Recommending a City in the San Francisco Bay Area Based on Venues

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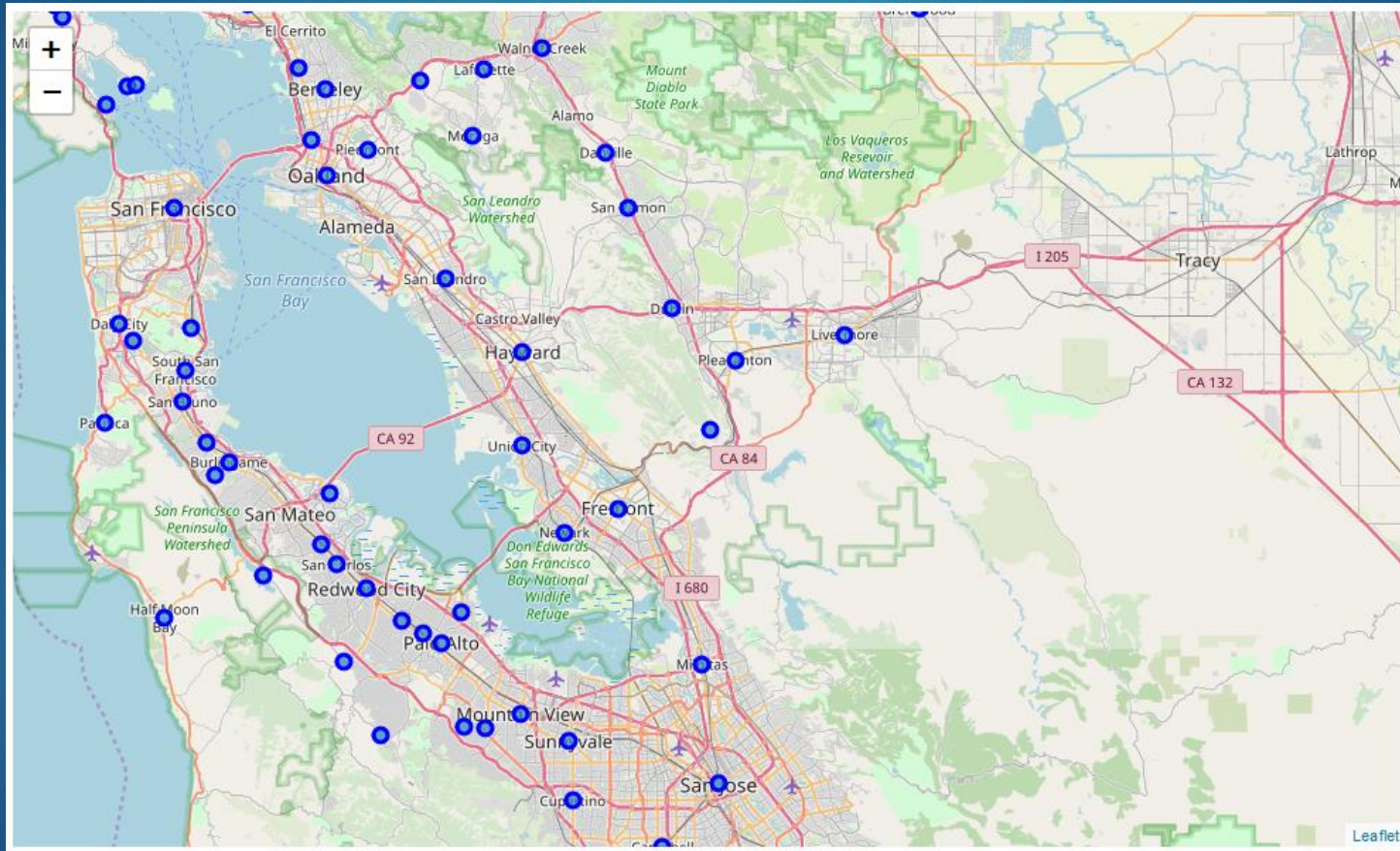
Recommending a City

