LIVABLE NEIGHBORHOODS

Vancouver vs. Paris

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Introduction: Problem and Goal

- **Idea**
  - With many baby boomers entering retirement and the world becoming more accessible through globalization, people have more options on where they decide to live and retire. This notebook will analyze where one might want to settle in and retire through a city comparison in multiple dimensions.
  - I've selected two very popular destinations for city dwellers: Vancouver, Canada and Paris, France.
- **Problem**: These cities are arguably two of the best cities in the world. How do we objectively decide which one is the best place to live?
- **Goal**: This notebook aims to help people better understand what both cities have to offer in a data-supported analysis.

Introduction: Vancouver vs. Paris

○ **Vancouver**

- Vancouver has the highest population density in Canada, with over 5,400 people per square kilometre.
- Because of its proximity to both mountains and ocean, Vancouver is famous for offering every kind of outdoor sport and adventure, from skiing and snow sports in the winter to kayaking and water sports in the summer, and hiking, camping, and biking year-round. Also fishing, scenic golf courses, and mountain ziplining.
- Vancouver is consistently named as one of the top five worldwide cities for livability and quality of life.

○ **Paris**

- Paris is the capital and most populous city of France, with an estimated population of 2,175,601 residents as of 2018, in an area of more than 105 square kilometers (41 square miles).
- In 2018, Paris was the second most expensive city in the world, after Singapore.
- Since the 17th century, Paris has been one of Europe's major centers of finance, diplomacy, commerce, fashion, gastronomy, science and arts.
- It was ranked as the second most visited travel destination in the world in 2019, after Bangkok and just ahead of London.

Introduction: Vancouver and Paris Similarities

- Both are the most expensive cities to live in within their respective countries.

- Both cities have the highest population density in their respective countries.

- Both have an overall climate throughout the year as mild and moderately wet.

Data dimensions

- Neighborhoods & Locations:

Postal Code	City	Neighborhood	Neighborhood Latitude	Neighborhood Longitude
V6B	Vancouver	(NE Downtown / Gastown / Harbour Centre / International Village / Victory Square / Yaletown)	-43.55555	75.55555
V6C	Vancouver	Waterfront / Coal Harbour / Canada Place)	-43.55555	75.5556

- Venues: using Foursquare's location data to identify and view the venue counts and their categories. An ideal location is one that has many options for entertainment, food, and more.

Postal Code	Venue	Venue Latitude	Venue Longitude	Venue Category
V6B	Sample Coffee	-44.55555	75.55555	Coffee Shop
75001	Sample Grocery	-44.55555	75.55555	Grocery

- Population & Density: There are correlations between population, population density and increase of options within a city.
- Number of transit / subway lines: The more transit lines a city has, the easier it is to move around.
- Cost of living: It is important for retirees to understand the cost of living to maintain their selected lifestyle.

PostalCode	Cost Of Living	Population Density	Transit
Vancouver	2200	5500	2
Paris	2500	21000	6

