



THE BATTLE OF NEIGHBORHOODS: SAN FRANCISCO

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IBM Data Science Professional Certificate

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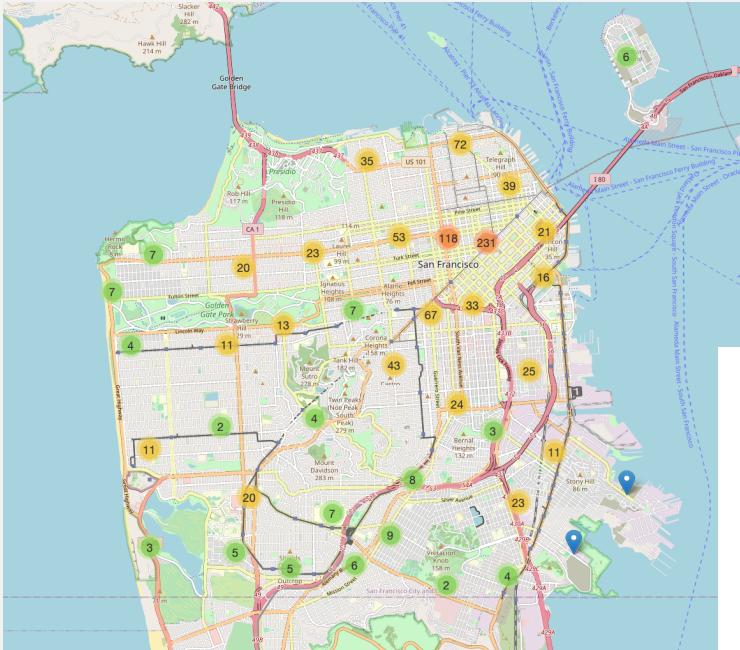
WHERE SHOULD YOU LIVE?

- San Francisco is the nation's leader in terms of property crime and housing prices. It also consists of many neighborhoods with different amenities.
- Factors to consider when moving into the city:
 - Safety
 - Housing Prices
 - Neighborhood convenience (walkable distance to a grocery store!)
- Due to the Fair Housing Act, land lords usually steer away from answering the questions on neighborhood safety. So we have to do our own research!

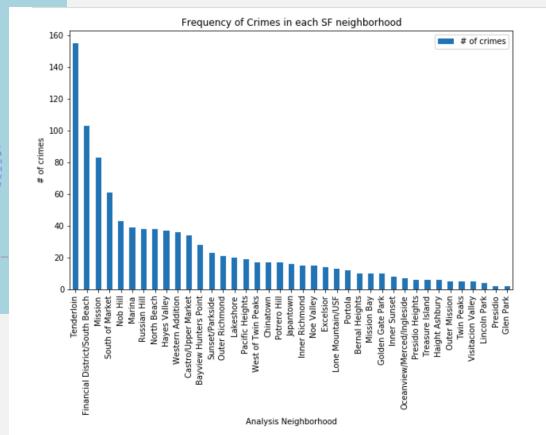
THE DATA

- SF Find Neighborhoods Dataset
 - Neighborhood boundaries in San Francisco defined
- San Francisco Police Department Incident Reports Dataset
 - Detail, location and category of crimes reported within the past year
- Zillow San Francisco Home Prices & Values Dataset
 - Median valuation of housing prices in San Francisco per neighborhood
- FourSquare API
 - Top venues surrounding the neighborhood

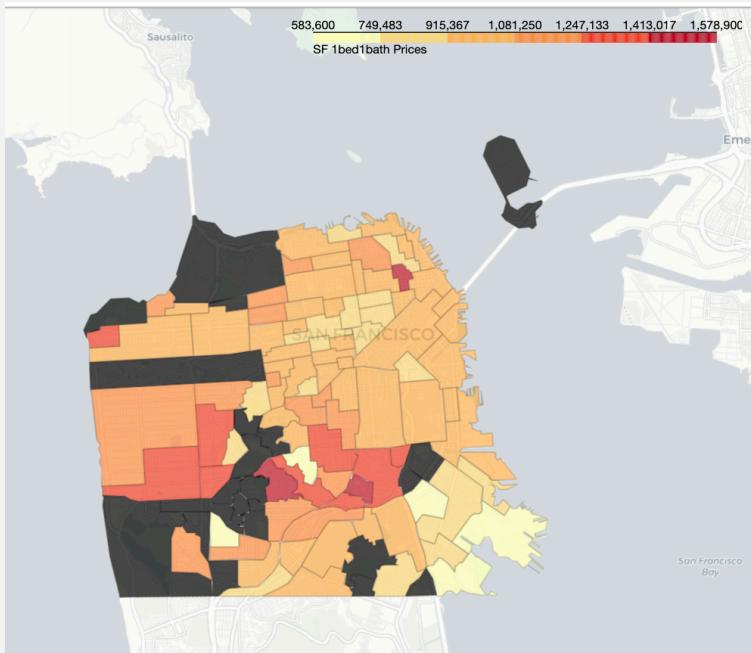
DATA - CRIMES



- Crime rates are the highest near Tenderloin and downtown area.
 - Crime rates lower as we move away from downtown San Francisco

