RESTAURANT LOCATION RESEARCH REPORT

MARK MU

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PROJECT OUTLINE

- The purpose of this project is to make recommendations to a Chinese restaurant chain owner regarding the location of their next branch in San Francisco, CA.

- This project utilizes the Foursquare API, as well as the sklearn package in Python, in order to provide more insight into the geographical distributions of existing Chinese restaurants, so that we can provide ideas as to where to open the next Chinese restaurant.

DATA ACQUISITION AND CLEANING

- In this project, I use the Foursquare data to find the geographical location information of competing restaurants. In order to retrieve data from the Foursquare database, the Foursquare API is utilized.

- The retrieved dataframe contains 40 columns. The number of rows depends on the number of restaurant search results that the API returns.

- However, only the location information, namely latitude and longitude, are useful information. The attributes that concerns restaurant tips and visits retrieved from Foursquare API contains all 0 and therefore should be dropped.

DATA ACQUISITION AND CLEANING

- The final dataframe look something like this

	Restaurant	Latitude	Longitude
0	Ton Kiang	37.780181	-122.481924
1	Hong Kong Lounge 穗香酒家	37.780558	-122.476644
2	Jiangnan Cuisine	37.775890	-122.495616
3	Hot Pot Buffet	37.780617	-122.478636
4	Taste of Formosa	37.782037	-122.485469

CLUSTERING ANALYSIS

- K-means clustering analysis is then utilized to analyze the data. This creates label for each restaurant that can be visualized on the map.

