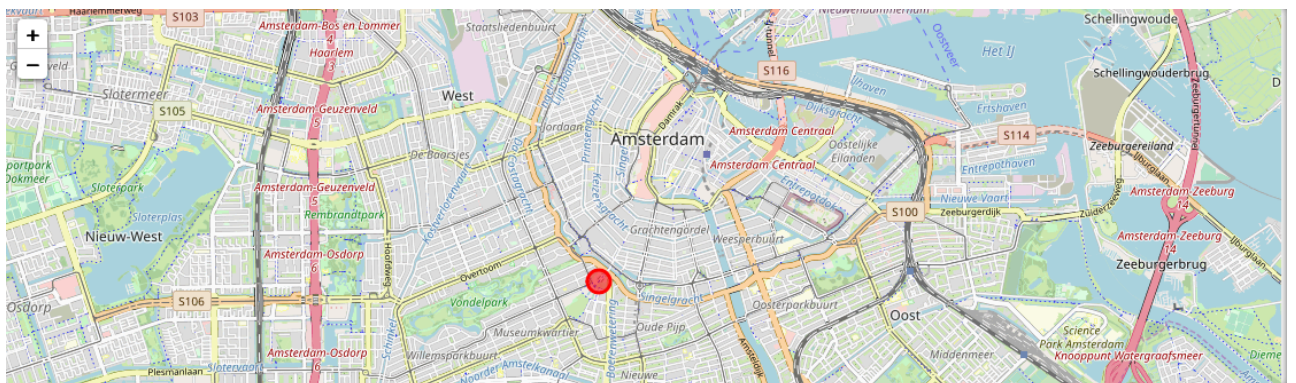
Going forward I will showcase the AirBnB-places around this museum.

The main reason is that you cannot go to Amsterdam without visiting this museum.



<https://www.rijksmuseum.nl>

On below map you can see the location of the museum, marked with the red dot.



## Neighborhoods of Amsterdam

Amsterdam consists out of 45 neighborhoods.

First I checked how many AirBnB-places there are per neighborhood

	neighbourhood	counts
27	Oud-West	2984
7	De Pijp	1262
2	Bos en Lommer	793
10	Grachtengordel	790
13	Indische Buurt	678
14	Jordaan	671
24	Oosterparkbuurt	659
30	Rivierenbuurt	467
22	Oost	384
11	Hoofddorppleinbuurt	300
9	Frederik Hendrikbuurt	298
0	Amsterdam Centrum	286
40	Watergraafsmeer	273
34	Spaarndammer en Zeeheldenbuurt	253
28	Oud-Zuid	237
21	Nieuwmarkt en Lastage	228
35	Stadionbuurt	222
17	Museumkwartier	220
43	Zeeburg	200
8	De Wallen	199
41	Weesperbuurt en Plantage	195
23	Oostelijke Eilanden en Kadijken	191
42	Westelijke Eilanden	183
33	Slotervaart	177
26	Osdorp	165
12	IJplein en Vogelbuurt	119
6	Buitenveldert-West	103
38	Tuindorp Oostzaan	99
29	Overtoomse Veld	97
39	Volewijk	94
4	Buikslotermeer	78
3	Buiksloterham	72
1	Banne Buiksloot	61
32	Slotermeer-Zuidwest	59
31	Slotermeer-Noordoost	49
18	Nieuwendam-Noord	39
36	Tuindorp Buiksloot	38
37	Tuindorp Nieuwendam	36
5	Buitenveldert-Oost	36
15	Kadoelen	33
25	Oostzanerwerf	31
19	Nieuwendammerdijk en Buiksloterdijk	23
16	Landelijk Noord	22
20	Nieuwendammerham	8

