

Opening a new restaurant in San Francisco

By
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Location of new restaurant important for entrepreneurs

- ◆ Various factors involved in opening a new restaurant:
 - ◆ Visibility
 - ◆ Crime rates
 - ◆ Parking size
 - ◆ Surrounding business and competitor analysis
- ◆ Data analysis of the above factors can help with decision making about the location of a new restaurant

Business Problem

- ◆ To find the best possible location in San Francisco to benefit any future investors or restaurant owner

Data Acquisition and Cleaning

Data Sources

- ◆ To get the data for the crime rate for the city of San Francisco, police department incident report from 2018 onwards was used from the following website:

<https://data.sfgov.org/Public-Safety/Police-Department-Incident-Reports-2018-to-Present/wg3w-h783>

- ◆ To get the data for geographical coordinates for various neighborhoods in San Francisco, following website was used:
<https://data.sfgov.org/Geographic-Locations-and-Boundaries/Realtor-Neighborhoods/5gzd-g9ns/data>

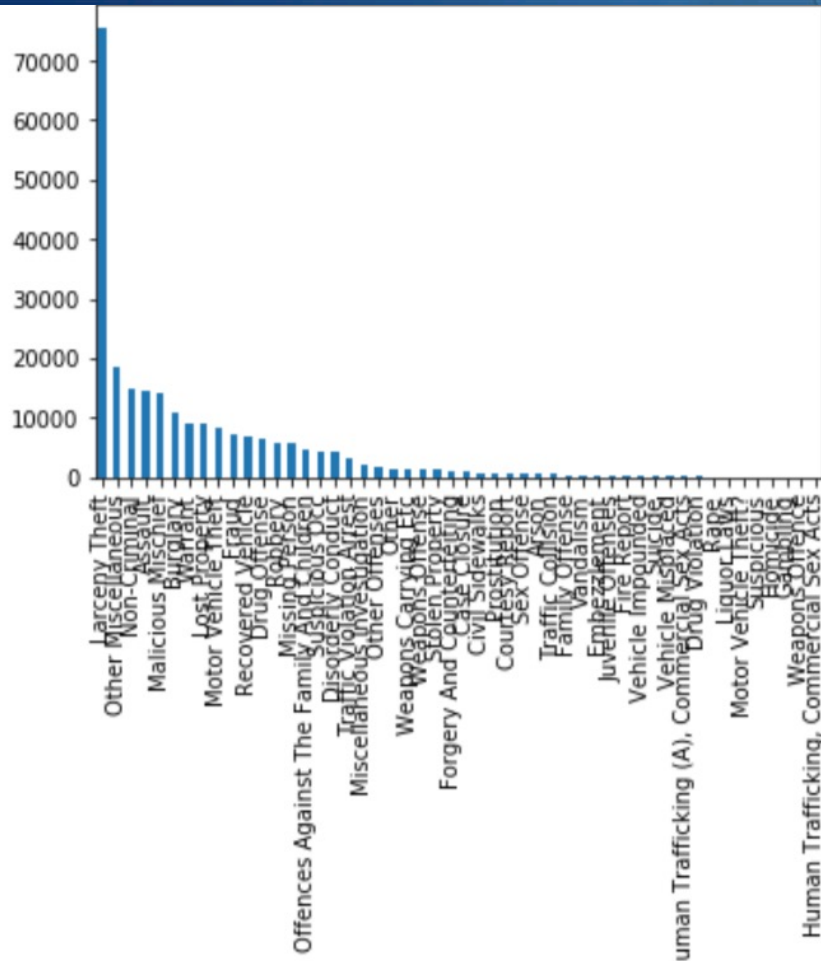
Data Acquisition and cleaning

- ◆ Data for analysis of surrounding business and restaurants was extracted from FourSquare API:
<https://developer.foursquare.com/docs/api/venues/search>
- ◆ Geographical coordinates for showcasing the locations of the restaurants on the map was extracted from Geocoding API:
<https://developer.mapquest.com/documentation/geocoding-api/>
- ◆ Columns not needed from the crime rate dataframe were dropped
- ◆ All the Null values were removed

