Comparison of Paris and Berlin Neighbourhoods

March 2020

Objectives

- What are the outstanding features of the different areas in Paris and Berlin?
- Is it possible to find similar neighbourhoods between the two cities?

Analytic Approach

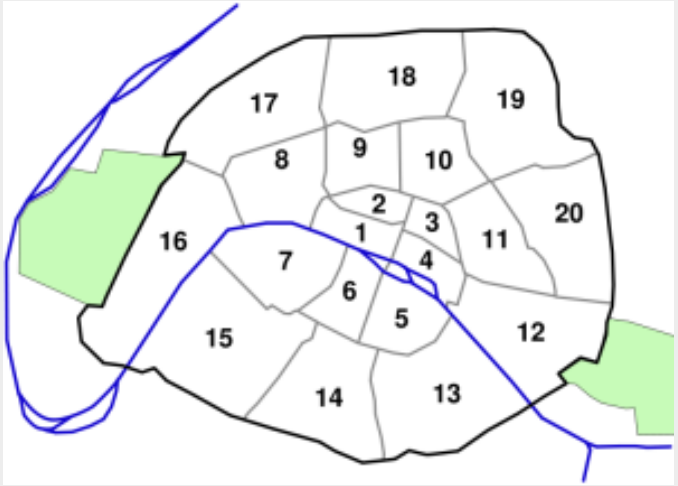
1. Create a ‘profile’ for each neighbourhood based its venues.
2. Run K-means clustering to group neighbourhoods with similar profiles.
3. Find the optimal number of clusters using the Elbow Method and Silhouette Scores.
4. Analyse the clusters for similarities and differences.

Data Collection and Preparation

- Neighbourhood lists for Paris and Berlin scraped from Wikipedia, converted to GPS coordinates using GeoPy package.
- Neighbourhood venues queried from Foursquare.
- Venue category labels from Foursquare were consolidated and venues without value-add were dropped.
- Feature set input to clustering was the proportion of each venue category in each neighbourhood.

Paris and Berlin Overview

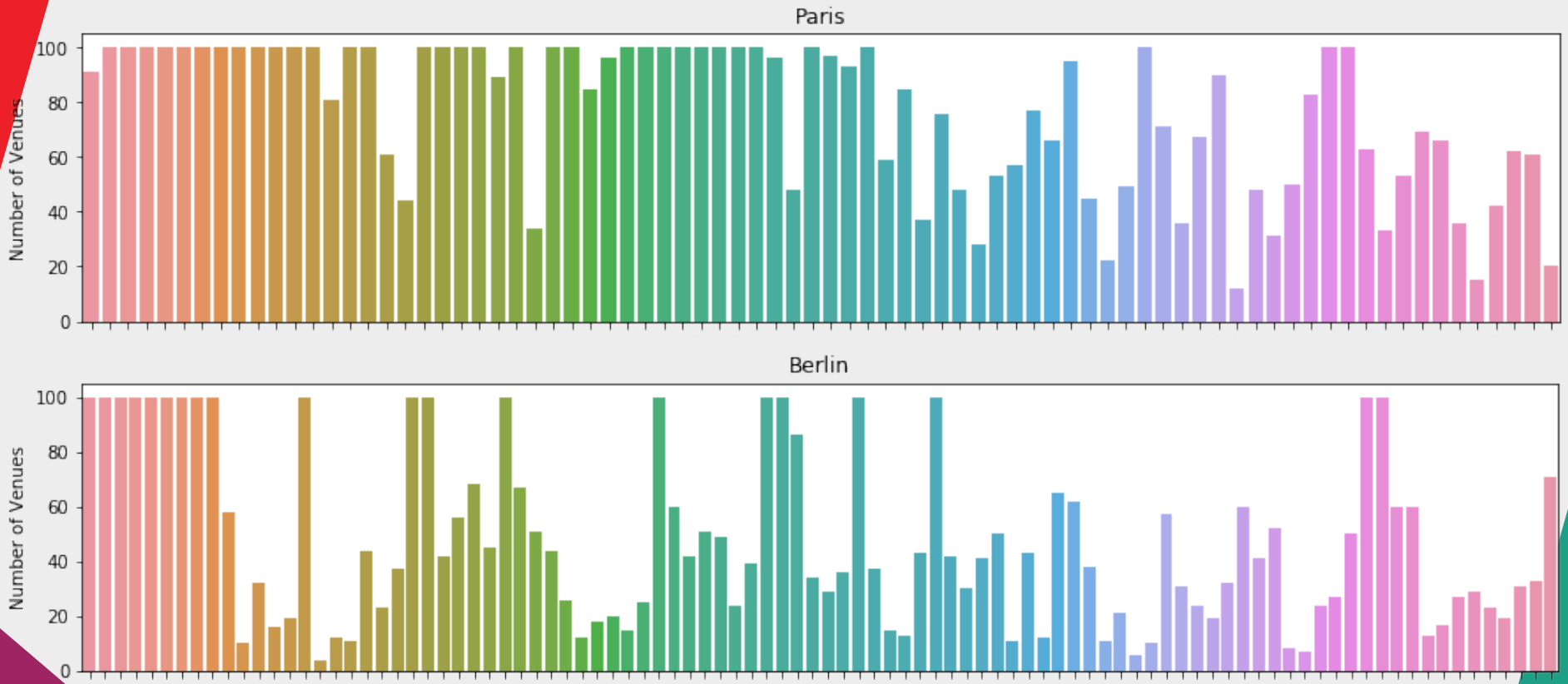
Paris
80 neighbourhoods
Population : 2.2 million
Pop. Density : 20,909/km²