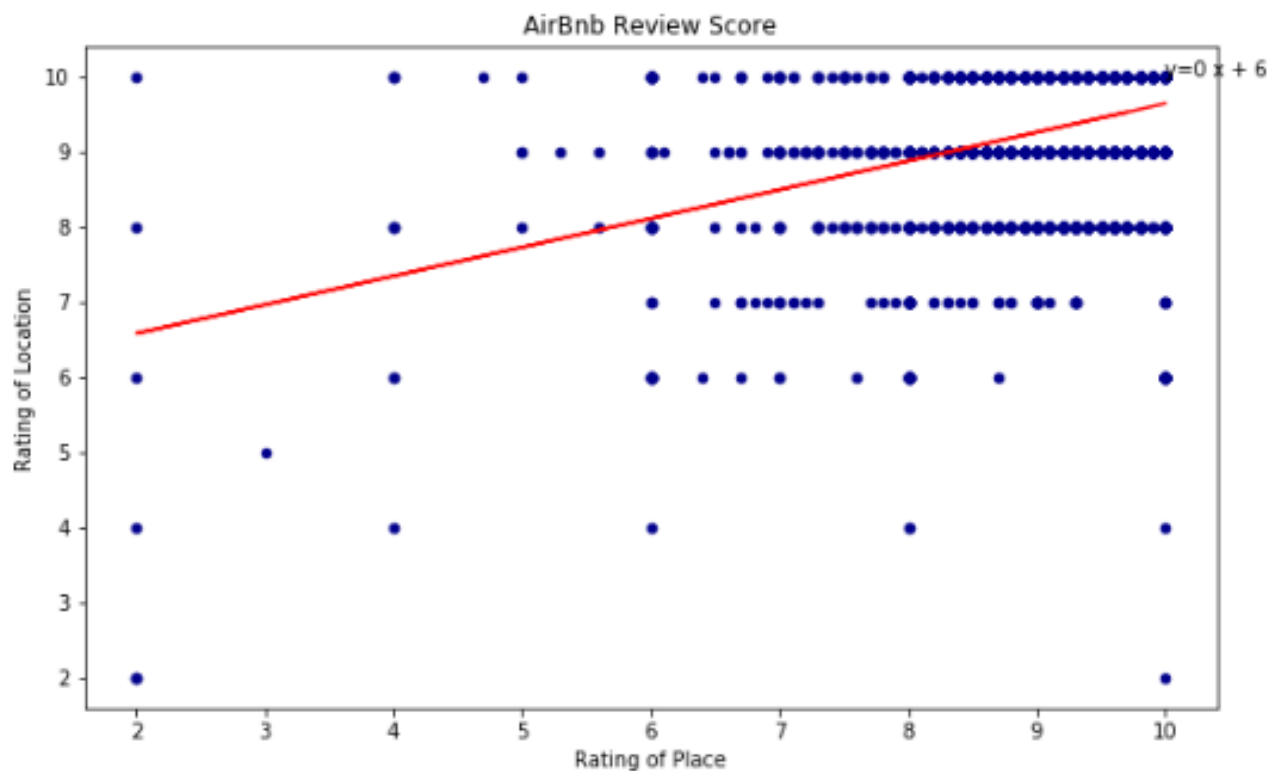
As you can see Oud-West has the most locations followed by De Pijp.

Second is to understand of here are also the most popular AirBnB-places.  
For this I checked the average review score and the average location score.

Based on the average review score ratings the most popular neighborhood is Kadoelen  
followed by Stadionbuurt.

Selected the most popular neighborhood based on the average location score the results are  
as follows: First Amsterdam Centrum and than Grachtengordel.

Third I checked if there is a correlation between rating of the location and the rating of the  
place.  
The below graph showed there is.



