Capstone Project- The Battle of Neighborhoods
Munich vs. Berlin

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Report

1. Introduction/Business Problem

1.1 Problem description

Two of Germany's most wanted cities are Berlin and Munich. The first cities that come to everybody's mind, when thinking about diversity and a place to be. However, if you think about having agony of choice to pic a restaurant, what would be your first thought?

Exactly,

- where can I find a restaurant?

- which restaurants have the highest user ratings?

- and of course, can I afford that?

1.2 focus and compromise

In this analysis, we will focus on picking the right borough to find a suitable restaurant. If you do not use any Foursquare premium API requests, this will be the compromise to select your destination.

Afterwards you can easily search the right restaurant via your mobile app and get the missing information.

We use free __*explore*__ requests to communicate with Foursquare database. As we decide for one borough, we will start one free premium request for __*trending*__ venues.

1.3 approach and target

First, we will have a look at different venue categories offered by Foursquare. Second, we will create an array for relevant restaurants categories. Therefore, data of both cities are quite comparable as we start to evaluate amount of suitable restaurant categories.

In addition, we will use the _k_-means clustering algorithm to split restaurant into clusters according to venue categories by Foursquare. Finally, we will use the Folium library to visualize the neighborhoods in Berlin and Munich and their emerging clusters.

Based on the results, my wife can decide whether she will have dinner in Munich or Berlin and to which borough I have to navigate her.

Anyway, she will only decide with her stomach. Rational evaluation of Foursquare data would exceed my competencies and is going to be outvoted.

But as soon as we arrive, we will look for the places with the highest foot traffic. So let's do that and get the trending venues around.

1.5 define restaurant categories

Since we like to eat in different restaurants and experience new kitchens, we just need the number of restaurants for the first step, regardless of quality, price or user rating.

To be comparable, here's a list of venue categories, we would like to compare the cities:

```
restaurants = ['American Restaurant',
    'Asian Restaurant',    'Argentinian Restaurant',    'Fast Food Restaurant',
    'Bavarian Restaurant',    'Chinese Restaurant',    'Eastern European Restaurant',
    'English Restaurant',    'Falafel Restaurant',    'German Restaurant',
    'Greek Restaurant',    'Indian Restaurant',    'Israeli Restaurant',
    'Italian Restaurant',    'Mediterranean Restaurant',    'Mexican Restaurant',
    'Middle Eastern Restaurant',    'Modern European Restaurant',    'Restaurant',
    'Seafood Restaurant',    'Sushi Restaurant',    'Thai Restaurant',
    'Theme Restaurant',    'Vegetarian / Vegan Restaurant',    'Vietnamese Restaurant',
    'Beer Garden',    'Bistro',    'Burger Joint',
    'Burrito Place',    'Creperie',    'Fried Chicken Joint',
    'Pizza Place',    'Steakhouse']
```