Berlin
96 neighbourhoods
Population : 3.7 million
Pop. Density : 4,162/km²

Venue Density per City

(each column represents a neighbourhood)



K-means Clustering

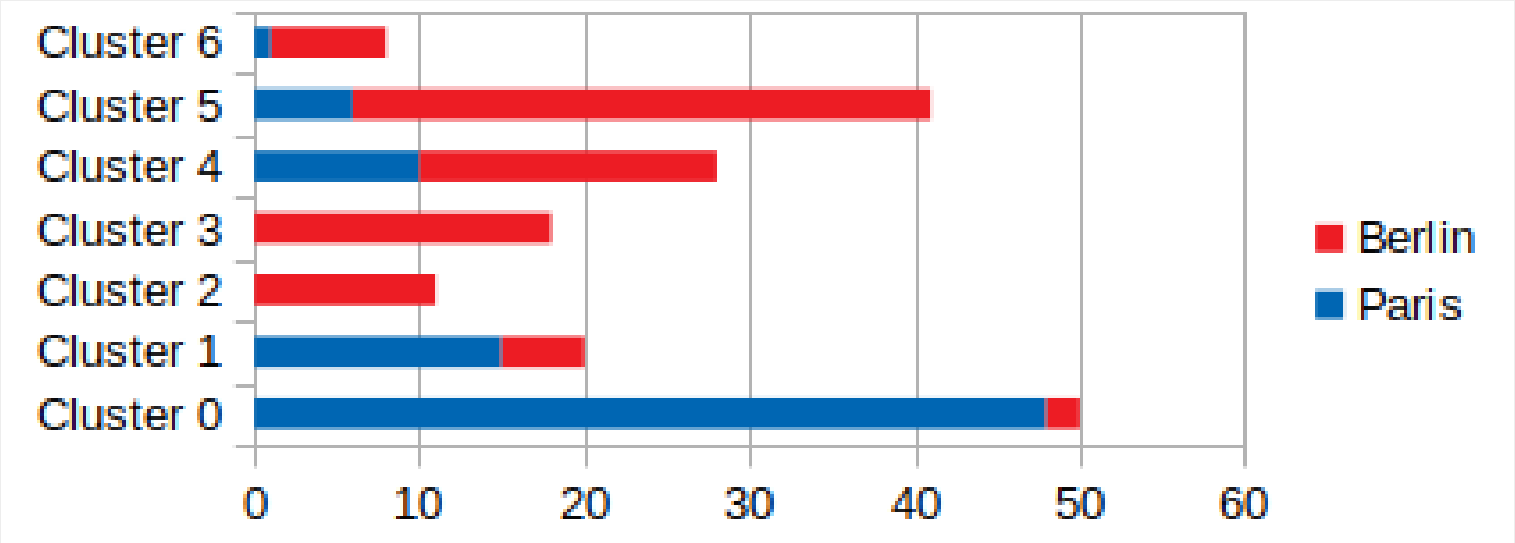
	Paris	Berlin	Total
Neighbourhoods	80	96	176
Venues	6022	4127	10149
Venue categories	31	32	32

Feature Set = 176 neighbourhoods x 32 category proportions

The proportions are calculated by averaging the number of venues in that category for a neighbourhood.

