IBM Data Science Professional Certificate

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Introduction

Culiacán is a city in Mexico located in the state of Sinaloa. For many years, sushi restaurants have become really popular. The popularity of these restaurants is so great that the inauguration of a new restaurant of this type is common. Many of these new restaurants close their doors soon, this is caused by different factors, but, one of them and very important is the location.

Business Problem

The objective of this project is to analyze and select the best locations in the city of Culiacan, to open a new sushi restaurant. Using data science methodology and machine learning techniques as a clustering.

Data

The following data was use:

- List of neighborhoods in Culiacan.
- The latitude and longitude coordinates of those neighborhoods.
- Businesses around neighborhoods, particularly data related to restaurants.

Data

- The information of the neighborhoods in Culiacan will be extracted from the page: https://micodigopostal.org/sinaloa/culiacan/. On this page you will find a table with all the neighborhoods and their postal codes. With the help of the BeautifulSoup library, the table with the neighborhoods was scraped.
- For the data of the latitude and longitude of these neighborhoods, the Google Maps API will be used.
- Finally, to find the places that are in each of the neighborhoods, the foursquare api will be used.

Methodology

- Scraping neighborhoods from https://micodigopostal.org/sinaloa/culiacan/
- Get geographic coordinates
- Visualize the map of the city with markers that indicate the coordinates of the different neighborhoods
- Use the Foursquare API to get the 100 best places that are within a radius of 2000 meters.
- Analyze each neighborhood grouping
- Clusters was performed on the data using k-means.

Results

- Cluster 0 (red): Neighbourhoods with low number of sushi restaurants.
- Cluster 1 (purple): Neighbourhoods with moderate number to existence of sushi restaurants.
- Cluster 2 (green): Neighbourhoods with high concentration of sushi restaurants.