Housing rent prices and venues data analysis of Frankfurt

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Description of the problem

Frankfurt am Main is the largest financial centre in continental Europe and the fifth-most populous city in Germany with over 763,380 inhabitants and a population density of 3,100 people per square kilometre. The city has experienced rising housing prices despite the impact of Covid19. Last year UBS ranked Frankfurt as having the second-most overvalued housing market of any major city in the world, behind Munich, according to its Global Real Estate Bubble Index. Living in this city, I decided to use Frankfurt for my IBM Capstone project.

People moving to Frankfurt may want to choose districts where rental prices are lower but can offer entertainment, shops, bars, restaurants and are not too far from the workplace. At the same time, recent restrictions and the possibility to work from home have pushed more and more people to leave central districts in order to find cheaper and bigger apartments in the suburbs.

Especially for expats like me, it might be difficult to find this information. Exploiting the information available on Foursquare and real estate websites, we can create an information chart where the rental price index by district is displayed on the map of Frankfurt and each district is clustered according to the venue density.

Data description

The main data sources, which will be used in this project, are:

- **Foursquare API** to get the most common venues of given district of Frankfurt;
- **Rental price index** as available in the following page: https://www.miet-check.de/stadtteile_uebersicht.php?stadt=Frankfurt%20am%20Main
- **List of Frankfurt's districts** as available in the following Wikipedia page: https://de.wikipedia.org/wiki/Liste_der_Stadtteile_von_Frankfurt_am_Main
- **Nominatim – OpenStreetMap** services to retrieve the geo coordinates of the districts of Frankfurt: https://nominatim.org/release-docs/develop/api/Overview/
- Additional sources for other statistics by district: https://statistik.stadt-frankfurt.de/strukturdatenatlas/stadtteile/html/atlas.html

Sources

- https://statistik.stadt-frankfurt.de/strukturdatenatlas/stadtteile/html/atlas.html
- https://www.miet-check.de/stadtteile_uebersicht.php?stadt=Frankfurt%20am%20Main
- https://en.wikipedia.org/wiki/Frankfurt
- https://www.ft.com/content/3e4f8c40-1dca-447e-a3c4-69911cfc162a