

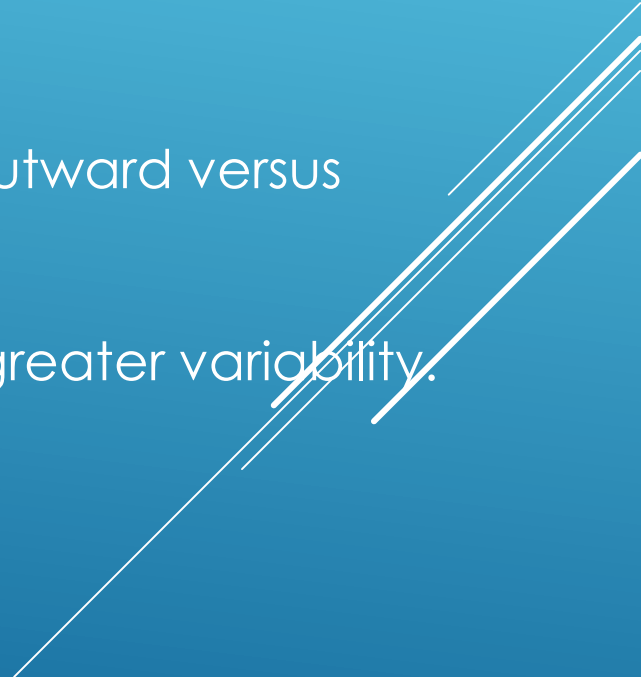
# LOCATING A NEW ART GALLERY IN LOS ANGELES

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Capstone Project for IBM





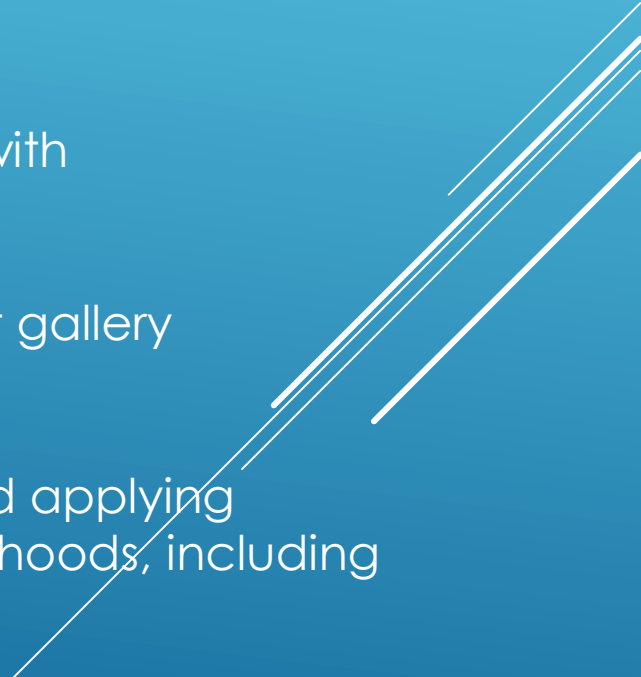
# The Unique Geographic and Transportation Challenges of Los Angeles

- Freeways and lack of robust public transportation has created traffic and air quality issues.
  - Residential and commercial real estate development moves outward versus upward.
  - Short commutes elsewhere are long drives in Los Angeles with greater variability.
  - 21<sup>st</sup> century urban sprawl is the result.
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- A series of three parallel white diagonal lines extending from the bottom right towards the center of the slide.





# Project Methodology and Data Sources

- Obtain neighborhood data from Wikipedia
  - Transform the neighborhood data by supplementing it with location data
  - Visualizing the neighborhood data and incorporating art gallery geolocation coordinates with it from Fourquare
  - Analyzing the neighborhoods for existing art galleries and applying a machine learning algorithm to identify potential neighborhoods, including additional data visualization.
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- A series of white lines of varying lengths and orientations are positioned in the bottom right corner of the slide, creating a modern, abstract graphic element.

