

Open a restaurant in Berlin

A. Introduction

A.1. Description & discussion of the background

Berlin is the capital of Germany. In terms of residents, it is the second largest city in the European Union after London. Berlin is also one of the top 3 travel destinations in Europe. The person living in Berlin in June 2019 is 3,644,826. According to a population forecast for Berlin and the districts 2015 - 2030, further growth of 75,000 people can be expected from the end of 2020 to 2030. The growth of tourism and Berliners is motivating an investor to open a new restaurant in this city. The question now is which borough will be suitable for this project. The purpose of my work is to find a suitable borough for a new restaurant in Berlin. Berlin is divided into 12 boroughs. My first idea is to visualize the borough with the most important residents and then I will also use a cluster method to locate the districts that can be attractive to an investor.

A.2. Data description

To consider the problem I use following sources:

- I found in Wikipedia a table with boroughs of Berlin, the number of residents per borough, the surface of the boroughs and more information. I use this table to set up 2 data files. The first data file contains a table with the boroughs of Berlin and their number of residents. I will use this file to create a vertical bar chart to visualize the boroughs with the number of their residents. The second data file contains the boroughs of Berlin with their latitude and longitude. The second file will be used for the clustering.
- I used Google Map to get the center coordinates of each Borough.
- I will use Foursquare API to get the most common venues of given borough of Berlin.

Following data frame shows the boroughs of Berlin with their number of residents.

| | Borough | Resident |
|-----------|----------------------------|-----------------|
| 0 | Mitte | 384.172 |
| 1 | Frierichshain-Kreuzberg | 289.762 |
| 2 | Charlottenburg-Wilmersdorf | 342.332 |
| 3 | Spandau | 243.977 |
| 4 | Steglitz-Zehlendorf | 308.697 |
| 5 | Tempelhof-Schoeneberg | 351.644 |
| 6 | Neukoelln | 329.691 |
| 7 | Treptow-Koepernick | 271.153 |
| 8 | Marzahn-Hellersdorf | 268.548 |
| 9 | Lichtenberg | 291.452 |
| 10 | Reinichendorf | 265.225 |
| 11 | Pankow | 407.765 |

Following data frame shows the boroughs of Berlin with their latitude and longitude

| | Borough | Latitude | Longitude |
|-----------|----------------------------|-----------------|------------------|
| 0 | Mitte | 52.531677 | 13.381777 |
| 1 | Frierichshain-Kreuzberg | 52.515816 | 13.454293 |
| 2 | Charlottenburg-Wilmersdorf | 52.500000 | 13.283333 |
| 3 | Spandau | 52.551100 | 13.199210 |
| 4 | Steglitz-Zehlendorf | 52.430884 | 13.192662 |
| 5 | Tempelhof-Schoeneberg | 52.472160 | 13.404954 |
| 6 | Neukoelln | 52.520008 | 13.566667 |
| 7 | Treptow-Koepernick | 52.450000 | 13.566667 |
| 8 | Marzahn-Hellersdorf | 52.536107 | 13.604973 |
| 9 | Lichtenberg | 52.534306 | 13.502326 |
| 10 | Reinichendorf | 52.566667 | 13.333333 |
| 11 | Pankow | 52.592879 | 13.431700 |

Data Source: https://de.wikipedia.org/wiki/Verwaltungsgliederung_Berlins