

# Where to open an italian restaurant in Amsterdam?



# Introduction

**Goal:** help finding a top ten list of locations in Amsterdam with the lowest density of Italian Restaurants (i.e. locations where the competitors are most far away). Additionally, we do not want the locations to be isolated but vibrant in the middle of other restaurants (which will not be Italian) to ensure a constant flow of clients.

I will help entrepreneurs who want to open an Italian restaurant in Amsterdam to make the best decision based on locations which are as far as possible from their competition.

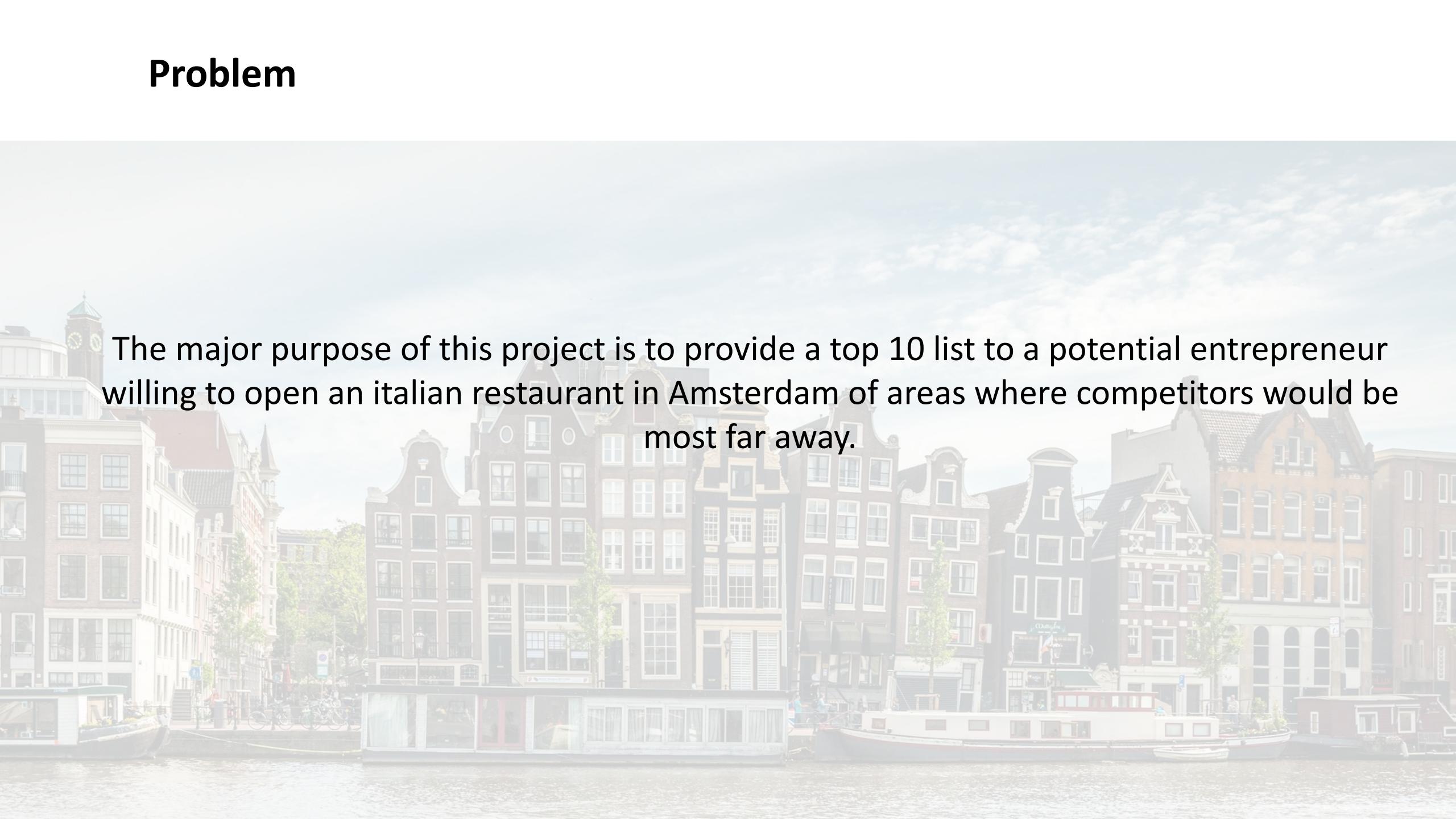
Italian restaurants are relatively cheap compared to other types of restaurants and they are suitable for all types of customers, therefore I will assume that the wealth of a certain neighborhood will not influence the chances of success of the restaurant.

