Best locations for establishing new hotels in Budapest

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Applied Data Science Capstone by IBM/Coursera (Week 1)

Abstract

There is a steady state growing in the tourism of Budapest and similar growth is expected in the coming years. Thus, there is a business case to establish new hotel(s) in the city. And several stakeholders are eager to do so. This analysis try to explore the current market and propose possible locations for establishing a new hotels in Budapest in aiming stakeholders to choose the optimal location for a new hotel.

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1. Introduction

Every year, more and more people visit Budapest, the capital of Hungary and, even better, those visitors spend increasingly more time in the city (Budapest tourism). The passenger traffic of Budapest International Airport (BUD) increased heavily in the last 5 years (annual growth rate well above 10%) and by the end of this year is expected to almost double compared to 2013 (BUD traffic). Several developments have been carried out in the airport and more are planned for the near future. As a result, Budapest Airport has been awarded the Skytrax title for "Best Airport in the region" for the fifth time in a row. In the history of the most prestigious award in the industry based on passengers' votes, winning the title in five consecutive years by the same airport in the region has been unprecedented. (Skytrax award).

And this impressive increase should continue, as Budapest took first place in European best destination' voting for "BEST EUROPEAN TRAVEL DESTINATION". The notification of the winning the prize states that "no other winning European travel destination has received such international support, i.e. votes from outside the country concerned. 77% of the votes in support of Budapest came from outside Hungary, in particular the UK, USA, Germany, France, Austria and Italy (BEST EUROPEAN TRAVEL DESTINATION). The EU remains an attractive destination for Chinese tourists, and while the U.K. is still the most popular looking at sheer numbers, Hungary's 25.1% growth in arrivals in 2018 puts the country in third place in terms of relative growth (Chinese tourist arrivals).

2. Business understanding

The increasing number of tourists visiting Budapest need to be accommodated somewhere. Thus, there is a great potential in establishing new hotels in Budapest in the coming years. But before starting to build a new hotel (either from the ground or by renovating an existing old building) requires a good understanding of the best locations which guarantee a good percentage of occupancy of the hotel over the whole year. For this reason, one should avoid locations where there are already plenty of hotels, and choose locations where tourists are still frequent, but hotels are rear. Hotel location shall also count the proximity of the metro station and popular sites, like landmarks, monuments, historic sites, museums, and even spas. This data analysis tries to help stakeholders in selecting the best locations in Budapest for establishing new hotels.

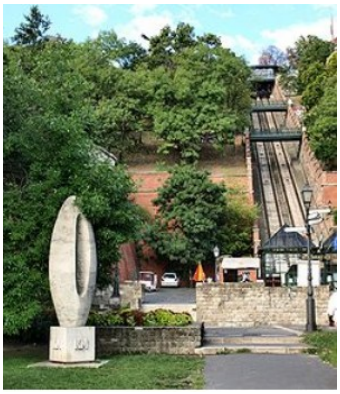
3. Data collection and analysis

Based on definition of our problem, factors that will influence our decision are:

- number of existing hotels in the neighborhood
- distance to nearest metro station
- distance from the city center
- number of nearby popular sites (landmarks, monuments, historic sites, museums, spas)

For gathering data we use the Foursquare API. Subcategory IDs are taken from Foursquare web site https://developer.foursquare.com/docs/resources/categories. Google map for obtaining geographical location was also used.

Finding the geographical location of Budapest



Budapest geographical location can be obtained from coordinates of Budapest which represents the so called 0km statue from where the counting is started for all main motorways and roads of Hungary going out of Budapest. This 0km statue is on the Clark Adam square near the Chain Bridge (see embedded picture above) and Budavár Castle (from where the above picture was taken). On the picture below you can see the 0km statue with the funicular in the back which takes you to the Budavár castle.

Collecting geographical locations for metro stations in Budapest

There is a direct relation between flat prices and proximity of metro station (Subway proximity effect), thus during analysis the distance of the metro stations are also counted. For this reason geographical location of metro stations are also queried using Foursquare API with category 'metro station', explore endpoint, and 10km radius. The query result is converted to a pandas dataframe. The data provided by Foursquare API need be cleaned, thus unnecessary rows from the dataframe is removed. The total number of metro stations in Budapest is 52, but the list is reduced to 48 because locations where you can switch to another metro is counted only once.

Collecting geographical locations of popular sites in Budapest

From my personal experience, tourist are in favor of hotels which are in close proximity to the most of the popular sites, like monuments, landmarks, historic sites, museums and spas in the city. Spas is included here because Budapest is famous of the dozens of spas, one of the famous being the Széchenyi thermal bath in the City Park.

