Coursera Capstone project

Coursera IBM Data Science Certification

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Introduction:

Rockstar Event Planners is a company based in Toronto for organizing events and booking the hotels and restaurants for the visitors. It mostly works with the companies in Toronto that bring in the employees working in its offshore branches for the global events. The company must arrange the place of accommodation. The halls of meetings must be arranged for the employees in the morning. In the evenings the employees and their families are taken out to visit the landscapes play some games and ends with a dinner at restaurants.

Data:

The data used in this project is provided by Foursquare location data as required. The data is grouped by landscape area, and each area included the information about this area and all information about restaurants, cafes, and stores which in this area.

Methodology:

In this project I am following the strategy of finding at least two different plans for the Rockstar executives to choose from. This is done by first obtaining the data separately for the hotels, restaurants, park, cafeteria. Then they are clustered together to make sense of the places and the distances. Then a suitable conclusion is drawn where our preferred solution is presented.

Tools:

In this project we are following the below tools.

1. Folium for plotting the maps
2. Foursquare API for fetching the location data
3. Pandas package for handling the data

Execution and Results:

The execution follows the following steps:

1. Obtain the location for the hotels in Toronto. For that I use the foursquare API. The original data frame is as shown below:

	categories	hasPerk	id	location.address	location.cc	location.city	location.country	location.crossStreet	location.d
0	[{'id': '4bf58dd8d48988d1fa931735', 'name': 'H...	False	4ab2d511f964a5209b6c20e3	123 Queen Street West	CA	Toronto	Canada	at York St.	
1	[{'id': '4bf58dd8d48988d1fa931735', 'name': 'H...	False	51d212c3498ebf27dc469bc9	33 Gerrard Street West	CA	Toronto	Canada	at Yonge St	
2	[{'id': '4bf58dd8d48988d1fa931735', 'name': 'H...	False	4ae61cf6f964a520caa421e3	200 Victoria St	CA	Toronto	Canada	at Shuter St	
3	[{'id': '4bf58dd8d48988d1fa931735', 'name': 'H...	False	51e48697498eded9073c6c17	33 Gerrard Street West	CA	Toronto	Canada	NaN	
4	[{'id': '4bf58dd8d48988d1e7931735', 'name': 'J...	False	4b68aed1f964a520de862be3	194 Queen St W	CA	Toronto	Canada	Queen & St. Patrick	

2. The dataframe is cleaned to remove the useless data and extract the data from the categories column. Then the NaN values are removed from the dataframe using the dropna method.

   The cleaned dataframe is obtained as below:

