Brussels: Where to implement a restaurant dedicated for young people from 20 to 40 years old?

Introduction

My project is to find the best place in Brussels to implement a restaurant for young people from 20 to 40 years old. As the capital city of Europe, Brussels is a dynamic city with multicultural people from all over the people. It already exists plenty of places that offer good food, good vibe and nice environment. But as all the big cities, everything is spread all over the 19 municipalities composing Brussels and it can be quite challenging to know in which neighborhood it would be the best to go out. Belgian people are keen on going out for sharing a good dinner and they always look forward to discover new places and new food. So implementing a restaurant would always be a succes. But depending which kind of customers you want to reach, it seems essential to have an overal view of the population. I decided to focus on younger people from 20 to 40 years old. The aim of the project is to identify in which municipalities stay the targeted population and which kind of restaurant already exist in these municipalities to open a new business.

Data

For my project, I will need data about Brussels population sorted by age and municipality, and an overview about existing restaurants.

For the population, I used a link from Brussels website: http://ibsa.brussels/themes/population#.XlqYFUqQhPY that contains Brussels population sorted by age and municipality. I chose to focus on people from 20 to 40 years old. The data is contained in a Excel sheet where we can find the population sorted by age and by municipality.

For the restaurants, I used Foursquare to get an overview of the existing restaurants located in Brussels.

Methodology

The first step will consist in exploring the 19 municipalities of Brussels and pointing the 5 municipalities where you find the most people aged from 20 to 40 years old as described in the introduction

Thanks to the Excel sheet provided by Brussels website, we have the data needed. I used Pandas to import the Excel file and then I cleaned the frame to keep the targeted population sorted by municipalities. Geopy will then give me the location of the 19 municipalities which will be useful to put the data on a map. Folium is used to create a map where we will find a marker for

each municipality. The shape of the marker is directly linked with the population established in every municipality

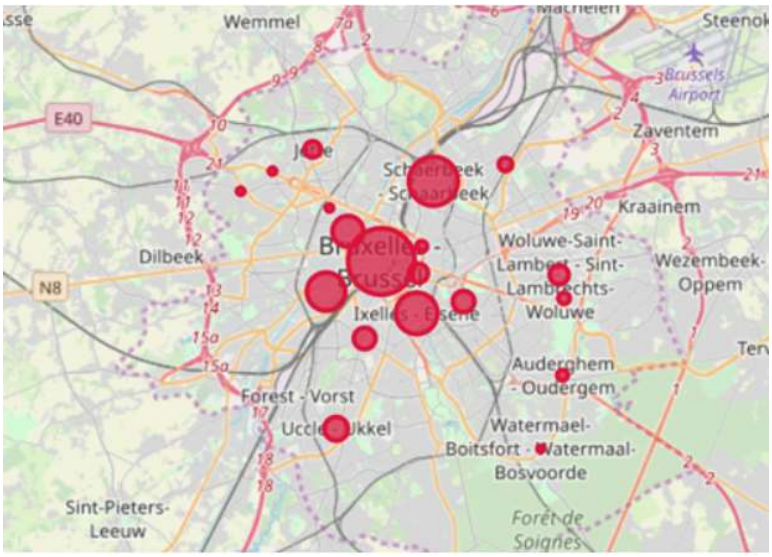
	Municipalities	20-24 ans	25-29 ans	30-34 ans	35-39 ans	Total	latitude	longitude
0	Anderlecht	7857.0	8598.0	8886.0	8932.0	34273.0	50.839098	4.329653
1	Auderghem	2094.0	2524.0	2426.0	2572.0	9616.0	50.817236	4.426898
2	Berchem Sainte-Agathe	1429.0	1636.0	1672.0	1789.0	6526.0	50.864923	4.294673
3	Bruxelles	11654.0	16690.0	16488.0	14924.0	59756.0	50.846714	4.352514
4	Etterbeek	2988.0	6156.0	5737.0	4482.0	19363.0	50.836145	4.386174
5	Evere	2437.0	2967.0	3344.0	3275.0	12023.0	50.872010	4.403418
6	Forest	3199.0	4329.0	4824.0	4965.0	17317.0	50.843671	4.367437
7	Ganshoren	1314.0	1600.0	1847.0	1747.0	6508.0	50.870327	4.307798
8	Ixelles	6342.0	12107.0	10703.0	8052.0	37204.0	50.833114	4.366828
9	Jette	2978.0	3787.0	3990.0	4091.0	14846.0	50.875959	4.324570
10	Koekelberg	1266.0	1636.0	1751.0	1842.0	6495.0	50.860604	4.331550
11	Molenbeek Saint-Jean	6194.0	6844.0	7379.0	7243.0	27660.0	50.854596	4.338636
12	Saint-Gilles	3251.0	5626.0	5615.0	4834.0	19326.0	50.826741	4.345668
13	Saint-Josse-ten-Noode	2080.0	2769.0	2570.0	2365.0	9784.0	50.850820	4.369163
14	Schaerbeek	8816.0	11749.0	12028.0	11348.0	43941.0	50.867604	4.373712
15	Uccle	5024.0	5669.0	5187.0	5512.0	21392.0	50.803544	4.333844
16	Watermael-Boitsfort	1451.0	1522.0	1449.0	1451.0	5873.0	50.798106	4.417644
17	Woluwe Saint-Lambert	3410.0	4858.0	4454.0	4307.0	17029.0	50.843048	4.425673
18	Woluwe Saint-Pierre	2373.0	2679.0	2502.0	2656.0	10210.0	50.837025	4.427464