Opening a restaurant in Amsterdam is a very attractive option. Amsterdam is a capital city with a huge amount of tourists all over the year.

The problem is that Amsterdam is also very pricy, rents can be sky high so the the investment can be also very risky due to the high costs of maintaining the restaurant.

To make sure there is a return in the investment of opening a restaurant, I will study where opening a restaurant in Amsterdam is the most profitable due to the lowest amount of competitors in the vicinity.

# Problem



The major purpose of this project is to provide a top 10 list to a potential entrepreneur willing to open an Italian restaurant in Amsterdam of areas where competitors would be most far away.

# Data

## Foursquare API

Foursquare API data was used as the prime data gathering source for venues, especially their places API which provides the ability to perform location search, location sharing and details about a business. Using credentials of Foursquare API features of near-by places of the neighborhoods would be mined.

## Neighborhoods of Amsterdam

As data I need a list of the neighborhoods present in Amsterdam with their postcode, latitude and longitude.

I used data from here: <https://github.com/bobdenotter/4pp/blob/master/4pp.csv> which comprehends postcodes with latitude and longitude for all major cities in The Netherlands. Then I filtered the dataset to take into account only Amsterdam.

# Methodology

I looked at the Italian restaurants present in the different neighborhoods and then found the postcodes where there were no other Italian restaurants. After having retained only the postcodes of Amsterdam where there were no Italian restaurants, I looked at the postcodes with highest number of total restaurants (as an indication of vibrant parts of the city).

The top ten postcodes with: 1) no other Italian restaurants and 2) a maximum number of other restaurants were reported and they will be shared with the entrepreneur that can then evaluate where to open his/her restaurant also based on rents price for example.

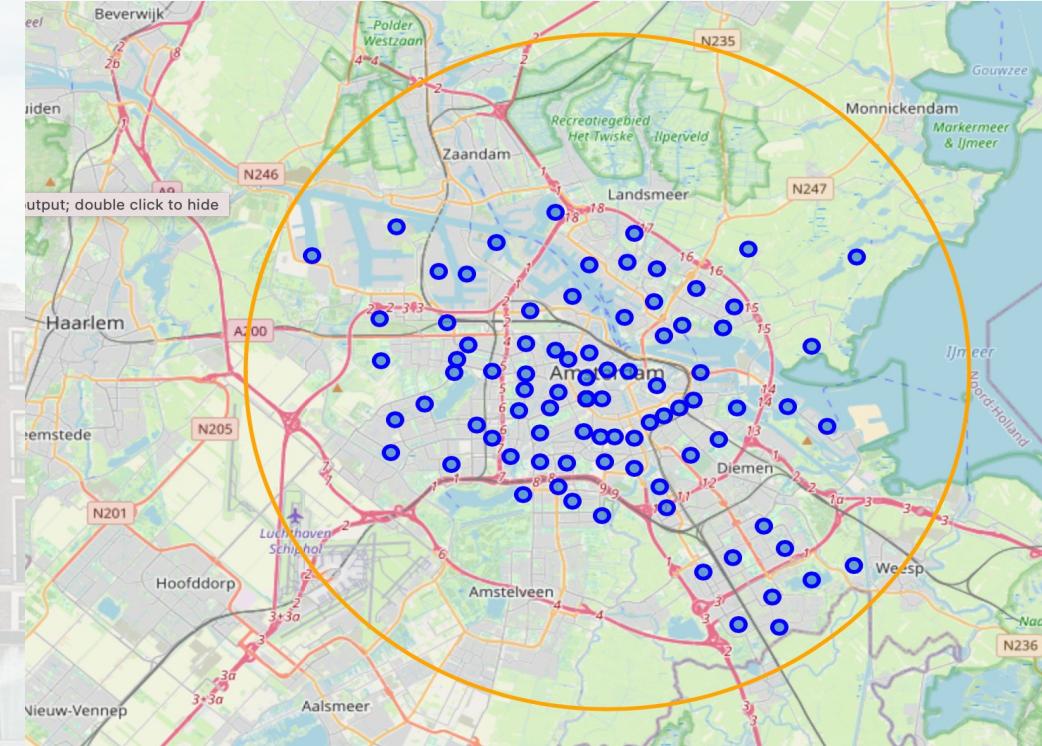
## **Libraries I will Use to Develop the Project:**

Pandas: For creating and manipulating dataframes. Folium: Python visualization library to visualize the neighborhoods cluster distribution of using interactive leaflet map. Matplotlib: Python Plotting Module.