Frequency of each crime incident

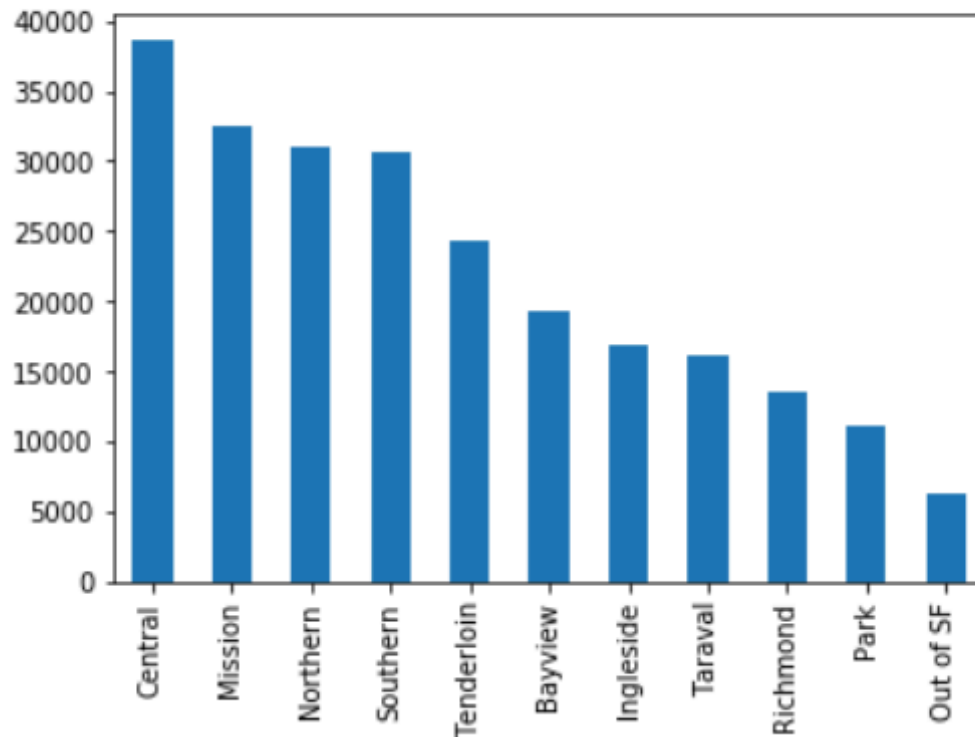
Major contributors of the crime:

Larceny Theft,
Assault and
Burglary



Distribution of Crimes by Police District

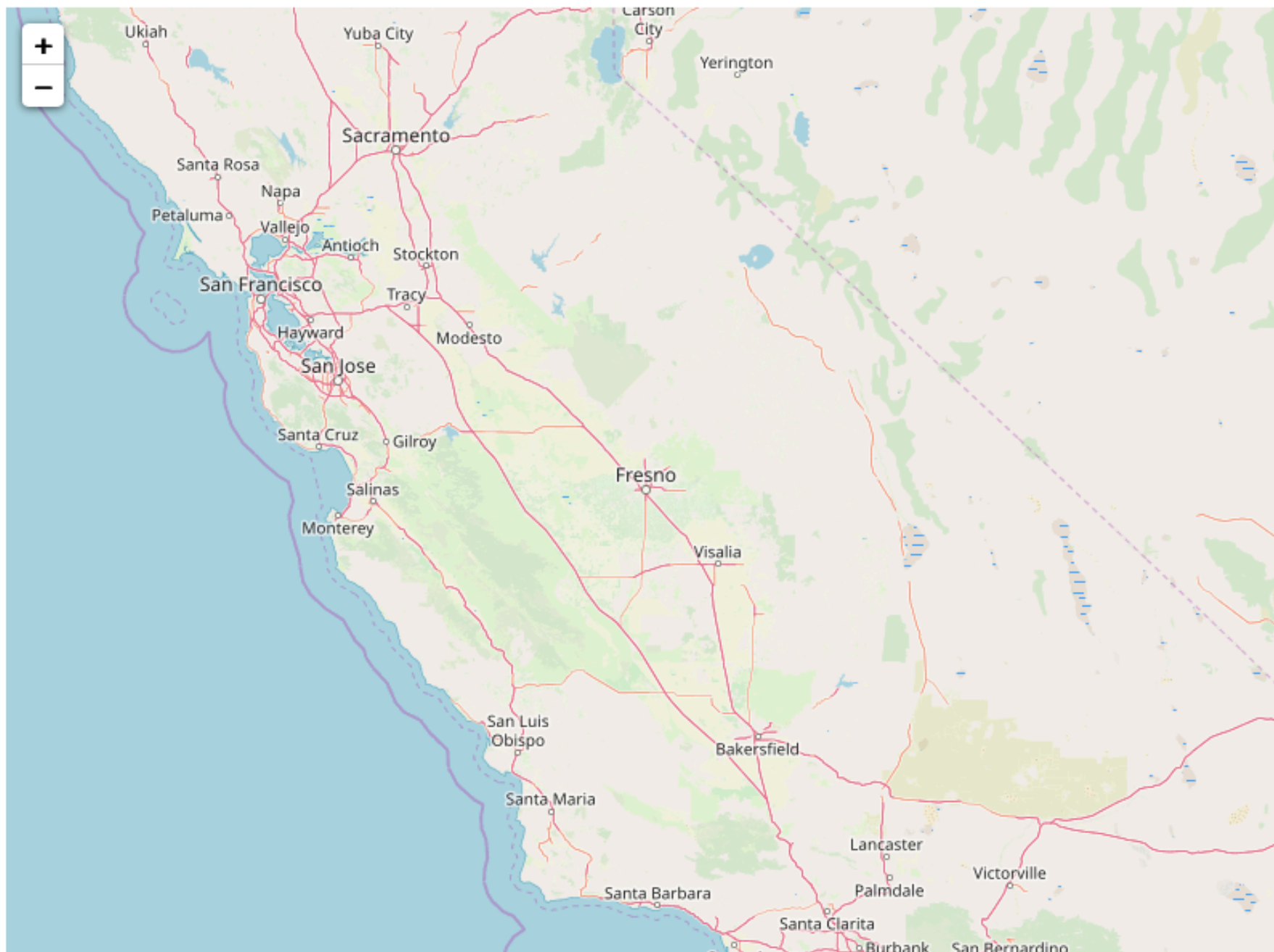
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f16b8474048>
```



Neighborhood along with geographical coordinates

	Incident Year	Incident Category	Police District	Latitude	Longitude	the_geom
0	2018	Other Miscellaneous	Southern	37.784908	-122.404795	(-122.40479506275996, 37.78490829943045)
1	2018	Lost Property	Central	37.786410	-122.408036	(-122.40803623744476, 37.786409612810886)
2	2019	Assault	Mission	37.756834	-122.406699	(-122.40669900268831, 37.75683373380551)
3	2019	Larceny Theft	Southern	37.784007	-122.404865	(-122.40486479517745, 37.784006612420036)
7	2019	Lost Property	Northern	37.800190	-122.441177	(-122.44117737724194, 37.800190185371754)


```
map_SanFrancisco = folium.Map(location=[latitude, longitude], zoom_start=10)  
map_SanFrancisco
```



Venues in neighborhood along with geographical coordinates

	name	categories	lat	lng
0	Yerba Buena Gardens	Garden	37.784809	-122.402549
1	Trader Joe's	Grocery Store	37.785540	-122.405455
2	Four Seasons Hotel San Francisco	Hotel	37.786523	-122.404455
3	Equinox Sports Club San Francisco	Gym	37.786649	-122.404568
4	Super Duper Burgers	Burger Joint	37.784816	-122.403537
5	Burke Williams Day Spa	Spa	37.784435	-122.406319
6	DAVIDsTEA	Tea Room	37.784565	-122.406653
7	The Pool at Equinox Sports Club	Gym / Fitness Center	37.786193	-122.403851
8	Yerba Buena Center for the Arts	Art Museum	37.785484	-122.402451
9	The LEGO Store	Toy / Game Store	37.784209	-122.406986

Result and Conclusion

- ◆ K-means algorithm used to form clusters and analyze to see most common venues in the neighborhoods of San Francisco.
- ◆ Opening restaurant in North Beach might be a good idea due to overall low crime rate and looking at the map, it being closer to waterfront brings more foot and car traffic which in turns bring in good visibility.