# Screenshot of Neighborhood, Art Gallery and Location Data

The screenshot shows a Jupyter Notebook interface in a web browser. The browser address bar shows the URL: `localhost:8888/notebooks/Final%20Project%20Week%205.ipynb`. The Jupyter Notebook header shows the title "Final Project Week 5 Last Checkpoint: 2 hours ago (autosaved)" and a "Logout" button. The notebook interface includes a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for file operations, running cells, and markdown editing.

The notebook contains two code cells. The first cell, labeled "In [37]:", contains the following code:

```
# sort the results by Cluster Labels
print(la_merged.shape)
la_merged.sort_values(["Cluster Labels"], inplace=True)
la_merged
```

The output of the first cell, labeled "Out[37]:", is a table with 6 columns: Neighborhood, Art Gallery, Cluster Labels, Latitude, and Longitude. The table contains 12 rows of data, sorted by Cluster Labels.

	Neighborhood	Art Gallery	Cluster Labels	Latitude	Longitude
115	NoHo Arts District, Los Angeles	0.010000	0	34.048080	-118.257850
73	Hermon, Los Angeles	0.020833	0	34.102870	-118.183500
39	Crestwood Hills, Los Angeles	0.020000	0	34.130173	-118.191027
40	Cypress Park, Los Angeles	0.015152	0	34.094480	-118.226780
110	Montecito Heights, Los Angeles	0.018182	0	34.091980	-118.201010
108	Miracle Mile, Los Angeles	0.010000	0	34.064880	-118.344370
107	Mid-Wilshire, Los Angeles	0.010000	0	34.057343	-118.448970
43	Eagle Rock, Los Angeles	0.010000	0	34.139270	-118.210870
106	Mid-City, Los Angeles	0.010000	0	34.040170	-118.347630
105	Melrose Hill, Los Angeles	0.010000	0	34.085188	-118.306106
47	Echo Park, Los Angeles	0.020000	0	34.076090	-118.255810

The second code cell, labeled "In [38]:", contains the following code:

```
# create a map of the clusters

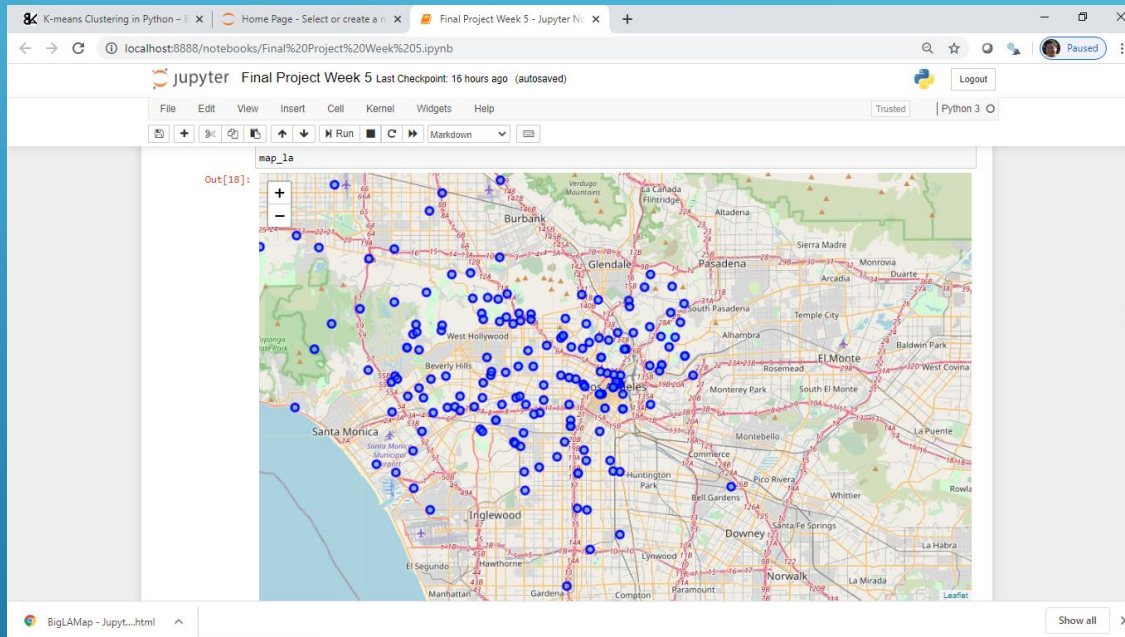
map_clusters = folium.Map(location=[latitude, longitude], zoom_start=11)

# set color scheme for the clusters
x = np.arange(laclusters)
ys = [i+x*(i*x)**2 for i in range(laclusters)]
colors_array = cm.rainbow(np.linspace(0, 1, len(ys)))
rainbow = [colors.rgb2hex(i) for i in colors_array]
```

