



Vienna Cafés District Map

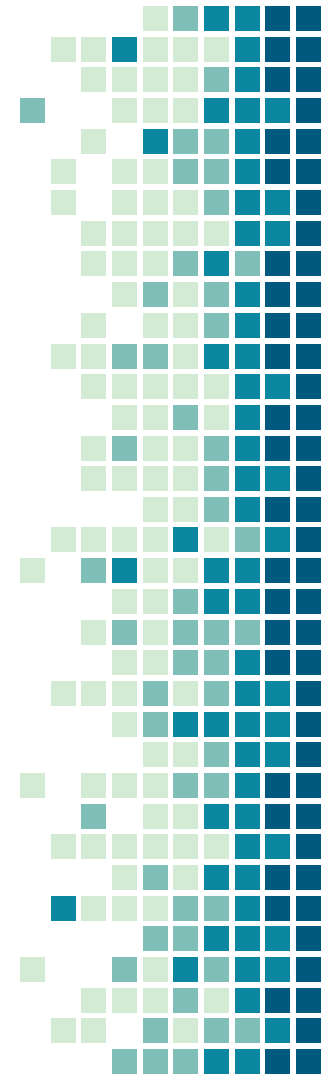
Finding the best location
for opening a new coffee
place in Vienna

Coursera IBM Data Science Capstone Project

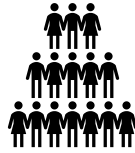
Katerina Mincheva, April 2019

Which districts of Vienna offer the most attractive location for opening a new café?

- Vienna, Austria is known for its strong coffee culture, which can be also recognized by the solid number of cafés and roasteries in the city, as well as the good quality of the coffee
- The vibrant city atmosphere, the big number of students, as well as that of tourists that are looking to experience the coffee culture, secure the constant demand for such places
- Both established café owners seek to expand their businesses in new locations, as well as new entrants see the market as an attractive and never too saturated to enter



