Coursera Capstone

IBM Applied Data Science Capstone

Opening a New Sushi Restaurant in Athens, Greece

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Business Problem

- The location of a significant investment in a sushi restaurant is a serious consideration taking into account the competition that the foreign kitchen industry is facing.

- Objective: Evaluate the most favorable neighborhood to open a new Sushi Restaurant in Athens.

- Business Question: If a food service developer would want to establish a new Sushi restaurant in the capital of Greece, which neighborhood would most likely provide the higher revenue income?

Data

- Data required
  - List of neighborhoods in Athens
  - Latitude and longitude coordinates of the neighborhoods
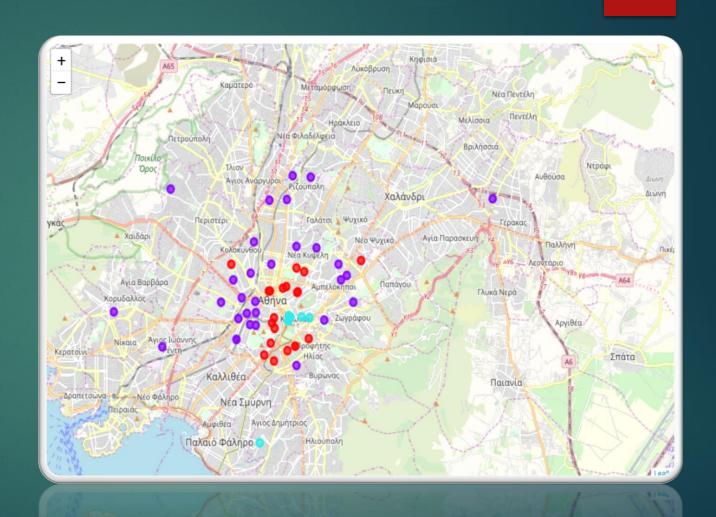 - Venue data of the resulting neighborhoods

- Sources of data
  - Wikipedia page for Athens' neighborhoods
  (https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Athens)
  - Developer Foursquare API for venue data

Methodology

- Web scraping Wikipedia page for neighborhoods list

- Get latitude and longitude coordinates using the Geocoder package

- Use Foursquare API to get venue data

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

- Isolate venue category for Sushi restaurants

- Perform clustering on the resulting data with the Kmeans method

- Visualize resulting clusters in a map of Athens using Folium

- Isolate neighborhood list of the preferred cluster

- Filter the resulting neighborhood list by dining areas

- Determine the neighborhood with the fewest food service establishments

Result

- Cluster 0: Neighborhoods with moderate number of sushi bars in red color.

- Cluster 1: Neighborhoods with absence of sushi bars visualized in purple color.

- Cluster 2: Neighborhoods with high concentration of sushi bars visualized in green color.

Result

- The neighborhood with the fewest dining areas within cluster 1 is Gyzi.

	Neighborhoods	Total
13	Kerameikos	19
19	Patisia	19
12	Ilisia, Athens	19
7	Erythros Stavros	19
6	Elaionas	19
3	Ampelokipoi, Athens	17
15	Kynosargous	17
9	Goudi	16
28	Thymarakia	13
11	Gyzi	11

Recommendations & Conclusion

- Establish Sushi restaurant in neighborhoods in cluster 1 with no competition.

- Could also open in neighborhoods in cluster 0 as long as the quality of this investment stands out.

- Avoid neighborhoods in cluster 2 due to intense concentration.

- Prioritize the neighborhoods with the fewest dining establishments within cluster 1.

Conclusion: The neighborhood of Gyzi within cluster 1 seems to be the ideal neighborhood to establish a new sushi restaurant and thrive profitably from the lack of competition.