Examining Restaurants in Belgrade Neighborhoods

IBM Coursera Data Science Specialization

Capstone Project

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Introduction

- The objective of the research is to explore which neighborhoods in the city of Belgrade have similar preferences regarding restaurants. We hope that the findings of the research could be beneficial both for restaurant customers, as well as for the potential future owners.

Data

- Data for the research were obtained from the multiple sources:

  - Wikipedia (https://en.wikipedia.org/wiki/List_of_Belgrade_neighbourhoods_and_suburbs)
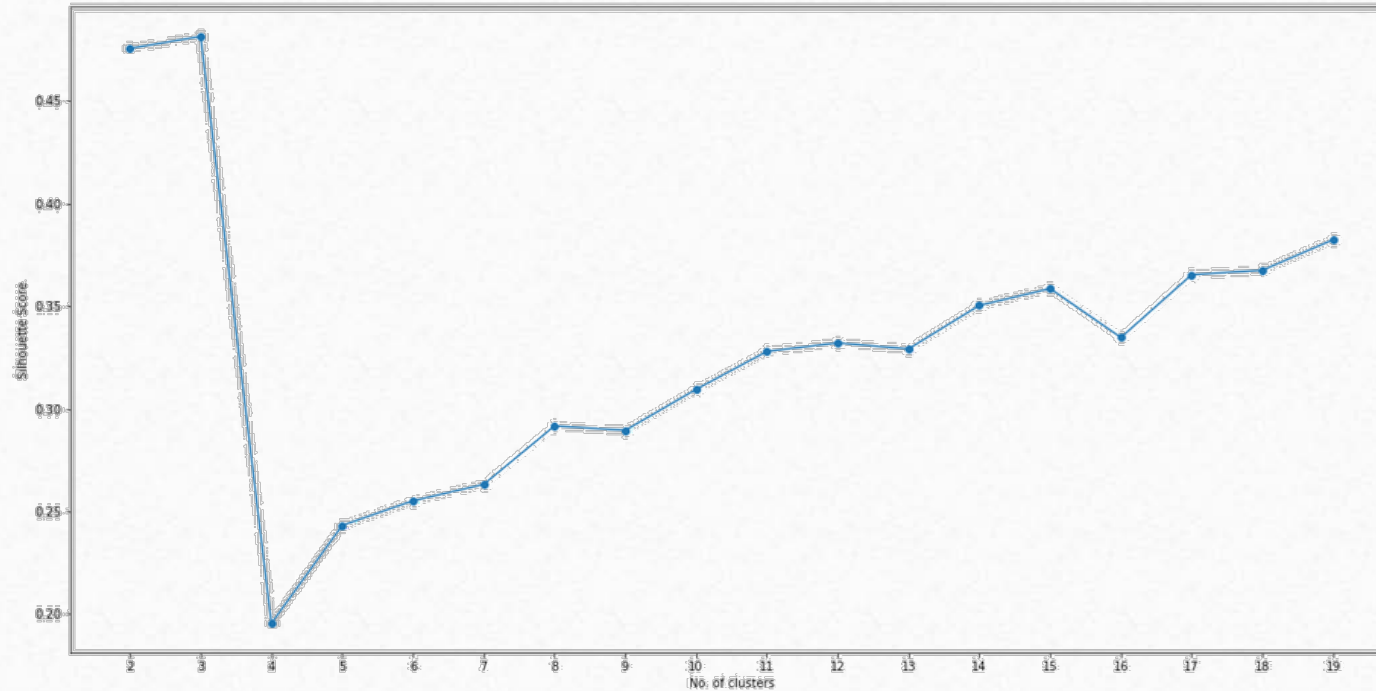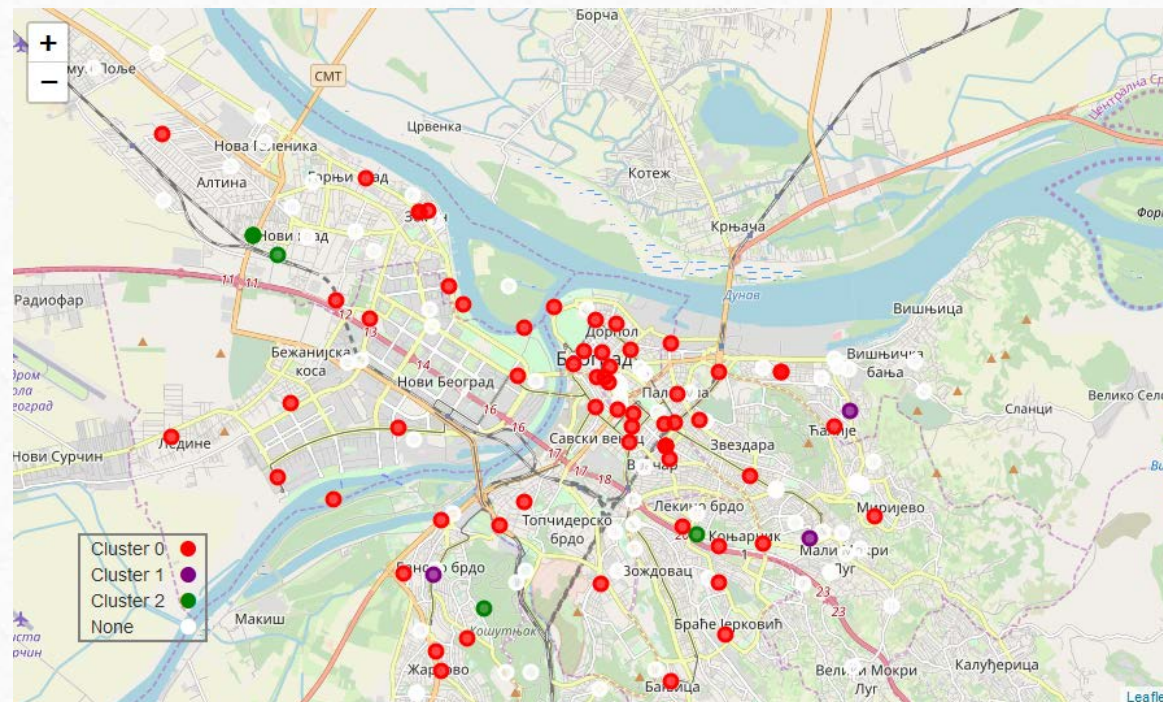
  - Geocoder API,