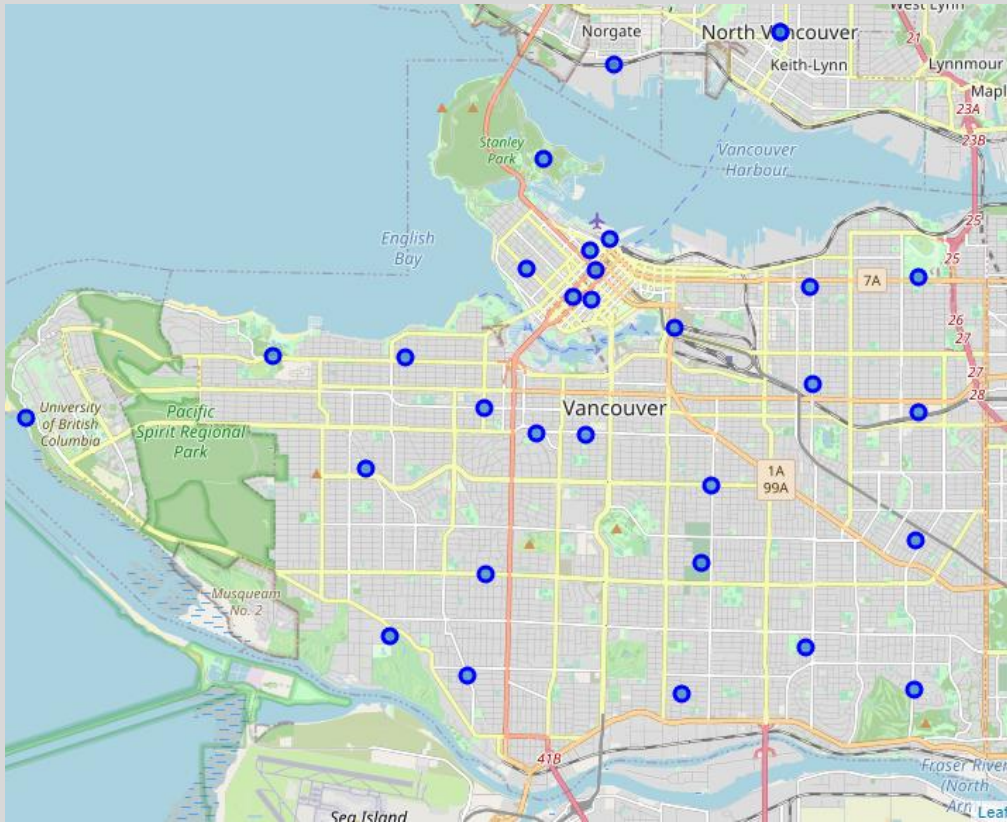*Demonstrative data shown above.*

Methodology

1. Ingested, structured and cleaned the neighborhood data. Filtered Vancouver neighborhoods to only ones with Vancouver as part of the city.

2. Obtained the latitude and longitude of Vancouver neighborhoods using name and postal code. Paris source already has their coordinates included.