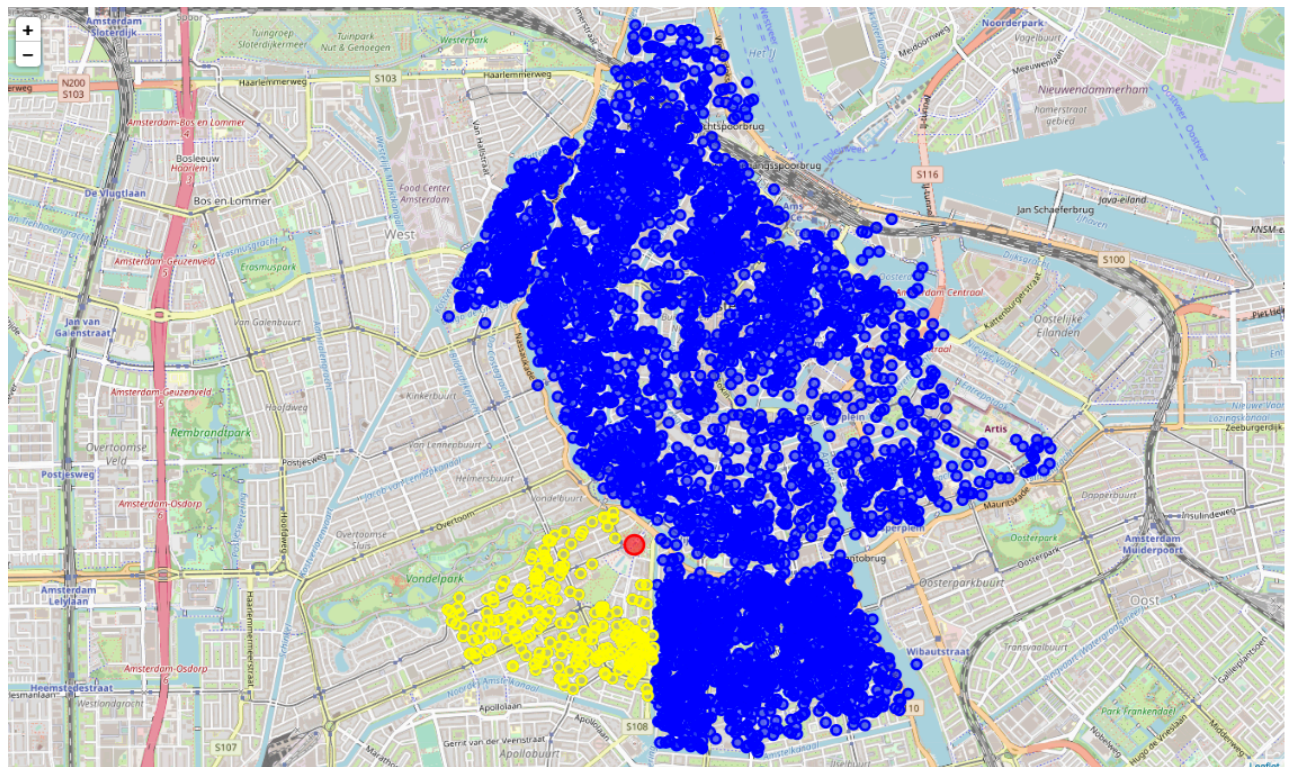
As final step I combined the two scores to come to the final list of most popular  
neighborhoods



	neighbourhood	Review_overal_scores
17	Museumkwartier	9.725909
21	Nieuwmarkt en Lastage	9.680482
14	Jordaan	9.672355
10	Grachtengordel	9.669494
8	De Wallen	9.649749
42	Westelijke Eilanden	9.643443
7	De Pijp	9.633399
0	Amsterdam Centrum	9.629895
41	Weesperbuurt en Plantage	9.581282
9	Frederik Hendrikbuurt	9.530034

Based on that method the most popular neighborhood is Museumkwartier.

On below map of Amsterdam you can see all the AirBnB-places. The places in yellow are located in the neighborhood Museum kwartier. As you can see also the Rijksmuseum is located in this neighborhood, marked with the red dot.



## Recommendation

Based on the above collected information, the best location to have an AirBnB-places is in Museumkwartier and as a tourist you probably also prefer a place in this neighborhood.

## Venues in Museumkwartier

Using Foursquare I checked what kind of venues there are in this neighborhood.

I requested 100 venues from Foursquare. In below table you can see the top 10 of the 100.

	name	lat	lng
categories			
	Café	9	9
	Art Museum	8	8
	Hotel	5	5
	Bar	5	5
	Coffee Shop	4	4
	Asian Restaurant	3	3
	Restaurant	3	3
	Hostel	2	2
	Plaza	2	2
	French Restaurant	2	2

As you can see Cafés are the most popular venues followed by Museums. So it makes sense that the neighborhood is called Museumkwartier.