# Data retrieval and filtering – Postcodes in Amsterdam

Data was taken from <https://raw.githubusercontent.com/francescarivello/4pp/master/4pp.csv>

Since we are interested in opening a restaurant in Amsterdam, I **Filtered the data to keep only gemeente Amsterdam.**  
**All the postcodes (blue dots) present in our database where in a radius of 12 km from the center of Amsterdam (orange circle).**

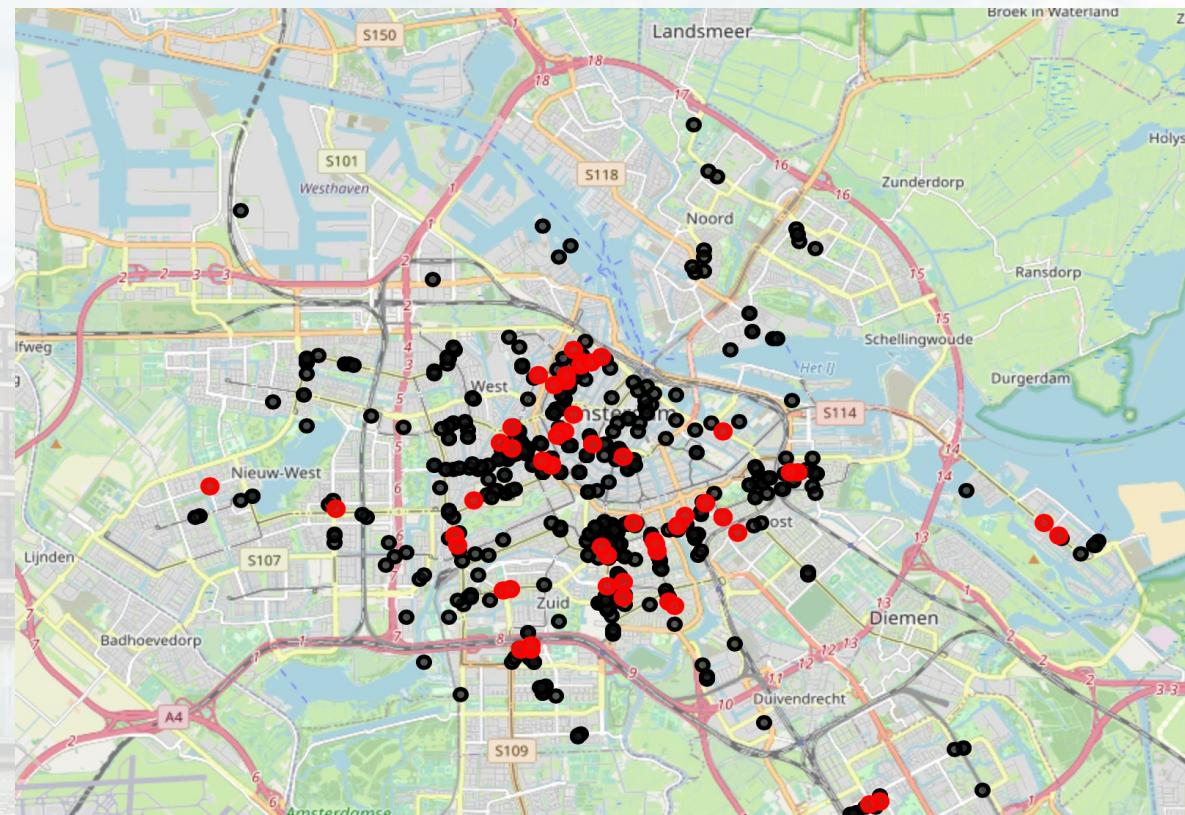


# Data retrieval and filtering – Restaurants in Amsterdam

The venues of interest were then retrieved from Foursquare and filtered in order to have:

- 1) where all types of restaurants are located in Amsterdam
- 2) where Italian restaurants in particular are located in Amsterdam

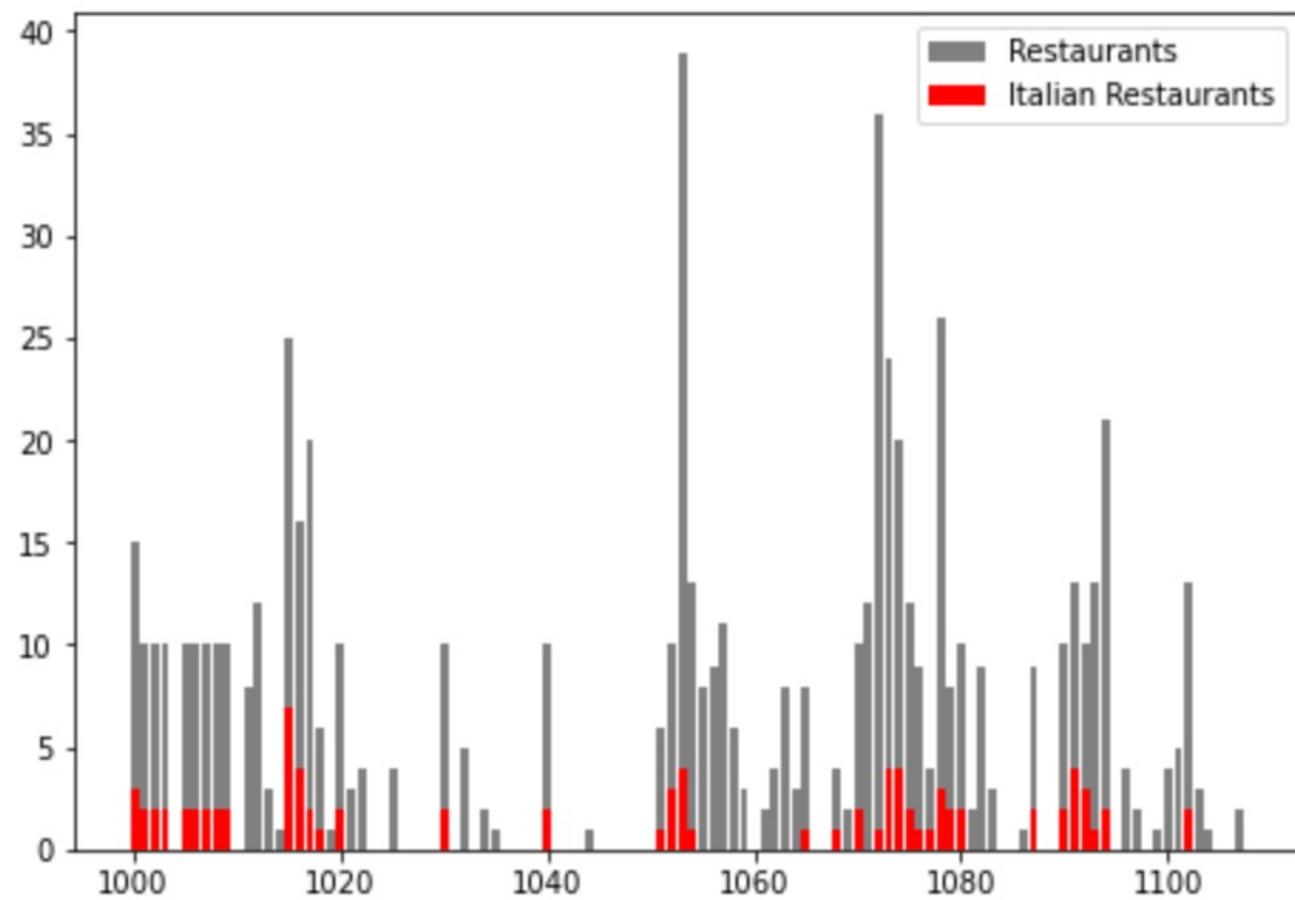
The geographical locations of all types of restaurants (black dots) and of Italian restaurants (red dots) were also visualized on the map of Amsterdam (here below).



