

Quality of Living and where to find it

This project should show you that quality of living is not easily assessed by restaurants and parks, but also that those venues allow for accurate comparison between cities.

Quality of Living according to the Mercer list

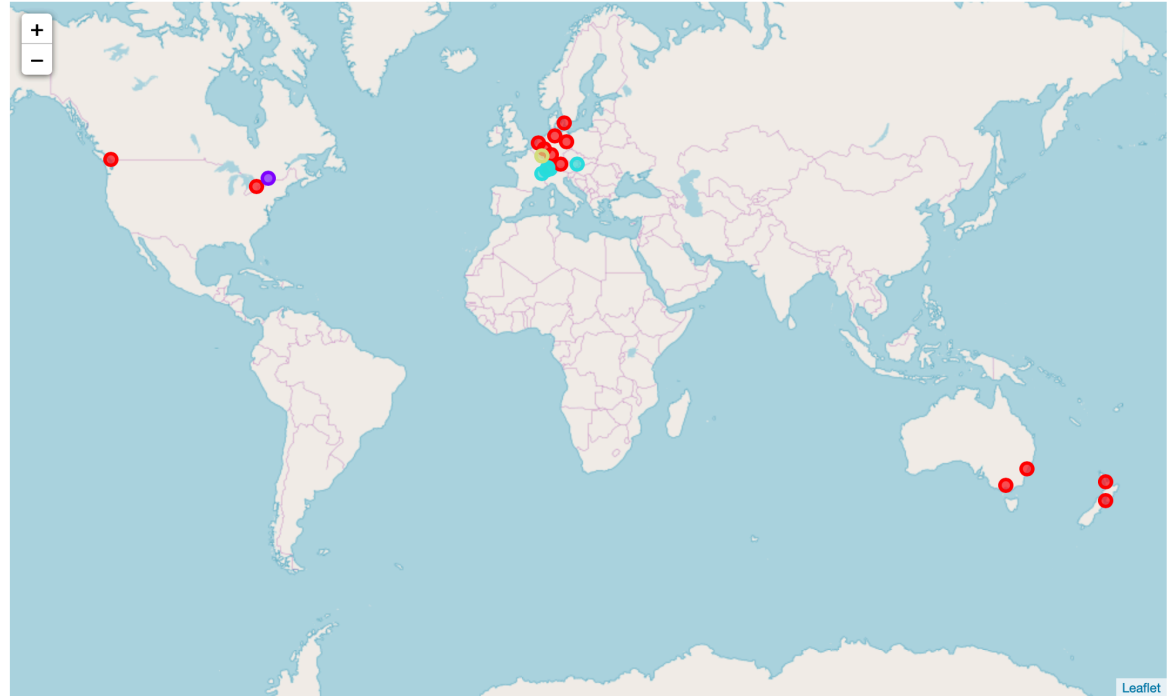
- The Mercer List every year lists the cities with the highest living quality
- This year (2019) no American city made the Top 20, but 3 Swiss cities made the Top 10
- The list uses many measures, such as political, natural and economic environment, as well as education and recreation availability

Question/Problem

- Can we accurately recreate this Mercer List using only Foursquare venue data?
- Do our definitions allow us to find “not yet listed” cities that offer a similar quality of living?
 - This approach could help somebody who needs to decide where to move e.g. for a job in which job/city to chose.

Results (1)

