A SIMPLE HOTEL RECOMMENDATION SYSTEM USING FOURSQUARE API

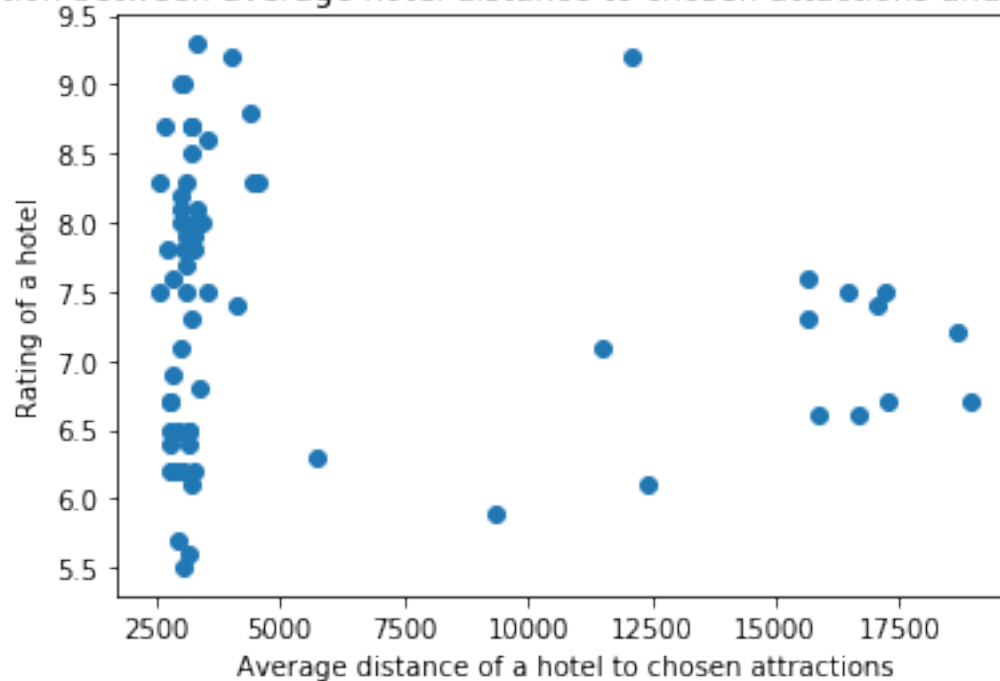# Hotel Recommendation based on attractions is valuable

- It is sometimes hard and time-consuming to decide which hotel to stay based on a number of tourist attractions planning to go.
- A hotel recommendation saves time on planning.
- Travel agency and people who loves to travel will be interested
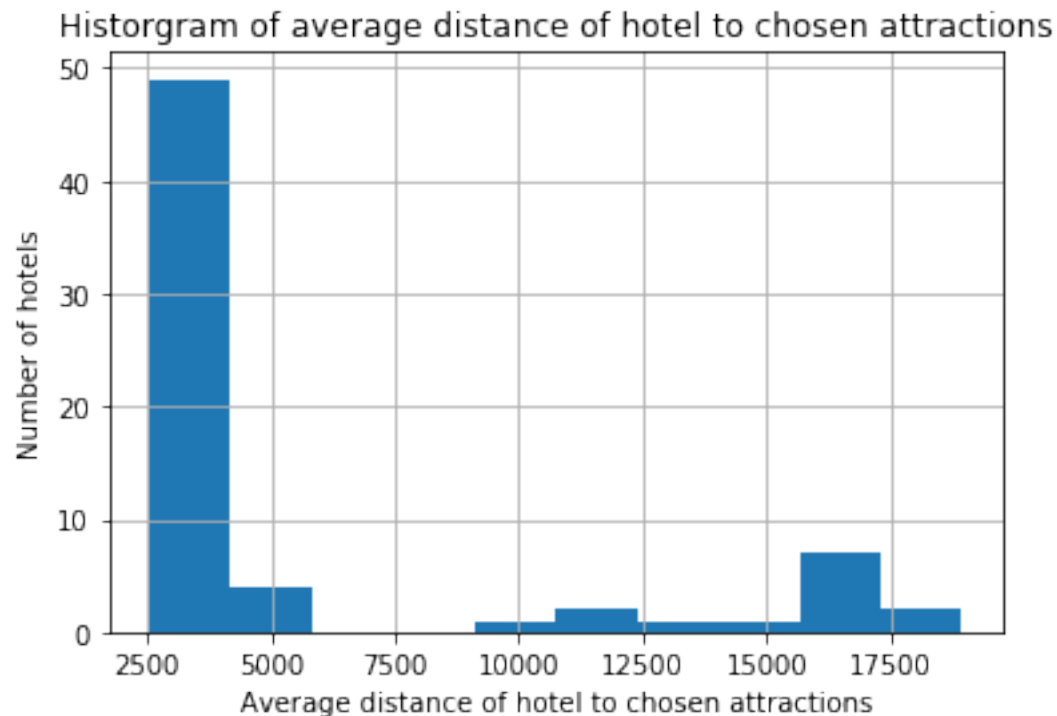
Data acquisition and cleaning

