

Analysis on Aachen on opening a new business

Introduction

The Problem consists of solving where to open a new business in Aachen. In order to solve the task location data is needed to examine the area on how many shops are nearby and a segmentation of potential customers is needed.

Therefore, the data to be collected could be of use for people who want to start a business nearby or who want to expand their existing one.

Data Description

The Data of nearby venues will be obtained by the Foursquare API and grouped by the type to determine the resident competition. Also, the rent index of the city will be evaluated which initially come from the service portal of the city of Aachen. To divide the districts the zip codes will be acquired from a database that provides all postcodes in Germany. The Geodata can be collected by the public opendatasoft website. And lastly the socio-demographic data is available at the open data portal of the city itself. All this data will be merged into one dataframe to conduct the analysis on.

Methodology

All the data is saved on my GitHub repository and created in IBM Watson Studio. The Main data consists of the zip codes, the name of the districts, their latitude, longitude, their geometric shape and the average rental price.

| | Post Code | District | Latitude | Longitude | Geometry | Charge |
|---|-----------|-------------|-----------|-----------|---|-----------|
| 0 | 52062 | Center | 50.777065 | 6.086469 | [[[6.0746397, 50.778233399999976], [6.0755047, ... | 7,68 Euro |
| 1 | 52064 | Center | 50.767342 | 6.078569 | [[[6.061015, 50.764468599999999], [6.0612398, 50... | 7,68 Euro |
| 2 | 52066 | Center | 50.757600 | 6.104802 | [[[6.0720627, 50.750662499999998], [6.0732045, 5... | 7,68 Euro |
| 3 | 52068 | Haaren | 50.779753 | 6.125916 | [[[6.1008512, 50.779934499999999], [6.103057, 50... | 6,65 Euro |
| 4 | 52070 | Laurensberg | 50.793840 | 6.096248 | [[[6.0704272, 50.790093899999999], [6.0707235, 5... | 7,71 Euro |

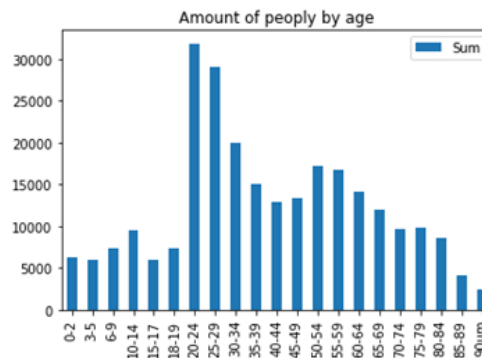
Then the Foursquare API was used to find 100 nearby venues with their address and type. 100 is the limit on how many entries can be returned with a free version.

| | Name | Address | Latitude | Longitude | Category |
|---|---------------------------------|------------------|-----------|-----------|---------------|
| 0 | Aachener Dom St. Marien | Klosterplatz 2 | 50.774702 | 6.084103 | Church |
| 1 | Katschhof | Katschhof | 50.775611 | 6.083909 | Plaza |
| 2 | Domhof | Domhof | 50.774658 | 6.083297 | Plaza |
| 3 | AKL | Pontstr. 1-3 | 50.776967 | 6.083277 | Falafel |
| 4 | Vertical Weinbar | Kockerellstr. 13 | 50.776288 | 6.081469 | Wine Bar |
| 5 | BURGERISTA | Am Markt 46 | 50.776384 | 6.084331 | Burgers |
| 6 | Ghorban Delikatessen Manufaktur | Krämerstr. 5 | 50.776016 | 6.084324 | Deli / Bodega |
| 7 | Rathaus | Markt | 50.776378 | 6.083880 | City Hall |
| 8 | Nobis Printen | Münsterplatz 3 | 50.774577 | 6.084693 | Bakery |
| 9 | Domkeller | Hof 1 | 50.775588 | 6.085062 | Pub |

The types were grouped into a table to find the most common venue. Since the count is not as high as expected which means that the venue types are quite diverse. Also, this analysis would greatly improve on having a higher rate limit on the API. Nevertheless, the most common venues are bars, bakeries and cafés.

| | Count |
|-------------|-------|
| Bar | 7 |
| Bakery | 6 |
| Café | 5 |
| Italian | 5 |
| Coffee Shop | 5 |

The social demographic data was analyzed to categorize potential customers. For that the people living there were classified according to their age and mapped to the district they live in.



| | District | People |
|---|------------------|--------|
| 0 | Brand | 17247 |
| 1 | Eilendorf | 15981 |
| 2 | Forst | 13467 |
| 3 | Ponttor | 12916 |
| 4 | Haaren | 12535 |
| 5 | Hangeweiher | 11680 |
| 6 | Laurensberg | 10662 |
| 7 | Adalbertsteinweg | 10212 |

Conclusion

The largest market in Aachen in terms of types of venues consists of Bars, Bakeries and Cafés. This is probably the case due to the high amount of people between 20 and 34 which make up more than 30% of the population (more than 80000 in total). Since most people do not live directly in the center of the city opening a store in different regions in order to save rental fees should not be a concern.