3. Visualized and verified the locations of the neighborhoods.

4. Collected the nearest venues of Vancouver neighborhoods

5. Simplify the categories of venues for improved analysis then visualize

6. Use K-Means unsupervised clustering for Vancouver neighborhoods

7. Do 4 & 5 for Paris neighborhoods

8. Visualize the venue counts through Map markers

9. Create formula to Rank Neighborhoods based on population, venue counts, and cost of living

10. Visualize the Score/Rank through Map markers
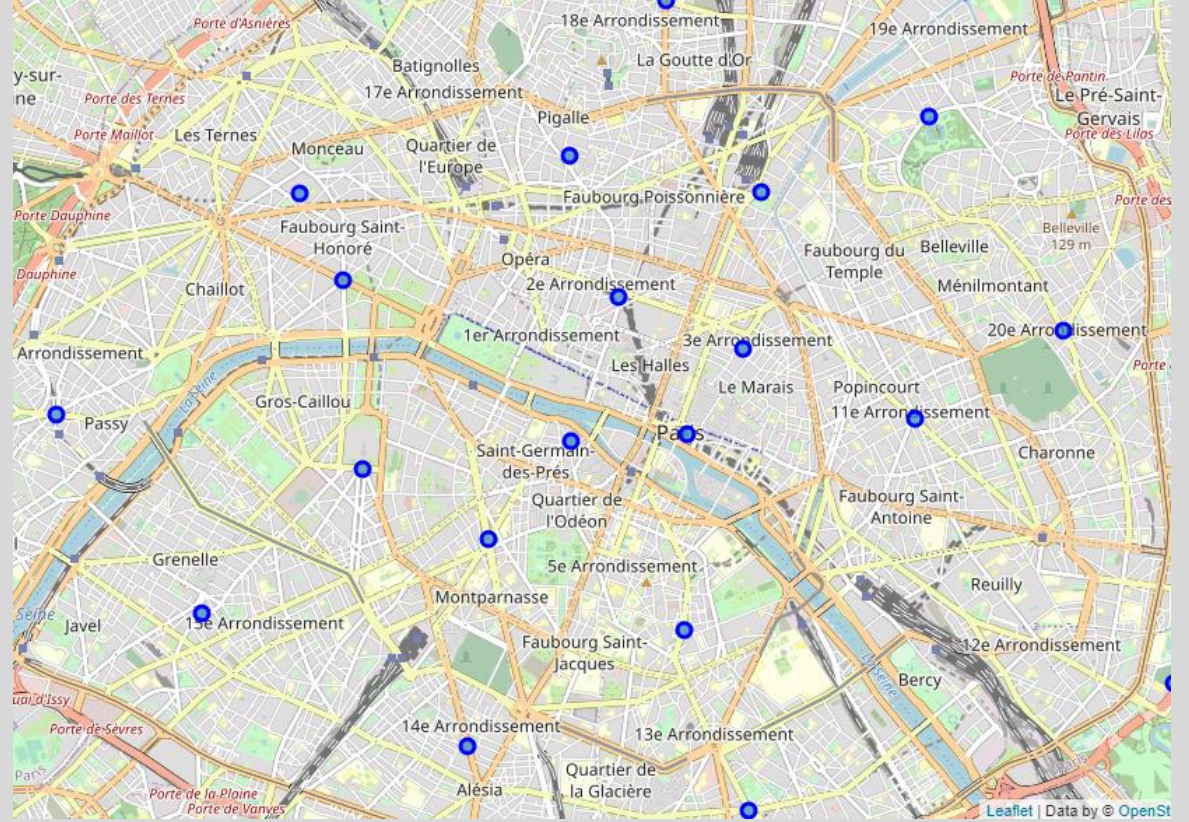
11. Results Analysis & Conclusion

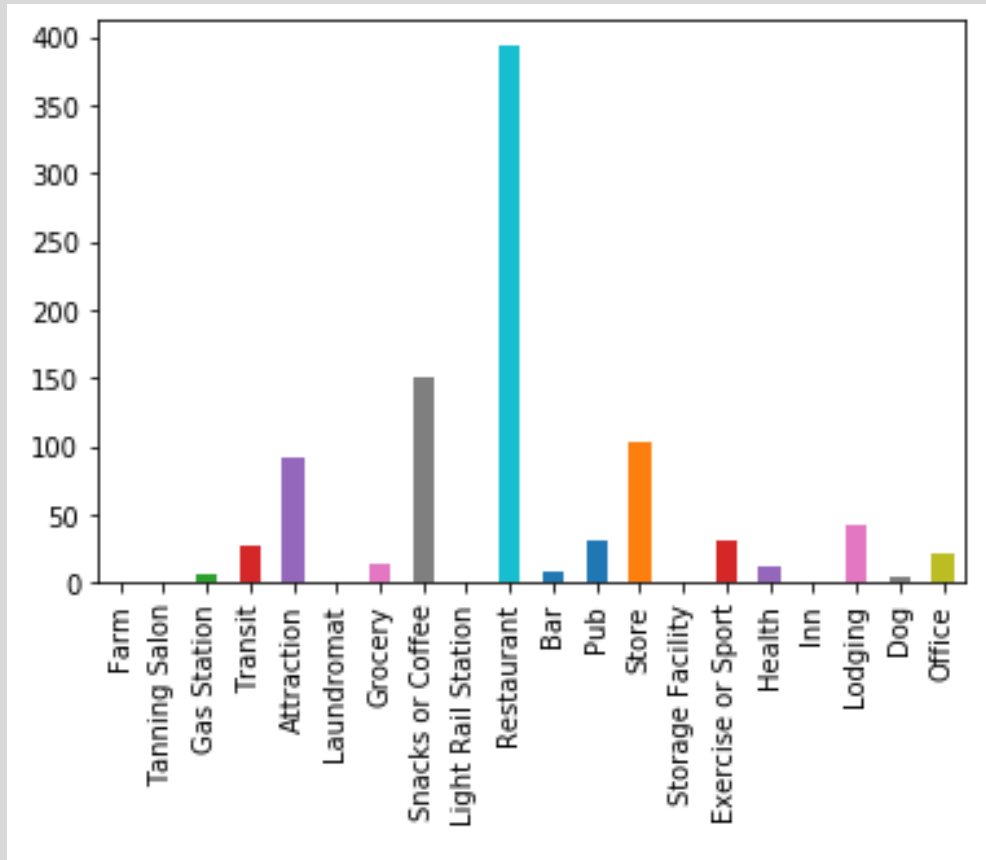# Analysis: Vancouver & Paris Neighborhoods