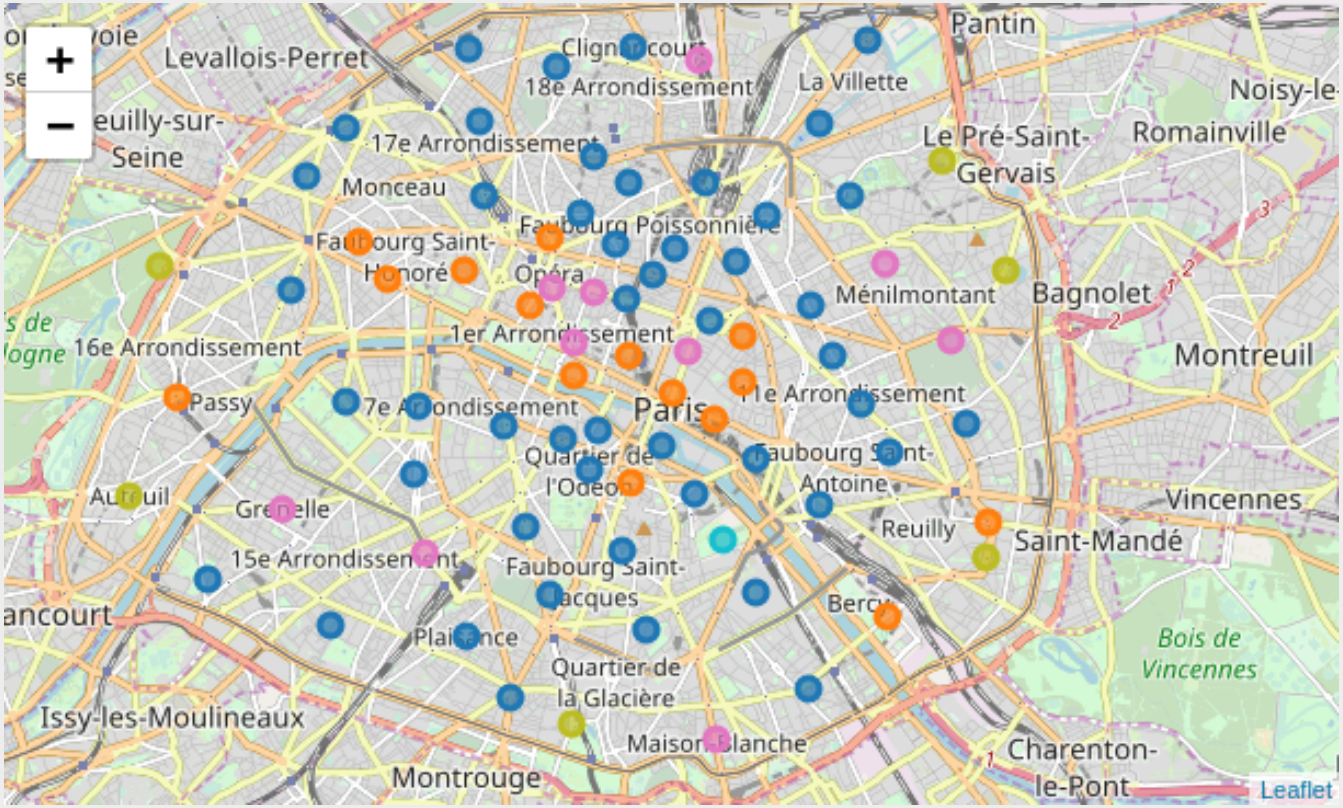
Optima K = 7 (found using Elbow and Silhouette methods)