  - FourSquare API

Data
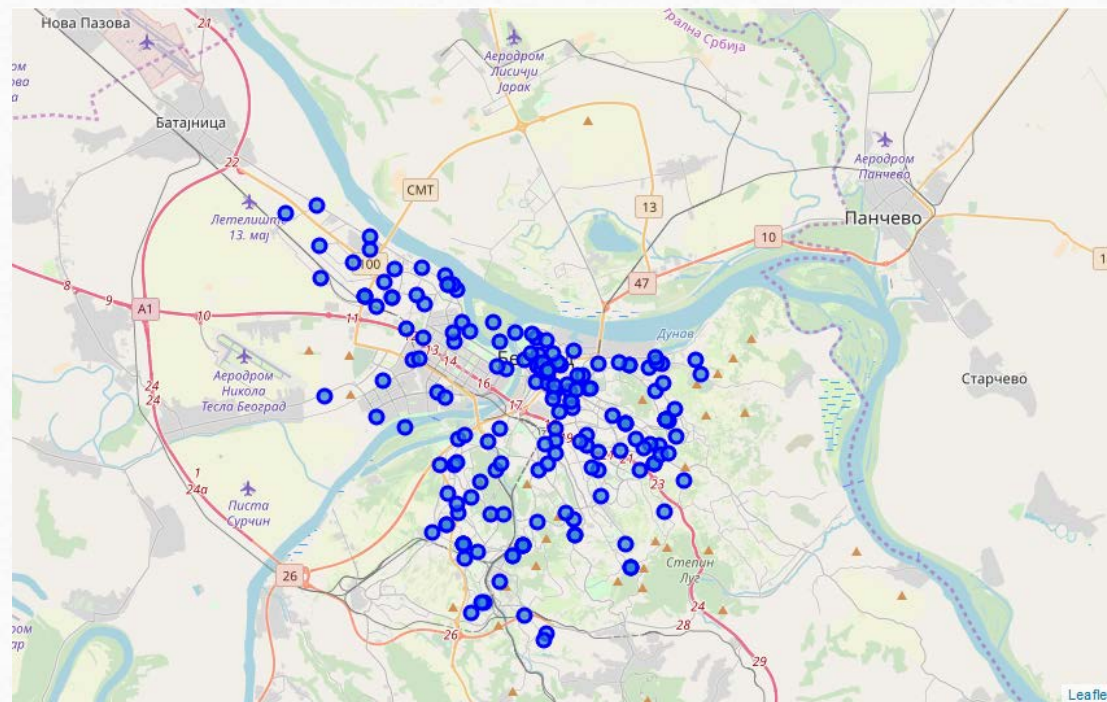
Methodology

- One Hot Encoding for categorical data

- Frequency calculation of restaurant types in neighborhoods

- K-means cluster analysis

- Silhouette score for the choosing of hyperparameter K

Methodology – hyperparameter selection

Results

Results

CLUSTER 1

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	Neighbourhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
1	Ada Ciganlija	Seafood Restaurant	Vegetarian / Vegan Restaurant	Fast Food Restaurant
2	Ada Medjica	Italian Restaurant	Seafood Restaurant	Eastern European Restaurant
9	Banjica	Greek Restaurant	Vegetarian / Vegan Restaurant	Fast Food Restaurant
15	Bezanija	Fast Food Restaurant	Chinese Restaurant	Falafel Restaurant
23	Bogoslovija	Comfort Food Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
...	...	...	...	...
198	Zapadni Vracar	Seafood Restaurant	Italian Restaurant	Vegetarian / Vegan Restaurant
201	Zeleni Venac	Chinese Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
206	Zemun	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
207	Zemun Backa	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
209	Zemunski Kej	Mexican Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant

68 rows × 4 columns

Results

CLUSTER 2

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	Neighbourhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
11	Banovo Brdo	Fast Food Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
76	Karaburma	Fast Food Restaurant	Eastern European Restaurant	Theme Restaurant
146	Rudo	Fast Food Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant

Results

CLUSTER 3

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	Neighbourhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
57	Golf Naselje	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
136	Petlovo Brdo	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
168	Sumice	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
192	Vojni Put	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
193	Vojni Put I	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
194	Vojni Put II	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant
203	Zeleznicka Kolonija	Eastern European Restaurant	Theme Restaurant	Vegetarian / Vegan Restaurant

Conclusion

- In this project, we investigated the preferences of the neighborhoods of the city of Belgrade regarding different restaurant types. We managed to identify three different clusters of neighborhoods. First cluster indicate that central neighborhoods are populated with the wide variety of different restaurants. Second cluster managed to identify three neighborhoods with the preferences to fast food/theme restaurants combination, while the last cluster showed the neighborhoods which prefer Eastern European cuisine.

- We hope that the findings of this project could help interested parties to understand restaurant preferences of different Belgrade neighborhoods. Also, these results could hopefully be beneficial for the potential future restaurant owners.

References

- https://en.wikipedia.org/wiki/List_of_Belgrade_neighbourhoods_and_suburbs

- https://foursquare.com/

- https://pypi.org/project/geocoder/

- https://en.wikipedia.org/wiki/K-means_clustering

- https://en.wikipedia.org/wiki/Silhouette_(clustering)

- https://www.coursera.org/learn/applied-data-science-capstone/home