# Results and Discussion

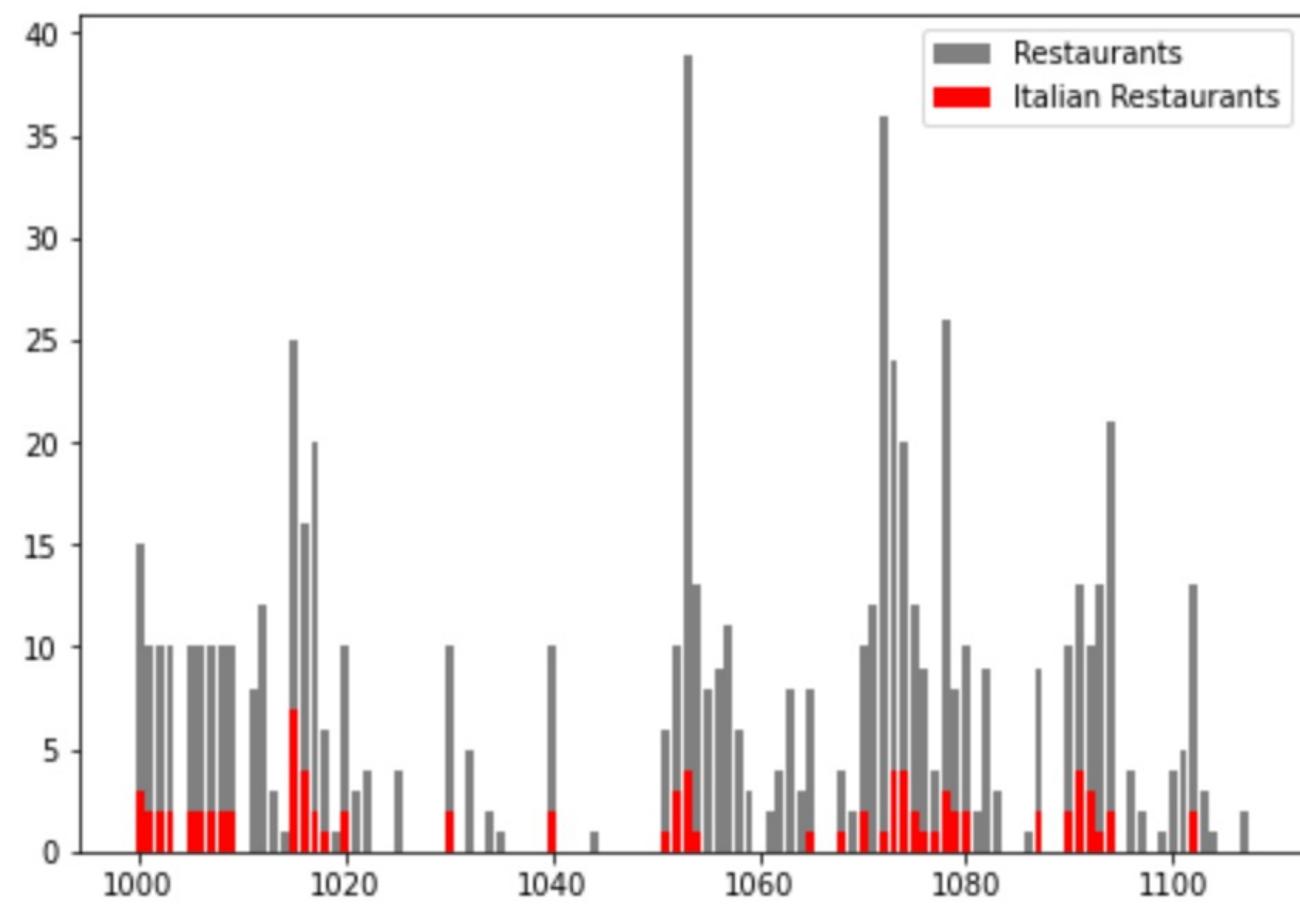
## Quantitative visualization of the number of restaurants and Italian restaurants in particular per barcode

From the map before it is already clear that there are some areas in Amsterdam, quite densely populated by restaurants but that have a few/none Italian restaurants. As I explained in the first part of the assignment, these neighborhoods would be perfect for starting an italian restaurant due to: 1) the limited competition and 2) to the fact that there are still enough clients going. To better visualize therefore where would be most convenient to open an Italian Restaurant, I plotted the histogram of Italian restaurants versus all types of restaurants.



