

A COMPARISON OF MUSEUMS AND CULTURAL ARTS SCENES BETWEEN METROPOLISES

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INTRODUCTION

- A small tour-guide company wants to expand by opening a new office in a new city
- The company focuses on museums, historical sites, and the cultural and performing arts, and it has preselected four cities for our analysis: New York, Paris, London, and Toronto
- We have been asked to determine which city is most suitable for expansion
- Our criteria for judgement is to find which metropolis has **(i)** the highest number of museums, arts centers, and historic sites, **(ii)** the highest concentration of museums, as well as in which neighborhoods they are located, and **(iii)** a comparison of the surrounding neighborhoods (i.e., what venues are around the museums).

DATA BEING USED

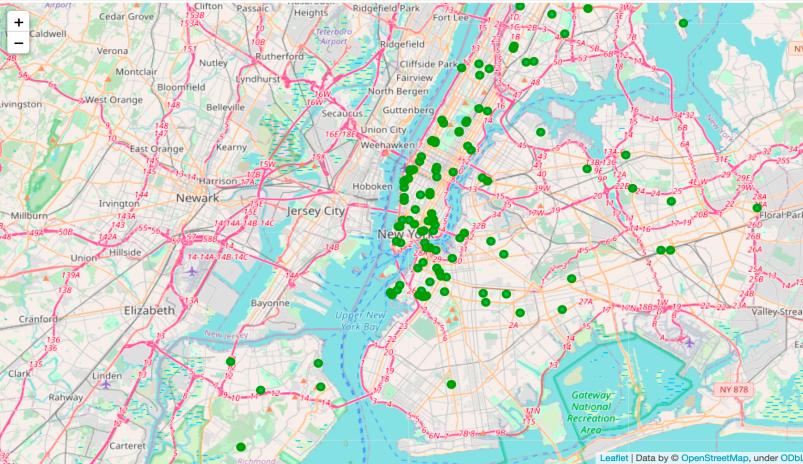
- We leverage data from:
- Wikipedia, which we scrape to [i] find the neighborhood names and addresses for Paris, London, and Toronto, and [ii] find the total area for each city that we used to scale our dataset,
- a local JSON file downloaded from Coursera for the neighborhood names and addresses in New York, and
- FourSquare's API to search for and download venues in each city's neighborhoods.

METHODOLOGY

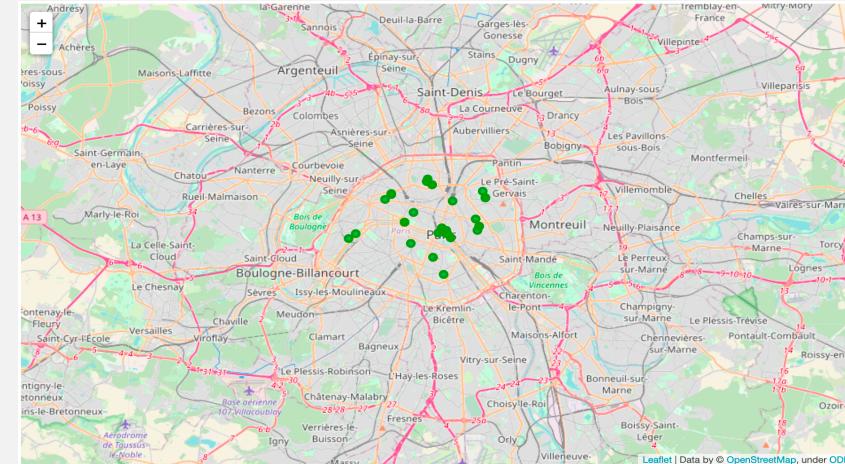
- Utilizing the geocode python library, we determined the geographical coordinates for each city and their respective neighborhoods
- With the coordinates, we accessed FourSquare's API to get all venues within half mile radius
- Kept only neighborhoods that contain historical sites, museums, and cultural and performing arts centers