1,888,776



Is Vienna's population in 2018

23



Are all districts in Vienna

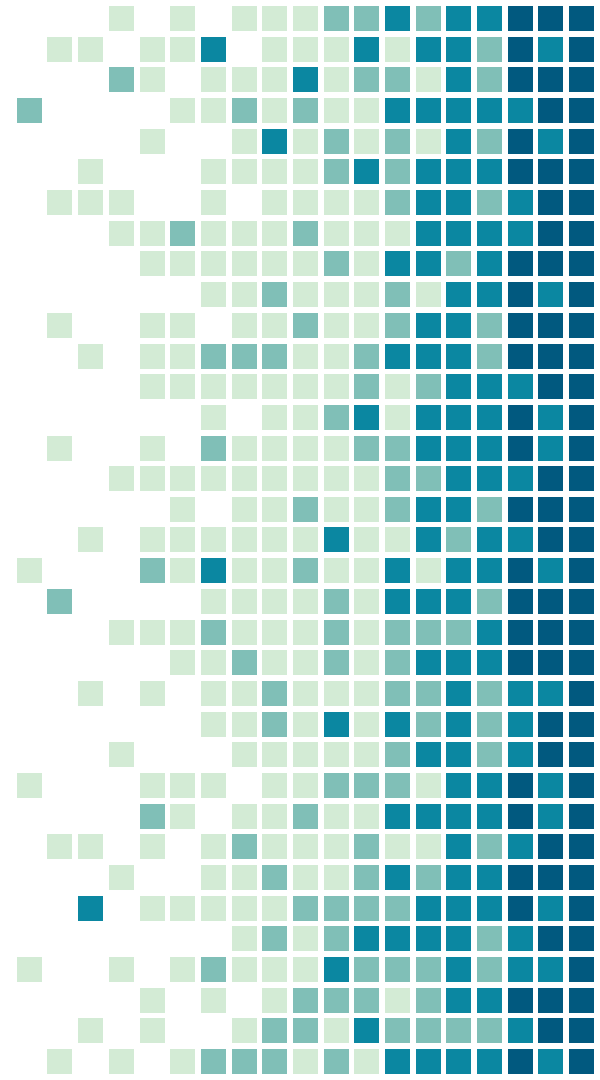
204



Venues in the 'Café' category already exist on Foursquare

1. DATA

The data to be used in the scope of the project comes from few different sources

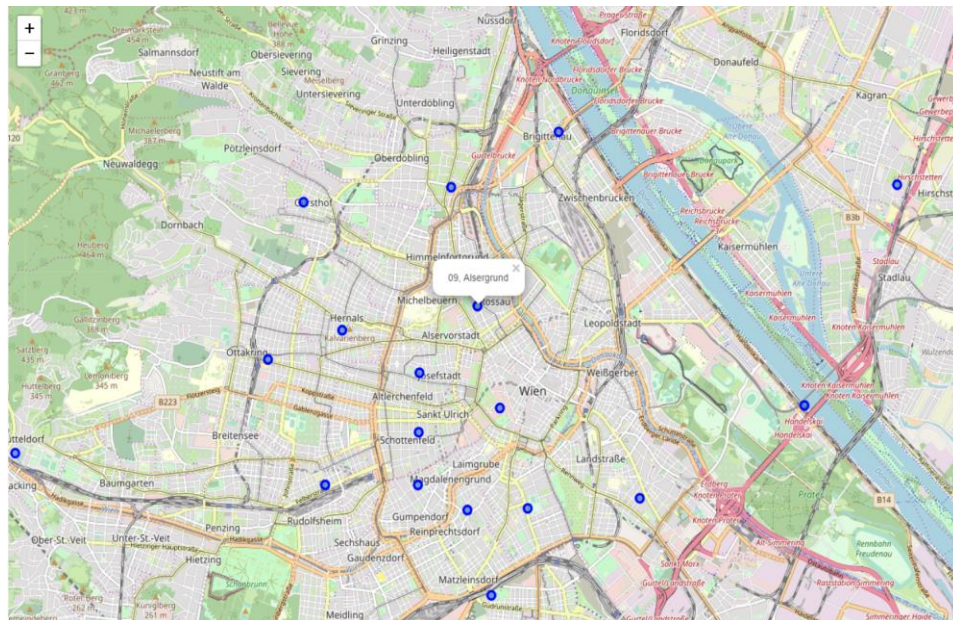


Data

- Wikipedia article containing the needed information about the 23 different districts in Vienna, called 'Bezirke' (German):
https://de.wikipedia.org/wiki/Wiener_Gemeindebezirke (web scrapping technique will be applied)
- Location data - the coordinates of each district, will be then collected through the Python Geocoder
- Foursquare - querying data and gathering all relevant information through the Foursquare API for each existing venue in Vienna (location, venue category, reviews and tips are available)
- Statistics Austria - information regarding the population at the end of 2018 of each district, to later see if there are districts with bigger population, but smaller amount of coffee places: http://statistik.at/web_en/statistics/index.html

Data – results (1/3)

District_No		Name	PostalCode	Latitude	Longitude
0	01	Innere Stadt	1010	48.2061	16.3652
1	02	Leopoldstadt	1020	48.2064	16.4328
2	03	Landstraße	1030	48.1936	16.3963
3	04	Wieden	1040	48.1923	16.3714
4	05	Margareten	1050	48.1921	16.358
5	06	Mariahilf	1060	48.1955	16.347
6	07	Neubau	1070	48.2027	16.3471
7	08	Josefstadt	1080	48.2109	16.3474
8	09	Alsergrund	1090	48.2229	16.3564
9	10	Favoriten	1100	48.1804	16.3633
10	11	Simmering	1110	48.1631	16.458
11	12	Meidling	1120	48.166	16.3248
12	13	Hietzing	1130	48.1785	16.253
13	14	Penzing	1140	48.2006	16.2622
14	15	Rudolfsheim-Funfhaus	1150	48.1955	16.3263
15	16	Ottakring	1160	48.2127	16.3136
16	17	Hernals	1170	48.2354	16.2842
17	18	Währing	1180	48.2341	16.3216
18	19	Döbling	1190	48.2362	16.3543
19	20	Brigittenau	1200	48.2438	16.3781
20	21	Floridsdorf	1210	48.2798	16.4121
21	22	Donaustadt	1220	48.2365	16.4534
22	23	Liesing	1230	48.1411	16.2939