# Results and Discussion

From this histogram, it is clear that there are different proportions of italian restaurants VS total number of restaurants in the different postcodes of Amsterdam. However, from the plot it is quite difficult to determine exactly where we have a minimum number of italian restaurants VS total number of restaurants.



## Results and Discussion – Postcode with no italian restaurants

As a first filter of the data I selected the postcodes with no Italian restaurants:

```
[1011, 1012, 1013, 1014, 1019, 1021, 1022, 1025, 1032, 1034, 1035,  
1044, 1055, 1056, 1057, 1058, 1059, 1061, 1062, 1063, 1064, 1069,  
1071, 1081, 1082, 1083, 1086, 1096, 1097, 1099, 1100, 1101, 1103,  
1104, 1107])
```

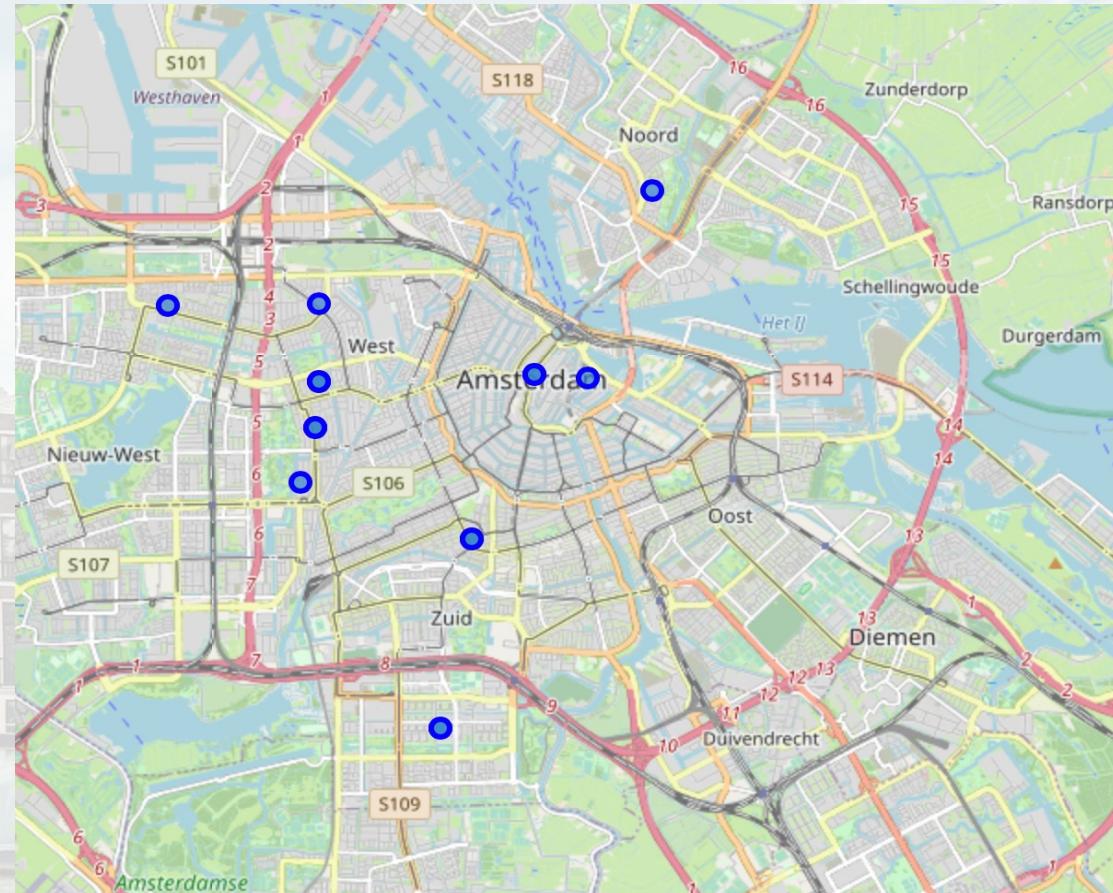
# Results and Discussion – Postcode with no italian restaurants

From these postcodes I selected the top 10 list of the ones having the highest number of restaurants in general. You can see the list below with also the number of resaurants per postcode written down:

postcode	Nb restaurants	Nb italian restaurants
1071	12	NaN
1012	12	NaN
1057	11	NaN
1082	9	NaN
1056	9	NaN
1063	8	NaN
1055	8	NaN
1011	8	NaN
1058	6	NaN
1032	5	NaN

# Results and Discussion – Postcode with no italian restaurants

The top ten list of most suitable postcodes where to open an Italian restaurant were also visualized on the map of Amsterdam to give a more clear overview to the entrepreneur of their location.