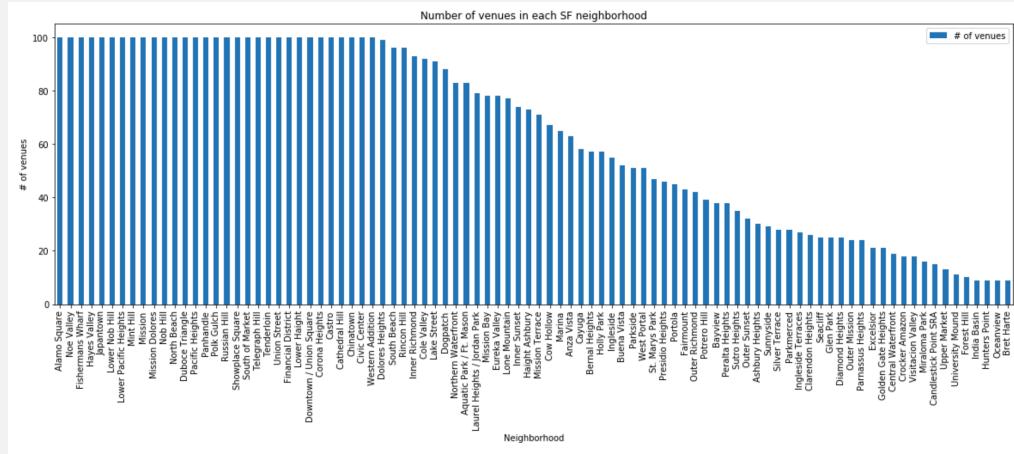


DATA – HOUSING PRICES



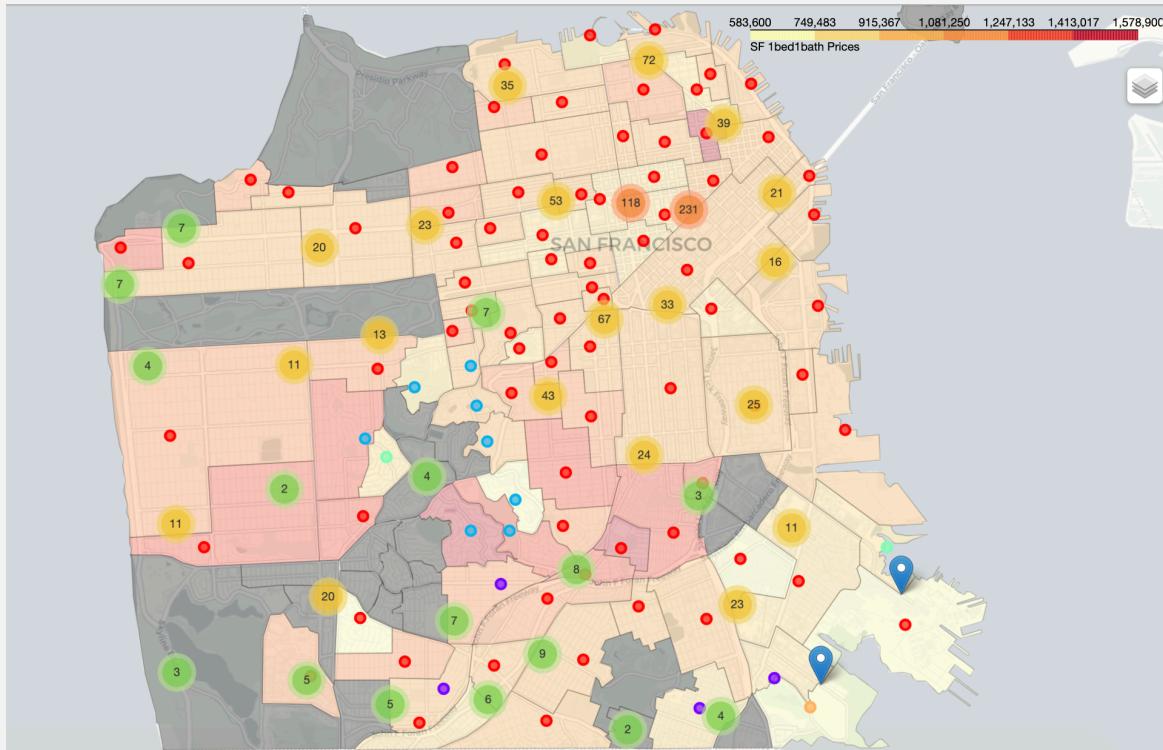
- The highest prices for 1 bedroom housing are near Twin Peaks and areas with many green landscapes.
- Another high price neighborhood is at San Francisco's financial district.
- Cheapest area to live in is on the outskirts of San Francisco and also near areas with high crime rates.
- Housing prices are not available in grey areas.

