Finding a suitable apartment for rent in Manhattan New York

By using Foursquare API

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Scenario and Background

- I am an engineer and currently living in Gajuwaka, Visakhapatnam, India. I am staying in a two bedroom flat. Restaurant and bus terminal is nearby my home and I enjoy movies and international cuisine available nearby. I have applied to universities for doing MS in US. New York is one of the most likely place to get.

Problem to be resolved

- Manhattan being chosen to be the place to stay, this project revolves around finding a two bedroom flat around Manhattan not exceeding monthly rent $7000. As a student I will have to travel to university routinely. Public transport like metro and other facilities would be required for daily commuting. Trending venues to relax with international cuisine and entertainment also would be a criteria besides a cap of $7000 a month as rent.

Interested Audience

- This project would be used to analyze data and find most suitable apartment out of available apartments around Manhattan. The methodology and tools are extremely useful to do analysis on data by using foursquare APIs. Lat Long based information helps to zero in the target. The similar approach may help to find out a suitable location to start a business too.

Data Section

- Gajuwaka data and map is to be created with use of Nominatim , Foursquare and Folium mapping
  - Manhattan neighborhoods were obtained from Wikipedia and organized by Neighborhoods with geodata
  via Nominatim for mapping with Folium.
  - List of Subway stations was obtained via Wikipedia, NY Transit web site and Google map,
  - List of apartments for rent was consolidated from web-scraping real estate sites for MH. The geolocation (lat,long) data was found with algorithm coding and using Nominatim.
  - Folium map was the basis of mapping with various features to consolidate all data in ONE map where one can visualize all details needed to make a selection of apartment
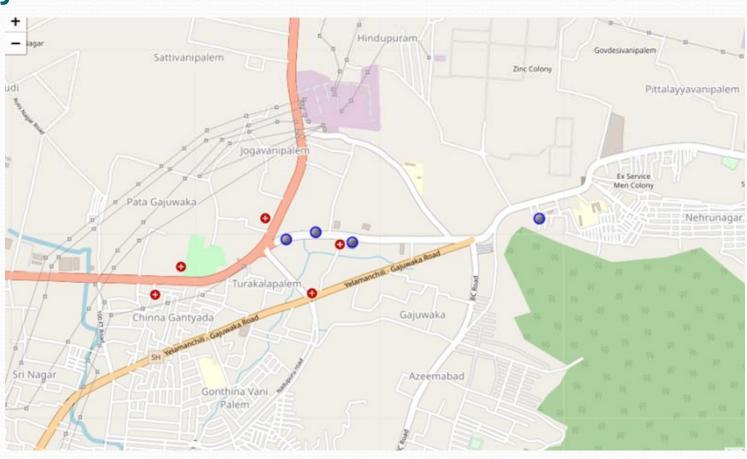
Methodology

- The strategy is based on mapping the collected data as described in section 2.0, in order to zero in at least two candidate places for rent. The information will be consolidated in ONE MAP where one can see the details of the apartment, the cluster of venues in the neighborhood and the relative location from a subway station and from work place. A measurement tool icon will also be provided. The popups on the map items will display rent price, location and cluster of venues applicable.
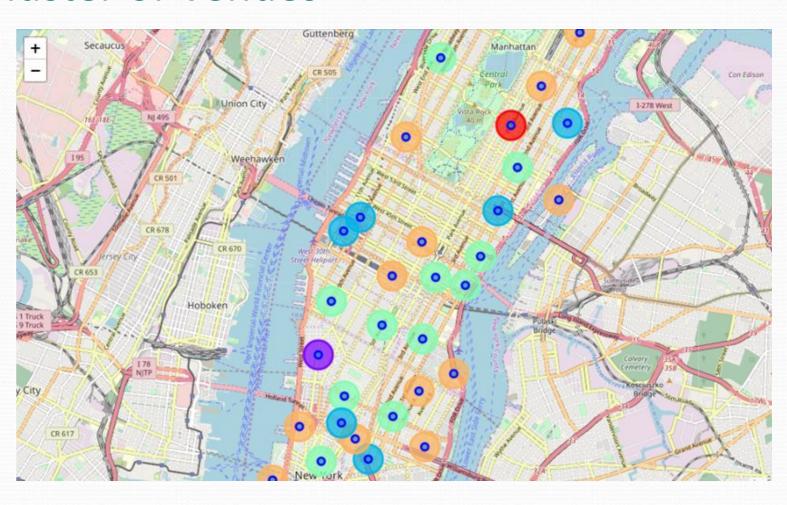
Tools Used