◦ Vancouver

◦ Paris

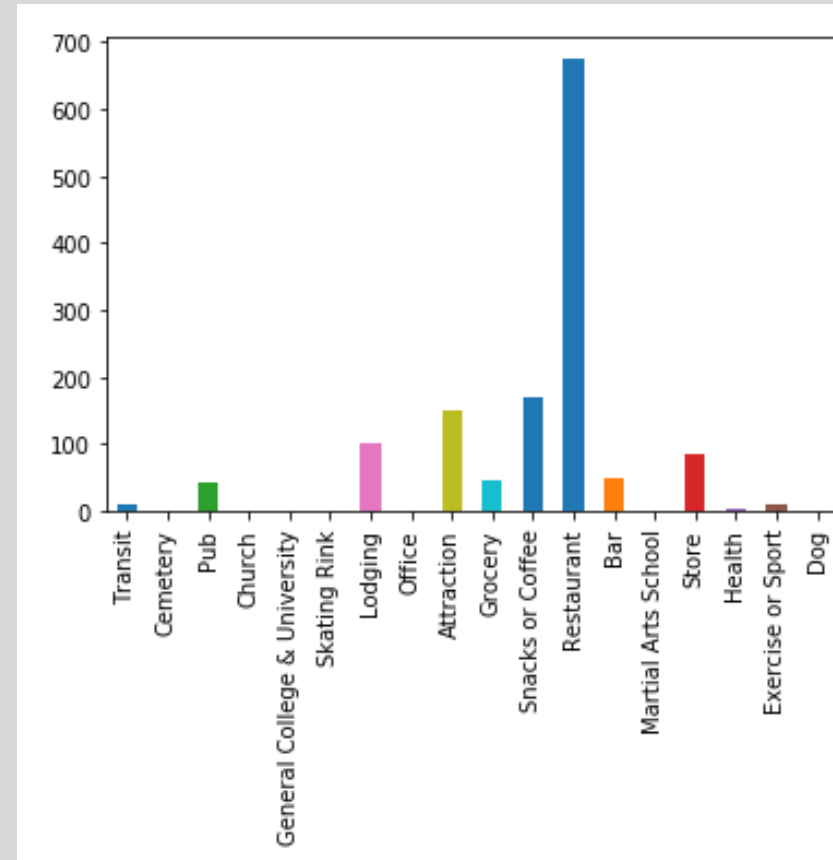Paris neighborhoods are more evenly distributed across the city compared to Vancouver.
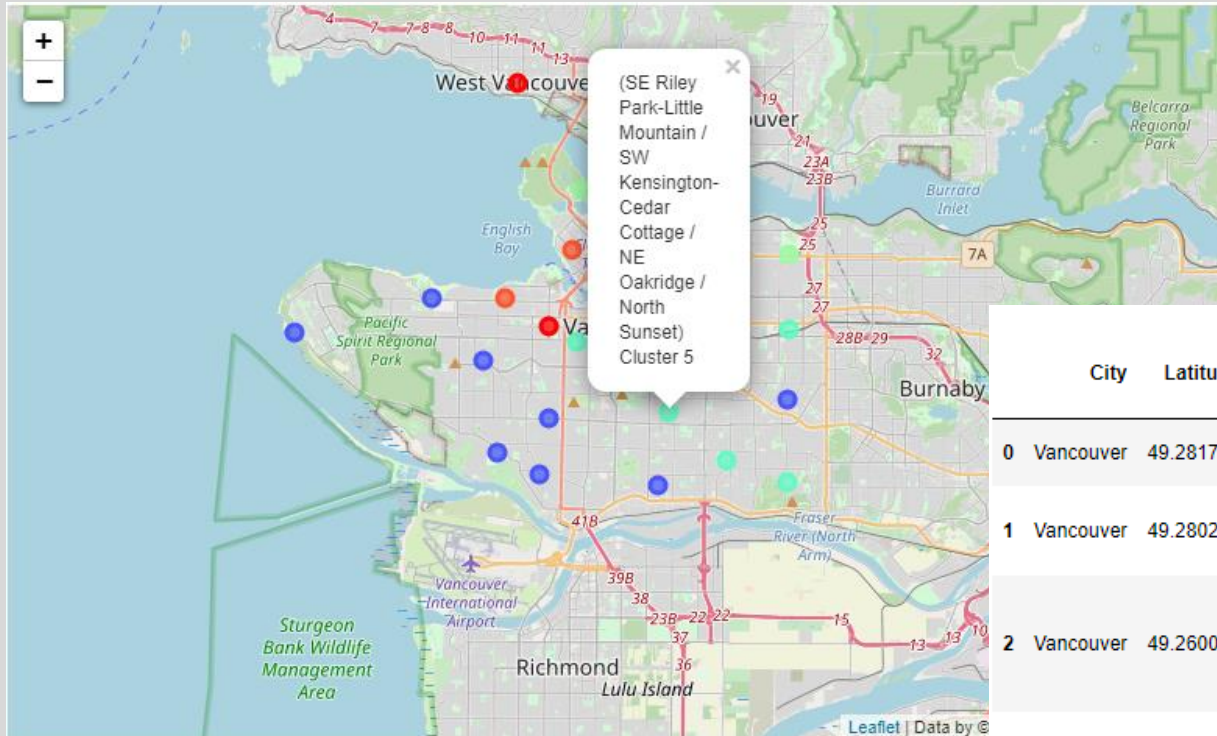
Analysis: Exploring types of venues