The following categories are used to query the popular sites using Foursquare API with explore endpoint, and 15km radius:

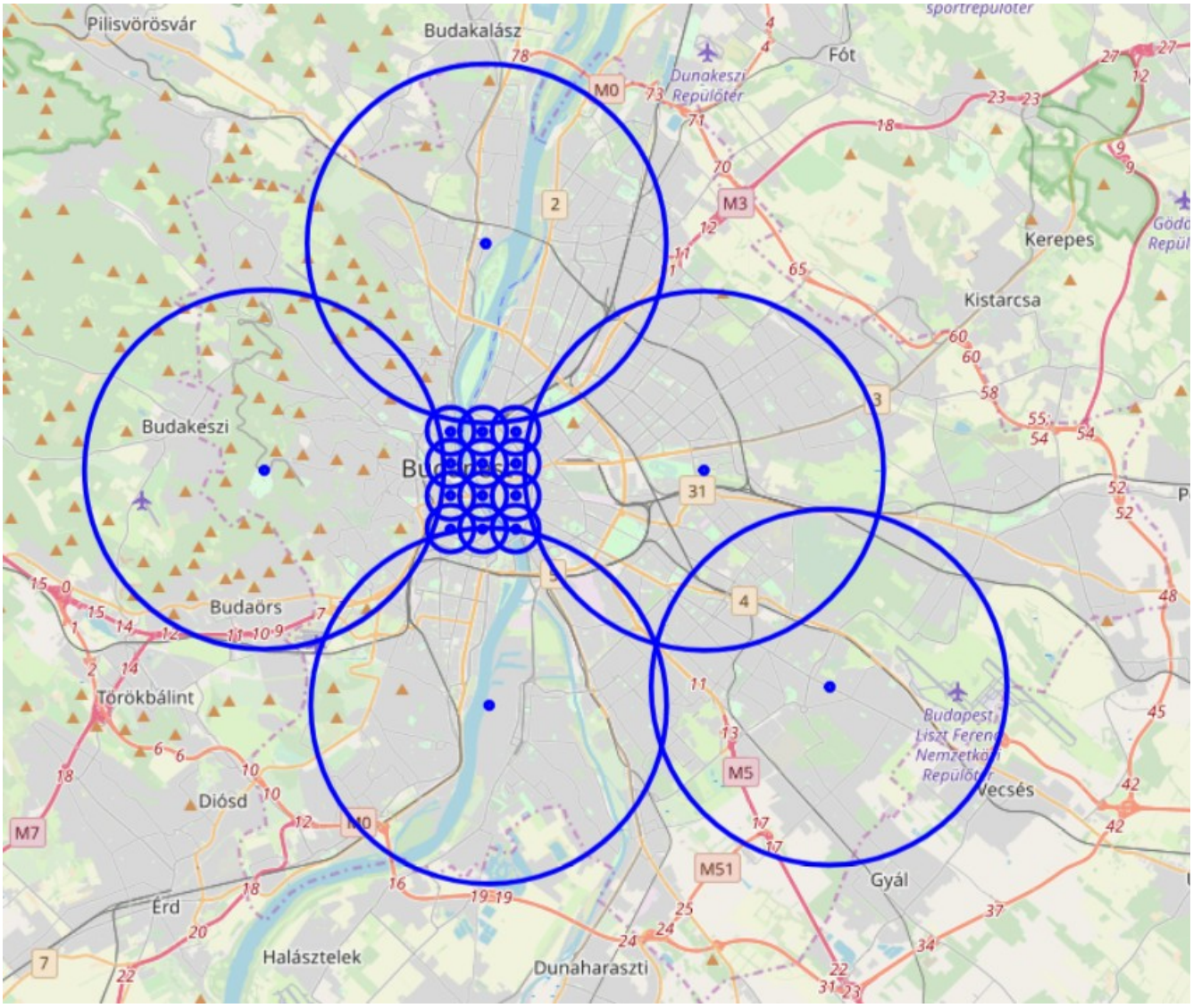
- Monument / Landmark
- Historic Site

- Museum
- Spa

The obtained results are converted to pandas dataframe and merged together removing duplicated sites (which have identical geographical locations).

Collecting geographical locations for hotels

At first, the geographical location of each district for querying the hotel locations was used. Unfortunately, due to limitation of max. 100 returned findings of Foursquare API that was not a possible choice. After several hours of struggling the final idea was to create a fine grid around the downtown (9 geographical locations with 708m radius) and create additional 5 geographical locations outside of this fine grid, one to north, one to south, one to west, and one to east, each at 5km from the edge of the fine grid shown above on the map. Because Budapest has an elongated shape toward its airport, then we should add another location to south-east. Some small outside portion of outskirt districts are not covered on the east side of Budapest, but these locations are far away from the city center and no nearby metro stations, so we are not interested in these locations. To have a better understanding see the map below created with folium.



The query results are converted to pandas dataframe and merged together. From the map above we can see that there are overlapped regions, thus duplicated hotel locations (which have identical geographical data) are removed.