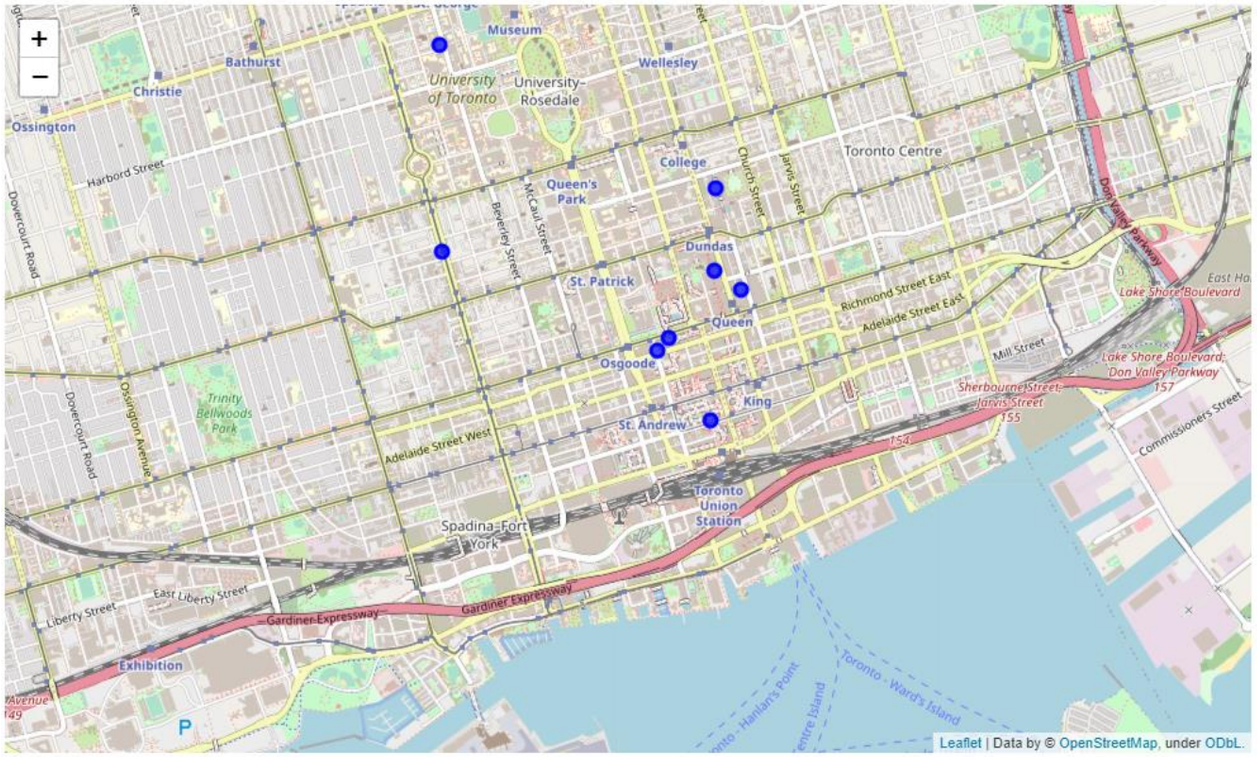
	name	categories	address	lat	lng	postalCode	state
0	Sheraton Centre Toronto Hotel	Hotel	123 Queen Street West	43.650594	-79.384530	M5H 2M9	ON
1	Chelsea Hotel	Hotel	33 Gerrard Street West	43.658498	-79.383097	M5G 1Z4	ON
4	The Rex Hotel Jazz & Blues Bar	Jazz Club	194 Queen St W	43.650505	-79.388577	M5V 1Z1	ON
5	VFM Test Hotel	Hotel	123 Test Drive	43.658434	-79.387894	M2M 2M2	ON
6	One King West Hotel & Residence	Hotel	1 King St W	43.649139	-79.377876	M5H 1A1	ON
7	Cosmopolitan Toronto Centre Hotel & Spa	Hotel	8 Colborne St	43.649064	-79.377598	M5E 1E1	ON
20	Chelsea Hotel, Toronto Meetings & Events Venue	Convention Center	33 Gerrard Street West	43.658446	-79.382985	M5G 1Z4	ON
21	The Adelaide Hotel Toronto	Hotel	325 Bay St	43.649831	-79.380164	M5H 4G3	ON
22	St Regis Hotel	Hotel	325 Bay St	43.649770	-79.380701	M5H 4G3	ON
26	DoubleTree by Hilton	Hotel	108 Chestnut Street	43.654608	-79.385942	M5G 1R3	ON
27	Marriott Downtown at CF Toronto Eaton Centre	Hotel	525 Bay Street	43.654728	-79.382422	M5G 2L2	ON
29	Grand Ballroom	Event Space	123 Queen St. W	43.651217	-79.383771	M5H 2M9	ON

3. Then they are filtered by the same postal code find the nearby location.

	name	categories	address	lat	lng	postalCode	state
0	Sheraton Centre Toronto Hotel	Hotel	123 Queen Street West	43.650594	-79.384530	M5H 2M9	ON
29	Grand Ballroom	Event Space	123 Queen St. W	43.651217	-79.383771	M5H 2M9	ON

4. This process is followed for all the remaining places.
5. Then once the data is obtained, it is created into two maps corresponding to 2 plans.
6. **Plan 1:** Go to the Cafeteria then to Park and then to Hotel. Map is obtained as shown below:

7. **Plan 2**: Go to the Cafeteria then to Shopping Mall and then to Restaurant. The map is obtained as below.



Conclusion:

From the above two maps we can conclude that the map1 has dense clusters thus we have many options and also takes less time for travelling when compared to the second map. Thus we recommend that the Rockstars company follow the plan Cafeteria->Park->Hotels.