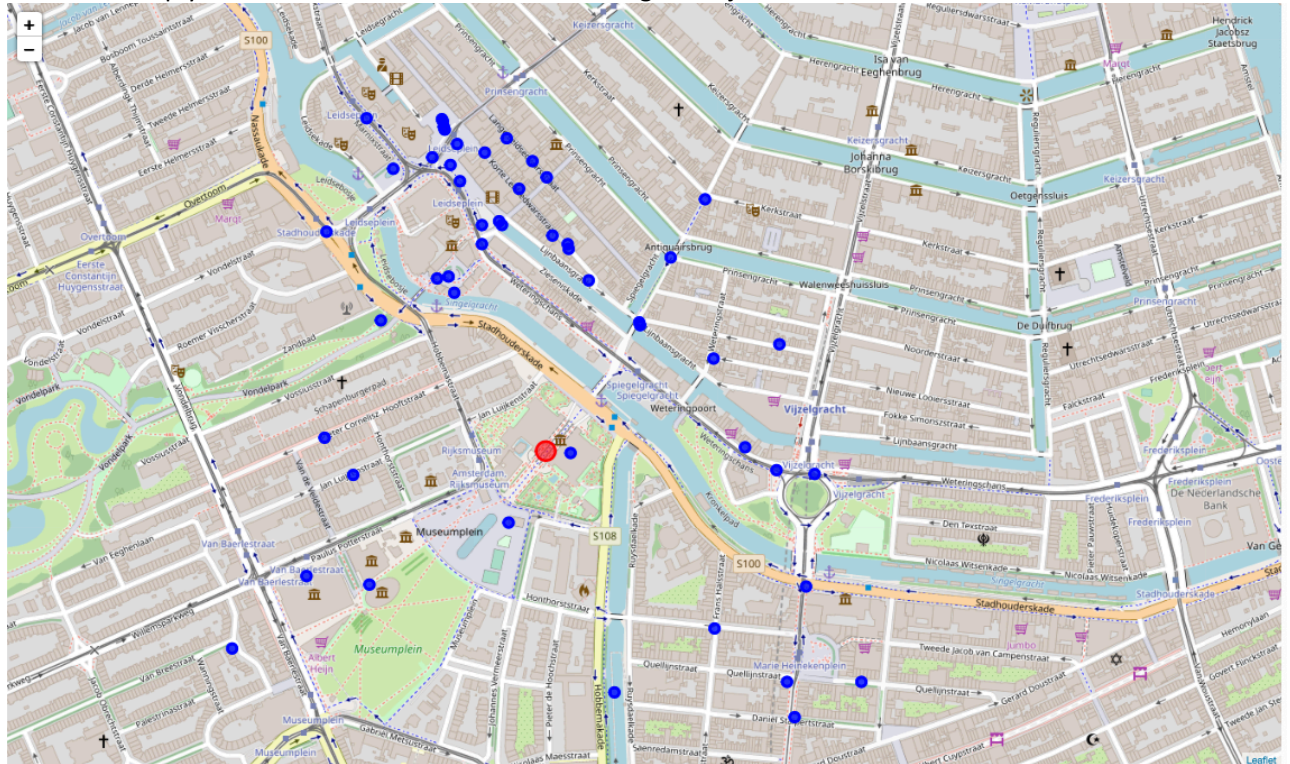
## Cafes around The Rijksmuseum

We also saw that the venue Café is very popular in the Museumkwartier neighborhood.

The last report I run was to see all the cafes close to the Rijksmuseum. Below the list of all the cafes that Foursquare resulted.

0	Hard Rock Cafe Amsterdam
1	Café Brecht
2	Café Heuvel
3	Café Brasserie Stadsschouwburg
4	Café Américain
5	Kingfisher Cafe
6	Café De Waard
7	Whisky Café L&B
8	Rijksmuseum Café
9	Zadelhoff Cafe
10	Café Mokum
11	Café Reynders
12	Cooldown Café
13	Café La Bastille
14	Cafe Restaurant Mamouche
15	Cobra Café
16	Grand Café DeLaMar
17	Cafe Pizza Pasta Restaurant
18	Cafe B.A.P.
19	Cafetaria de Prins
20	Café Mulder
21	Grand Café Heineken Hoek
22	Café Berkhout
23	Van Gogh Museum
24	Bakery Cafe
25	Cafe De Wetering
26	Café Georgette
27	Café Alto
28	Café de Pijp
29	Café de Spuyt
30	CAFE in the city
31	Café Kooper
32	Cafe Caron
33	Café Amsterdamned
34	Stach Café
35	Cafe Hans
36	Café Max
37	The Bulldog Palace
38	Duca del Cosma Cafe & Shop
39	Georgios Cafe
40	Hans & Grietje
41	Café Bar De Keyser
42	cafe boele in de PC
43	Cafe de Brakke Kater
44	café spiuyt
45	Café Bubbels
46	Cafe-Restaurant "Tartufo"
47	Midnight Café Records
48	cafe 19
49	Café De Krul

On below map you can see all these cafes surrounding the Rijksmuseum.



## Conclusion

With 13,412 AirBnB-places in Amsterdam there is quite a lot of choose. Based on the Kaggle data the best neighborhood is Museumkwartier as there are on average the most places with a high review score and location score.

The Rijksmuseum is also located in this neighborhood.

As café's are a very popular venue in Amsterdam, you can go to a big range of different cafés surrounding the Rijksmuseum.