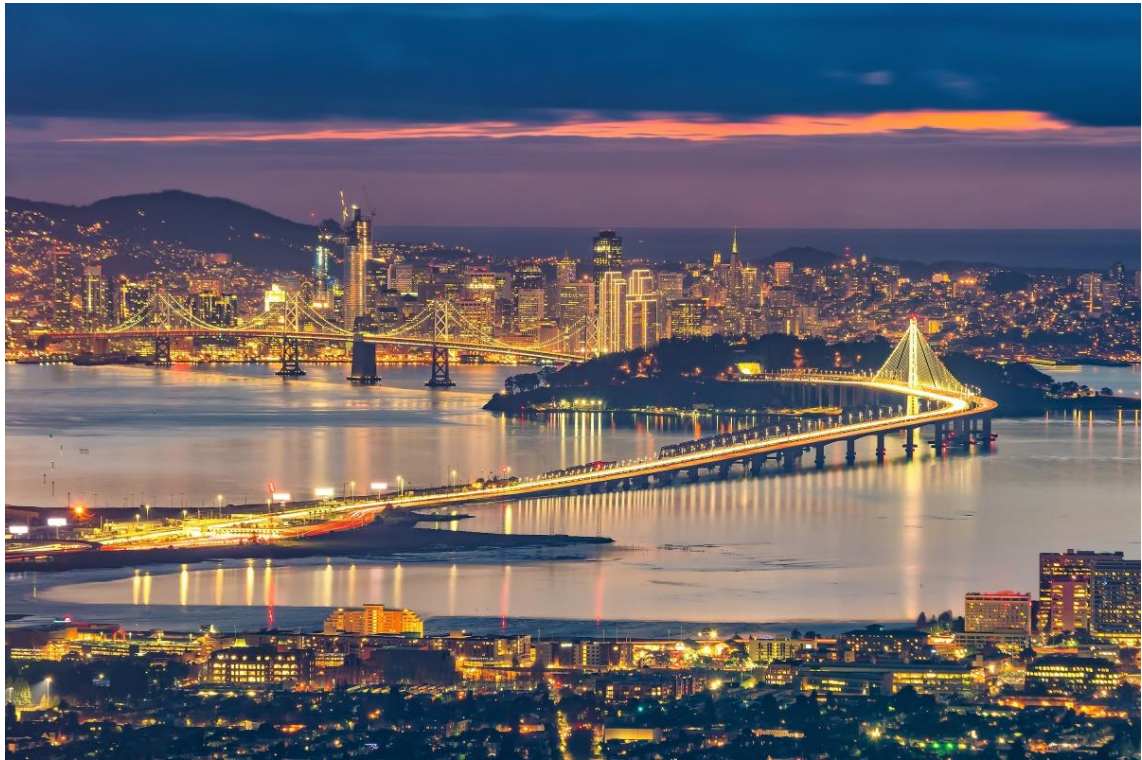


IBM Data science Professional Certificate Capstone Report

Where should we open a cuisine in Silicon Valley?



Introduction

When we open a restaurant, we obviously want it to be successful. And how about if we managed to get extra information from indicators that let us know if our restaurant will be successful or not. An important fact for the success of a restaurant and the fact that it is close to companies

Business Problem

The main idea behind the project is to analyze the restaurant chains in the nearby bay area technology companies and look for areas where a successful restaurant business can be started. The other objective of the project is to pay special attention to the restaurant kitchen. Some neighborhoods may already have a large number of the same cuisine restaurants. Starting a restaurant in this area will not be very profitable. So, to explain the project in an abstract way, aims to analyze the restaurants and, in particular, the cuisine from the restaurant near the bay area and to discover the best possible neighborhood for opening a restaurant.



Target Audince

The project is beneficial to anyone who is looking to start a new restaurant business in the Bay Area. The audience is quite large and includes the big food supply brands like McDonalds and the Cheesecake Factory. The project can also benefit already running restaurants to shift to some other cuisine for better business prospects.



