COURSERA CAPSTONE

OPENING A NEW SHOPPING MALL IN MADRID, SPAIN

MIKEL HERNÁNDEZ JIMÉNEZ
APRIL, 2021

BUSINESS PROBLEM

- **BACKGROUND**: Location of a Shopping Mall is one of the most important decisions that will determine whether the venue will be a success or a failure.

- **OBJECTIVE:** To analyse and select the best locations in the city of Madrid, Spain to open a new shopping mall.

- **BUSINESS QUESTION**: In the city of Madrid, if a property developer is looking to open a new shopping mall, where would you recommend that they open it?

- **TARGET AUDIENCE**: Property developers and investors looking to open or invest in new shopping malls in the city of Madrid, Spain.

DATA

- **REQUIRED DATA**:
  - List of neighborhoods in Madrid, Spain.
  - Geographical coordinates (latitude and longitude) of those neighborhoods.
 - Venue data, particularly related to Shopping Malls.

- **DATA GATHERING**:
  - Public government data source for neighborhoods (https://datos.gob.es/en/catalogo/l01280796-barrios-municipales-de-madrid)
  - Geocoder Python package for geographical coordinates of the neighborhoods.
  - Foursquare API for venue data.

METHODOLOGY

1. Load and clean the dataframe of neighborhoods in Madrid, Spain.

2. Get the geographical coordinates of the neighborhoods using geocoder package.

3. Obtain the venue data for the neighborhoods using the Foursquare API.

4. Analyse and cluster the neighborhoods.

   a) Group data by neighborhood and taking the mean of the frequency of occurrence of each venue type.

   b) Filter venue category by Shopping Mall.

   c) Cluster the data into 3 clusters using k-means clustering.

   d) Visualize the clusters in a map using folium package.

5. Examine the clusters and select the best neighborhood to open a new Shopping Mall.

RESULTS I

- **Cluster 0 (RED):** Neighborhoods with moderate number of Shopping Malls.

- **Cluster 1 (PURPLE):** Neighborhoods with no existence of Shopping Malls.

- **Cluster 2 (MINT GREEN):** Neighborhoods with high concentration of Shopping Malls.
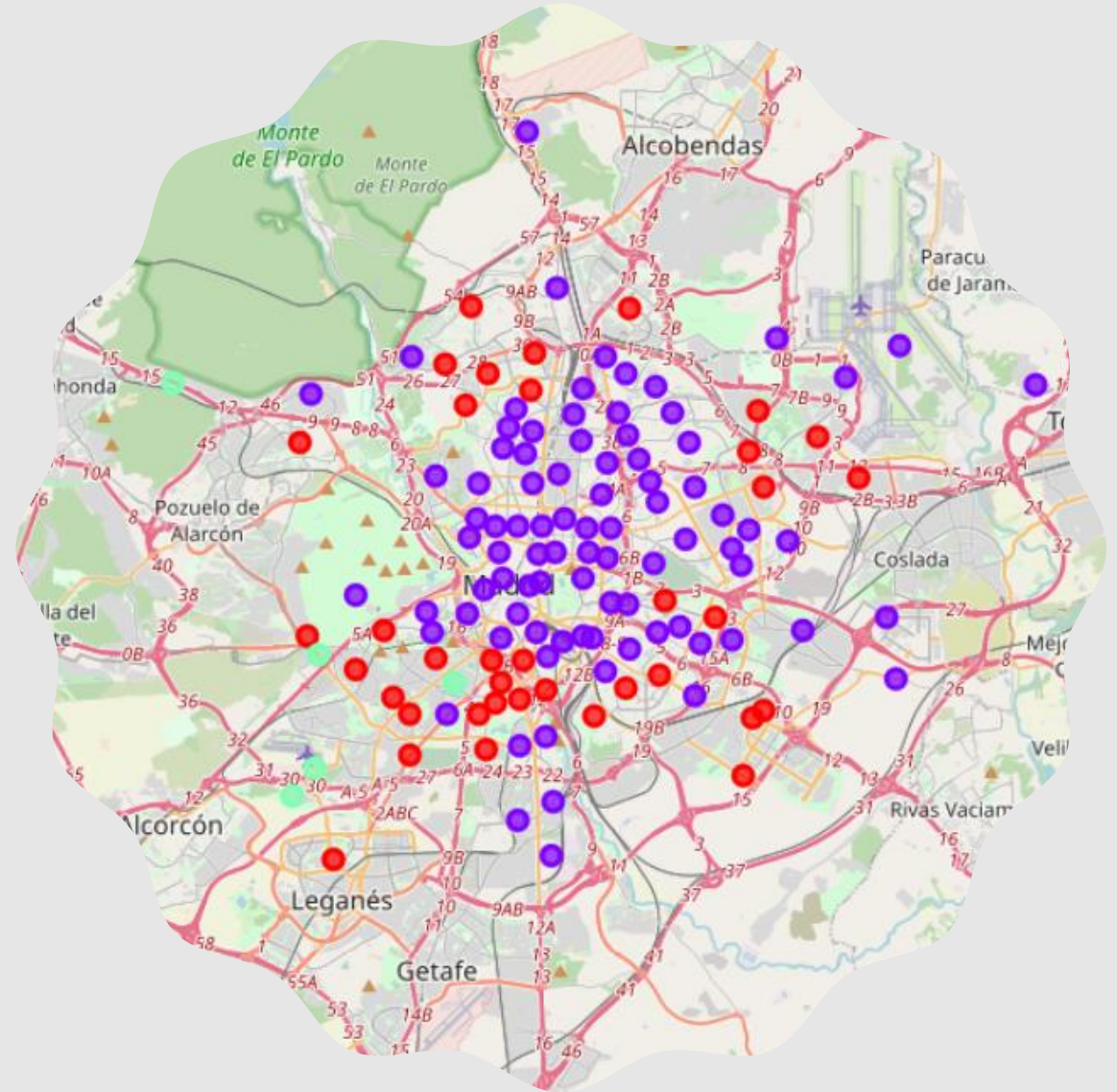
RESULTS II

Neighborhoods in Cluster 1

- Great oportunity and high potential areas to open a new Shopping Mall.

