

Coursera Capstone

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Finding the best location for a new motorcycle BnB

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Introduction

When motorcyclist are travelling, they generally want to go to locations where there are a lot of scenic lookouts nearby. More and more bed and breakfasts (BnB's) are opening that are suited to those kind of travelers. It can be hard for those people to find a location that decreases the risk of competition, while still attracting enough visitors.

Business problem

The objective of this project is to detect the locations that are most suited for a new BnB. Using machine learning techniques, such as clustering, we will answer the following question: "In Belgium, if somebody wants to open a new BnB, what would be the most suited location?".

Target audience:

This project will be useful for people wanting to start an airBNB in the region of Belgium. Specifically for motorcyclists.

Data

The following data is needed to solve the problem:

- List of regions in Belgium
- Latitude and Longitude coordinates of those regions
- Venue data that is related to the project

Where to get the data from?

The list of regions will be scraped from the following pages:

https://nl.wikipedia.org/wiki/Lijst_van_gemeenten_in_het_Vlaams_Gewest

https://nl.wikipedia.org/wiki/Lijst_van_gemeenten_in_het_Brussels_Hoofdstedelijk_Gewest

https://nl.wikipedia.org/wiki/Lijst_van_gemeenten_in_het_Waals_Gewest

The coordinates of those regions will be retrieved using geocoding api.

Foursquare will be used to get venue data, specifically for scenic lookouts and hotels in the region.

Methodology

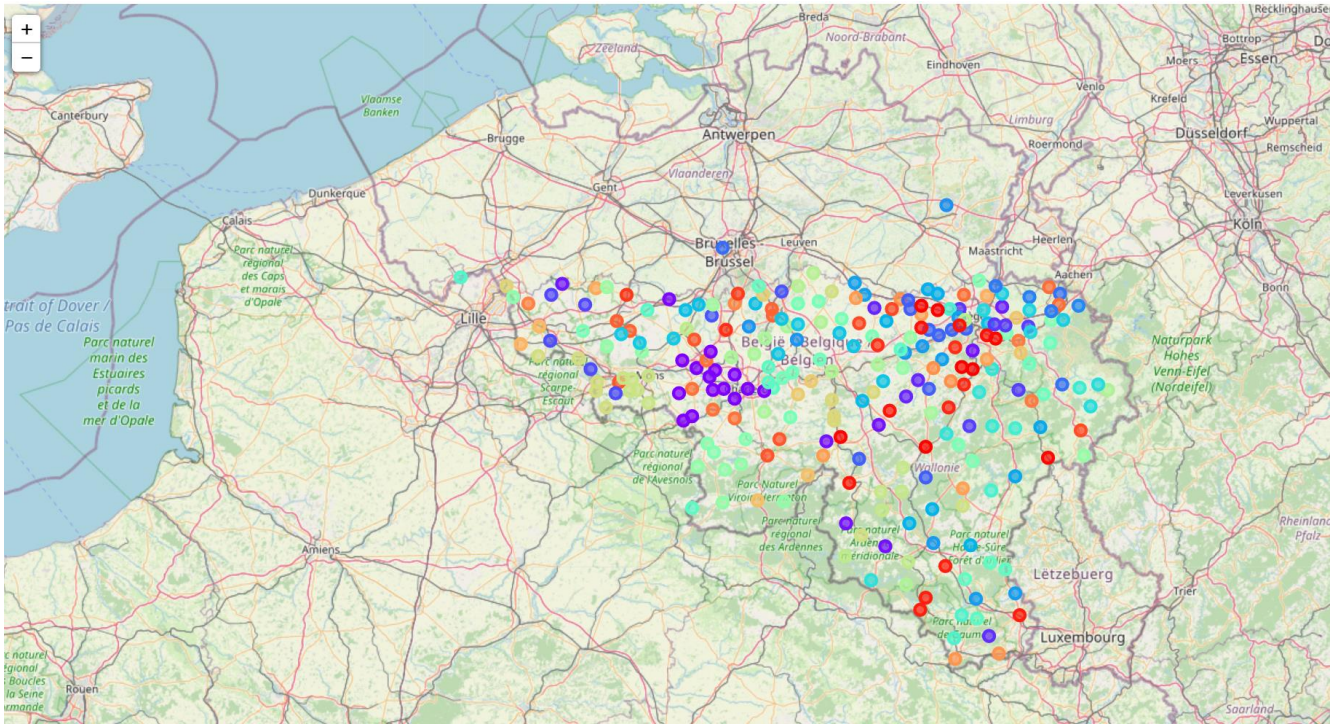
Once all data is gathered, the regions can be clustered together using the k-means method. This will give us clusters of similar regions based on the following features:

- Latitude
- Longitude
- Number of bed and breakfasts
- Number of scenic lookouts

After this, we need to group the data on cluster level, averaging the coordinates and taking the sum of the lookout points and the number of BnB's. We also add a ratio table to get an idea of the difference between lookout points and BnB's.

