The Battle of Neighborhoods in Bonn

Analysing a City of choice: Bonn, Germany

Acknowledgement

The data for this report were obtained with a Juypter notebook (shared on GitHub) which is based on a notebook created by Alex Aklson and Polong Lin. Copyright © 2018 Cognitive Class. The original notebook and its source code are released under the terms of the MIT License.

Objectives

1. Write a full report consisting of all of the following components:

- Introduction where you discuss the business problem and who would be interested in this project.
- Data where you describe the data that will be used to solve the problem and the source of the data.
- Methodology section which represents the main component of the report where you discuss and describe any exploratory data analysis that you did, any inferential statistical testing that you performed, if any, and what machine learnings were used and why.
- Results section where you discuss the results.
- Discussion section where you discuss any observations you noted and any recommendations you can make based on the results.
- Conclusion section where you conclude the report

Table of Content

1. Introduction

The skills and tools learned in the previous sessions, specifically to use location data to explore a geographical location, will be applied by anlysing the neighborhoods of the City of "Bonn" in Germany. For the "story telling" I will follow suggestion 2 (of the project description) and try to find answers for questions such as:

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"If someone is looking to open a restaurant, where would you recommend that they open it? If a contractor is trying to start their own business, where would you recommend that they setup their office? If you would move for a job which neighborhood would you choose for housing?"
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As this project will be **peer-reviewed**, I assume that the reader knows the basics of Python Programming, API calls, the Folium Library, Choropleth maps, and k-clustering. As the reader might be unfamiliar with my City of Choice, i.e. the City of Bonn, I recommend that the interested reader consults the wikipedia page for additional information (https://en.wikipedia.org/wiki/Bonn).

The population of Bonn is with around 300 000 people much smaller than the previously studied Cities of New York and Toronto. Nevertheless, the city of Bonn was from 1949 to 1990, the capital of West Germany. Still roughly a third of all ministerial jobs in Germany are located in Bonn and the headquarters of Deutsche Post DHL and Deutsche Telekom, both DAX-listed corporations, are in Bonn.

The Neighborhood Analysis exercised for New York and Toronto has clearly shown that location data retrieved from Foursquare severs provides valuable information about the local distribution of leisure venues. We have analysed the distribution of leisure venues in the context of **tourism** and of **moving from one neighborhood to another for a job offer**.

Additional to providing such information, I will demonstrate how a visualization of the spatial distributions of venues such as cafés and restaurants helps to **understand the field of competitors**. This information is not only valuable for the person who wants to start such a buisness, but as well for investor who have to decide if such a buisness might be sucessful.

2. A description of the data

As I was quite impressed by the provided examples using **choropleth maps** to visualize crime rates

in San Francisco or Migration to Canada, I will use a **open data GeoJSON file** (https://opendata.bonn.de/dataset/fl%C3%A4chen-der-ortsteile) for allowing choropleth map visualization in the context of analysing the City of Bonn.

Additionally, I will use publicly availiable data about the **population distribution** per **municipal district** from wikipedia (https://en.wikipedia.org/wiki/Bonn).

The **geocoder package** allowing to retrieve **arcgis data** by API calls will be used to retrieve longitude and latitude values.

As a correction of geo data was necessary, additional geo data will be used by copy-pasting wikipedia data. A parser approach as for the Toronto neighborhood analysis did not prove to be efficient as not a single page, but several pages needed to be searched for information.

The core data for this analysis will be retrieved by API calls from **Foursquare** servers as for the Toronto and New York analysis.

The **usage of the data to solve the problem**, i.e. providing information and finding answers relevant for tourists, people who want to change neighborhood, business founders and investors will be **similar** to the approach applied in the Toronto and New York analysis. The subsequent code and explanatory markdown cells illustrate how the data will be used solve the problem.

3. Methodology section

Methodology section which represents the main component of the report where you discuss and describe any exploratory data analysis that you did, any inferential statistical testing that you performed, if any, and what

machine learnings were used and why.

4. Results

Results section where you discuss the results.

5. Discussion

Discussion section where you discuss any observations you noted and any recommendations you can make based on the results.

6. Conclusion

Conclusion section where you conclude the report.

References