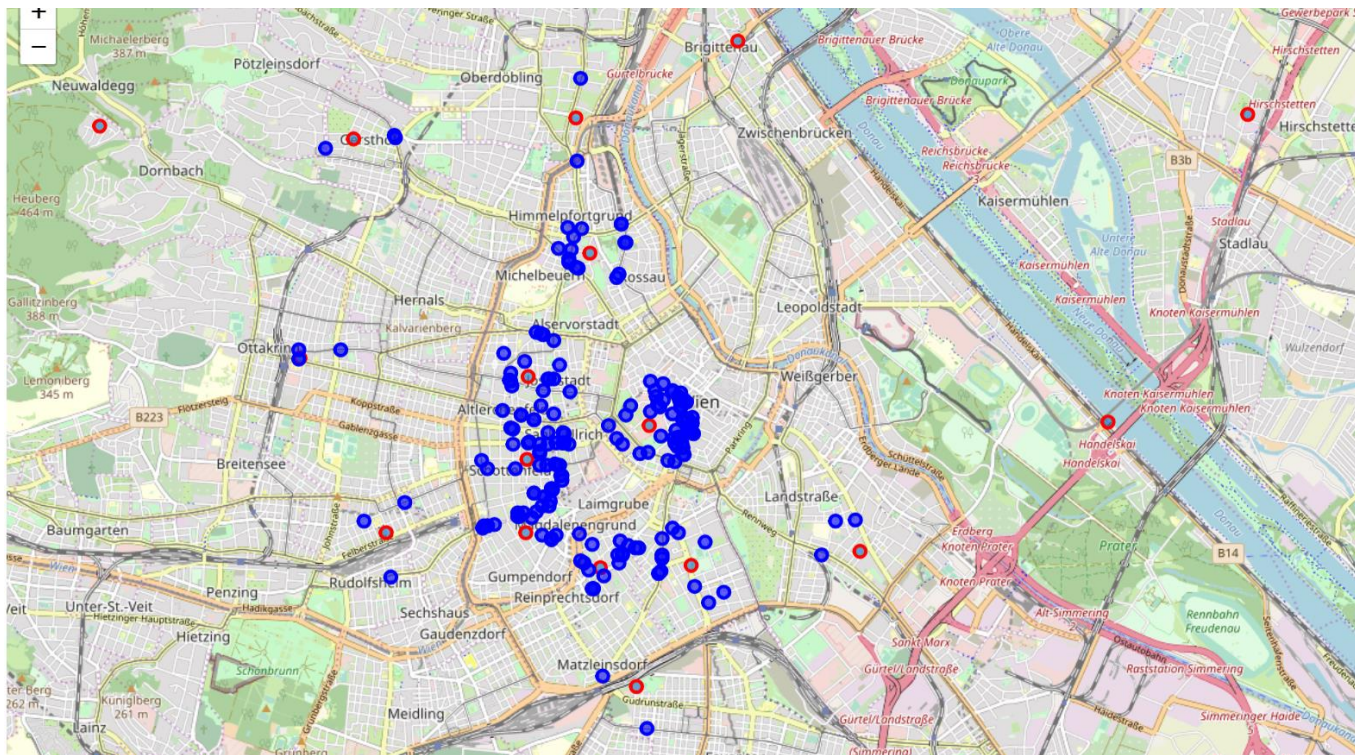
Vienna's 23 district and their spatial location

Data – results (2/3)