- The number and minimum rating of tourist attractions from the user.

- The minimum rating of hotel from the user.

- The geographical locations and ratings of tourist attractions and hotels from the Foursquare API.

- Data without a rating, geographical information or category and does not satisfy the user's input, will be dropped.

- Average distance between each hotel and attractions will be calculated.

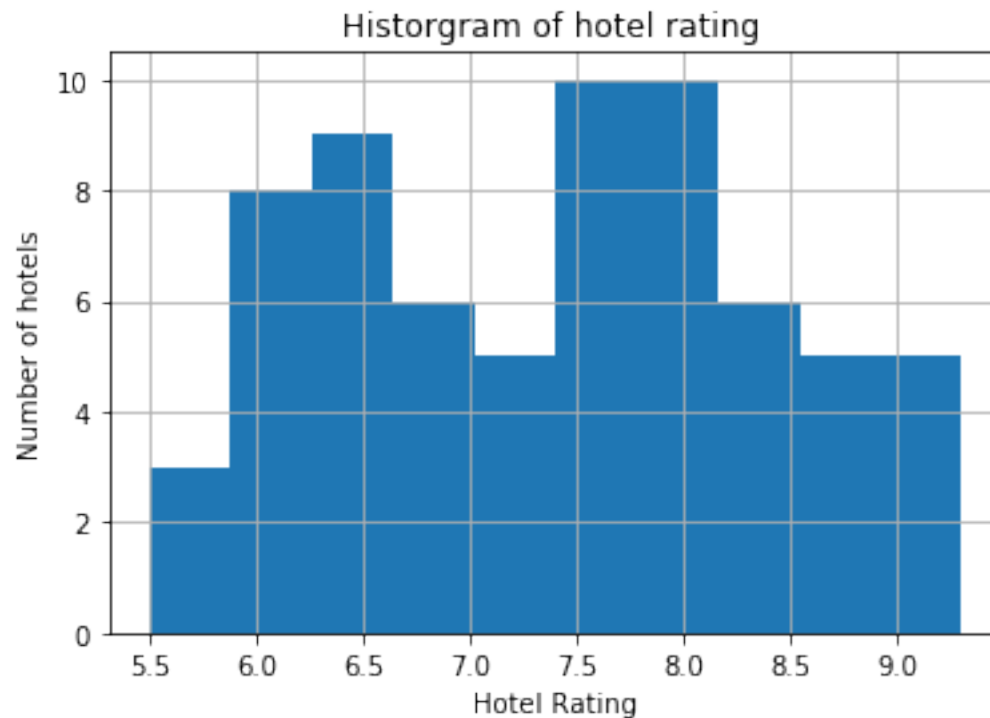# The further the hotel from attraction, the lower the rating