- Clusters:
 - Switzerland
 - Ottawa
 - International
 - Bank Cities



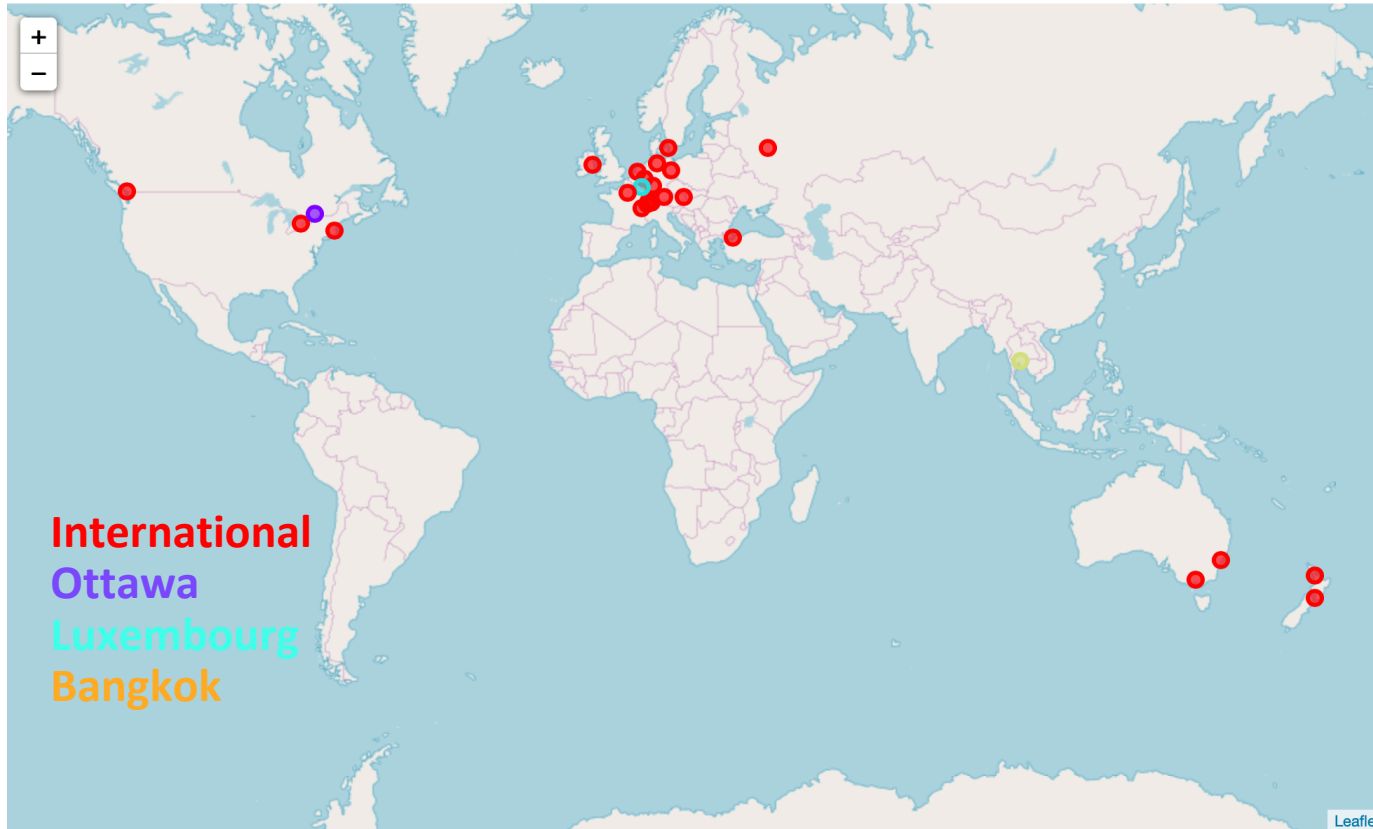
We can cluster the Top 20 cities into 3 main categories

Results (2.0)

- Testing our feature selection and clustering, by adding cities outside the Top 30 and outside the Top 100 revealed that “Quality of living” cannot be assessed by Foursquare venue data.
- Istanbul (#130 on the Mercer List) and Moscow (#167) clustered with a lot of other cities
- Only Bangkok (#133) clustered alone (being the only asian city, this was expected)

This clustering strategy/feature selection does not work, when testing with low ranking cities

Results (2.1)



This clustering strategy/feature selection does not work, when testing with low ranking cities

Methodological decisions

- The parameter analysis revealed that searching for venues within a large radius around a city center smoothens out differences between cities
- The search for venues was decreased to 2.5 km around the city center
- The number of clusters was increased to 8, in order to pick up more nuances between cities