○ Vancouver

○ Paris

Overall, there are more venues in Paris. There are similar top 5 categories: restaurant, snacks/coffee, attraction, stores, and lodging.
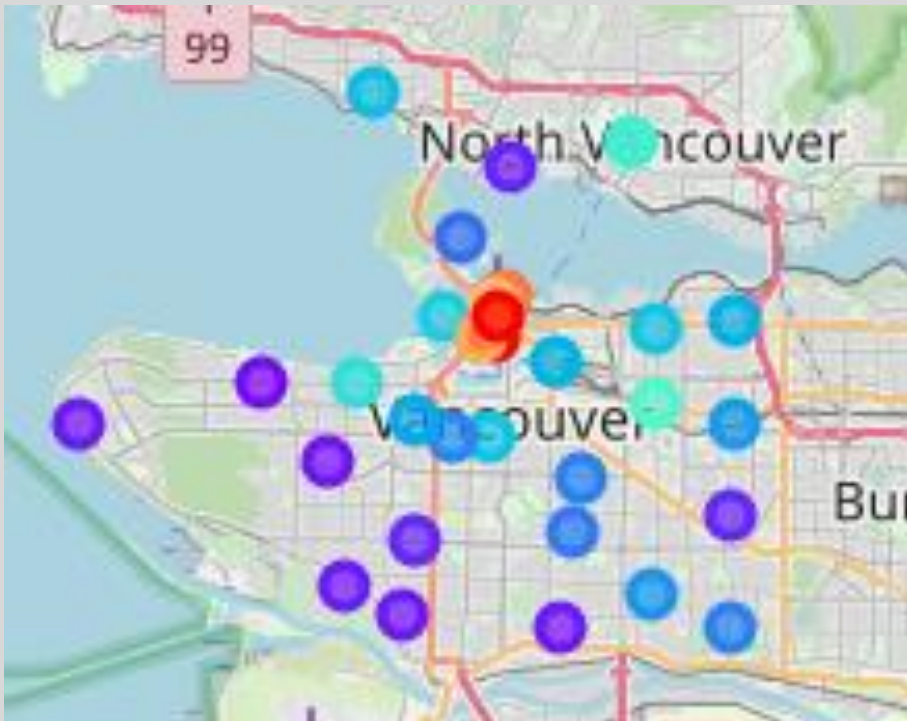
Analysis: Vancouver clusters