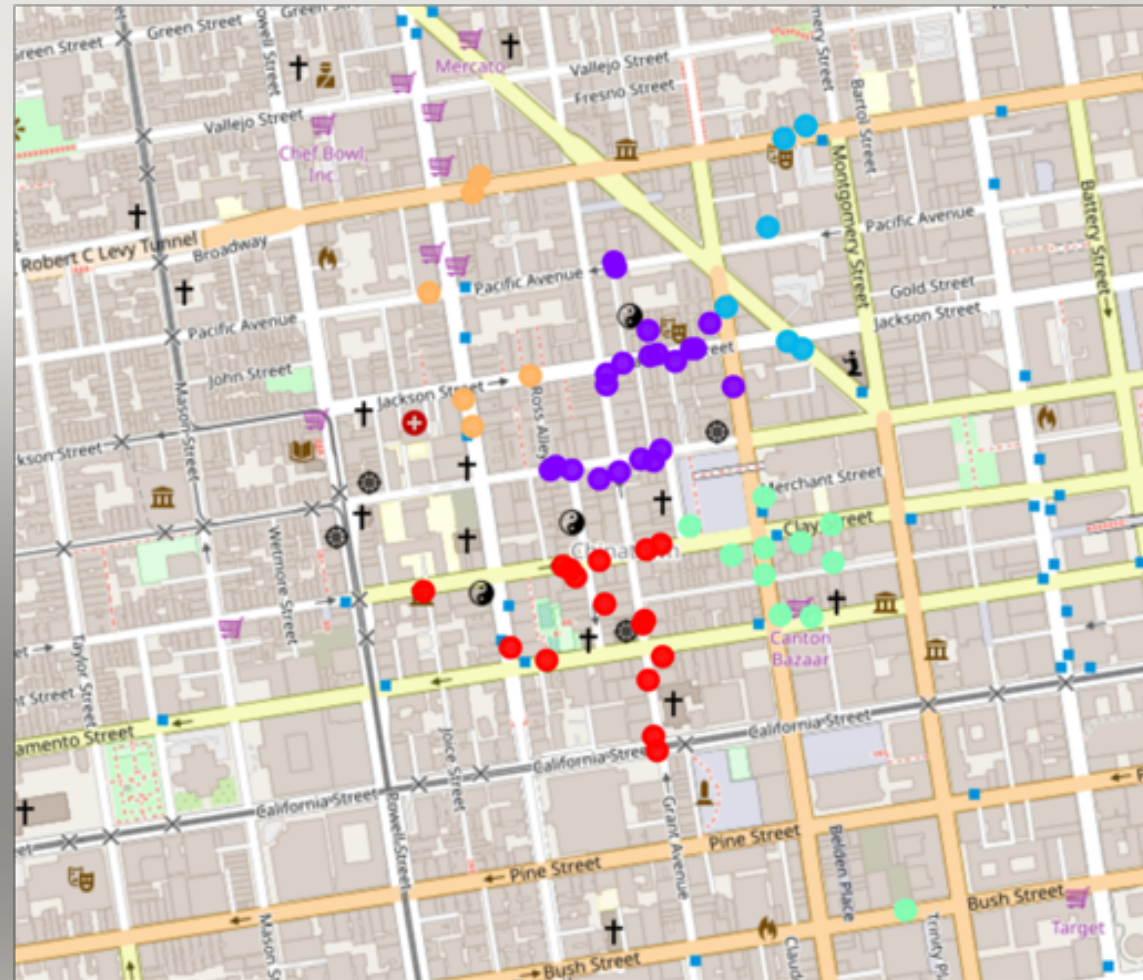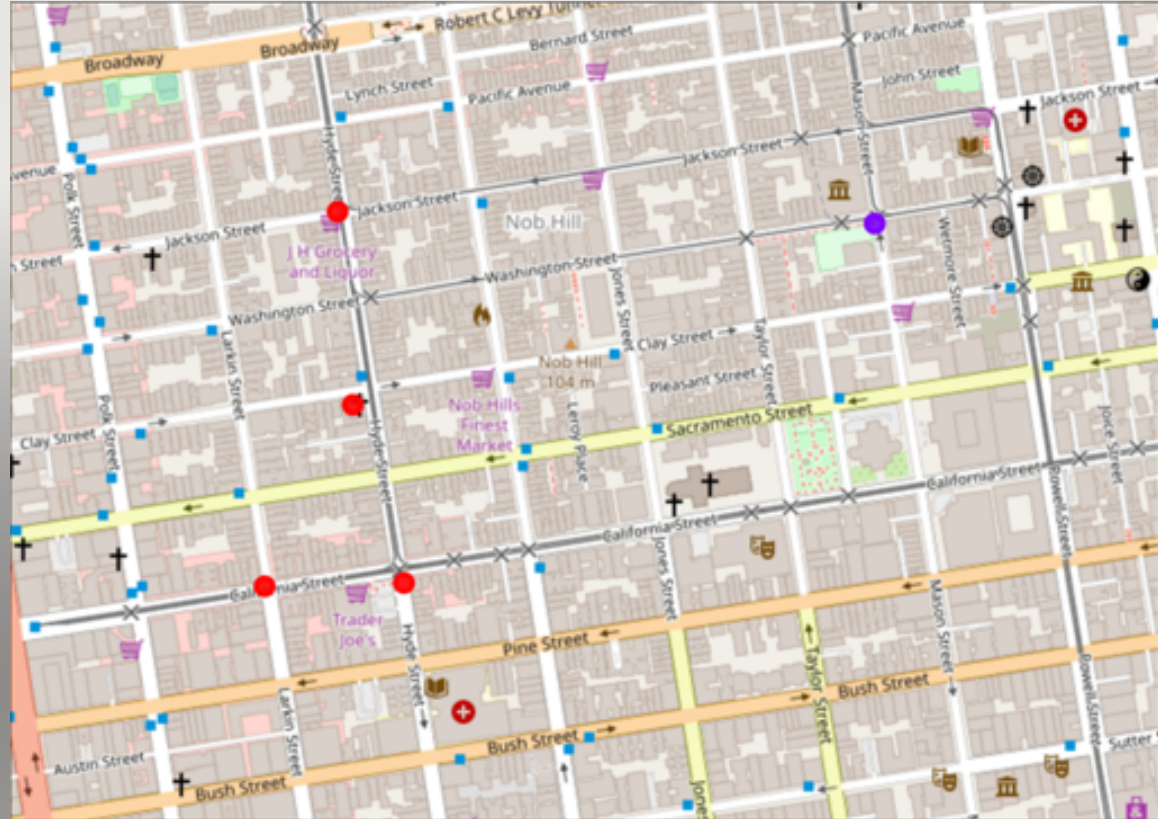|	Restaurant	Latitude	Longitude	Cluster Label
0	Mister Jiu's	37.793790	-122.406615	0
1	Hunan Home's Restaurant	37.796193	-122.405581	1
2	Hong Kong Clay Pot Restaurant	37.795844	-122.406594	1
3	City View Restaurant	37.794191	-122.403918	3
4	R&G Lounge 嶺南小館	37.794072	-122.404724	3