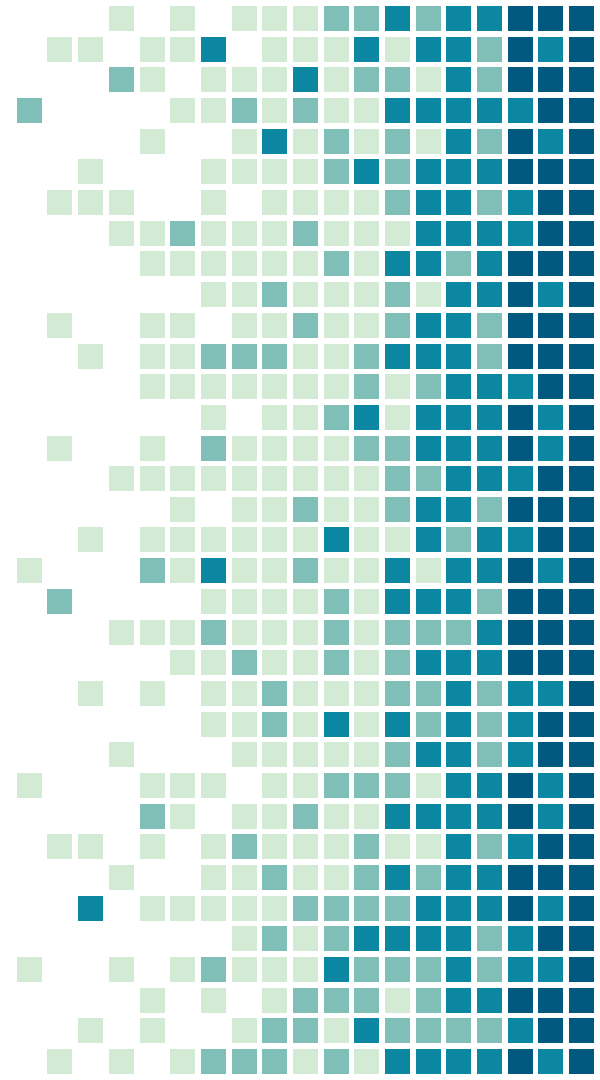
	District	District Latitude	District Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Innere Stadt	48.20608	16.365169	Café Mozart	48.204317	16.368987	Café
1	Innere Stadt	48.20608	16.365169	Demel – K.u.K. Hofzuckerbäcker	48.208545	16.367209	Café
2	Innere Stadt	48.20608	16.365169	Palmenhaus	48.204957	16.366855	Café
3	Innere Stadt	48.20608	16.365169	Café Central	48.210348	16.365391	Café
4	Innere Stadt	48.20608	16.365169	Café Sacher	48.203857	16.370144	Café
5	Innere Stadt	48.20608	16.365169	Le Bol	48.206469	16.370575	Café
6	Innere Stadt	48.20608	16.365169	Café Hawelka	48.207844	16.369849	Café
7	Innere Stadt	48.20608	16.365169	Gerstner K. u. K. Hofzuckerbäcker	48.203163	16.370269	Café
8	Innere Stadt	48.20608	16.365169	Filmmuseum Bar	48.204805	16.368793	Café
9	Innere Stadt	48.20608	16.365169	L. Heiner Hofzuckerbäcker	48.206205	16.371451	Café

- The Foursquare database discovered 204 venues in the 'Café' category
- They are distributed among 15 of the 23 districts in Vienna. 8 districts have none.

