

Capstone Project - The Battle of the Neighborhoods (Week 2)

Applied Data Science Capstone by IBM/Coursera

Data Analysis for Promotion of Vehicle Insurance in each borough of Munich city

Introduction

One of the vehicle insurance companies wants to increase the number of people having cars or motorbikes to use their company's vehicle insurances. They want to do so by providing customized offers and promotions to the people of Munich having cars. They have a tie-up with automotive manufacturers, petroleum stations, car/motor-bike repair shops, etc and also have contact with many common app owners.

The vehicle insurance company can know when people are near the venues like automotive repair shops, gas/petroleum stations, etc, and wanted to send customized offers/promotions when people are near the venues where they have a tie-up with.

Now they want to segregate the people having similar characteristics into clusters so that they can send customized offers/promotions to increase their insurances count thereby increasing their revenue.

we will help the insurance company by analyzing the number_of_venues they have a tie-up within each region, number of working professionals, number of new cars registered in each region of Munich in a year to segment the whole Munich region into different segments.

Data Source

The data being used are

1. Car-registration data in each region of Munich
2. Population data in each region of Munich
3. Working professional data in each region of Munich

All the data can be obtained from the below sources

<https://www.opengov-muenchen.de/dataset/monatszahlen-kfz-neuzulassungen>

<https://www.opengov-muenchen.de/dataset/indikatorenatlas-bevoelkerung-einwohnerdichte-83r65mct>

<https://www.opengov-muenchen.de/dataset/bevoelkerung-stadtbezirken>

<https://www.opengov-muenchen.de/dataset/indikatorenatlas-bevoelkerung-hochbetagte-83r65mct>

After cleaning some of the columns of the final dataframe looks similar to the below figure

	borough	residents	surface	population density	share_total_population	latitude	longitude
0	Allach - Untermenzing	30737	1545.17	20.0	2.10	48.195157	11.462973
1	Altstadt - Lehel	20422	314.57	65.0	1.39	48.137828	11.574582
2	Au - Haidhausen	59752	421.96	142.0	4.08	48.128753	11.590536
3	Aubing - Lochhausen - Langwied	42305	3406.02	12.0	2.89	48.165059	11.400221
4	Berg am Laim	43068	631.46	68.0	2.94	48.123483	11.633451

Fig:2.1 Final dataframe

Using the Foursquare API, we get the nearby venues in each region of Munich

The vehicle insurance company is assumed to have a tie-up with the following venues

Motorcycle Shop, Automotive Shop, Rental Car Location', Auto Dealership, Gas Station, Parking, Hotel, Motel

Number of these venues in each region is found using Foursquare API and grouped based on region as shown in below

	borough	Number of places
0	Allach - Untermenzing	3
1	Altstadt - Lehel	5
2	Au - Haidhausen	2
3	Aubing - Lochhausen - Langwied	1
4	Berg am Laim	3
5	Bogenhausen	2
6	Hadern	1
7	Laim	2
8	Ludwigsvorstadt - Isarvorstadt	1
9	Maxvorstadt	3

Fig 2.2 Data from Foursquare API

