

Coursera Capstone

IBM Applied Data Science Capstone

Opening a New Shopping Mall in Nashville, Tennessee

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Business Problem

- Location of the shopping mall is one of the most important decisions that will determine if the venue will be successful
- Objective: To analyze and select the best locations in the city of Nashville, Tennessee to open a new shopping mall
- This project is of the upmost importance because the city is suffering from an oversupply of shopping malls
- Business Questions: If a property developer is looking to open a new shopping mall, where would you recommend they open it?

Data

- Data Required

1. List of neighborhoods in Nashville, TN
2. Latitude and Longitude coordinates of the Nashville Neighborhoods
3. Venue data that is related to shopping malls

- Data Sources

1. Wikipedia webpage for neighborhoods
(https://en.wikipedia.org/wiki/Category:Neighborhoods_in_Nashville,_Tennessee)
2. Geocoder package for latitude and longitude coordinates of neighborhoods
3. Foursquare API for venue data

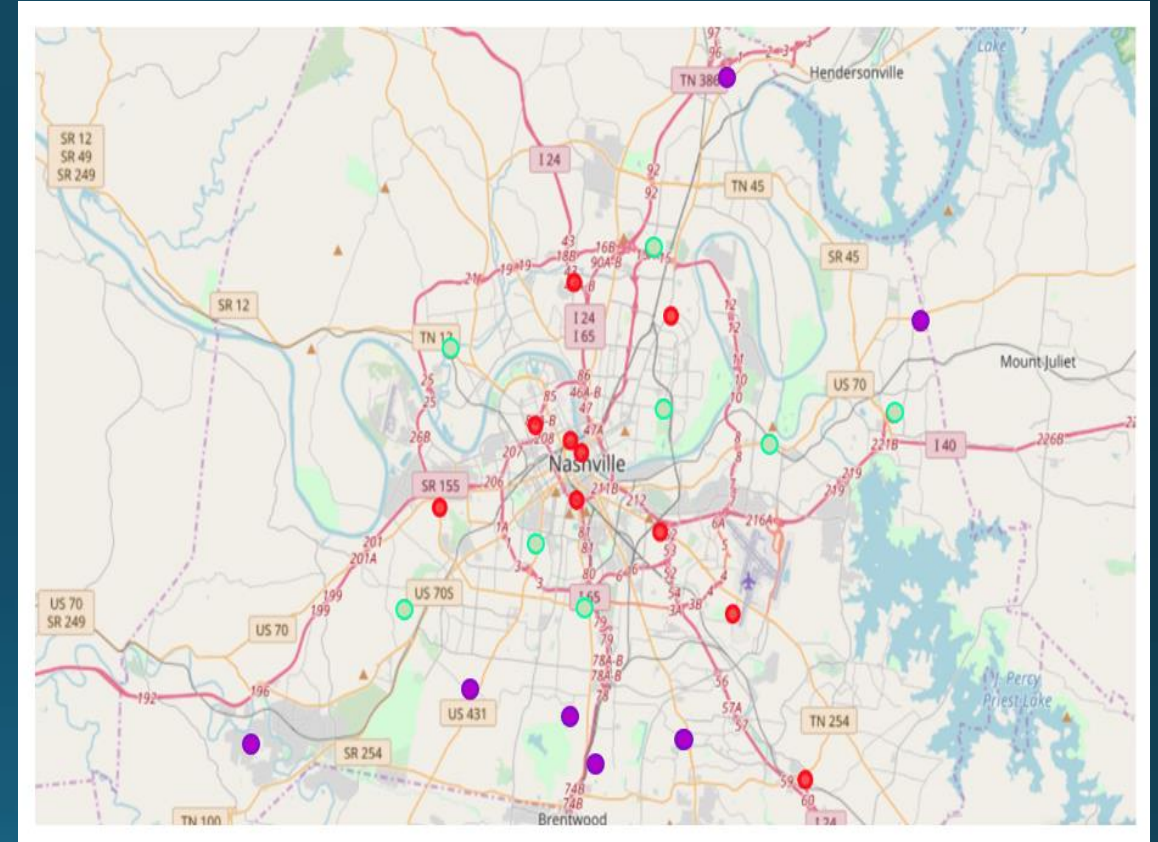
Methodology

- Web scraping Wikipedia page for neighborhoods
- Obtain Latitude and Longitude coordinates for neighborhoods
- Use Foursquare API to obtain venue data
- Group data by neighborhood and take mean of the frequency of occurrence of each venue category
- Filter venue category by shopping malls
- Perform clustering by use of the k-means algorithm
- Visualize clusters on map using Folium

Results

Three Clusters of Neighborhoods

- **Cluster 0:** Neighborhoods with moderate number of shopping malls
- **Cluster 1:** Neighborhoods with very low-no occurrence of shopping malls
- **Cluster 2:** Neighborhoods with a high number of shopping malls



Discussion

- Most of the shopping malls are concentrated in the center of Nashville
- Highest number of shopping malls in Cluster 2
- Cluster 1 has a very low number of shopping malls in the neighborhoods
- Oversupply of shopping malls mostly happened in the central region of Nashville

Recommendations

- Open new shopping malls in neighborhoods in **cluster 1** with little to no competition
- Can also open in neighborhoods in **cluster 0** with moderate competition if have unique selling propositions to stand out from the competition
- Avoid neighborhoods in **cluster 2**, already high concentration of shopping malls and intense competition

Conclusion

- Answer to business question: The neighborhoods in cluster 1 are the most preferred locations to open a new shopping mall
- Findings of this project will 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

Thank you!