- There is no competition for existing Shopping Mall.

- 88 potential neighborhoods to open a new Shopping Mall.

- Located in the city center
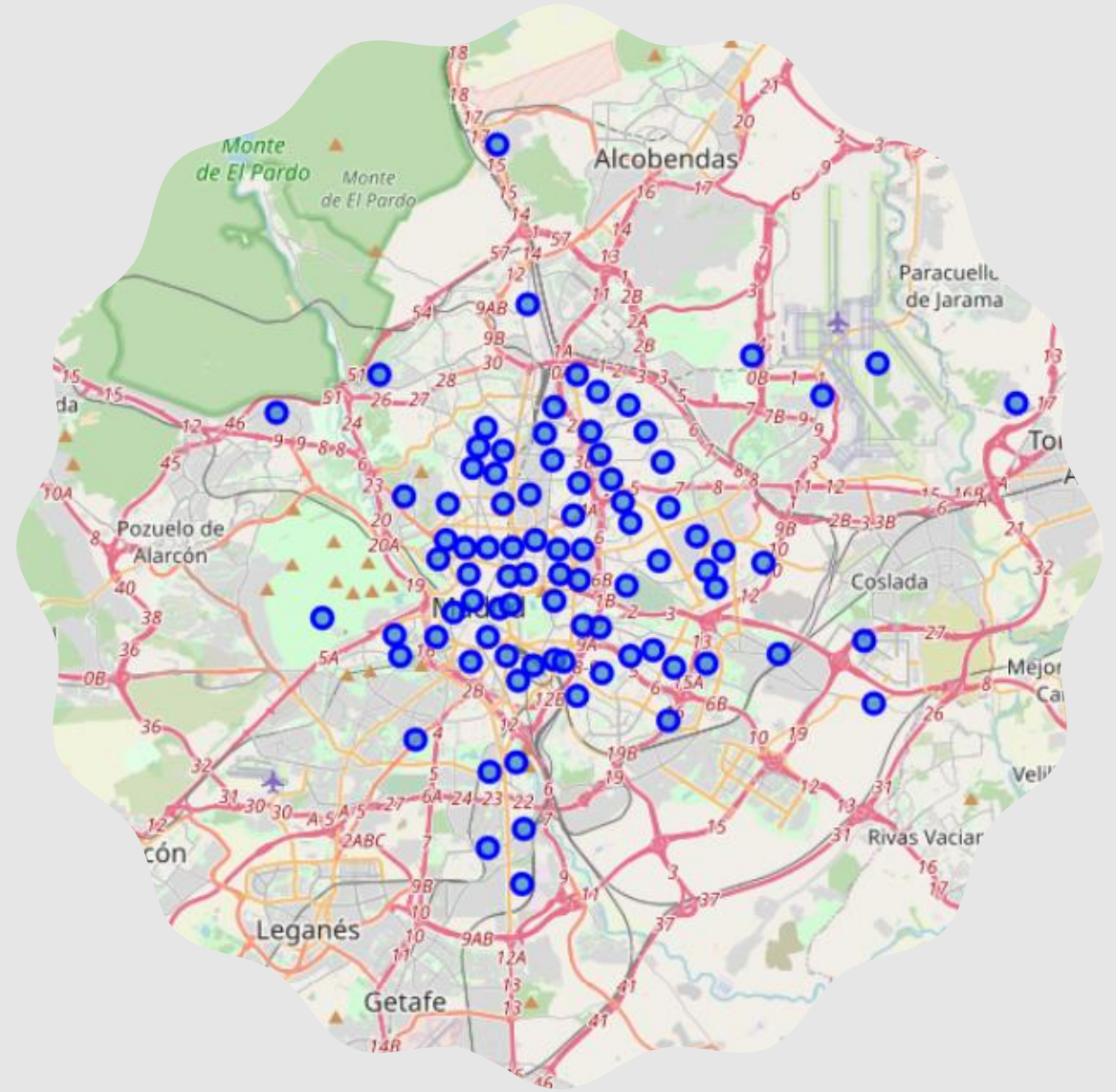
DISCUSSION

- Most of the Shopping Malls are concentrated in peripheral neighborhoods of the city.
  - Avoid these neighborhoods because already have high concentration of shopping malls.

- Moderate number of Shopping Malls can be found in the surrounding neighborhoods of the city.
  - Select these neighborhoods if you have unique selling propositions to stands out from the competitors.

- No Shopping Malls are in the center neighborhoods and in some peripheral neighborhoods.
  - Great oportunity and high potential areas to open a new Shopping Mall with no competition.

- **LIMITATION**: Only frequency of occurrence of Shopping Malls has been considered to cluster the neighborhoods.

- **FUTURE RESEARCH**: Use more features (population, income, etc) to cluster the neighborhoods.

CONCLUSION

- **ANSWER TO BUSINESS QUESTION**: The neighborhoods in Cluster 1 (located in the city center and some peripheral areas) are the most preferred locations to open a new Shopping Mall in Madrid, Spain.

- **IMPACT OF THE PROJECT**: Help the relevant stakeholders to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open a new Shopping Mall in the city of Madrid.

MUCHAS GRACIAS

THANK YOU

MOLTES GRÀCIES

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