CHINA TOWN AREA
DOWNTOWN SF

- Chinese restaurants forms 5 clusters

- High customer flow in this area

- Fierce Competition

NOB HILL AREA
HIGH-END RESIDENTIAL AREA

- Chinese restaurants doesn't really form any cluster

- Very few Chinese restaurants due to high land expenses

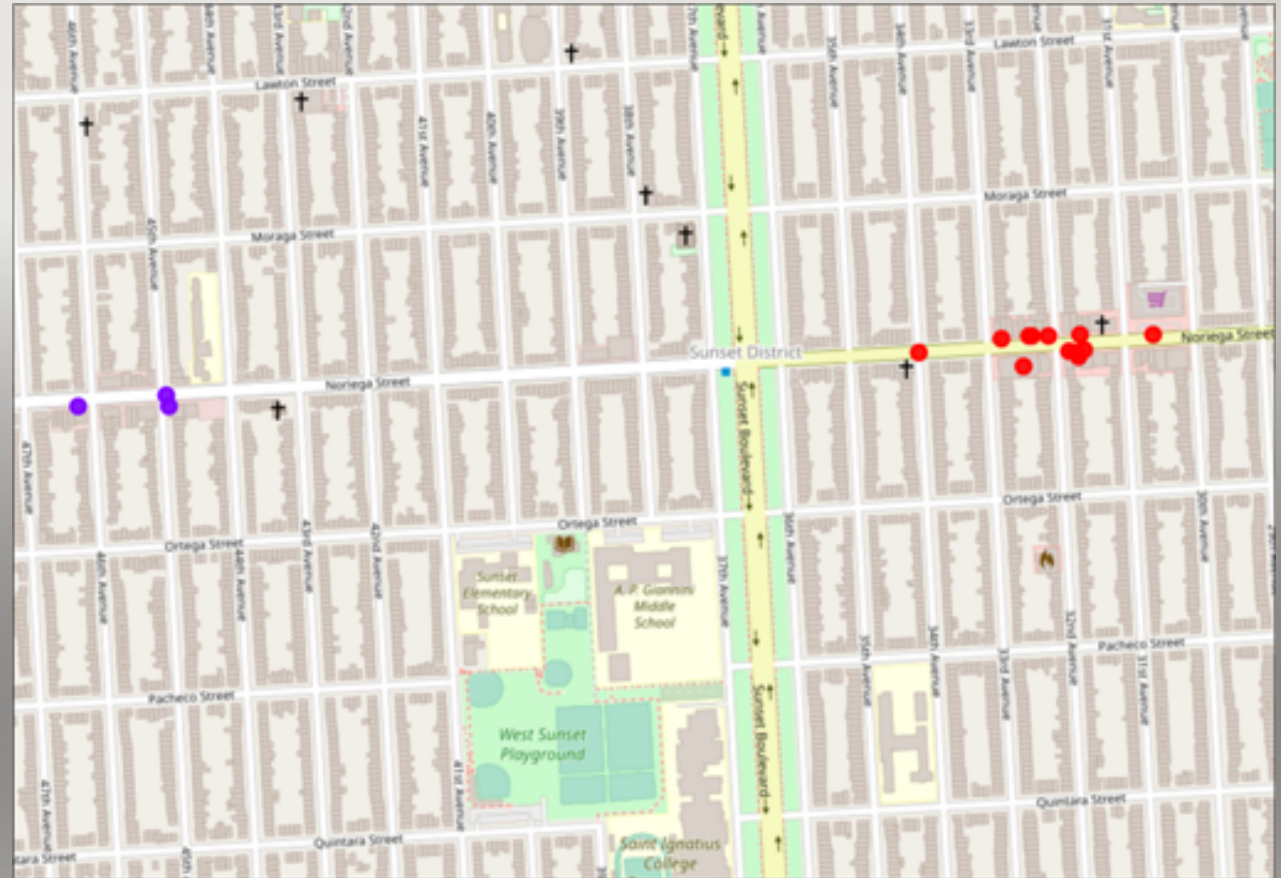- Fewer competitions and more wealthy potential customers