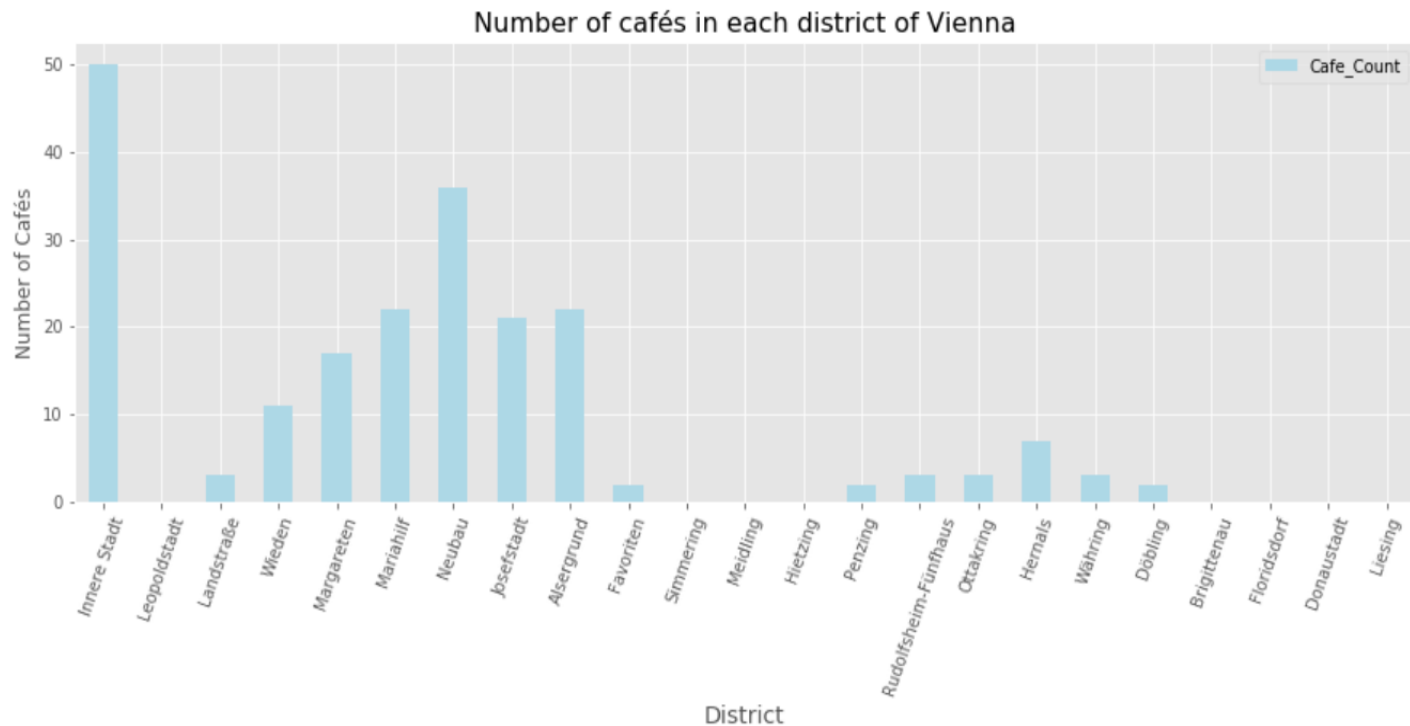
Data – results (3/3)



