AN ANALYSIS ON THE SIMILARITIES AND DIFFERENCES OF NEIGHBORHOODS IN DOWNTOWN CHICAGO, ILLINOIS & DOWNTOWN HOUSTON, TEXAS

INTRODUCTION

For this project, a segmentation of the downtown area of two major US cities, Chicago and Houston will be performed and their similarities and or differences explored.

This can be of use to someone who is looking at making a comparison between both cities either for settling, finding a job or any new opportunity.

DATA DESCRIPTION

For the completion of this project, the following data sets and API were used;

- Foursquare API for generating venues in the selected areas,

- A data set containing US cities zip codes along with their coordinates. This will be used to generate data frames for Chicago and Houston, (https://public.opendatasoft.com/explore/dataset/us-zip-code-latitude-and-longitude),

- A data set containing Chicago zip codes and the area name, (https://www.chicagotribune.com/chi-community-areas-htmlstory.html),

- A data set containing Houston zip codes and the area name, (https://web.har.com/zipcode).

- The data containing the zip codes and area names were merged to create a new data frame for identifying the neighborhoods in both cities which will be used for segmentation and then clustering.
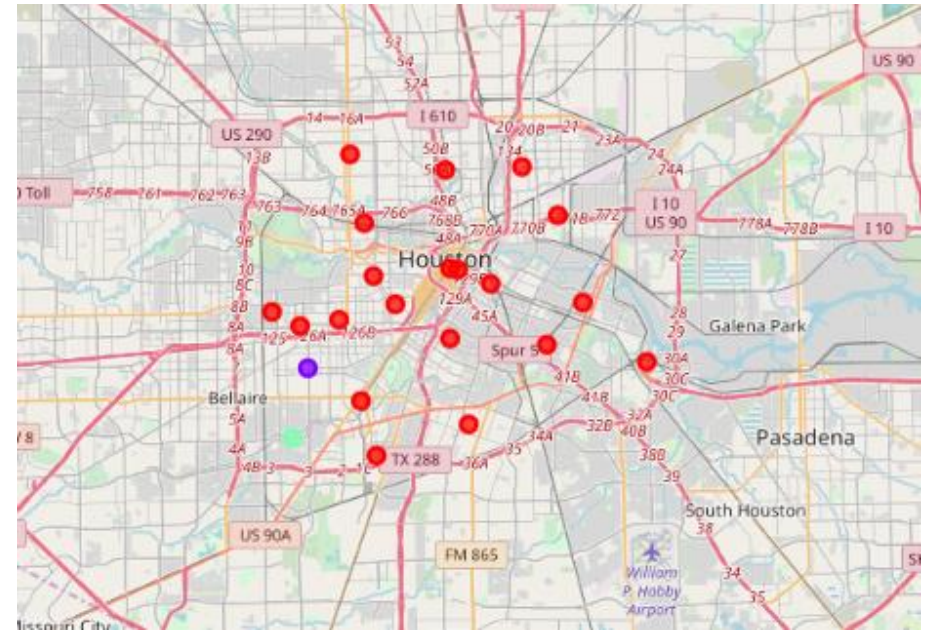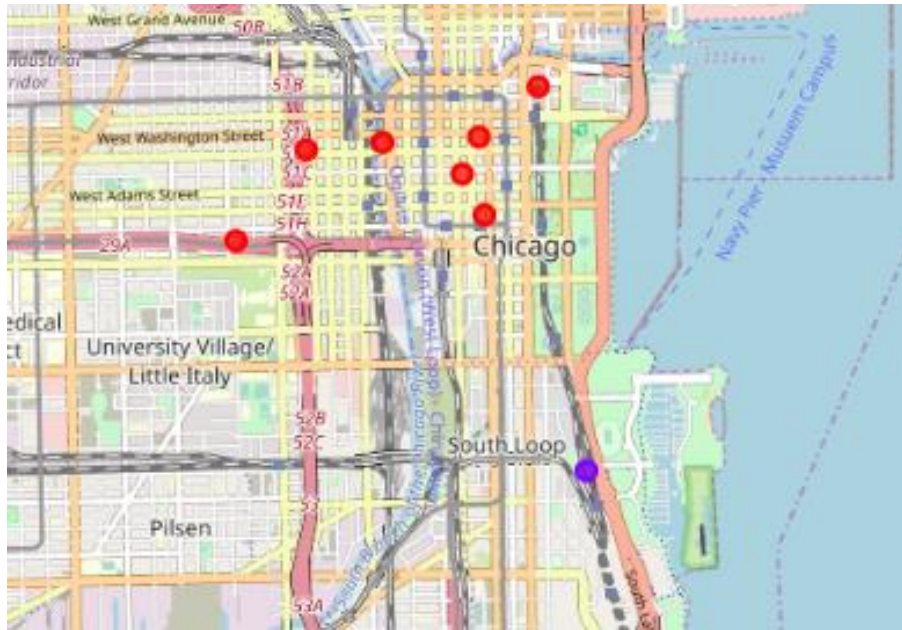
DATA FRAMES

	Zip_Code	City	State	Latitude	Longitude	AreaName
0	60651	Chicago	IL	41.901485	-87.74055	Austin, Humboldt Park
1	60644	Chicago	IL	41.881331	-87.75671	Austin
2	60646	Chicago	IL	41.995331	-87.76010	Forest Glen, Jefferson Park, North Park, Norwo...
3	60616	Chicago	IL	41.847400	-87.63126	Armour Square, Bridgeport, Douglas,Lower West ...
4	60647	Chicago	IL	41.921126	-87.70085	Hermosa, Humboldt Park, Logan Square, West Town

	Zip	City	State	Latitude	Longitude	AreaName
0	77046	Houston	TX	29.733181	-95.43131	Houston - Inner Loop (GREENWAY PLAZA,HOUSTON,)
1	77015	Houston	TX	29.778526	-95.18118	Houston - Northeast (CLOVERLEAF,GREENS BAYOU,H...
2	77072	Houston	TX	29.700898	-95.59002	Houston - Southwest (HOUSTON,)
3	77034	Houston	TX	29.636430	-95.21789	Houston - Southeast (HOUSTON,)
4	77003	Houston	TX	29.749278	-95.34741	Houston - Inner Loop (HOUSTON,)

2 data frames were created from the data sets which included the city details such as zip codes, neighborhood names and their coordinates.

These were used along with the python Folium library to generate maps of the addresses for visualization purposes.

CLUSTERS

2 CLUSTERS WERE CREATED FOR CHICAGO AND 3 FOR HOUSTON. BOTH CLUSTERS CONTAINED VENUES WHICH INCLUDED MOSTLY HOTELS, CAFES AND RESTAURANTS. DOWNTOWN HOUSTON HAD A CLUSTER OF HEALTH RELATED VENUES AND CHICAGO HAD A CLUSTER OF SPORTS VENUES.

CONCLUSION

Following the segmentation and clustering of the neighborhoods in both Downtown Chicago and Houston, we can observe that there are a lot of similarities between both cities. As is expected, both cities downtown area represents the business district.