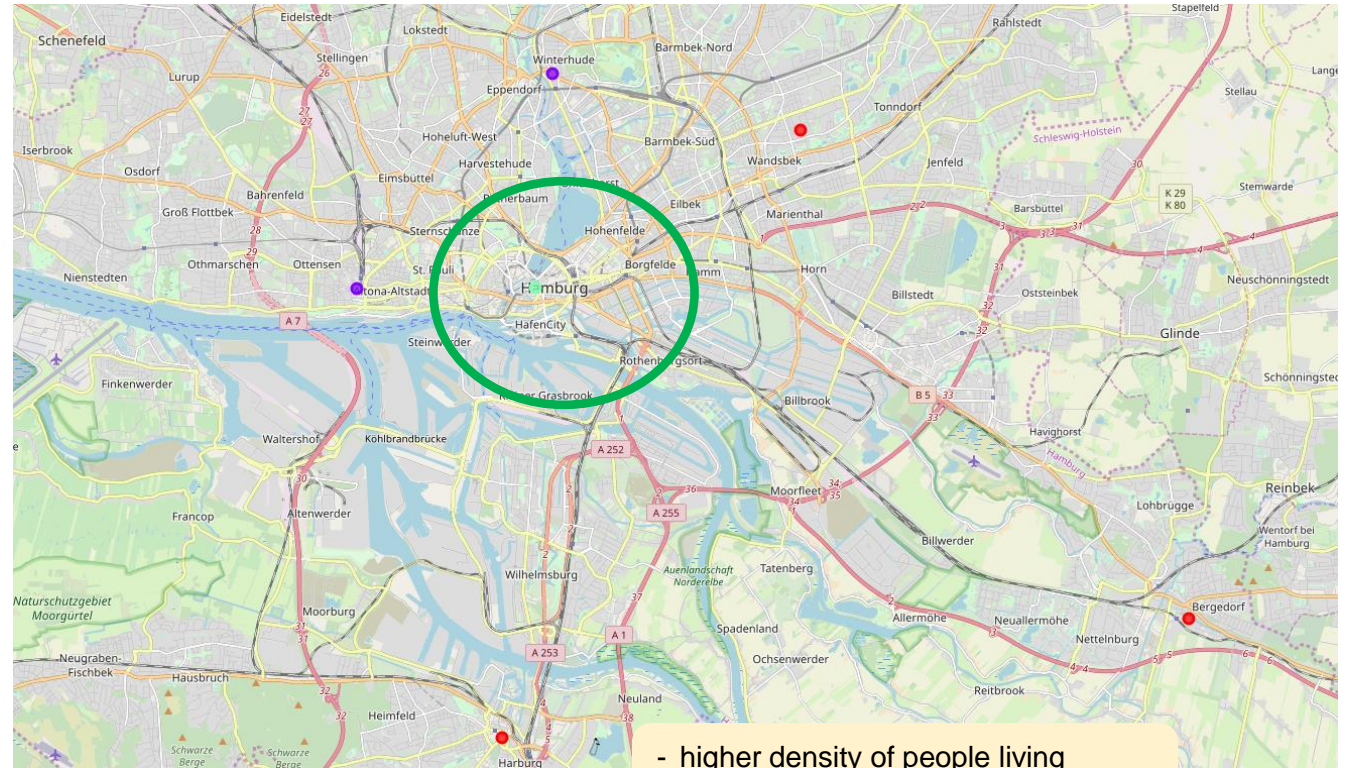# Capstone Project - Hamburg Analysis

by Jochen Stark

Introduction: Business Problem

- Mama's Pizza Chain company wants
  - to get an overview of the characteristics of Hamburg's boroughs in terms of going out to eat
  - Get a recommendation where to start their first Italian restaurant, based on
    - locations that are not already crowded with Italian restaurants
    - areas where potential customers live with a high income
    - locations as close to city center as possible

Data

- Based on definition of our business problem, factors that will influence our decision are:
  - characteristic of boroughs in Hamburg (population, density, size)
  - number and type of existing restaurants in the boroughs
  - number of Italian restaurants in potential good places
  - income in boroughs and their neighborhood
  - distance of neighborhood from city center
- Following data sources will be needed to extract/generate the required information:
  - information about boroughs will be obtained by **Wikipedia**
  - number of restaurants and their type and location in every borough will be obtained using **Foursquare API**
  - **geo data from github** will be used for visualization of the neighborhoods of Hamburg
  - **income data** from publication of STATISTIKAMT NORD (**Statistic office North Germany**) will be used

Analysis

- higher density of people living
- more urban area

- have so many restaurants
- mostly in supermarkets and Hotels
- lower density of people living

- includes the city center of Hamburg
- high density of people living
- a lot of places to eat in Hotels, followed by Coffee Shops and Cafes
- no Italian restaurants under the top 7 venues.