Data Description

The data requirements include:

- List of all the tech companies
- The coordinates of the offices
- The list of all the restaurants near the offices using Foursquare API

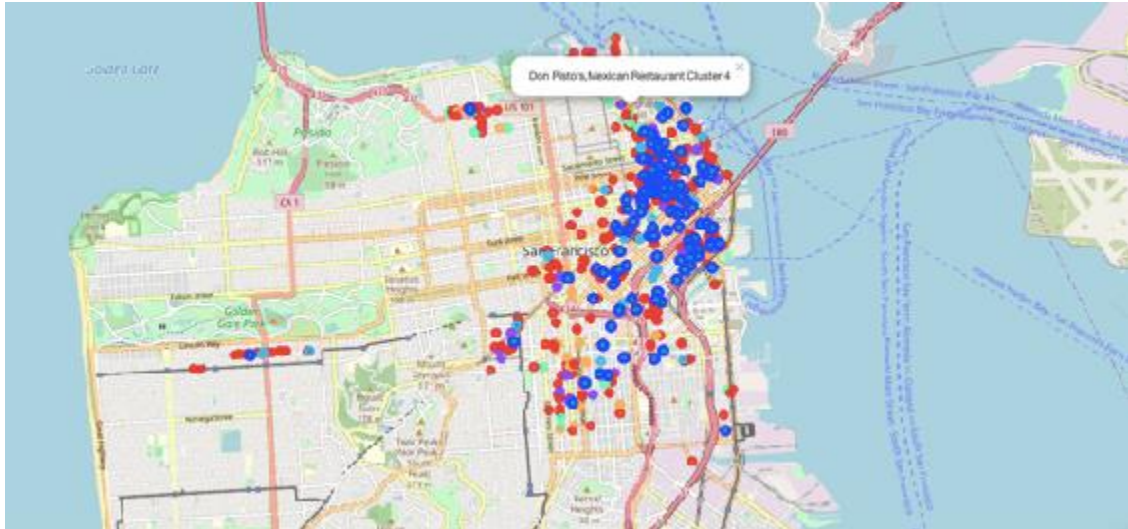
Data Science Methodology

- The data was extracted from the open source version control platform Github. (created by Mr. Connor Leech (<https://github.com/connor11528>))
- The data consisted of 750+ rows. The first 200 rows were extracted from the datasource.
- Feature Selection and cleaning was carried out on the data.
- Map for all the offices in the Bay Area was plotted.



Map of offices in the bay area

- Foursquare API was used to find the restaurants near the offices.
- OneHotEncoding was used to create dummy variables for the VenueCategory as it is a categorical variable.
- The restaurants were classified using KMeans ML algorithm.
- The plot of all the classified Restaurants and the Offices was made on the map of Bay Area.



Map of offices along with the clusters of restaurants

CLUSTERS	COLORS	RESTAURANT CUISINE
0	Red	American, Japanese, Sushi
1	Purple	New American
2	Light Blue	Vietnamese
3	Green	Italian
4	Italian	Mexican

Observations and Discussions:

1. The Mexican and New American cuisine restaurants are very less near the Cadre Talent office, San Francisco. So a Mexican or a New American restaurant can be started near the area.
2. In the area near Canvas Medical, San Francisco, there is not even a single New American, Mexican or Italian Restaurant. Starting one of these restaurant in the area might be a good idea.
3. In the East Bay region near Art.com company, there is neither an Italian Restaurant nor a New American one.
4. In the San Leandro region near the Bay, there is no New American Restaurant, so opening one there might lead to really good business.
5. Many other observations can be made from the map.

Conclusion

The report has been concluded on the account that all restaurants in the Bay Area have been plotted on the maps along with the offices. The restaurants have been clustered and can help anyone looking forward to start a restaurant business in Bay Area.