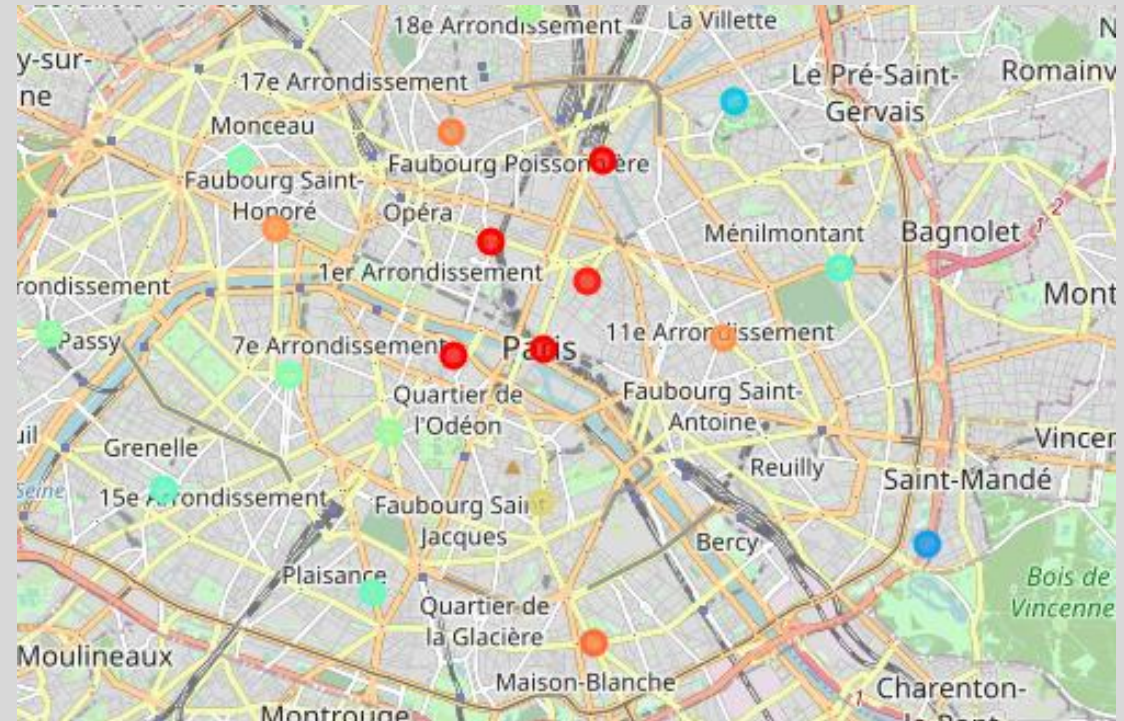|	City	Latitude	Longitude	Neighborhood	Postal Code	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Vancouver	49.281718	-123.040006	(North Hastings-Sunrise)	V5K	6	Venue Count	Attraction	Restaurant	Snacks or Coffee	Exercise or Sport
1	Vancouver	49.280201	-123.066563	(North Grandview-Woodland)	V5L	0	Venue Count	Restaurant	Snacks or Coffee	Store	Transit
2	Vancouver	49.260078	-123.040160	(South Hastings-Sunrise / North Renfrew-Collin...	V5M	5	Venue Count	Store	Restaurant	Transit	Snacks or Coffee
3	Vancouver	49.264625	-123.065869	(South Grandview-Woodland / NE Kensington-Ceda...	V5N	4	Venue Count	Restaurant	Snacks or Coffee	Store	Pub
4	Vancouver	49.222751	-123.067561	(SE Kensington-Cedar Cottage / Victoria-Fraser...	V5P	5	Venue Count	Restaurant	Store	Office	Gas Station

Since Vancouver neighborhoods are not evenly distributed, performed K-Means to determine clusters across the city. Each color is one cluster.

