IBM Applied Data Science Capstone

**Opening a New Restaurant in Minneapolis, Minnesota, US
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Business Problem

- Location of a new restaurant is one of the most important decisions that will determine whether the investment will be a success or a failure

- Objective: To analyze and select the best locations in the city of Minneapolis, Minnesota to open a new restaurant

- This project is timely as the city has more and more restaurants to be built in the following year

- Business question

  ➢In the city of Minneapolis, Minnesota, if an investor is looking to open a new restaurant, where would you recommend that they open it?

Data

- Data required
  - ➢List of suburbs in Minneapolis
  - ➢Latitude and longitude coordinates of the suburbs
  - ➢Venue data, particularly data related to restaurants

- Sources of data
  - ➢Wikipedia page for suburbs
  (https://en.wikipedia.org/wiki/Hennepin_County,_Minnesota)
  - ➢Geocoder package for latitude and longitude coordinates
  - ➢Foursquare API for venue data

Methodology

- Web scraping Wikipedia page for suburbs list

- Get latitude and longitude coordinates using Geocoder

- Use Foursquare API to get venue data

- Group data by suburbs and taking the mean of the frequency of occurrence of each venue category

- Filter venue category by restaurants

- Perform clustering on the data by using k-means clustering

- Visualize the clusters in a map using Folium

Results

- Cluster 0: Suburbs with high number of restaurants (red)

- Cluster 1: Suburbs with low number to no existence of restaurants (purple)

- Cluster 2: Suburbs with moderate number of restaurants (green)
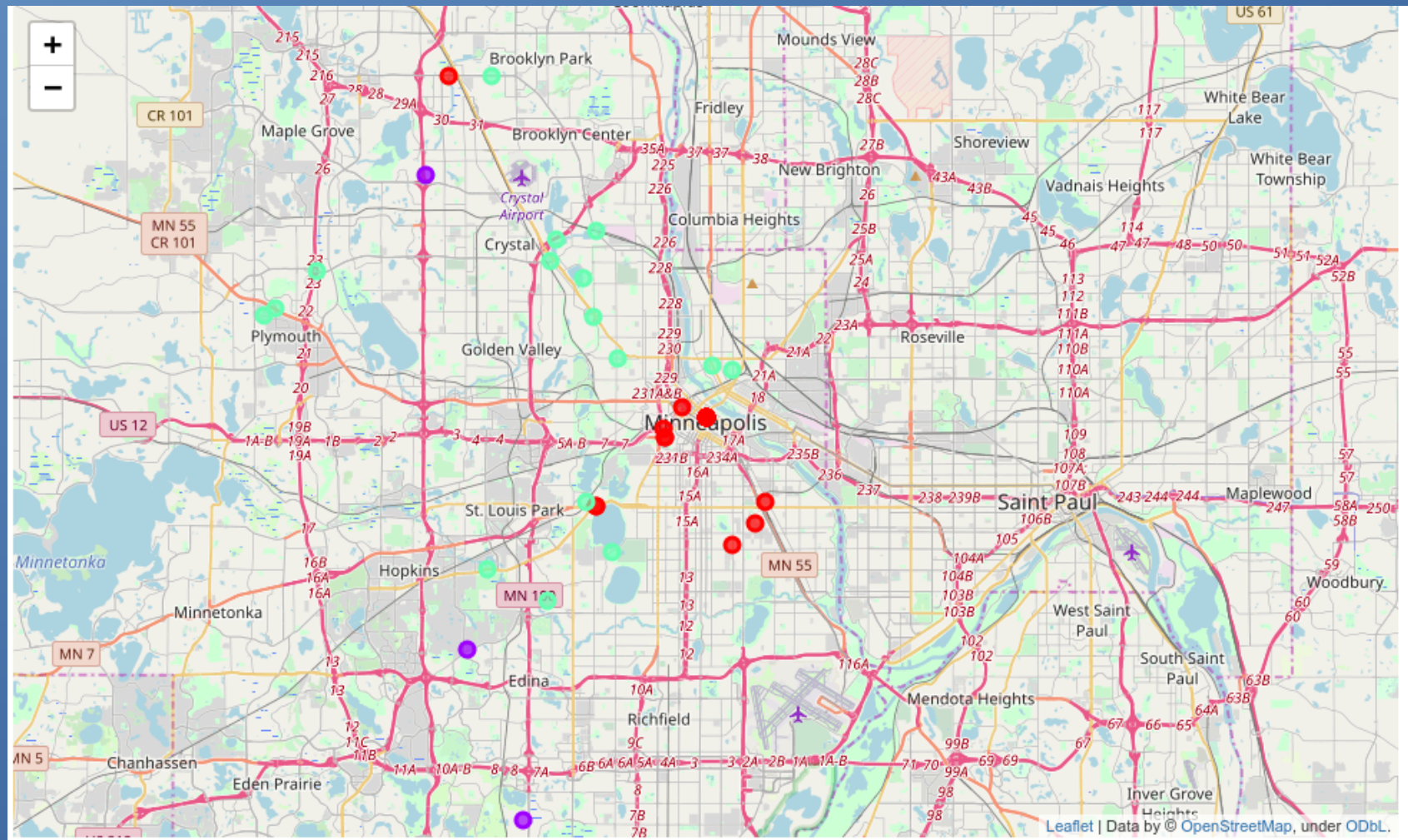
Discussion

- Most of the restaurants are located in the downtown area

- Highest number in cluster 0 and moderate number in cluster 2

- Cluster 1 has very low number of restaurants in the suburbs

- Intensive competition may mostly happen in the downtown, Minneapolis, with the suburb area still have very few restaurants

Recommendations

- Open new restaurant in suburbs within cluster 1 with little or no competition

- Can also open in suburbs in cluster 2 with moderate competition if have unique selling propositions to stand out from the competition

- Avoid suburbs within cluster 0, already large number of restaurants and intense competition

Conclusion

- Answer to business question: The suburbs in cluster 1 are the most preferred locations to open a new restaurant

- Our findings will help investors to capitalize on the opportunities on high potential locations while avoiding high competition areas in their decisions to open a new restaurant