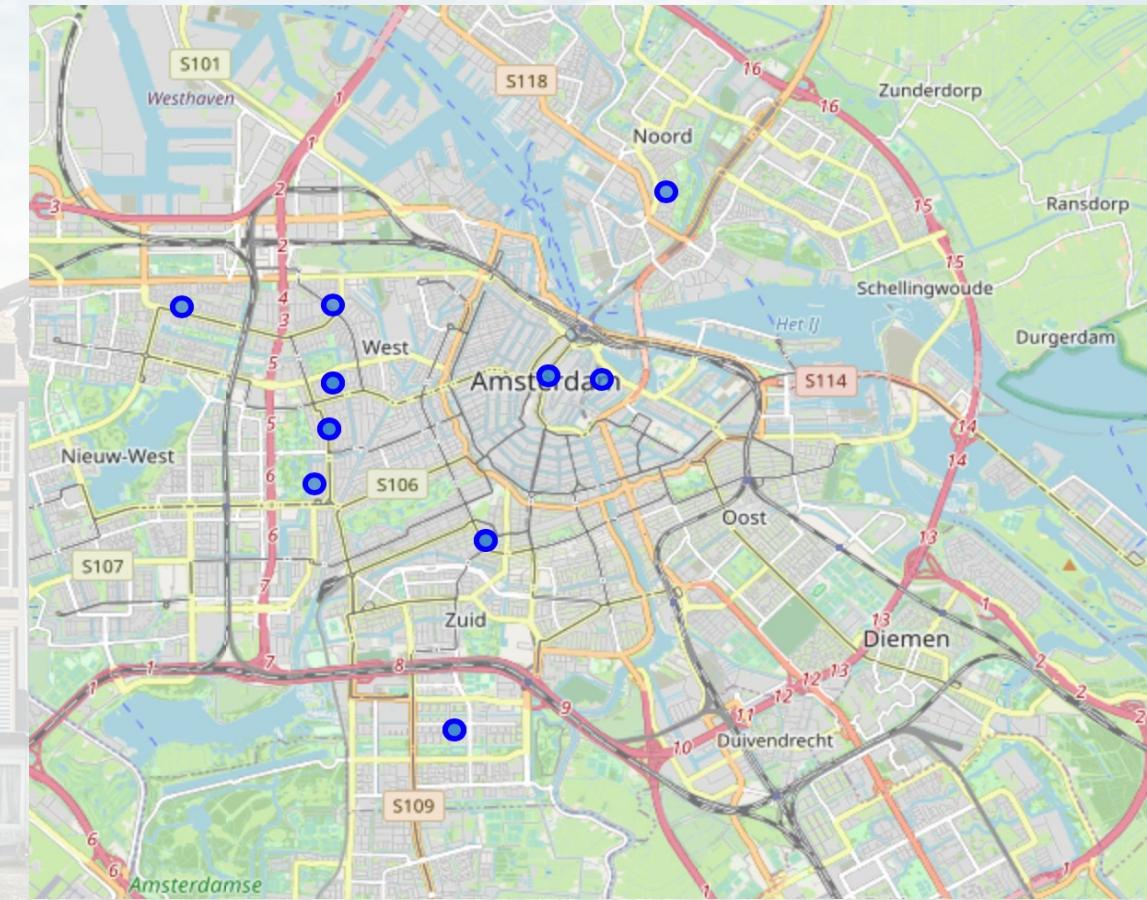


# Conclusions

Deliverables to the entrepreneur that wants to open an Italian restaurant in Amsterdam:

- 1) Top ten list of the most promising postcodes
- 2) Their localization on the map of Amsterdam

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1071	12	NaN
1012	12	NaN
1057	11	NaN
1082	9	NaN
1056	9	NaN
1063	8	NaN
1055	8	NaN
1011	8	NaN
1058	6	NaN
1032	5	NaN



# Future steps

In a future analysis it would be interesting to:

- Look at postcodes as well as neighboring postcodes to make sure that the neighboring postcodes also do not have Italian restaurants
- The rents price for the different postcodes