Analysis: Count of Venues

◦ Vancouver

◦ Paris

The red markers show the higher density of venues, compared to dark blues (low number of venues). Notice that the number of venues are concentrated in the center of both cities. This is to be expected.
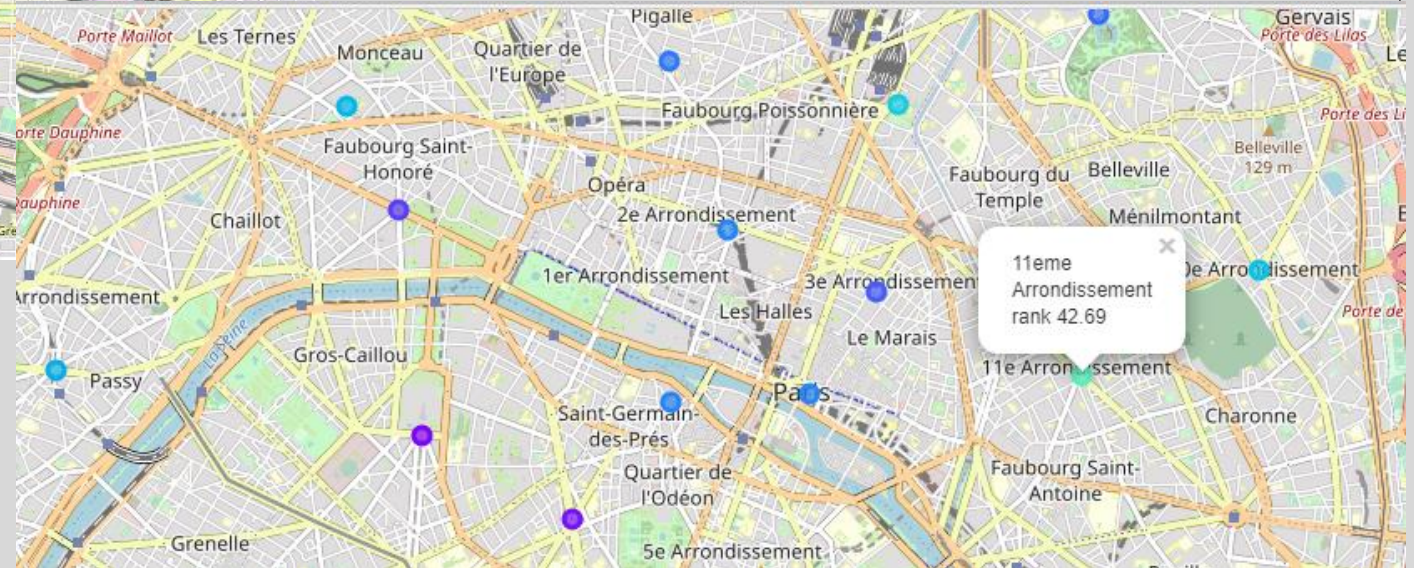
Analysis: Ranking

○ Vancouver

○ Paris

The red markers show the higher score based on criteria of what makes a more livable neighborhood, compared to dark blues (low score). Scoring was performed across both cities. A significant impact to the ranking was the difference in the respective cost of living, which is higher in Paris. In the future, this experiment can include details of having different cost of living by neighborhood.

Conclusion

◦ The best neighborhoods are identified by areas that have access to a variety of venues, with a population that can sustain the economy, while having a lower cost of living.

◦ After analysis and priority weighting, the resulting assessment is:

  ◦ The city of **Vancouver** and Neighborhood of **NE downtown / Gastown / Harbour Centre / International Village / Victory Square / Yaletown** is the better place to live.