SUNSET AREA
MIDDLE CLASS RESIDENTIAL AREA

- Chinese restaurants form 2 clusters near the two big market place

- Less competition and more potential customers

RICHMOND AREA
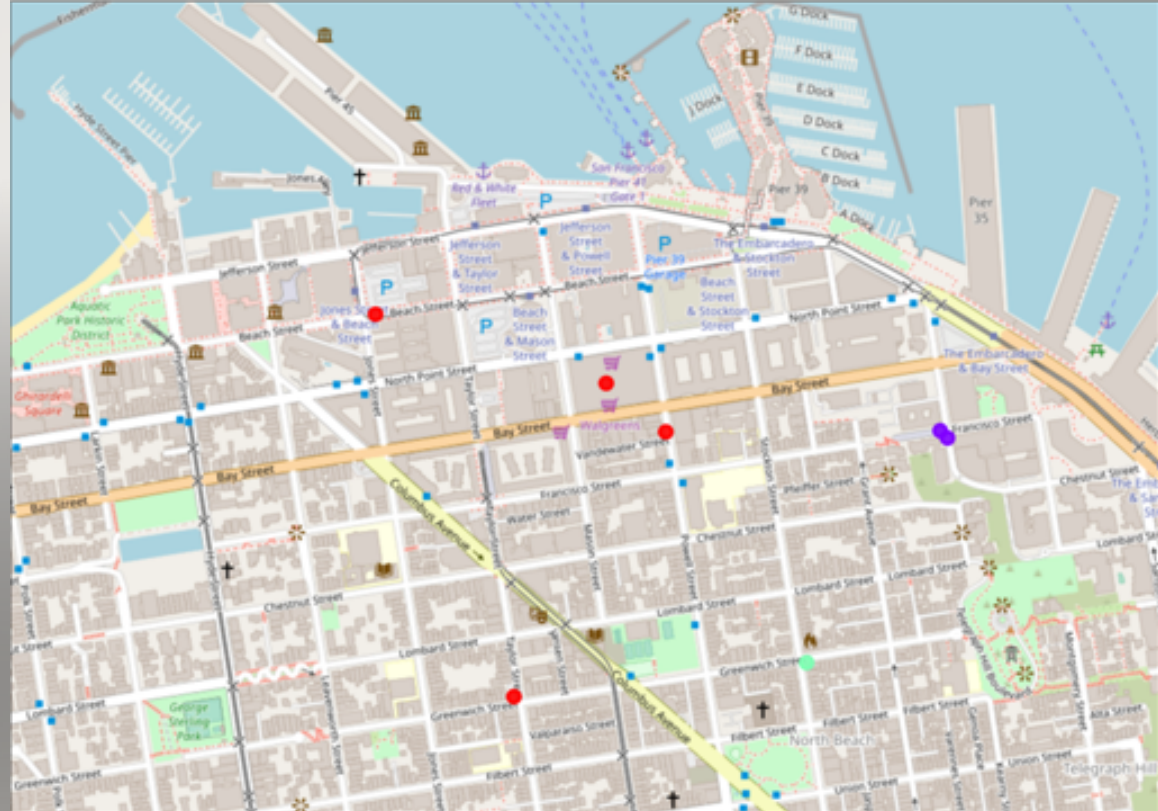## MIDDLE CLASS RESIDENTIAL AREA

- Chinese restaurants distribution more diverse

- Cluster mostly on the three major commercial streets

- A little more competition, but more popularity

FISHERMAN WHARF
MAJOR TOURIST ATTRACTION

- Chinese restaurants sparse and does not form any cluster

- Tourists does not look for Chinese food when they visit this area

- Much less potential customers

CONCLUSION AND DISCUSSION

- Chinese restaurants typically has the following characteristics
  - prefer to settle near where China Town is (Obviously!)
  - prefer to settle where there are more office buildings, in another word, downtown areas
  - tend to appear in clusters near big market places
  - tend to avoid high-end residential areas
  - tend to avoid local tourist attraction spots
- Based upon such findings, it is safe to suggest that when look for a spot to open a brand new Chinese restaurant, it is a good idea to first categorize one's goal.

CONCLUSION AND DISCUSSION

- As in my case, since my customer is an owner of a high-end Chinese restaurant chain, I would suggest either Sunset, or Nob Hill, since

  - Opening a brand-new Chinese restaurant near China Town or Richmond area would be a bad idea because these areas are already crowned and there are few potential wealthy customers who are interested in high-end Chinese food

  - Fisherman's Wharf would also be a bad idea since the area is crowed with tourists who are not interested in Chinese food anyways. Hence, Nob Hill and Sunset seems to be better choices

BON APPÉTIT!