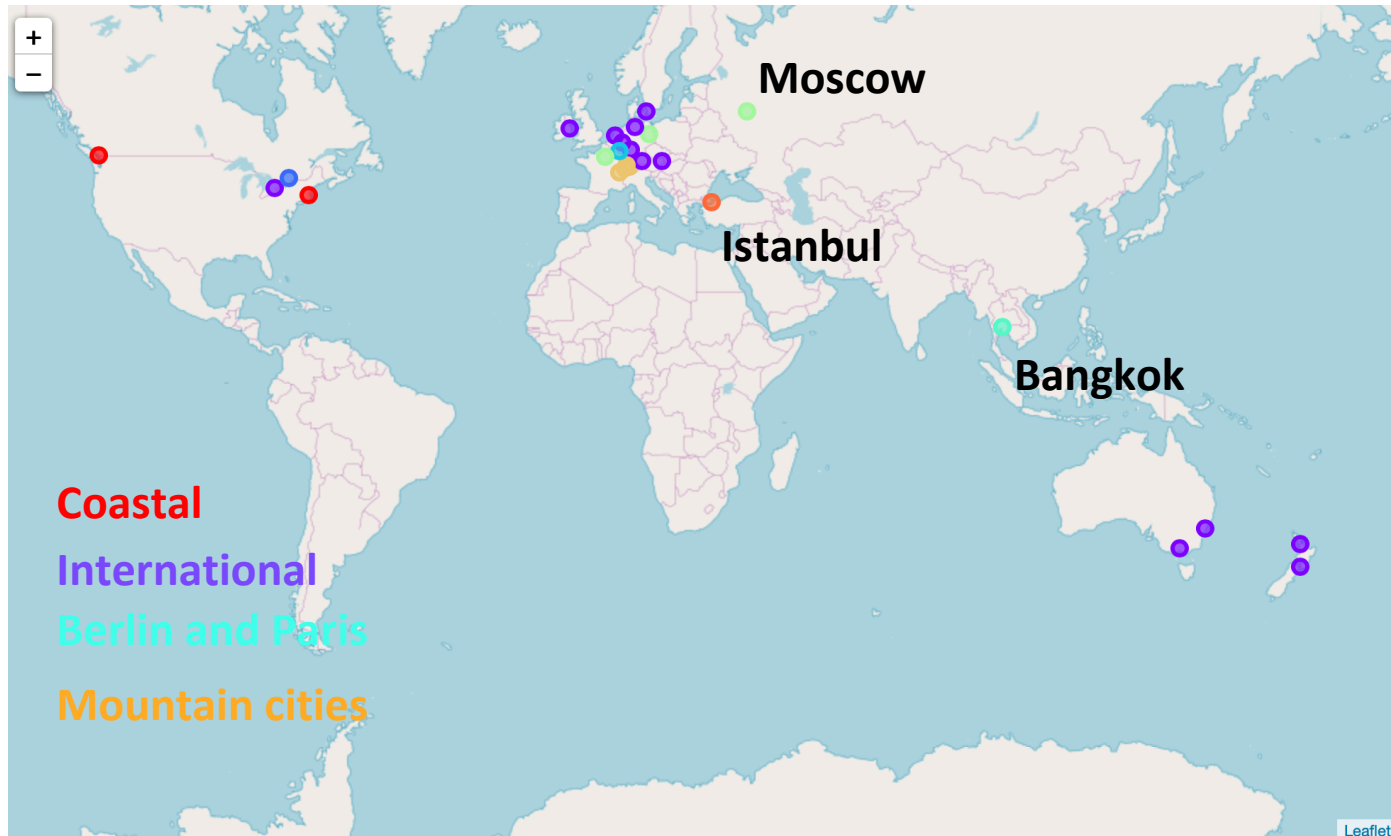
Fingers crossed this works

Results (3)

- The new strategy was successful in isolating Moscow, Istanbul and Bangkok (along with the already known Bank cities of Luxembourg and Frankfurt)
- The other clusters were mainly international, coastal or mountainous cities

Search close, and pay attention to nuances is the recipe for success

Results (3)



While this clustering of Foursquare data cannot recreate the Mercer List, it can distinguish cities based on characteristics

Results (4)

- Given the hypothetical scenario one would have to decide whether to move to Zug (Switzerland), Nice (France) or Quebec City (Canada), to which of our known (high and low quality of living) cities do those three cities compare?

Results (4)

	City	latitude	longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	...	11th Most Common Venue	12th Most Common Venue	13th Most Common Venue	14th Most Common Venue
1	Zürich	47.372394	8.542333	1	Bar	Swiss Restaurant	Plaza	Café	Cocktail Bar	Vegetarian / Vegan Restaurant	...	Boutique	Pedestrian Plaza	Gourmet Shop	Coffee Shop
9	Basel	47.558108	7.587826	1	Café	Hotel	Italian Restaurant	Swiss Restaurant	Bar	Plaza	...	Restaurant	Thai Restaurant	Coffee Shop	Museum
13	Bern	46.948271	7.451451	1	Swiss Restaurant	Café	Bar	Restaurant	Plaza	Park	...	Gastropub	Creperie	Science Museum	Bakery
28	Zug	47.167990	8.517365	1	Swiss Restaurant	Hotel	Restaurant	Supermarket	Italian Restaurant	Fast Food Restaurant	...	Bakery	Cocktail Bar	Salad Place	Light Rail Station

