



# Coursera Capstone Project

## IBM Applied Data Science

### **Opening a Hotel in Krakow, Poland**

By: Tomasz Cyparski

April 2020



# Business Problem

Is opening a new hotel in Krakow, Poland a good investment? Based on the recent statistics the number of visitors is constantly growing.

Objective: To determine the best location for opening a new hotel in Krakow, Poland.

# Data

- - List of all 18 neighborhoods in Krakow (based on Wikipedia information)
- - Geographical coordinates of them (based on Geocoder data)
- - List and concentration of all venues in the city (primary hotels) – obtained from Foursquare

# Methodology

- - Web scraping technique used on Wikipedia website
- - Usage of Geocoder for latitudes and longitudes coordinates
- - Use of Foursquare API for venues data
- - Usage of statistical functions (mean) to obtain frequency of venue occurrences
- - Clustering done by using k-means clustering algorithm
- - Data visualization

# Results

- The results from the clusters provided the answer to the question set for this project. The first cluster containing the lowest concentration of hotels was located on the outskirts of the city, mostly in the east side. The second cluster contained the moderate number of hotel concentration and was located in the center as well around the city center. The last, third cluster with the highest concentration of hotels was located in the city center and in close proximity to the center but mostly in the northern-west part of the city. The reason for that was the proximity to the airport, hence the high number of hotels only in that part of the town.

# Conclusion and Recommendation

- From the results we can conclude that there's a potential for another hotel in Krakow in the relative vicinity of the city center but rather to the east part of the city. This potentially could result in the smaller number of visitors booking the stay in that hotel due to the farther distance from the airport.
- The final decision would have to be made based on other factors that were not part of this exercise. Also, other choices of accommodation were not considered here like: hostels, motels, private room rentals etc.