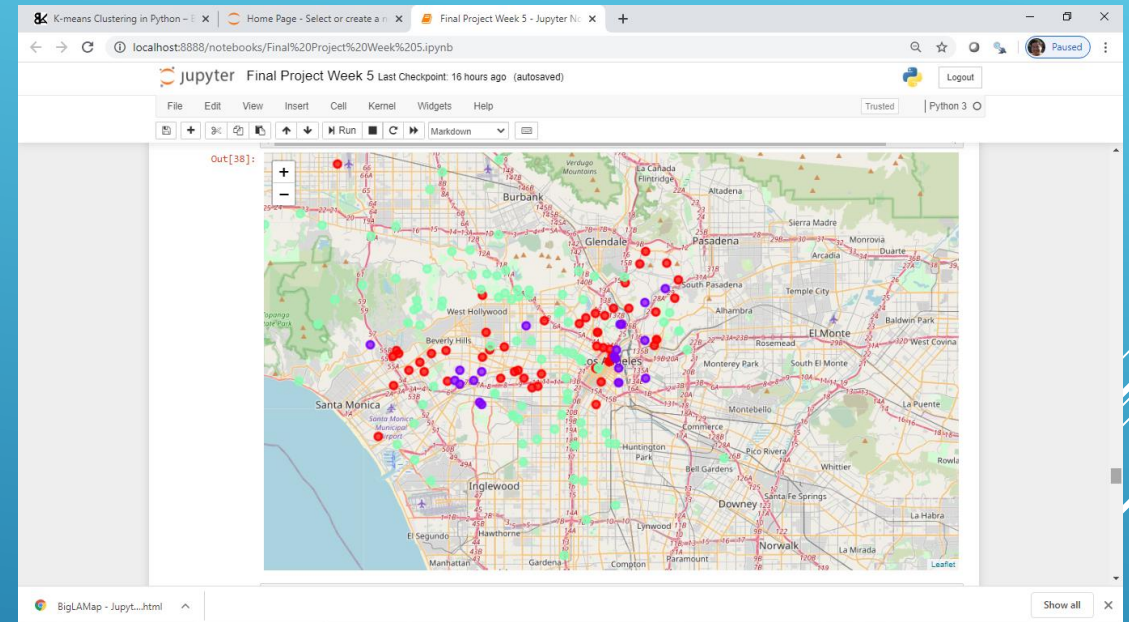
Below the code cells, there is a section titled "Visualise the clusters".



# Data Visualizations/Maps of analysis



Map of all Los Angeles neighborhoods



Map of existing galleries in Los Angeles  
with most promising neighborhoods in  
blue




# Results

- 200 neighborhoods in Los Angeles
  - 419 unique venues types within 2000 meter radius of each neighborhood
  - 79 existing art galleries
- 
- A series of several thin, white, parallel diagonal lines extending from the bottom right corner towards the center of the slide.

# Discussion and Observations

Los Angeles has a population of 4 million people, living in 200 different neighborhoods, exacerbated by its transportation system, and far-flung development. The long-time trend of building out, versus up, and using freeways as opposed to a robust public transportation system, has created world-class urban sprawl for Los Angeles residents. Selecting a specific location for an art gallery is extremely challenging under these conditions. This study has helped identify potential locations in Cluster 1 neighborhoods, based on the current locations of existing galleries.



# Conclusion

- Further analysis is encouraged to narrow down specific locations in Cluster 1 neighborhoods.
- Neighborhoods that show particular promise include: Chinatown, Los Angeles Flower District, and the Little Tokyo/Arts District.
- These are all located in the Downtown Los Angeles area

