The Battle of Neighborhoods

Analysis of Neighborhoods to find the best location to open an Italian Restaurant in San Francisco.

1. Introduction/Business Problem

- In this project we will analyze neighborhoods in San Francisco to find the best location to open an Italian Restaurant. Our stakeholders will be Italian chefs moving to San Francisco.

- Since there are already many Restaurants in San Francisco, we are looking for a neighborhood with not so many Italian Restaurants, but also with other businesses, since the workers will go eat around the area.

2. Data

1) Data about San Francisco neighborhoods such as Postal Code, Name, and Population where downloaded from San Francisco Burden of Disease & Injury Study

	PostalCode	Neighborhood	Population
0	94102	Hayes Valley/Tenderloin/North of...	28,991
1	94103	South of Market	23,016
2	94107	Potrero Hill	17,368
3	94108	Chinatown	13,716
4	94109	Polk/Russian Hill (Nob Hill)	56,322

2. Data

2) Data about Latitude and longitude come from a csv file that can be downloaded here

	PostalCode	Neighborhood	Latitude	Longitude
0	94102	Hayes Valley/Tenderloin/North of...	37.779329	-122.41915
1	94103	South of Market	37.772329	-122.41087
2	94107	Potrero Hill	37.766529	-122.39577
3	94108	Chinatown	37.792678	-122.40793
4	94109	Polk/Russian Hill (Nob Hill)	37.792778	-122.42188

3. Methodology

- Our objective is to find the ideal location for an Italian Restaurant. We want to discard neighborhoods with already many Italian Restaurants, but we consider that also places with too many food halls wouldn't be a good place, as all the people looking for a place to eat would have many choices and the chances to choose our Restuarant would be less.

- We will also consider population in each neighborhood, as more people living there, will mean more potential customers for the restaurant.

4. Analysis

- With Foursquare API we find the venues registered in each neighborhood.

1) First of all we locate the neighborhoods with Italian Restuarants among their venues. We want to exclude the neighborhoods with more than an Italian Restuarant already located there.

4. Analysis

Neighborhoods with Italian Restaurants

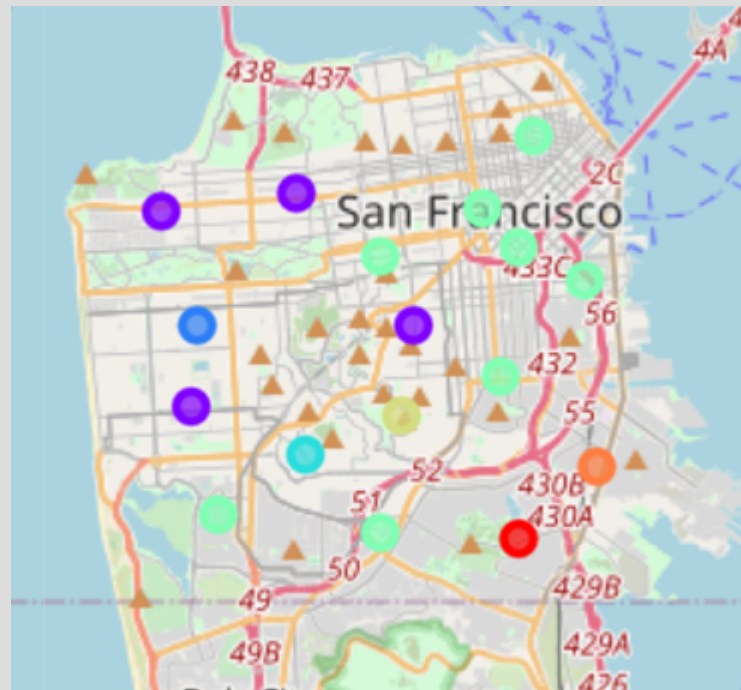| Neighborhood	
Castro/Noe Valley	1
Chinatown	1
Hayes Valley/Tenderloin/North of Market	1
Inner Richmond	1
Marina	6
North Beach/Chinatown	8
Parkside/Forest Hill	1
Polk/Russian Hill (Nob Hill)	2
South of Market	1
Western Addition/Japantown	2

4. Analysis

Marina and North Beach/Chinatown already have 6 and 8 italian restaurants. Polk/Russian Hill and Western Addition/Japan have 2 each. We will not consider those Neighborhoods for our study.

2) Next we use the 10 ost common venues to create 7 cluster and find the best location for the Restaurant

4. Analysis

As we can see, 5 of the 7 cluster are composed by only one neighborhood.

5. Results and Discussion

- After giving to clusters a number from 0 to 6, we can see that most of neighborhoods enter in the clusters number 1 and 4, even if some of these neighborhoods are highly populated, the most common venues in each of them are Restaurants, Pizza Places, Food Trucks and Coffee Shops, as all of them provide food, so it would be a competitive area for a new restaurant.

