

Where to open a bakery in the city of Amsterdam?

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1. Introduction/business problem

Entrepreneurs that want to open a bakery are interested in the best location to do this. However, not every location is suitable and it is not that easy to find the perfect spot based on Google Maps only. They want to make a comparison of locations based on the characteristics and based on their wishes. Therefore we are looking for the best location to open a bakery in Amsterdam.

Based on location data we are going to find the best location for a bakery in Amsterdam. The best location has to meet the following criteria:

- There are no other bakeries nearby
- The location is close to the city center of Amsterdam

With the help of Data Science techniques we will find the best location.

2. Data

The Google Maps API is used to gather the location of the city center of Amsterdam.

The location of the existing bakeries in and around the city center will be obtained using Foursquare API.

As there can no information be found about the location of the neighbourhoods in Amsterdam, we make use of a hexagonal grid. This divides the area in equally 'neighbourhoods'.

We will use the Google Maps API to gather approximate locations of the centers of those neighbourhoods. This will be done based on the latitudes/longitudes which are generated algorithmically.

3. Methodology

3.1 City center and neighbourhoods

First we start with obtaining the location data of the city center of Amsterdam (De Dam), using the Google Maps API. We define our area for analysis as 6 km around the city center of Amsterdam.

To define the neighbourhoods we create a hexagonal grid of areas around the city center, all equal in size with a radius of 300 meters. With this grid we obtain approximate locations of the centers of the created neighbourhoods as well as their distance from the city center. We can show the neighbourhoods on a map, where each neighbourhood is shown as a circle with radius of 300 meters.

3.2 Foursquare API

With the Foursquare API we get the information of all bakeries in every neighbourhood, within a range of 6 km around the city center of Amsterdam. With their locations we can show them on the map.

Then with the help of heatmaps we will find out what the potential places are where to open a bakery.

3.3 Focus areas

We finally have a better look at the potential areas. We will cluster (k-means clustering) the neighbourhoods and find out which of them meet the criteria we have set. They have to be close to the city center and there should be no or very few bakeries nearby. This will help us define places where we could open a bakery.

4. Results

We have seen that there are already quite some bakeries in and around the city center of Amsterdam (max 6km from De Dam). Although, we did find locations where the number of bakeries is less dense. We have found them on the south-east and west side of the city center. When we went on with the analysis we finally found out that the west side was not a good location as there were still bakeries in a range of 500 meters. So we focussed on the south-west part.

There were several locations with no bakery in a radius of 500 meters. We clustered those locations to get zones of potential locations. We got the locations of the centers of these zones as well.

We finally found 4 zones of locations in the south-west part of the city center and one north-west. The south-west happens to be a potential good location as it is still close to the city center, so this means lots of people every day. And on top of that it is right in between the central station and the popular zoo Artis. So, potential lots of people who want to grab a sandwich on their way. The north-east is a good location as well as it is close to the Jordaan, a popular and romantic part of Amsterdam.

5. Discussion

We have to consider that there might be a reason that there are no bakeries in these zones yet. We just created potential locations based on the criteria 'close to city center' and 'no bakeries nearby'.

So, this analysis is a very good starting point and the zones we created need to be explored in more detail to find the best location.

6. Conclusion

With this analysis we wanted to find locations where to open a bakery in/around the city center of Amsterdam with no other bakeries nearby. Herewith we want to help entrepreneurs narrowing down their potential locations.

With the Google Maps API we created neighbourhoods in Amsterdam and with the Foursquare API we obtained bakeries in Amsterdam and their locations.

With the set criteria and with the help of clustering, we could narrow down the potential locations to four zones. The centers of these zones can be considered as a starting point to find the best location to open a bakery around the city center of Amsterdam.

The entrepreneurs will have the final decision in which location suits the best, based on information we have not taken into account within this analysis.