- 101 Cities in the San Francisco Bay Area
- Venues available

Data

- Cities in San Francisco Bay Area are scraped from Wikipedia page

- Latitude and Longitude data retrieve from Nominatim package in Python

- Venues in 101 San Francisco Bay Area pulled from Foursquare API

- 3,187 venues pulled from Foursquare

- 9 Cities did not have any venues from Foursquare

Folium Map – San Francisco Bay Area

Total Venues in Bay Area

```python
print(bayarea_venues.shape)
bayarea_venues.head()
```
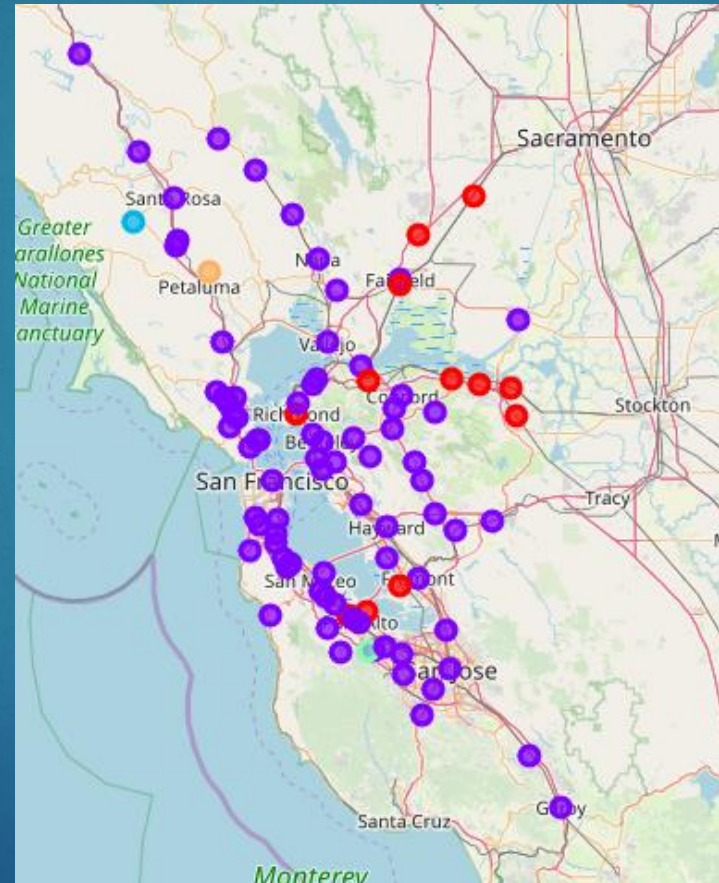
```
(3167, 7)
```

92 Cities with Varying Venues

San Pablo	22	22	22	22	22	22
San Rafael	52	52	52	52	52	52
San Ramon	20	20	20	20	20	20
Santa Rosa	45	45	45	45	45	45
Sausalito	34	34	34	34	34	34
Sebastopol	1	1	1	1	1	1
South San Francisco	49	49	49	49	49	49
St. Helena	42	42	42	42	42	42
Suisun City	22	22	22	22	22	22
Sunnyvale	51	51	51	51	51	51
Tiburon	37	37	37	37	37	37
Union City	18	18	18	18	18	18
Vacaville	32	32	32	32	32	32
Vallejo	14	14	14	14	14	14
Walnut Creek	95	95	95	95	95	95
Windsor	28	28	28	28	28	28
Woodside	10	10	10	10	10	10
Yountville	35	35	35	35	35	35

92 rows × 6 columns

Folium Map - K-Means Clustering

Cluster 1 – Restaurants (Mexican)

	City	1st Most Common Venue
3	Antioch	Fast Food Restaurant
4	Atherton	Home Service
9	Brentwood	Mexican Restaurant
23	Dixon	Mexican Restaurant
25	East Palo Alto	Mexican Restaurant
44	Martinez	Coffee Shop
54	Newark	Mexican Restaurant
57	Oakley	Mexican Restaurant
64	Pittsburg	Mexican Restaurant
69	Richmond	Convenience Store
91	Suisun City	Mexican Restaurant
95	Vacaville	Bar

Cluster 2 – Restaurants/Coffee Shop

City	1st Most Common Venue
Albany	Coffee Shop
American Canyon	Winery
Belmont	Coffee Shop
Belvedere	Bakery
Benicia	Sushi Restaurant
Berkeley	Sushi Restaurant
Brisbane	Mexican Restaurant
Burlingame	Japanese Restaurant
Calistoga	Hotel
Campbell	Yoga Studio

Cluster 3 – Coffee Shop

City	1st Most Common Venue
Sebastopol	Coffee Shop

Cluster 4 – Home Services

City	1st Most Common Venue
Los Altos Hills	Home Service

Cluster 5 - Farm

City	1st Most Common Venue
Petaluma	Farm

Discussion

- Data from Wikipedia and Foursquare for San Francisco Bay Area
- 3,167 Venues
- 92 Cities with Venues out of 101
- K-Means Clustering Algorithm with K = 5
- Cluster 1 and 2 are pretty similar
- Cluster 3 can somewhat belong to Cluster 3 being a coffee shop
- Cluster 4 and 5 are not similar to cluster 1 through 3

Conclusion

- A majority of the cities in the San Francisco Bay Area fit into the cluster 1, 2, and 3

- Cluster 4 and 5 are exceptions to the similarities in venues

- For better decision making add in other features for a city
  - Public Transportation
  - Job market
  - Housing price
  - Median rental rate
  - School rating