NEIGHBORHOODS THAT CONTAIN HISTORICAL SITES, MUSEUMS, AND CULTURAL AND PERFORMING ARTS CENTERS

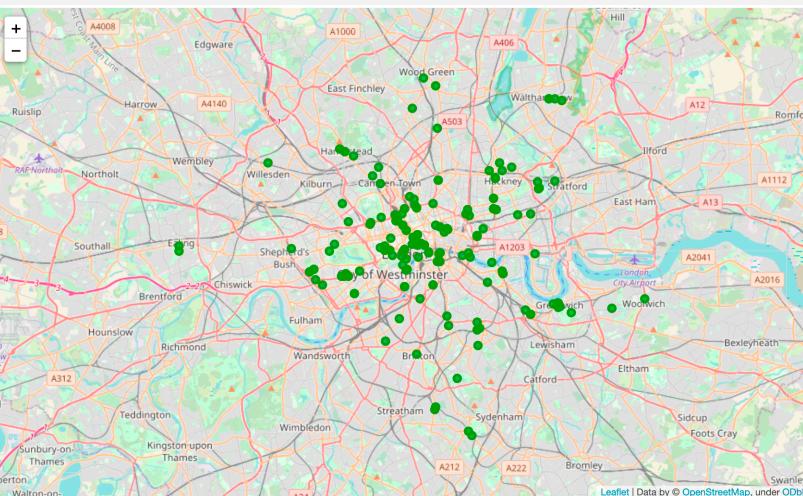
- New York



- Paris



- London



- Toronto



RESULTS

- For each city:
- We map neighborhoods that contain museums/arts centers clustered by the k-means algorithm
- We then assessed the aggregate number of museums, historical site, and cultural and performing arts centers per venue type and per neighborhood cluster
- After summarizing the categories of the most common venues surrounding each cluster of neighborhoods, we made our recommendation

NUMBER OF MUSEUMS, HISTORICAL SITE, AND CULTURAL AND PERFORMING ARTS CENTERS PER VENUE TYPE

- Absolute Number of Venues

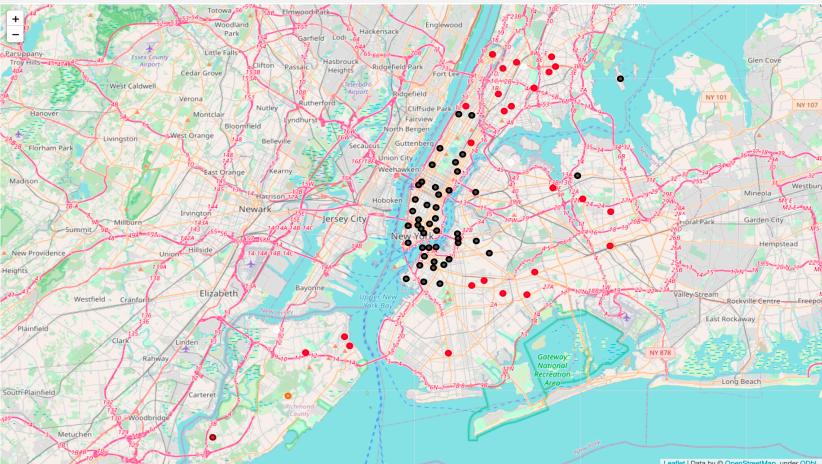
	New York	Paris	Toronto	London
Art Gallery	56	7	15	61
Performing Arts Venue	25	1	2	22
Art Museum	12	16	2	32
Historic Site	11	2	1	19
History Museum	11	2	2	24
Museum	11	4	5	26
Public Art	3	1	0	1
Science Museum	0	1	0	7

- Number of Venues Scaled by City Size

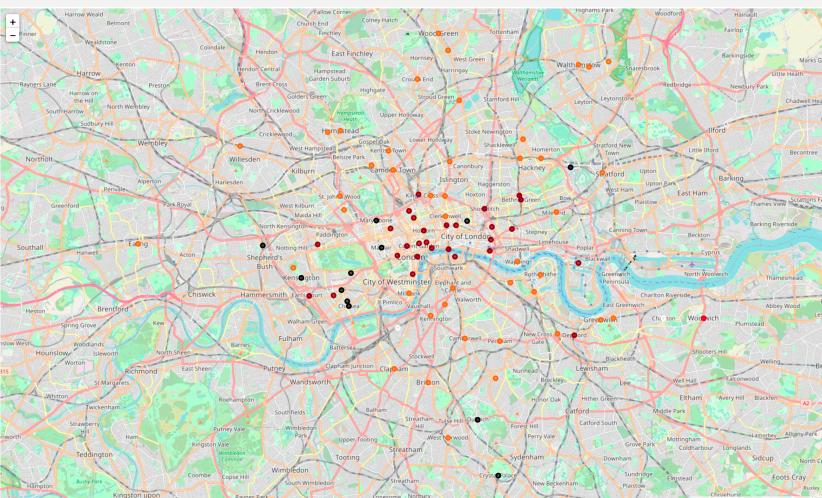
Venues per Square Kilometer	New York	Paris	Toronto	London
	Art Gallery	0.071	0.067	0.024
Performing Arts Venue	0.032	0.010	0.003	0.014
Art Museum	0.015	0.152	0.003	0.020
Historic Site	0.014	0.019	0.002	0.012
History Museum	0.014	0.019	0.003	0.015
Museum	0.014	0.038	0.008	0.017
Public Art	0.004	0.010	0.000	0.001
Science Museum	0.000	0.010	0.000	0.004