The second step will consist in exploring the restaurants already existing in Brussels.

Foursquare will be used to extract the data and give us an overview of the different venues that can be find in Brussels. The venues will be sorted by municipality. After a research via Foursquare API, I could identify the most common venues with a limit of 100 venues by municipality and sort them by area.
I kept the 5 most common venues and decided to use an unsupervised machine learning method to cluster them in 5 groups. I used the k-means clustering to get 5 distincts groups. "Sklearn.cluster" allowed me to get 5 clusters based on the most common venues. I then used Folium to create a map that shows the 5 differents clusters.

Results

Concerning the population, the data allowed us to extract the 5 municipalities with the most important population aged between 20 and 40 years old. An amount of 379.142 persons between 20 and 40 years live in the 19 municipalities. The top 5 municipalities are: Brussels(15,8%), Schaerbeek(11,6%), Ixelles(9,8%), Anderlecht (9%) and Molenbeek(7,3%). So let's focus on these 5 municipalties to figure out which type of restaurants already exist in that area. The map bellow shows where are situated these municipalities.The size of the markers are directly correlated with the size of the population from 20 to 40 years old.



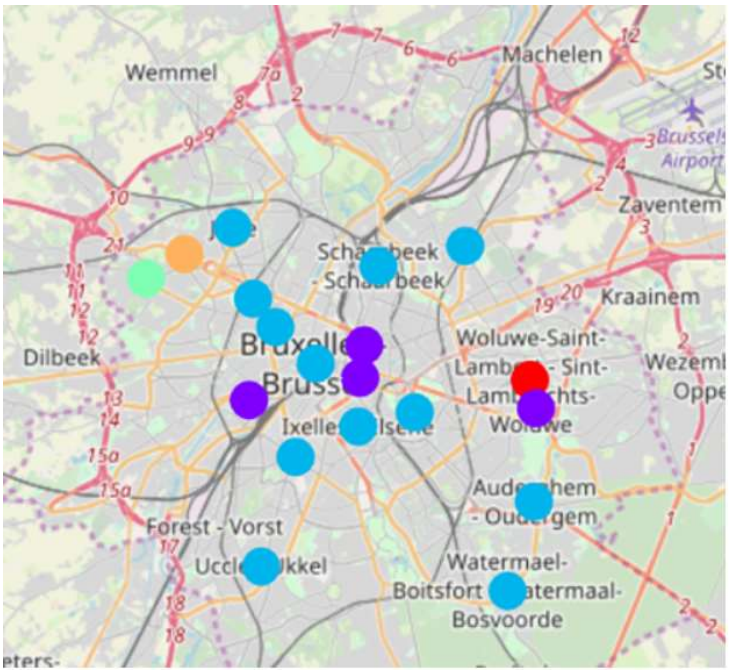
The research via Foursquare API and the clustering method show us 5 distincts groups. The first cluster includes only one municipality: Woluwe-Saint-Lambert. The second cluster includes 2 municipalities: Anderlecht and Forest and is caracterized by sandwich places. Anderlecht is part of our targeted population.