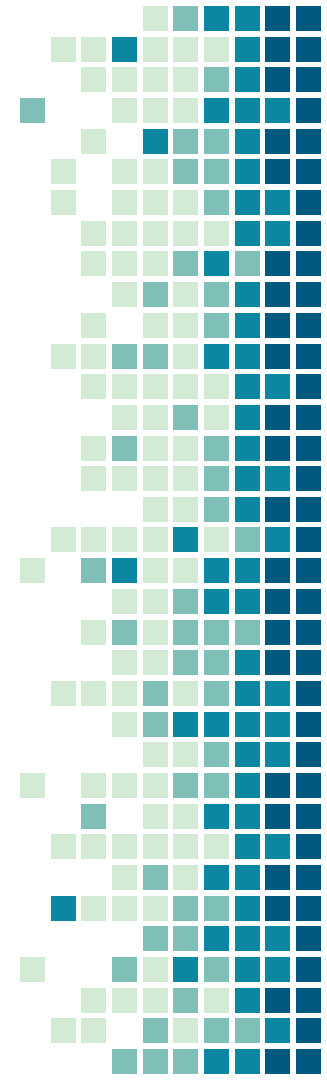
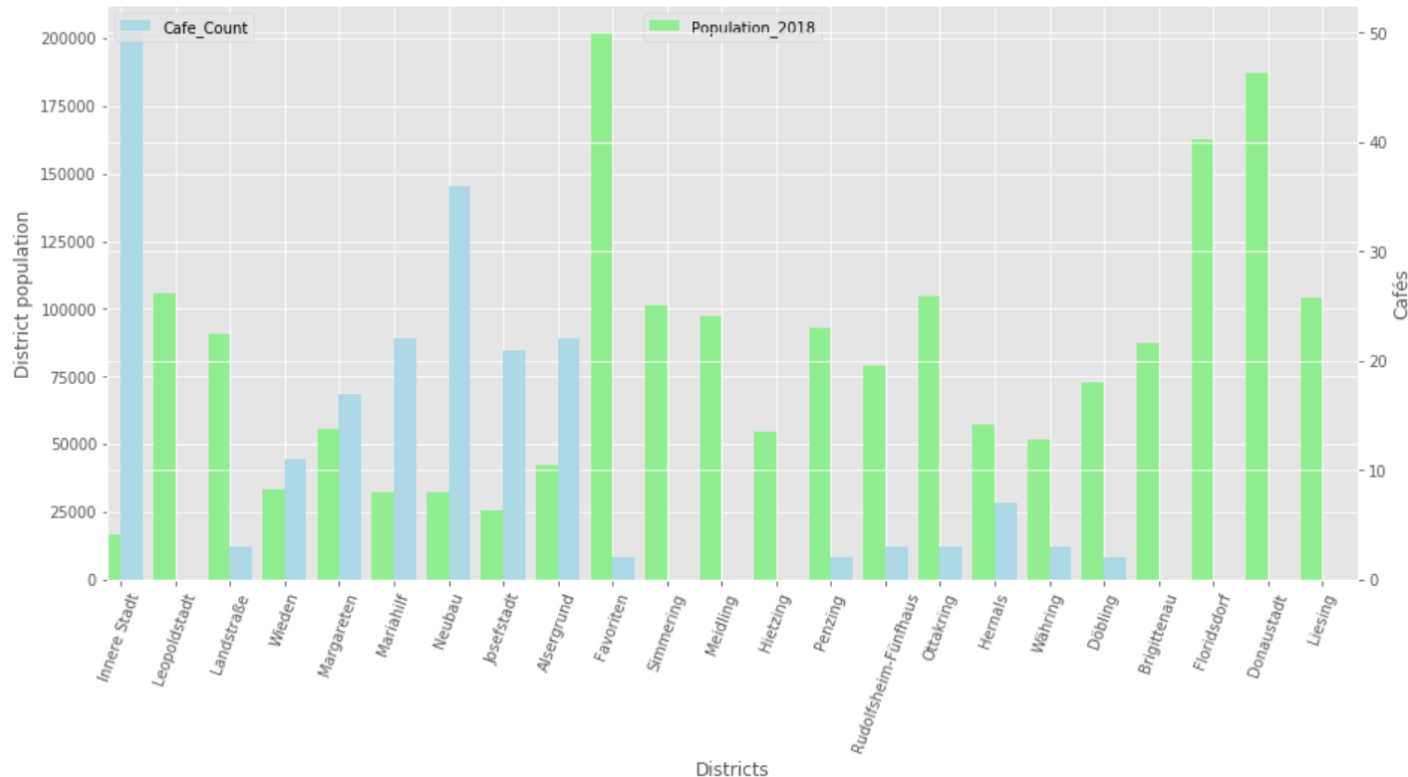
2. ANALYSIS