DATA – NEIGHBORHOOD



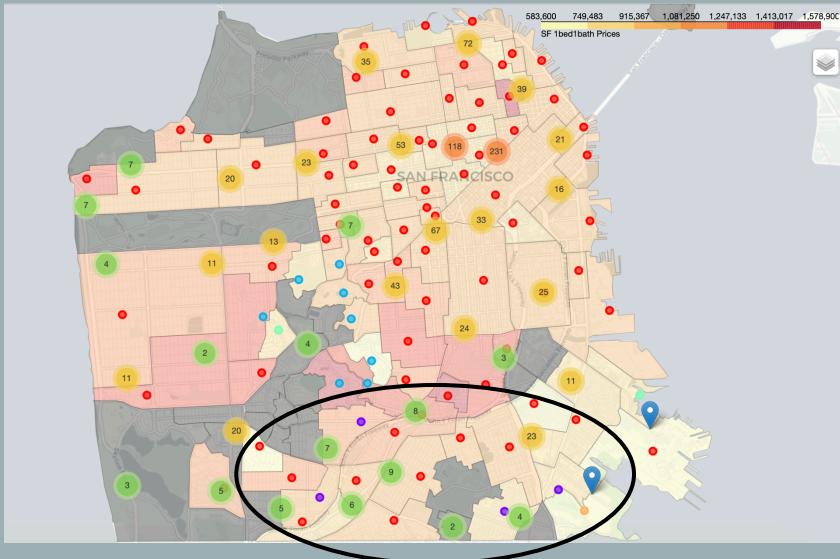
- Top 100 venues from each neighborhood was returned with a radius of 700 meters from FourSquare.
 - By using the K-Means algorithm, the following clusters are formed:
 - Cluster 1: Social Venue / Downtown
 - Cluster 2: Home & Lifestyle
 - Cluster 3: Parks & Scenic Trails
 - Cluster 4: Laid Back Social Venues
 - Cluster 5: Sports

RESULTS



- Created a map overlay for all the data provided to visualize the data.
- Neighborhoods with more social venues (cluster 1) tend to be associated with higher crime rates.
- Housing prices are the highest when it is near scenery (cluster 3), has lower crime rates and also convenient enough to live in (near cluster 1).
- Neighborhoods on the outskirts of San Francisco tend to have smaller social areas and have more space for active activities.

WHERE SHOULD YOU LIVE?



Neighborhoods:
Sunnyside, Oceanview,
Visitacion Valley, Bret Harte

✓ Safety

- Low crime rates around the area

✓ Moderately busy area (mix between commercial and residential)

- Many transportation options to the city
- Small shops and boutiques
- Sunnyside and Visitacion Valley has more venues

✓ Close to the grocery store (walkable distance)

- Grocery store in top 5 common venues

✓ 1 bed 1 bath apartment (avg price)

- Average housing price is towards the low end (~\$800,000), assuming that rental prices are in proportion to housing prices

FUTURE

- Utilize full dataset.
- Accuracy of model has room for improvement.
- Obtain real time 1 bedroom housing rental listings and derive average rental price for each neighborhood.



APPENDICES

- [1] SF Find Neighborhoods
 - https://data.sfgov.org/d/pty2-tcw4?category=Geographic-Locations-and-Boundaries&view_name=SF-Find-Neighborhoods
- [2] San Francisco Police Department Incident Reports
 - <https://data.sfgov.org/Public-Safety/Map-of-Police-Department-Incident-Reports-2018-to-/jq29-s5wp>
- [3] Zillow San Francisco Home Prices & Values
 - <https://www.zillow.com/san-francisco-ca/home-values/>
- [4] FourSquare API
 - <https://foursquare.com/>
- [5] Housing Rights
 - http://www.housingrights.com/?page_id=68
- [6] Coursera IBM Data Science Professional Certificate Course Modules and Labs