Neighbourhood Cluster Distribution



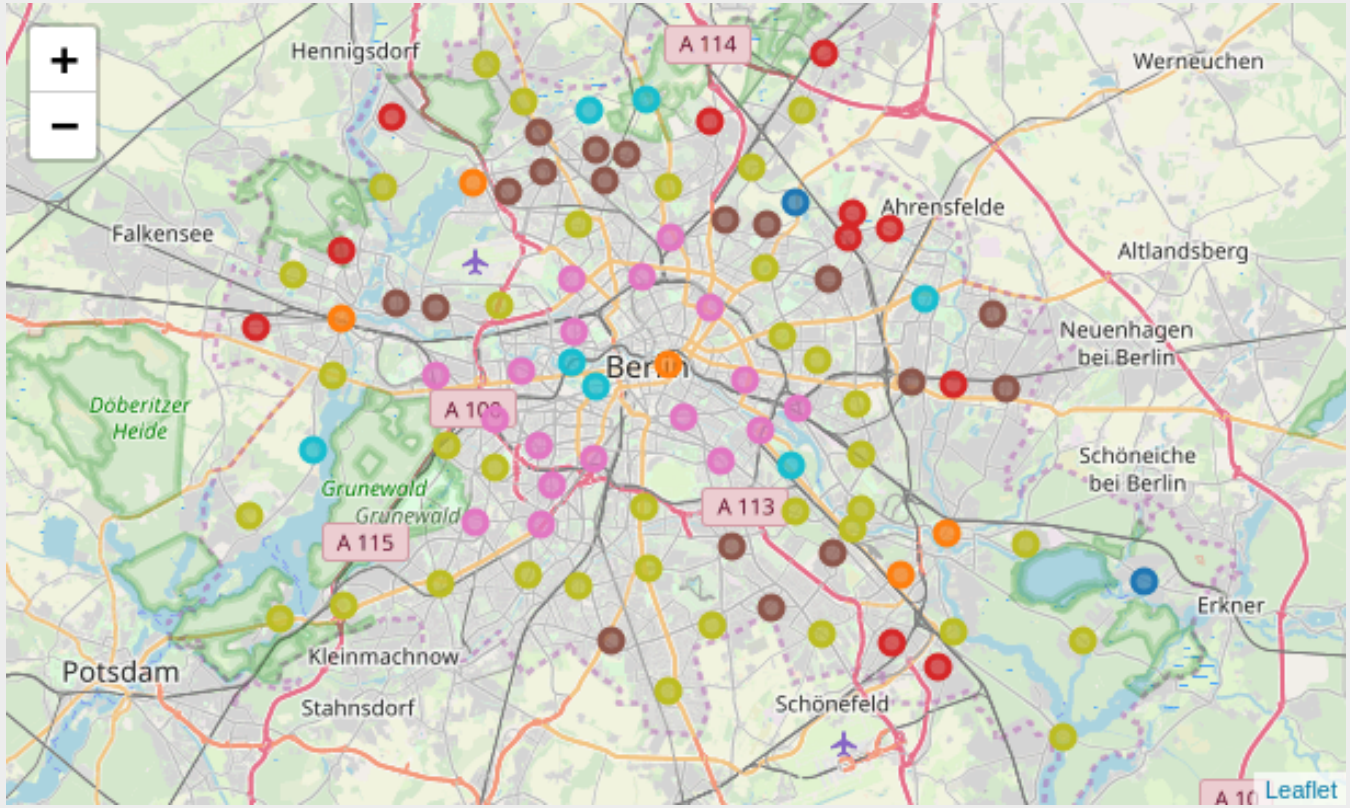
Paris Clusters

blue=0, orange=1, purple=4, olive=5, light blue=6



Berlin Clusters

blue=0, orange=1, red=2, brown=3, purple=4, olive=5, light blue=6



Clusters Summary

Cluster	Description	Paris	Berlin	Features
0	Parisian	96%	4%	Restaurants, bars
1	City centre	75%	25%	Restaurants, shopping, tourism
2	Berlin residential outskirts	0%	100%	Supermarkets
3	Berlin residential with commerce	0%	100%	Shopping, supermarkets, sporting facilities
4	Midtown	36%	64%	Restaurants, East-Asian cuisine, cafés
5	Residential	15%	85%	Supermarkets, restaurants, Italian cuisine
6	Green spaces	13%	88%	Parks, nature, restaurants, attractions

Conclusions

Paris Features :

- dense with restaurants, bars and tourism in all parts of the city
- specialty stores for groceries
- urban forms of recreation such as shopping, cafés and dining out

Berlin Features :

- dense in central boroughs Mitte and Friedrichshain-Kreuzberg
- supermarkets for groceries
- access to nature, parks and sporting facilities for recreation

Clusters 0, 1, 4, 5 & 6 identify similar neighbourhoods between the two cities.