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# CAPSTONE PROJECT - THE BATTLE OF NEIGHBORHOODS

## INVESTMENT IN THE VIENNA REAL ESTATE MARKET

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# INTRODUCTION:

The aim of this project is to provide an overview of the Vienna real-estate market:

- Which district has cheaper accommodation listings
- Which are similar districts in terms of pricing and venues
- Which districts suit the client's criteria. The desired option for the client - apartment with 3-4 rooms, costing less than 350k EUR and located in a desirable area (with restaurants, park, café in the near vicinity).

Interested Audience: This is an interesting and useful challenge with valid questions for anyone interested in making any real estate investment or relocation. Finally, it can also serve as a good practical exercise to develop Data Science skills.

# METHODOLOGY:

1. The first step includes cleaning and preparing data for analysis: Gathering data from real-estate web-site (https://www.willhaben.at) and forming a dataframe.

2. The second step involves pre-processing of obtained data - cleaning and formatting.

3. Analysis of the prepared data frame in order to overview the real-estate market in Vienna.

4. On the fourth and final step, identification of the most suitable areas that meet the criteria of the client venue preferences (restaurants, cafee, park, etc. nearby) by collecting Foursquare data is undertaken. Subsequently, the cluster analysis will be undertaken (using k-means clustering). The result will be a map that shows the most suitable areas for the client.
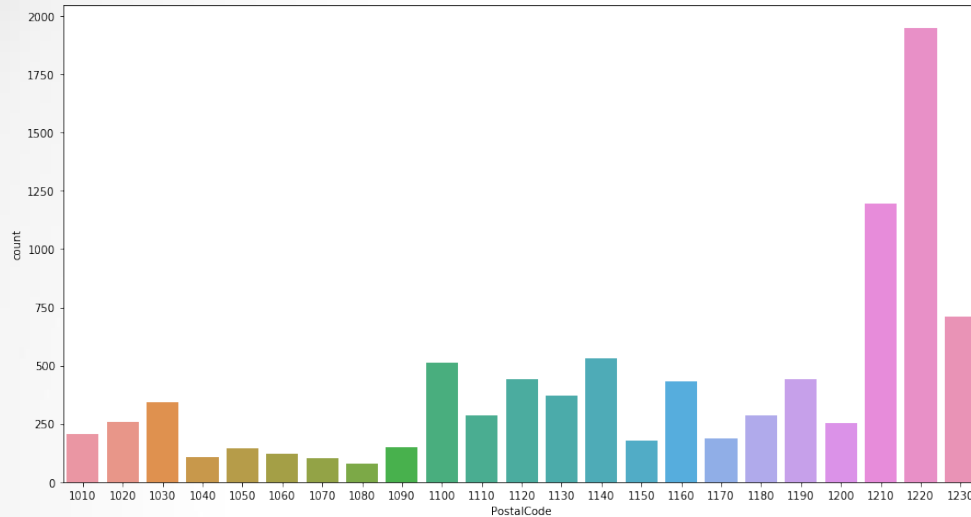
# DATA:

Data required:
- Information of available apartments in Vienna, (location, size, rooms, price)
- Information on Vienna districts with Geodata (latitude and longitude.)
- Venues and amenities in the Vienna districts suburbs (e.g. top 10).

| | PostalCode | District | Size | Rooms | Price |
|---|---|---|---|---|---|
| 0 | 1170 | Hernals | 107 | 4 | 475.000,10 |
| 1 | 1130 | Hietzing | 67 | 3 | 399.000,03 |
| 2 | 1220 | Donaustadt | 62 | 2 | 329.900,- |
| 3 | 1140 | Penzing | 105 | 3 | 700.000,- |
| 4 | 1210 | Floridsdorf | 110 | 4 | 527.500,- |