Zug clusters with almost all other Swiss cities – but with all German speaking Swiss cities

Results (4)

	City	latitude	longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	...	11th Most Common Venue	12th Most Common Venue	13th Most Common Venue	14th Most Common Venue
2	Munich	48.137108	11.575382	3	Café	Plaza	Cocktail Bar	Hotel	German Restaurant	Coffee Shop	...	Boutique	Restaurant	Bavarian Restaurant	Steakhouse
7	Geneva	46.201756	6.146601	3	French Restaurant	Hotel	Italian Restaurant	Plaza	Bar	Coffee Shop	...	Department Store	Café	Steakhouse	Japanese Restaurant
22	Paris	48.856610	2.351499	3	Plaza	Cocktail Bar	French Restaurant	Wine Bar	Japanese Restaurant	Sandwich Place	...	Burger Joint	Hotel	Ice Cream Shop	Coffee Shop
27	Nice	43.700936	7.268391	3	French Restaurant	Mediterranean Restaurant	Italian Restaurant	Hotel	Ice Cream Shop	Seafood Restaurant	...	Wine Bar	Japanese Restaurant	Bar	Mediterranean Restaurant

Nice clusters with Paris, Geneva and Munich – two French/French speaking and a German city with Mediterranean flair

Results (4)

	City	latitude	longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	...	11th Most Common Venue	12th Most Common Venue	13th Most Common Venue
3	Auckland	-36.853467	174.765551	5	Café	Japanese Restaurant	Hotel	Bar	Dessert Shop	Park	...	Indian Restaurant	Ice Cream Shop	Steakhouse
4	Vancouver	49.260872	-123.113953	5	Bakery	Coffee Shop	Trail	Sushi Restaurant	Dessert Shop	Park	...	Middle Eastern Restaurant	Taco Place	Seafood Restaurant
5	Düsseldorf	51.225402	6.776314	5	Japanese Restaurant	Hotel	Coffee Shop	Bar	Grocery Store	Café	...	Park	Bakery	Bookstore
6	Frankfurt	50.110644	8.682092	5	Café	Bar	Hotel	Japanese Restaurant	Restaurant	Plaza	...	Coffee Shop	Thai Restaurant	Theater
8	Copenhagen	55.686724	12.570072	5	Café	Beer Bar	Bakery	Coffee Shop	Scandinavian Restaurant	Cocktail Bar	...	Sandwich Place	Bar	Steakhouse
10	Sydney	-33.854816	151.216454	5	Café	Scenic Lookout	Hotel	Theater	Park	Australian Restaurant	...	Japanese Restaurant	Italian Restaurant	Brewery
14	Wellington	-41.288747	174.777209	5	Café	Restaurant	Coffee Shop	Bar	Gastropub	Asian Restaurant	...	Chinese Restaurant	Park	Mexican Restaurant
15	Toronto	43.653963	-79.387207	5	Coffee Shop	Café	Hotel	Theater	Gym	Pizza Place	...	Concert Hall	Burrito Place	Sandwich Place
16	Melbourne	-37.814218	144.963161	5	Coffee Shop	Café	Bar	Cocktail Bar	Italian Restaurant	Hotel	...	Plaza	Dessert Shop	Korean Restaurant
20	Dublin	53.349764	-6.260273	5	Pub	Café	Coffee Shop	Hotel	Restaurant	Theater	...	Museum	Pizza Place	Cocktail Bar
26	Quebec City	46.825960	-71.235223	5	Restaurant	Café	Park	Brewery	Gastropub	Bakery	...	Pub	Grocery Store	Plaza

Quebec City clusters with a lot of international cities

Discussion and Outlook

- Overall quality of living (according to Mercer) cannot be replicated only by the listing of venues as derived from Foursquare.
- Foursquare venue data can be used to cluster cities according to their characteristics and that venues in the city center have a stronger influence on clustering than venues located throughout the city and suburbs.
- Given a base dataset one can search for new cities and assign them to clusters very well. In this way one can get a good idea of what a city, with respect to its venues, is like.

Discussion and Outlook

- More specifically, I could show that Zug seems to be a typical Swiss town, Nice is very French and Mediterranean and Quebec is an international town that probably needs little adaptation when moving there.
- If one would need to decide where to move, such a search can give a person a good overview what to expect in each city. This search though is not inclusive and natural environments (coastal city, mountains, desert etc.) political environments (dictatorship, democracy etc.) and pay would need to be considered as well.