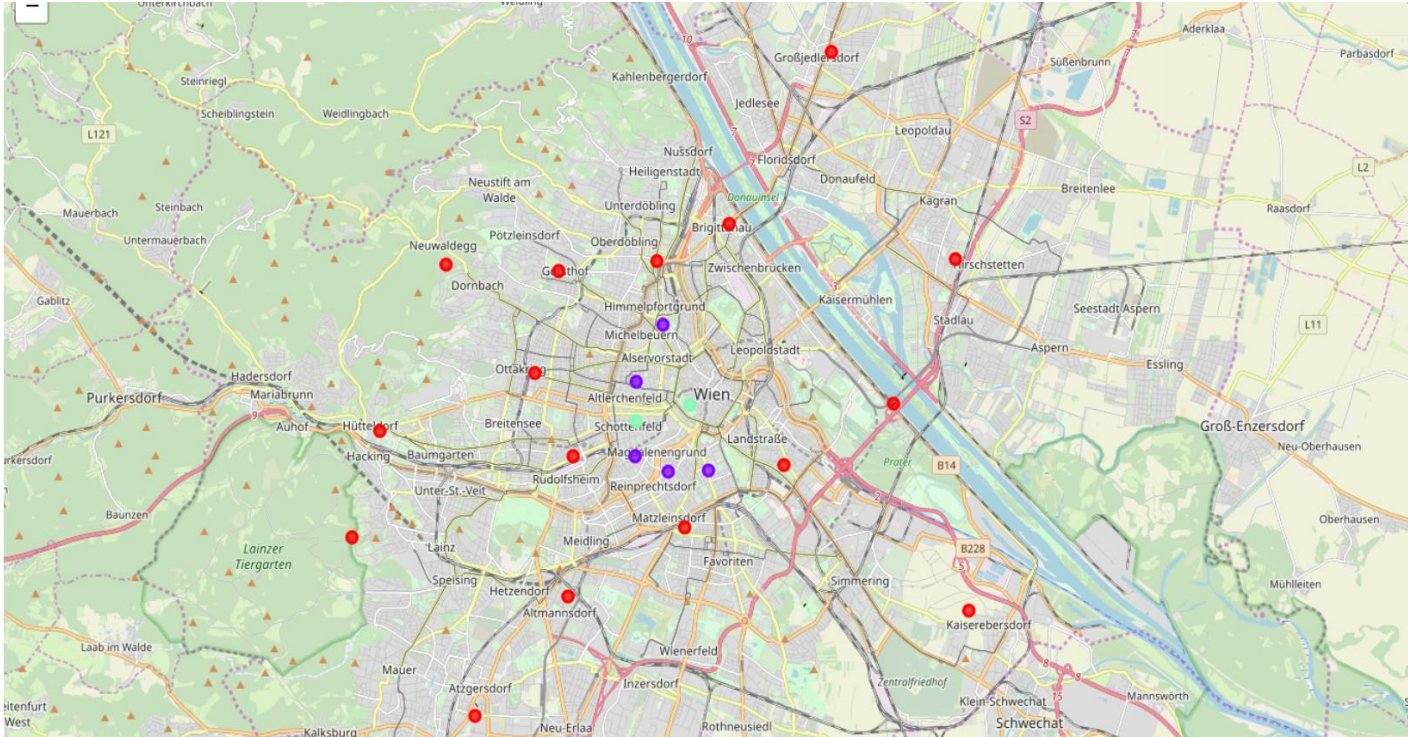
There is an uneven distribution of the cafés among all districts in Vienna



Population intensity tends to be unproportionate to cafés count in some areas

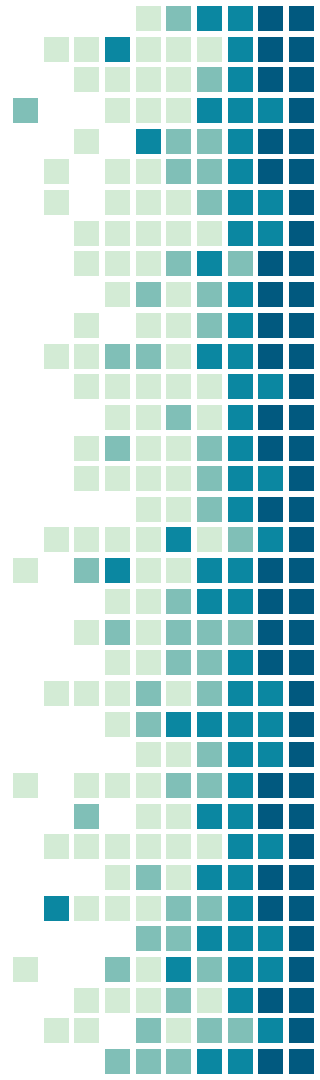


Districts were segmented in three clusters



Districts were segmented in three clusters

- KMeans clustering machine learning algorithm was applied to segment all districts into 3 clusters
- Looking into the clustering model results, the results suggest that cluster 1 (red circle marker on the previous slide), where there are 16 districts with 3 or less café venues, and 8 district that have none, is the most attractive cluster to investigate when deciding on where to open a new café venue



Conclusion and future direction

1. The districts from Cluster 1 offer the most attractive location for new cafés. Priority should be the ones with none locations so far, there are 8 of them.

2. The scope of the report is accompanied by many limitations, such as lacking venues in the Foursquare database, further factors in district analysis that need to be taken into consideration (type of population, institutions etc.)

3. Including more variables into the analysis and using different machine learning algorithm will lead to improved results and narrow down the districts that offer the most attractive location



Thank you!