Table 1. The DataFrame's (head) of properties for sale in Vienna constructed from gathering information from real-estate Vienna market. There are 10568 apartments in obtained DataFrame.
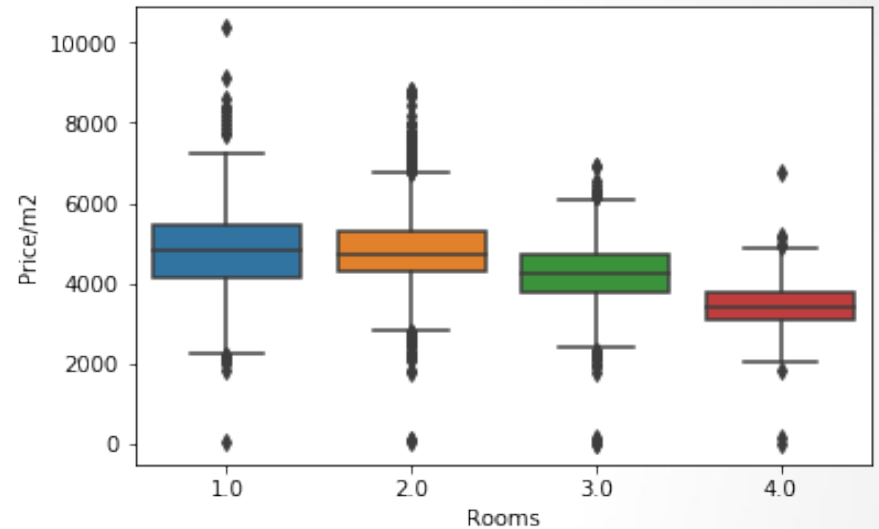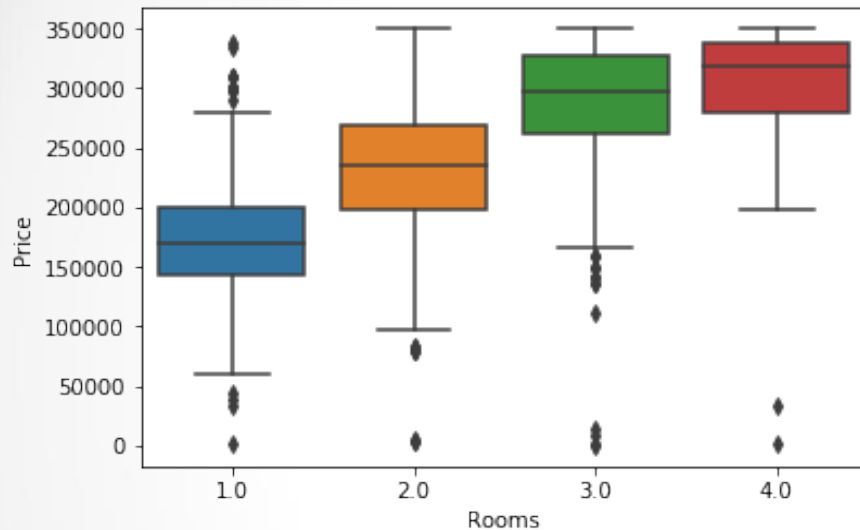
# DATA ANALYSIS:



Outer districts offer more apartments for sale
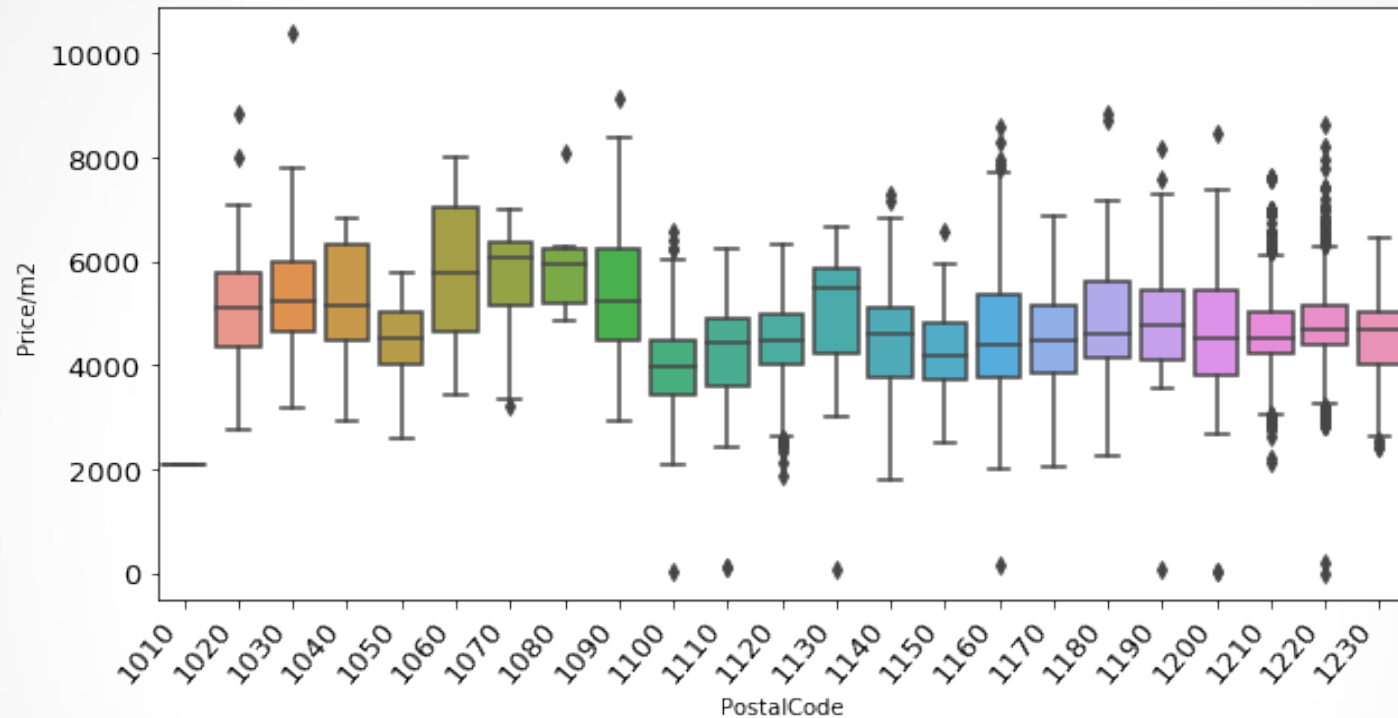
2-3 rooms apartment more common for sale
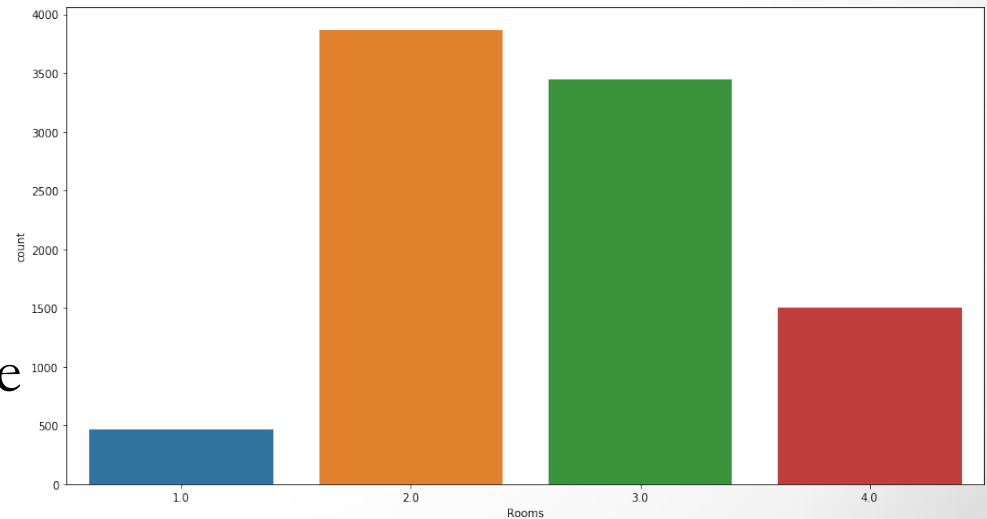
# DATA ANALYSIS:



With similar apartments in terms of quality and location, price/m2 will reduce as the size of the apartment increases.
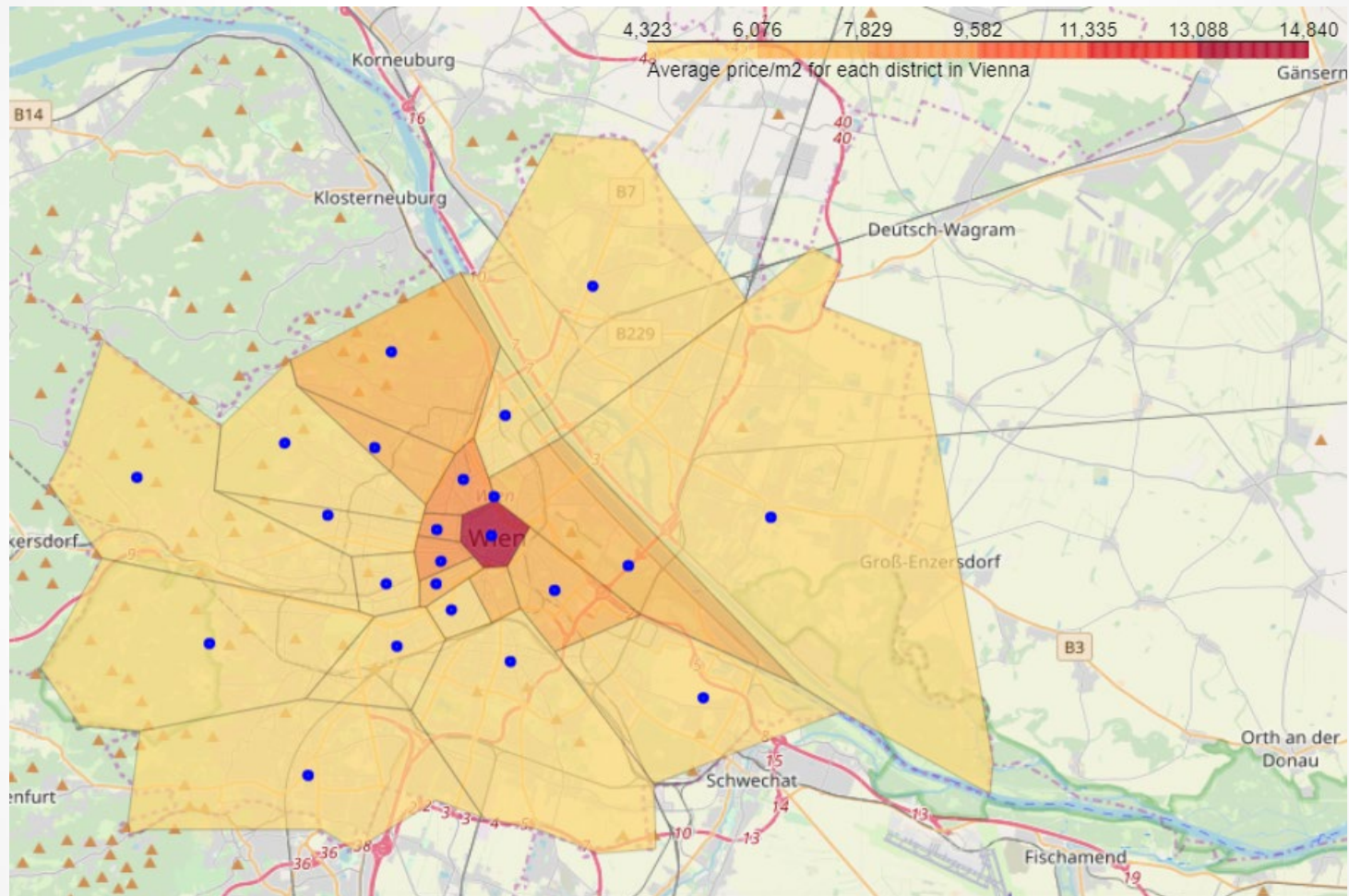
# DATA ANALYSIS:



For the investor, this indicates that for a 3-4 room apartment, if they are willing to compromise on distance from the CBD, price per sqm will be more favourable for them.
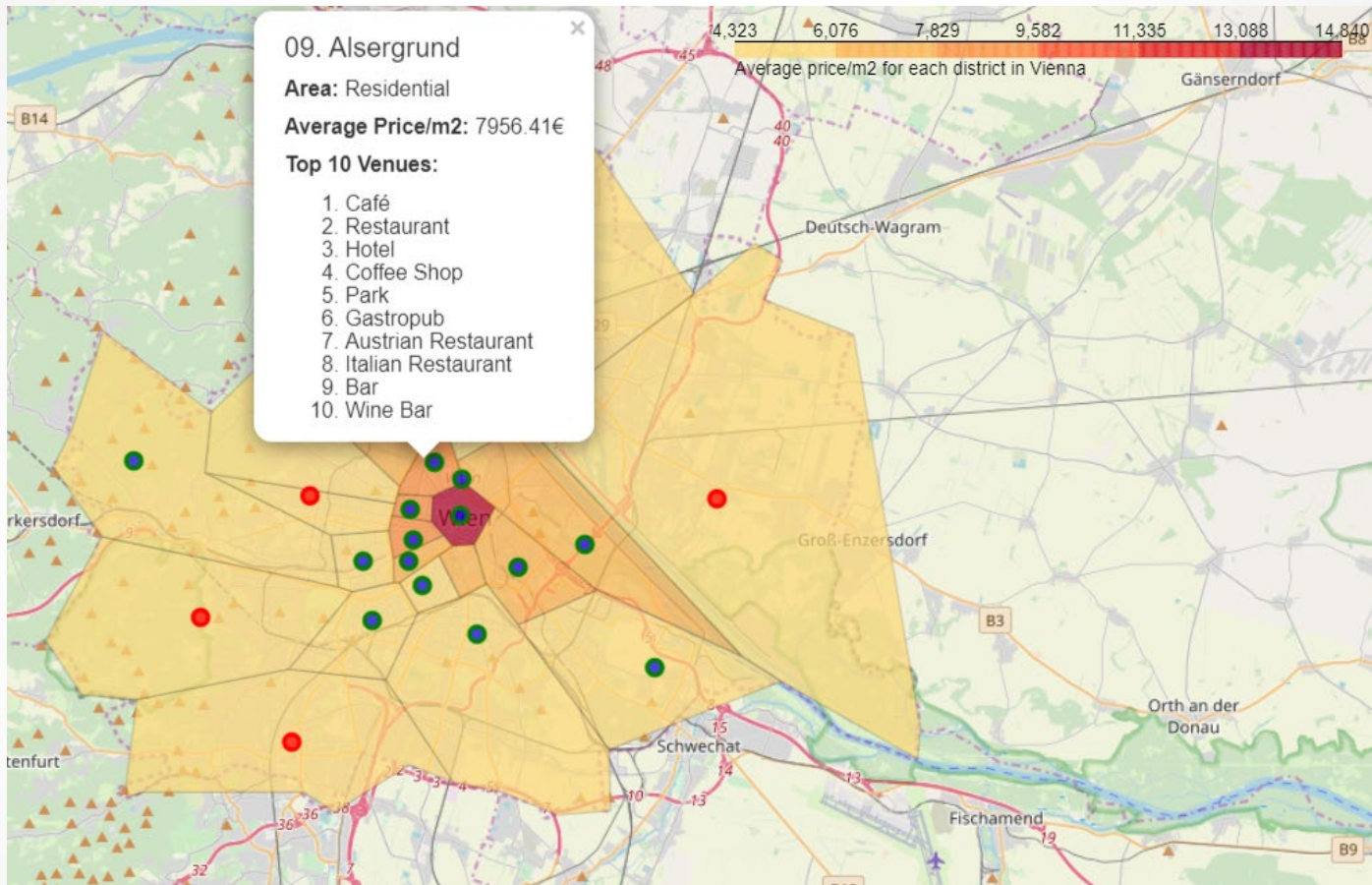
# DATA ANALYSIS:

Average price/sqm

# RESULT:



The map shows average price/m2 for districts in Vienna.
Green – more touristic areas, red – sleeping/industrial area.

# THANK YOU FOR YOUR ATTENTION