5. Results and Discussion

Cluster 4

	PostalCode	Cluster Labels	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	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	Population
0	94102	4	Coffee Shop	Hotel	Pizza Place	Theater	Beer Bar	French Restaurant	Vegetarian / Vegan Restaurant	Café	Wine Bar	Cocktail Bar	28,991
1	94103	4	Nightclub	Food Truck	Motorcycle Shop	Cocktail Bar	Gay Bar	Thai Restaurant	Wine Bar	Bar	Restaurant	Coffee Shop	23,016
2	94107	4	Coffee Shop	Breakfast Spot	Park	Deli / Bodega	Café	Wine Shop	Mexican Restaurant	French Restaurant	Bubble Tea Shop	Pet Store	17,368
3	94108	4	Coffee Shop	Bakery	Hotel	Chinese Restaurant	Dim Sum Restaurant	Bubble Tea Shop	Sushi Restaurant	Szechuan Restaurant	Clothing Store	Steakhouse	13,716
4	94110	4	Mexican Restaurant	Pizza Place	Park	Dive Bar	Gym / Fitness Center	Coffee Shop	Grocery Store	Deli / Bodega	Bookstore	Food & Drink Shop	74,633
5	94112	4	Pizza Place	Mexican Restaurant	Vietnamese Restaurant	Sandwich Place	Bus Station	Dessert Shop	Restaurant	Filipino Restaurant	Hot Dog Joint	Metro Station	73,104
8	94117	4	Coffee Shop	Park	Thrift / Vintage Store	Pizza Place	Bakery	Boutique	Breakfast Spot	Gastropub	Liquor Store	Dog Run	38,738
15	94132	4	Coffee Shop	Juice Bar	Pizza Place	Food Truck	Cosmetics Shop	Clothing Store	Sandwich Place	Lingerie Store	Candy Store	Bakery	26,291

5.Results and Discussion

- We also discard cluster number 6, because the most common venues are Restaurants, and besides Vintage Stores and Gyms, there are not many store, so not many people would look there for a place to eat.

- Same goes for cluster 3 and 5, they are not highly populated and we consider there are enough restaurants for the volume of shops and people living there.

5. Results and Discussion

Clusters 6, 3 and 5

	PostalCode	Cluster Labels	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	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	Population
12	94124	6	Southern / Soul Food Restaurant	Mexican Restaurant	Coffee Shop	Bakery	Thrift / Vintage Store	Bus Station	Garden	Light Rail Station	Taco Place	Gym	33,170

	PostalCode	Cluster Labels	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	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	Population
13	94127	3	Trail	Bus Line	Yoga Studio	Farmers Market	French Restaurant	Fountain	Food Truck	Food Court	Food & Drink Shop	Flower Shop	20,624

	PostalCode	Cluster Labels	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	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	Population
14	94131	5	Park	Trail	Dim Sum Restaurant	Shopping Mall	Coffee Shop	Grocery Store	Salon / Barbershop	Korean Restaurant	Pharmacy	Playground	27,897

5. Results and Discussion

We keep cluster 0 and 2, both of them have a population above 40.000 people.

- The neighborhood in cluster 2 (Sunset), with 55.492 people, has Chinese Restaurants as the first most common venue, but as it is a really different type of couisine from the Italian one, it is unlikely that they would have the same public. From the 2nd to the 8th most common venue, we can only find Cafes, so there will be probably a lot of people working there, bringing their kids on Playgrounds, going to the Farmers Market or Yoga Studios, moreover, there are many Train Stations, so it will be easy to reach even without living in a walking distance from the Restaurant.

5. Results and Discussion

- On the other side, the neighborhood of cluster number 0 (Visitation Valley/Sunnydale) is less populated (40.134 people) and even if the first 3 most common venues are not related with food, suggesting a shortage of restaurants, we don't see other businesses in the 10 most common venues, just gardens, park, baseball fields in the first places, and food courts and trucks in the second half.

5. Results and Discussion

- Candidates for the Italian Restaurant: Cluster

	PostalCode	Cluster Labels	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	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	Population
11	94122	2	Chinese Restaurant	Playground	Café	Pharmacy	Train Station	Shoe Store	Yoga Studio	Farmers Market	Food Court	Food & Drink Shop	55,492

	PostalCode	Cluster Labels	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	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	Population
16	94134	0	Trail	Garden	Baseball Field	Park	Donut Shop	Fast Food Restaurant	Fountain	Food Truck	Food Court	Food & Drink Shop	40,134

6. Conclusions

- We consider that the neighborhood Sunset is the best place to open an Italian Restaurant, as it is highly populated, with other businesses not related with food and with no other Italian Restaurants.

- The neighborhood of Visitation Valley/Sunnydale is also an option our client could consider, if the place suits them better, as there are not many Restaurants, but it may be harder to run a restaurant there, rather than in Sunset, since there would be probably less people looking for a Rastaurant there.

6. Conclusions

- Target Neighborhoods for our location

94122 = Sunset

94134 = Visitation Valley / Sunnydale