



The Battle of Neighborhoods

Find the Best Place to Stay in New York City

Applied Data Science Capstone
May 18, 2021

Introduction/Business Problem

Background

- According to the latest report, New York city welcomed about **65.2 million tourists in year 2018** - 51.6 million domestic and 13.5 million international visitors. And these numbers are continuously increasing from year to year.
- New York city has the largest selection of lodging choices in the country – from the hostels to the luxury hotels. The prices vary from 100\$ till several thousand dollars **with average price 292\$ per night**. The hotel **occupancy rate** is also high - in 2018 year it was **88%**. Visitors prefer short stays that are often over weekends – **averaging 2.4 nights**.

Problem Statement

- In New York city there are **almost 300 hotels with over 75.000 rooms** and Airbnb has **more than 50,000 apartment** listings in New York city in year 2018 – it can be difficult to find the right fit or know how much you will get with your money.
- In this project we aims to **find the most optimal neighborhoods on Manhattan** where a tourist can rent a room via Airbnb and have a pleasant stay, as well as the possibility to attend the most visited attractions like Central Park, Time Square, and so on.

Target Audience

- This work would interest potential visitors who prefers short stays and wants to select the best neighborhoods on Manhattan.

Data

Initial datasets

In the project we will mainly use free and publicly available datasets. Given our problem statement, we will **evaluate available Airbnb accommodations** on Manhattan, New York city and define the most reasonable apartments sets/clusters for potential visitors.

Based on defined challenge, we believe **following factors will be needed:**

- Accommodation's average price per person by the neighborhood
- Number of tourist attractions near the accommodation
- Number of crimes nearby the accommodation

Therefore, **following data sources will be needed:**

- New York city apartment listing from the Airbnb website
- New York city neighborhoods tabulation areas – official neighborhoods names and coordinates
- Foursquare API to extract data about venues – food places, museums, etc.
- New York crime data records

Data (cont')

Data Cleaning

Airbnb New York city apartment listing

- Borough – Manhattan, New York only
- Number of reviews ≥ 10
- Availability ≥ 10 days/year
- Last reviewed later than 2019-10-01
- Minimum nights ≥ 1
- Excludes hostels and camper/RV
- Excludes shared rooms

After applying above-mentioned filtering, **2,356 accommodations are identified.**

New York Police Crime Records

- Borough – Manhattan, New York only
- Crime type – Felony and misdemeanor

In total, **101,086 crimes records are identified.**