Results

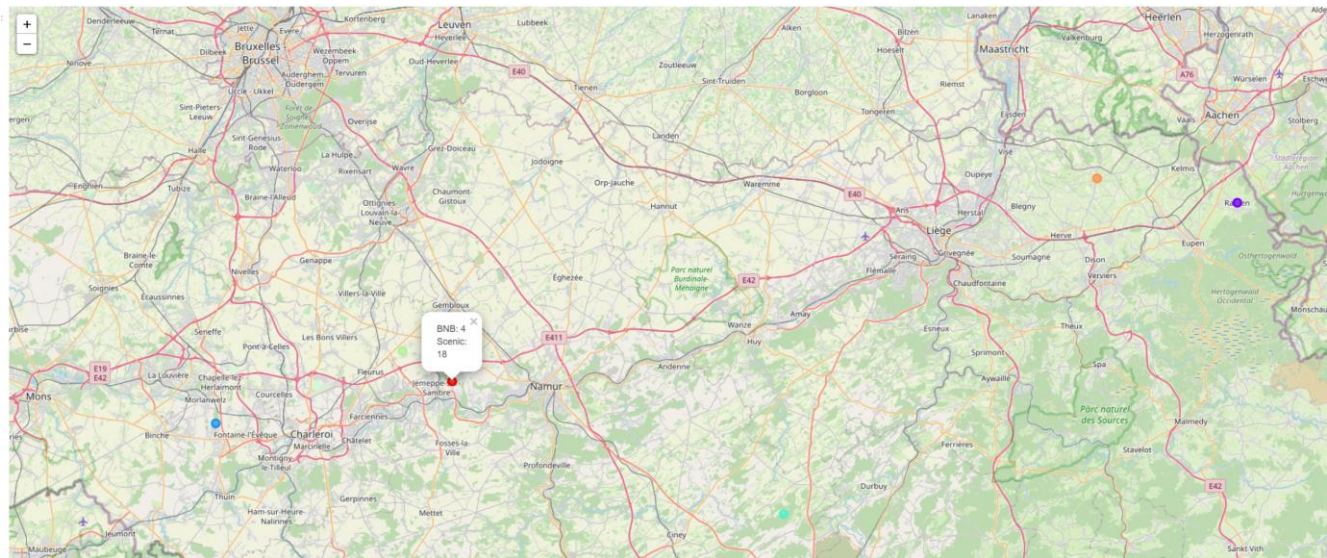
The following clusters were found:



What follows is an overview of the most ideal locations to start a new Bed and Breakfast for motorcyclists.

	Cluster Labels	Latitude	Longitude	Bed & Breakfast	Scenic Lookout	Ratio
0	48	50.472442	4.696927	4	18	4.500000
1	19	50.676130	6.110840	7	19	2.714286
2	1	50.424191	4.270630	14	28	2.000000
3	60	50.319766	5.293815	16	30	1.875000
4	59	50.507538	4.606792	13	22	1.692308
5	18	50.704150	5.858555	16	27	1.687500

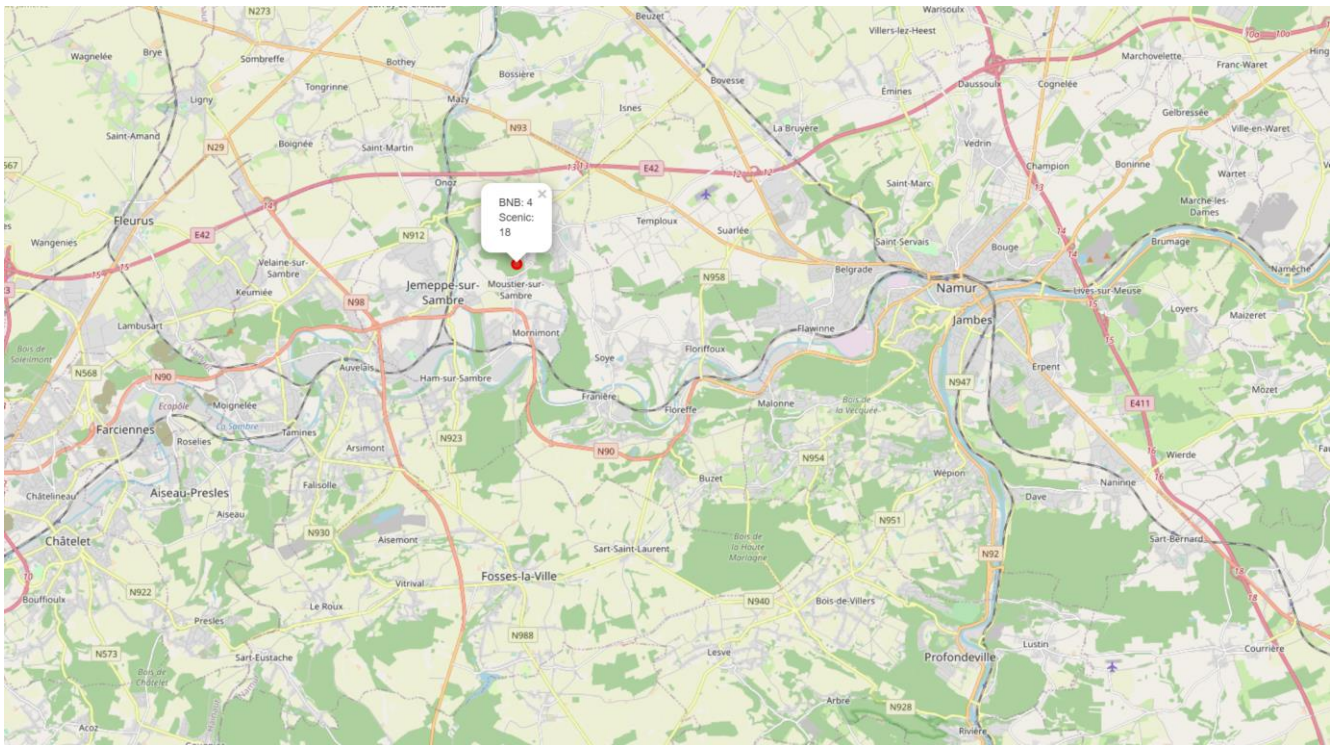
These ones are located as follows:



Discussion

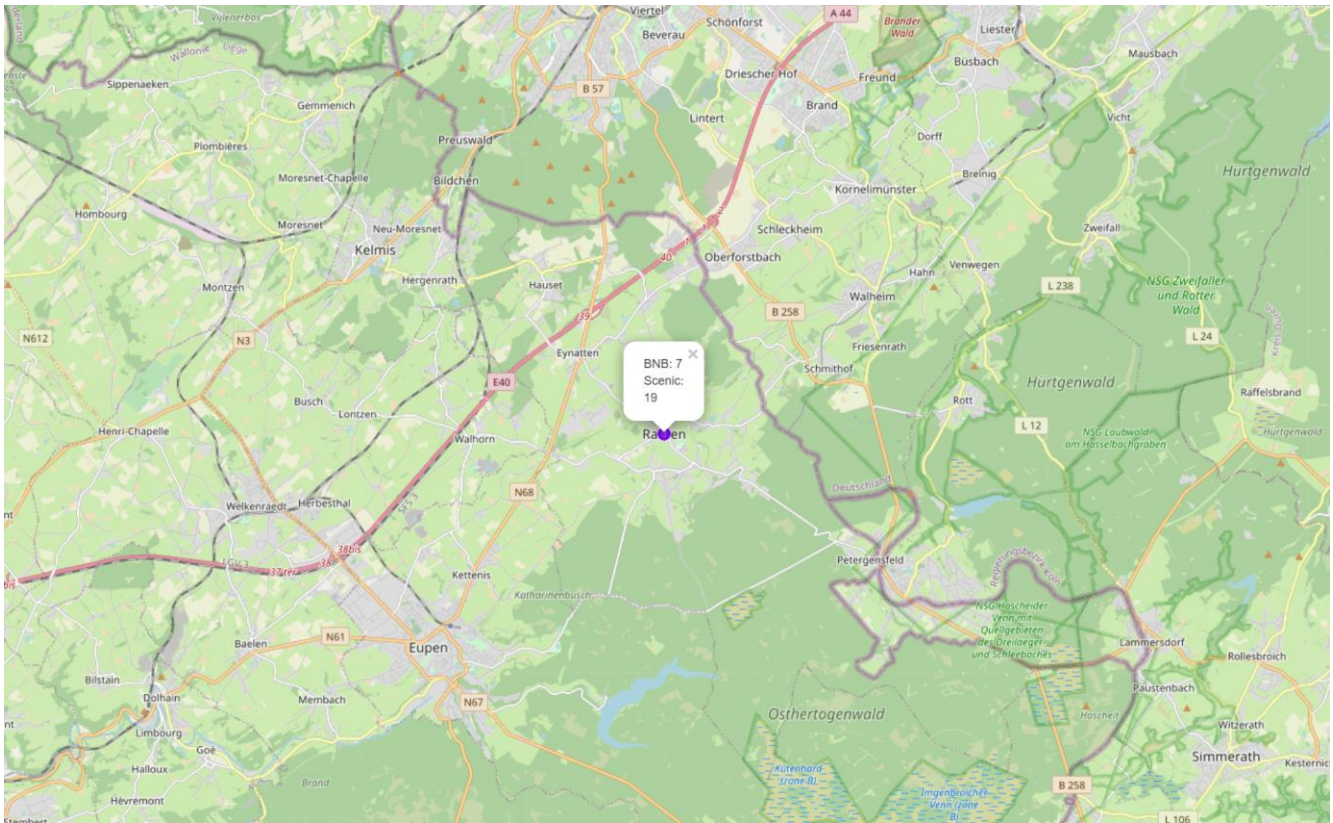
When looking on the map, we can say that there are 2 regions that look very interesting:

1. The region around Jemeppe Sur Sambre



This one has 18 scenic lookout points and only 4 bed and breakfasts nearby.

2. The region around Raeren



This one is a close second with 19 scenic lookouts and only 7 bed and breakfasts.

Conclusion

When analyzing the data from foursquare, we can say that there is one region that is the most interesting to start a new bed and breakfast, and this is Jemeppe Sur Mar. Doing this will offer the visitors a lot of things to see in the area, while minimizing the competitors on the market.