	Borough	Population	Area (km²)	Density	Latitude	Longitude	ClusterLabels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue
1	Altona	243,972[5]	78.3 km²	3149	53.550000	9.933333	1	Café	Seafood Restaurant	Park	German Restaurant	Ice Cream Sho		
2	Hamburg-Nord	279,498[5]	57.8 km²	4838	53.593611	10.000000	1	Café	Park	Supermarket	Bakery	Ice Cream Sho		

	Borough	Population	Area (km²)	Density	Latitude	Longitude	ClusterLabels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue		6th Most Common Venue	7th Most Common Venue
3	Wandsbek	409,771[5]	147.5 km²	2777	53.582033	10.084261	0	Supermarket	Ice Cream Shop	Hotel	Bakery	Drugstore			Greek Restaurant
4	Bergedorf	118,942[5]	154.8 km²	769	53.483333	10.216667	0					tore		Burger Joint	Big Box Store
5	Harburg	201,119[5]	125,4 km²	1253	53.459259	9.982672	0					int		Drugstore	Restaurant

	Borough	Population	Area (km²)	Density	Latitude	Longitude	ClusterLabels						6th Most Common Venue	7th Most Common Venue
0	Hamburg-Mitte	233,114[5]	107.1 km²	2177	53.550278	9.994167	2		Coffee Shop	Café	Steakhouse	French Restaurant	Restaurant	Plaza

Analysis

- Neighborhood "Hafencity" has wealthy citizen and is very close to the center
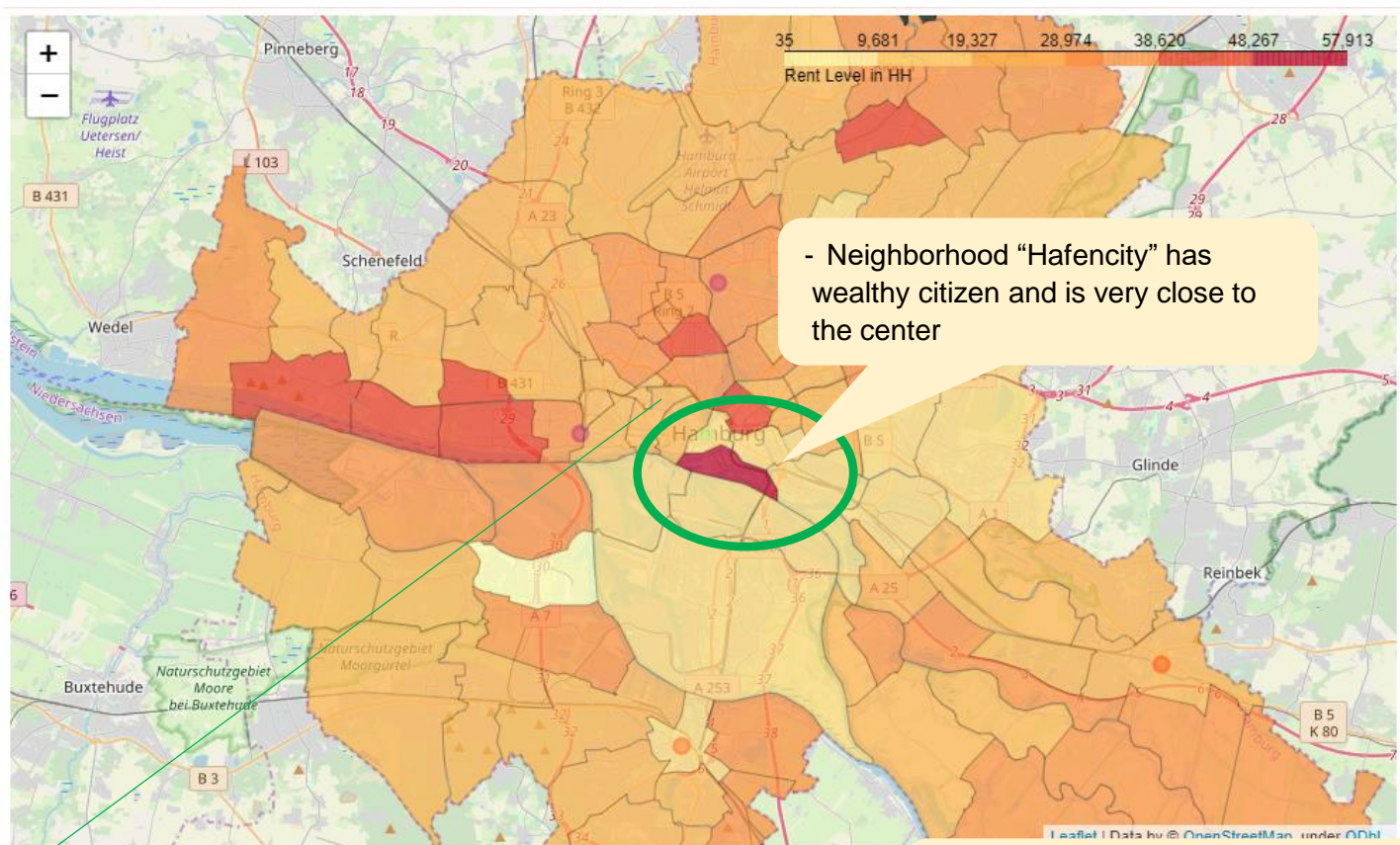
- Only 1 Italian restaurant in the Borough Hamburg-Mitte
- No Italian Restaurant in the Neighborhood "Hafencity"

	name	categories	address	cc	city	country	distance	formattedAddress	labeledLatLngs	lat	lng	neighborhood	postalCode	state	id
0	L'Italiana Gelateria	Ice Cream Shop	Ballindamm 40	DE	Hamburg	Deutschland	171	[Ballindamm 40, 20095 Hamburg, Deutschland]	[{'label': 'display', 'lat': 53.55192574233942...	53.551926	9.994833	Hamburg-Altstadt	20095	Hamburg	4c73c8fe9e706dcb8a464e62

Result

So, the conclusion of this analysis is, that we suggest our stakeholder to open their first restaurant in the neighborhood "Hafencity", a location that satisfies the defined requirements of the business problem:

- location that are not already crowded with Italian restaurants
- area where potential customers with a high income live
- location close to city center if first two conditions are met