CLUSTERED BY VENUE CATEGORY, NEIGHBORHOODS THAT CONTAIN HISTORICAL SITES, MUSEUMS, AND CULTURAL AND PERFORMING ARTS CENTERS

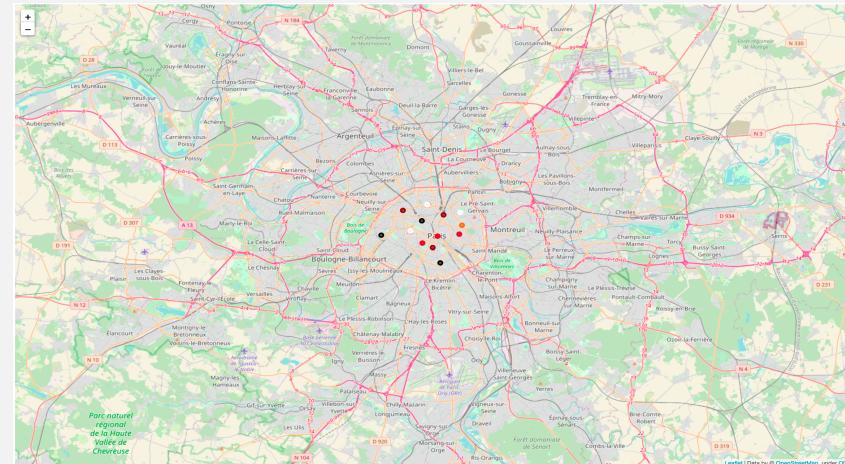
- New York



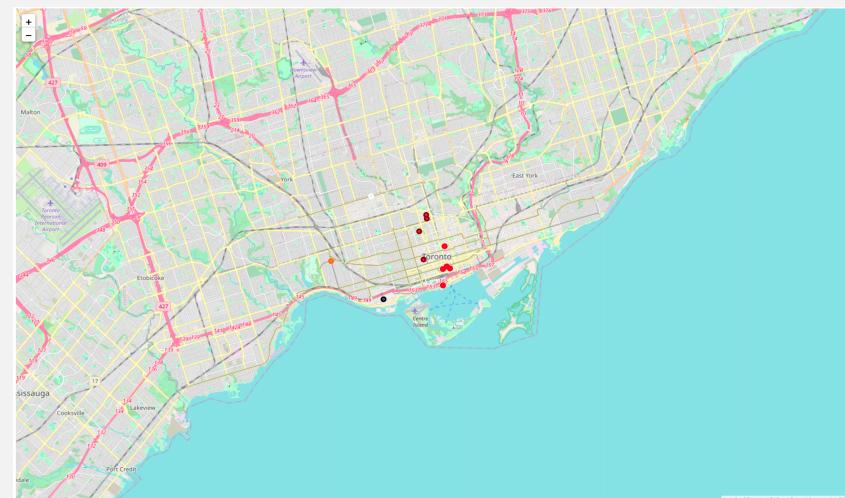
- London



- Paris



- Toronto



PER CLUSTER, NUMBER OF VENUES THAT CONTAIN HISTORICAL SITES, MUSEUMS, AND CULTURAL AND PERFORMING ARTS CENTERS

- New York

Number of Venues per Cluster	
Neighborhood	
Cluster Labels	
1	12
2	28
3	1
4	43
5	2

- Paris

Number of Venues per Cluster	
Neighborhood	
Cluster Labels	
1	3
2	3
3	3
4	1
5	3

- London

Number of Venues per Cluster	
Neighborhood	
Cluster Labels	
1	12
2	28
3	1
4	43
5	2

- Toronto

Number of Venues per Cluster	
Neighborhood	
Cluster Labels	
1	1
2	4
3	5
4	1
5	1

DISCUSSION / CONCLUSION

- Scaling the number of venues per square-kilometer, we observe that New York City has the highest number of art galleries and performing arts venues
- Paris has the highest number of art museums and was a close second to New York City in the number of art galleries. Paris also led the group in museums, public arts, and science museums.
- After clustering venues of surrounding neighborhoods, we also observe that New York City's museums/arts centers are mostly centered in the tourist areas of Manhattan, with hotels, coffee shops/cafes, restaurants and bars appearing as some of the most recurring venues
- Paris' museums/arts centers are pretty evenly spread out among neighborhood clusters.
- Venues in London are also spread out geographically, but are clustered in two types of neighborhoods; interestingly, one of those clusters appears to have a residential tilt to it (e.g., there is a high number of grocery stores, bus stations, and parks).
- Toronto's museum/arts scene is also centered in downtown and tourist areas, but is much smaller than the other cities under consideration, suggesting the investment may not be worth the return.
- **CONCLUSION:** We recommend our client is best suited to expand in New York City, with our fallback recommendation being Paris.