Municipalities	Total	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	Cluster
Anderlecht	34273.0	Sandwich Place	Hotel	Deli / Bodega	Vegetarian / Vegan	Food Court	2
Forest	17317.0	Sandwich Place	Hotel	Café	Plaza	Italian Restaurant	2
Saint-Josse-ten-Noode	9784.0	Italian Restaurant	Sandwich Place	Plaza	Pizza Place	Concert Hall	2
Woluwe Saint-Pierre	10210.0	Italian Restaurant	Supermarket	French Restaurant	Bistro	Wine Shop	2

The third cluster includes 12 of the 19 municipalities and 4 of the targeted ones: Bruxelles, Ixelles, Molenbeek and Schaerbeek. However this third cluster is mainly caracterized by italian/pizza places and bar, Bruxelles's most common venues are definitely mre linked to belgian culture as it is chocolate shop, beer bar and belgian restaurant. Ixelles seem more multicultural with italian and african restaurants. Molenbeek regroups snacks and bar and finally Schaerbeek which most common venues are tram station, bakery and plaza.

Municipalities	Total	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	Cluster
Auderghem	9616.0	Fast Food Restaurant	Bakery	Thai Restaurant	Middle Eastern	Sushi Restaurant	3
Bruxelles	59756.0	Chocolate Shop	Beer Bar	Belgian Restaurant	Bar	Sandwich Place	3
Etterbeek	19363.0	Italian Restaurant	Bakery	Sandwich Place	Plaza	Pizza Place	3
Evere	12023.0	Snack Place	Restaurant	Bakery	Hockey Field	Pizza Place	3
Ixelles	37204.0	Italian Restaurant	Bar	African Restaurant	Tea Room	Bakery	3
Jette	14846.0	Pizza Place	Bakery	Bar	Cosmetics Shop	Gym / Fitness	3
Koekelberg	6495.0	Convenience Store	Gym	Bar	French Restaurant	Snack Place	3
Molenbeek Saint-Jean	27660.0	Bar	Snack Place	Furniture / Home Store	Coffee Shop	Cocktail Bar	3
Saint-Gilles	19326.0	Bar	Brasserie	Plaza	Pizza Place	Italian Restaurant	3
Schaerbeek	43941.0	Tram Station	Bakery	Plaza	Supermarket	Gastropub	3
Uccle	21392.0	Bakery	Cosmetics Shop	Supermarket	Sandwich Place	Italian Restaurant	3
Watermael-Boitsfort	5873.0	Restaurant	Italian Restaurant	Park	Chinese Restaurant	Gastropub	3

The fourth cluster includes only one municipality which is not part of our targeted group. The map below shows the 5 clusters represented by 5 differents colours. In light blue, the cluster in which belongs 4 of the 5 chosen municipalities.



Discussion

Following the results, it appears that different options would be possible for this business depending which strategy we are going to follow.
Let's exclude Anderlecht which is part of the second cluster caracterized by sandwich place as this is not this kind of venue we want to focus on. Bruxelles has a high rate of persons between 20 and 40 years old but has also plenty of tourists as is the center of the city where you can find all the main touristical attractions. So Brussels might not be the best location for a restaurant dedicated for locals young people.
Ixelles seems to be already the place where young people are going out with multicultural restaurants and bar. That would be a good location to implement a new restaurant if thinking only by what exists already around. But maybe that we could take the optin of a less busy municipality but still close to the famous ones. Molenbeek and Schaerbeek don't offer plenty of restaurants but are however part of the top 5 municipalities with the higher rate of young people. To impement a restaurant overthere might extend the well-known area of Ixelles and offer new intrestings locations for local people.

Conclusion

In conclusion, we decided to extract the 5 municipalities of Brussels-capital which have the highest rate of young people from 20 to 40 years old to find which of them is the best to implement a restaurant. We excluded Anderlecht as it's the only municipality which is not part of the third cluster so it might not be geographically optimum. Bruxelles would be a good option for a touristic restaurant but not for a local one. Ixelles has already a big offer so the risk is that a new restaurant would get lost as just another one. So finally still remain Molenbeek and Schaerbeek which seem the best options to implement a new restaurant as they have a high rate of young people and still not that busy with plenty of different offers.
But this study has his limits as we considered only the age of the population. There are plenty of differents aspects we should analyse and consider before implementing a new restaurant as the socio-economical level of the differents areas, the cultural aspect, the will of the population,...