Relation between average hotel distance to chosen attractions and hotel rating

More hotels are closer to the tourist attractions

Historgram of average distance of hotel to chosen attractions

Distribution of hotel rating
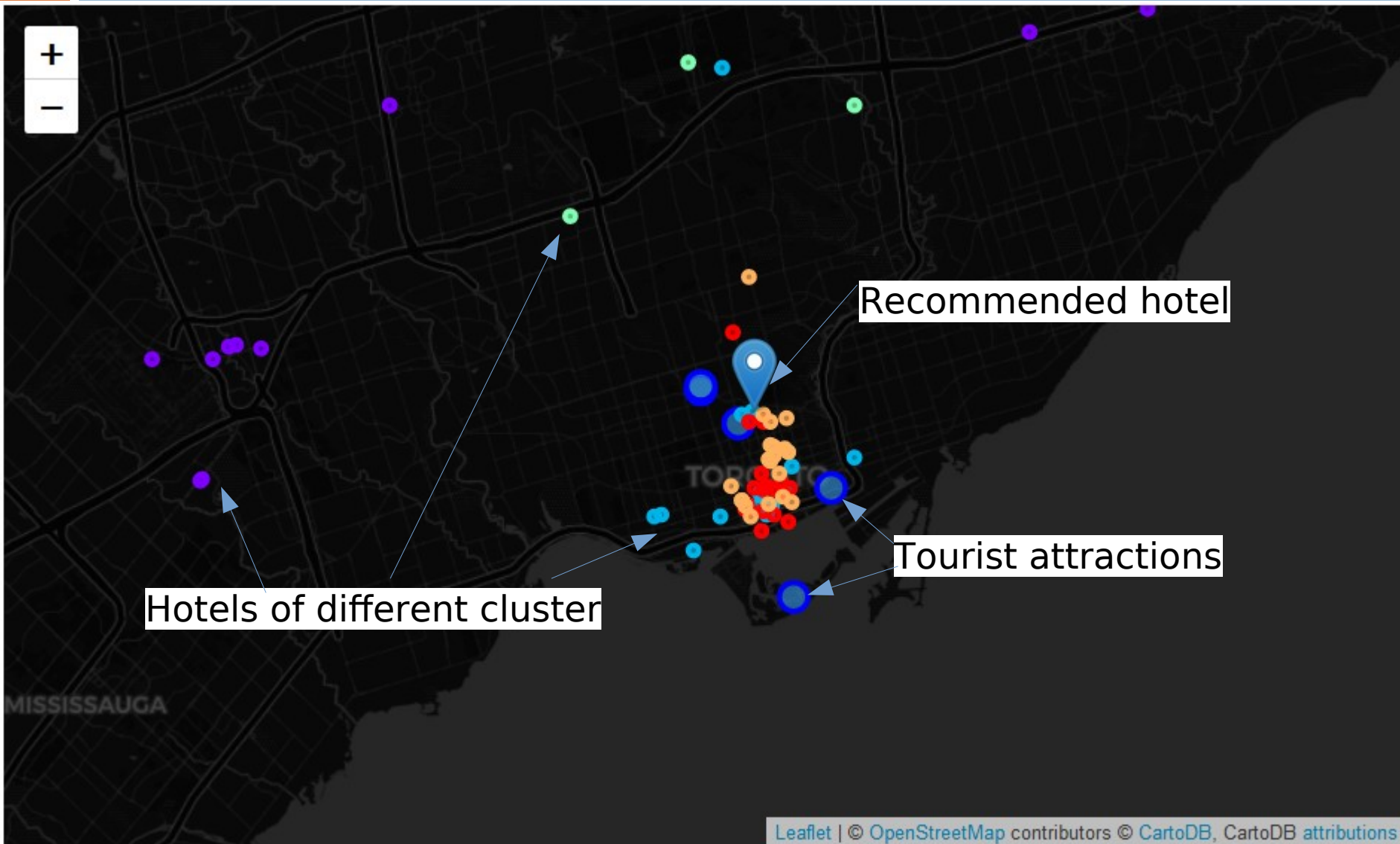

Historgram of hotel rating

Recommendation strategy

- 5 clusters are set using k-means clustering
- Hotel rating over distance ratio (rod) is calculated to give a recommendation

	name	rating	city	lat	lng	categories	dist	cluster	rod
0	Four Seasons Hotel Toronto	8.7	Toronto	43.671796	-79.389457	Hotel	2667.946190	2	0.003261
1	The Hazelton Hotel	8.3	Toronto	43.670764	-79.393257	Hotel	2549.653127	2	0.003255
2	The Grand Hotel & Suites Toronto	9.0	Toronto	43.656449	-79.374110	Hotel	2995.854308	2	0.003004
3	Shangri-La Toronto	9.0	Toronto	43.649129	-79.386557	Hotel	3050.887840	2	0.002950
4	Windsor Arms Hotel	7.5	Toronto	43.668781	-79.390850	Hotel	2558.494501	0	0.002931

- Four Seasons Hotel and cluster 2 is recommended in this case

Results

Conclusion and future directions

- This simple idea based on two parameters, the hotel ratings and the average distance hotel to attractions, to give recommendation on the hotel is possible and is close to expectation.

- It is true that it is inaccurate simply use the shortest distance between hotel to attractions.

- If local transportation information is available, more close-to-reality travel time can be calculated. As a result, smart trip planning is also possible with transportation tips.