- Web-scraping of sites is used to consolidate data-frame information which was saved as .csv files for convenience and to simply the report. Geodata was obtained by coding a program to use Nominatim to get latitude and longitude of subway stations and also for each of (144 units) the apartments for rent listed. Geopy_distance and Nominatim were used to find out relative distances. Seaborn graphic was used for general statistics on rental data. Maps with popups labels facilitate quick identification of location, price and feature.
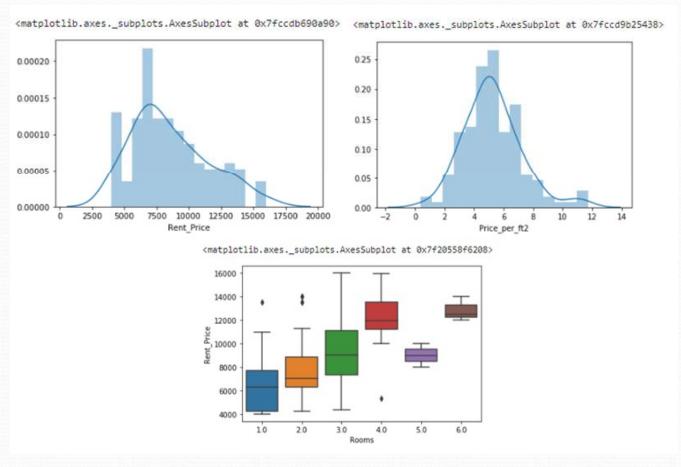
Current residence Neighborhood in Gajuwaka
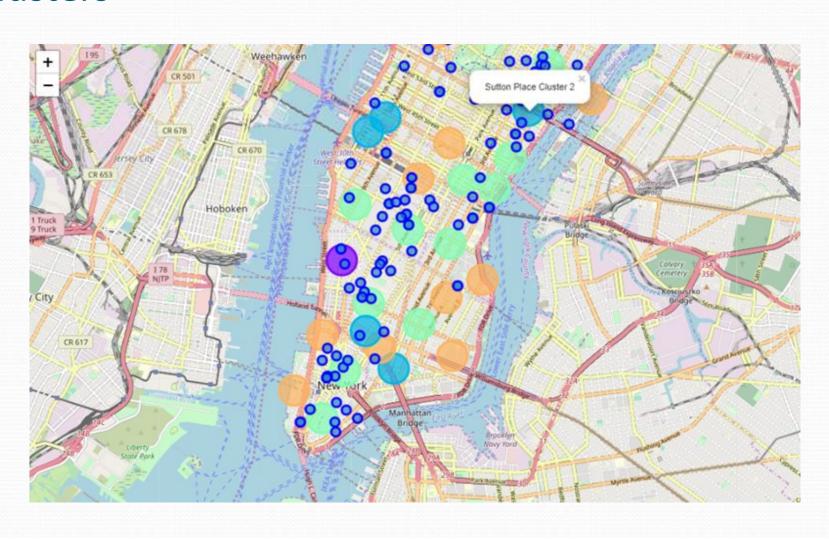
Manhattan Map - Neighborhoods and Cluster of Venues

Rental Price Statistics Manhattan Apartments

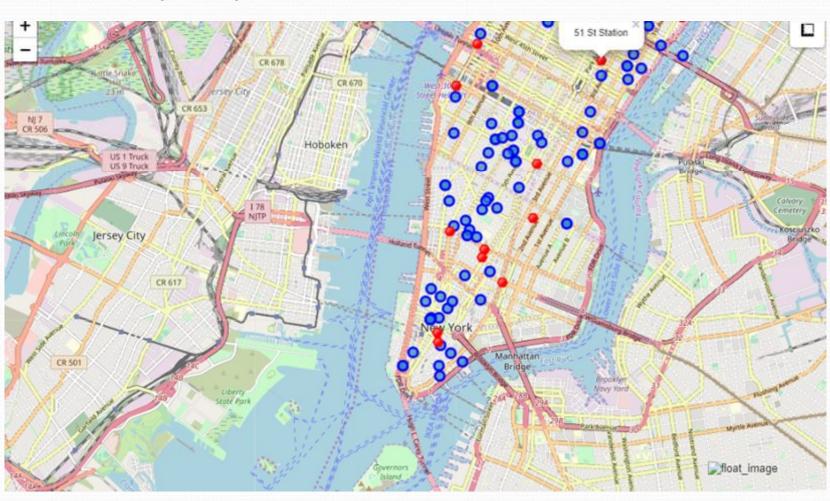# Apartments for Rent in Manhattan

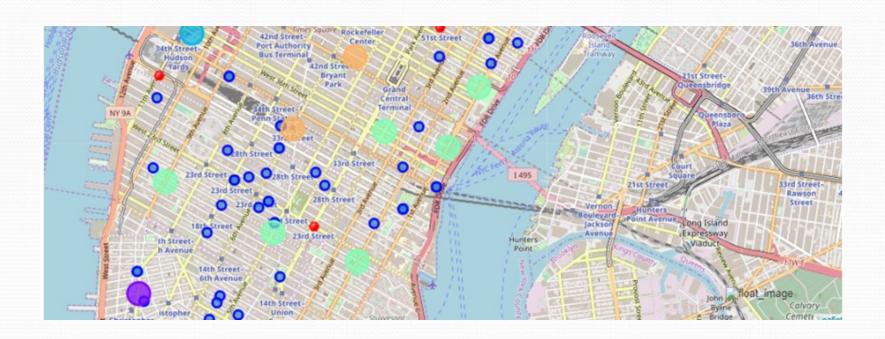# Manhattan apartments for rent with venue clusters

Map of Manhattan showing the location of subway stations

Apartments for rent (blue) and subway stations (red)

Selected Apartment!

Apartment Selection

- Using the "one map", I was able to explore all possibilities since the popups provide the information needed for a good decision.

- Apartment 1 rent cost is US$5950 below the US7000 budget. Apt 1 is located 400 meters from 59th Street Lexington AV Station. I can use subway for other places around. Venues for this apt are as of Cluster 2 and it is located in a fine district in the East side of Manhattan.

- Apartment 2 rent cost is US6935, just under the US7000 budget. Apt 2 is located 60 meters from subway station at Fulton Street, but I will have to ride the subway daily to university. Venues for this apt are as of Cluster 3.

- APARTMENT 1 is a better choice for rent as well as convenience it provides.