Similarities and dissimilarities between Cartagena, Colombia and Toronto, Canada

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13 December 2020

1. Introduction

Sometimes, we wish to find out the best place to live or spend our holidays. Nonetheless, it is not a good idea to pick a place randomly on the map and move to that place unless you enjoy facing the unknown. Moreover, money and time are valuable resources to take into consideration. That is why, if someone is about to travel, the first that they could do is looking for information about different cities before going there. Finally, it is highly possible to get fun if you follow someone else suggestion and advice.

In this project, you will see a comparison between Cartagena, Colombia, and Toronto, Canada, which could guide you before traveling, considering the main variables to decide based on evidence.

2. Problem

The datasets must provide valuable information related to monthly average weather, the best places to visit, and the best neighborhood to live. Having said that, it could be much easier to decide to have a holiday or move to that city.

3. Interest

This project will be quite interesting for everyone who needs to know what are the main variables which are needed to check a city out before traveling.

4. Data acquisition

4.1. Data Sources

To compare two cities, it is important to create a dataset with the following information based on Foursquare location data:

Index	Neighborhood	Venue Id	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue Count Likes	Main Category

Additionally, I scraped the following site webs:

Venues Categories
https://developer.foursquare.com/docs/build-with-foursquare/categories/

Postal Codes
Cartagena - https://worldpostalcode.com/colombia/bolivar/cartagena
Toronto - https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M

Monthly weather averages
Cartagena - https://www.weather2visit.com/south-america/colombia/cartagena.htm
Toronto - https://www.weather2visit.com/north-america/canada/toronto.htm

Travel cost
Cartagena - http://hikersbay.com/travel-cost/colombia/cartagenadeindias?lang=en
Toronto - http://hikersbay.com/travel-cost/canada/toronto?lang=en

4.2. Data cleaning

Having download and scraped from the web sites mentioned before, I want to mention how to get the dataset needed per city

4.2.1. Venues Categories

Unfortunately, I could not find how to get the main categories and subcategories. That is why, I decided to get information from this site web https://developer.foursquare.com/docs/build-with-foursquare/categories/, in which I identify the main categories and subcategories, later, it was necessary to label one by one.

Main Categories

| Category	Id	Main_Category
Arts & Entertainment	4d4b7104d754a06370d81259	1.0
College & University	4bf58dd8d48988d193941735	2.0
Event	4bf58dd8d48988d1ab941735	3.0
Food	52f2ab2ebcbc57f1066b8b54	4.0
Nightlife Spot	Supported countries: IT	5.0
Outdoors & Recreation	55a5a1ebe4b013909087cb83	6.0
Professional & Other Places	52e928d0bcbc57f1066b7e9c	7.0
Residence	4bf58dd8d48988d102941735	8.0
Shop & Service	4bf58dd8d48988d168941735	9.0
Travel & Transport	4bf58dd8d48988d132941735	10.0

Subcategories

** The picture below is just an example with 5 subcategories

| Category	Id	Main_Category
Train	4f04ae1f2fb6e1c99f3db0ba	10.1
Tram Station	52f2ab2ebcbc57f1066b8b2a	10.1
Transportation Service	52f2ab2ebcbc57f1066b8b2d	10.1
Travel Lounge	5744ccdfe4b0c0459246b4c7	10.1
Tunnel	4f4532974b9074f6e4fb0104	10.1

4.2.2. Postal Codes

After web scraping the postal codes for Cartagena and Toronto, I got the exact location per venue through foursquare.

Cartagena, Colombia
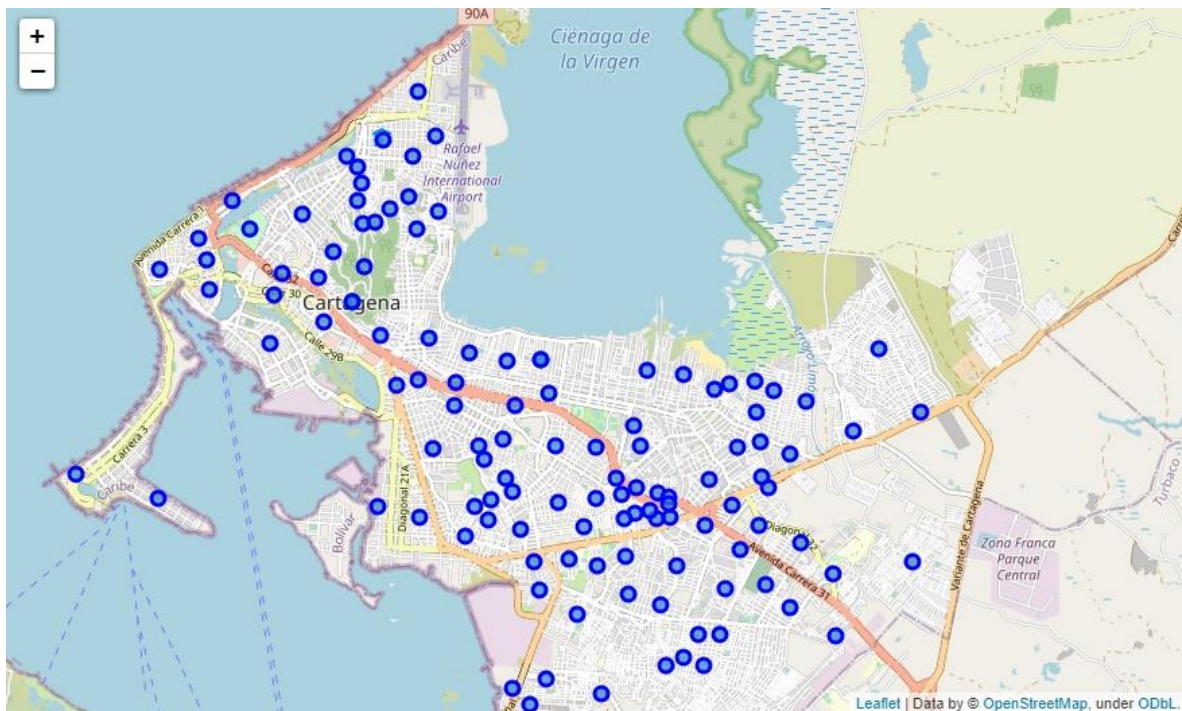
Toronto, Canada
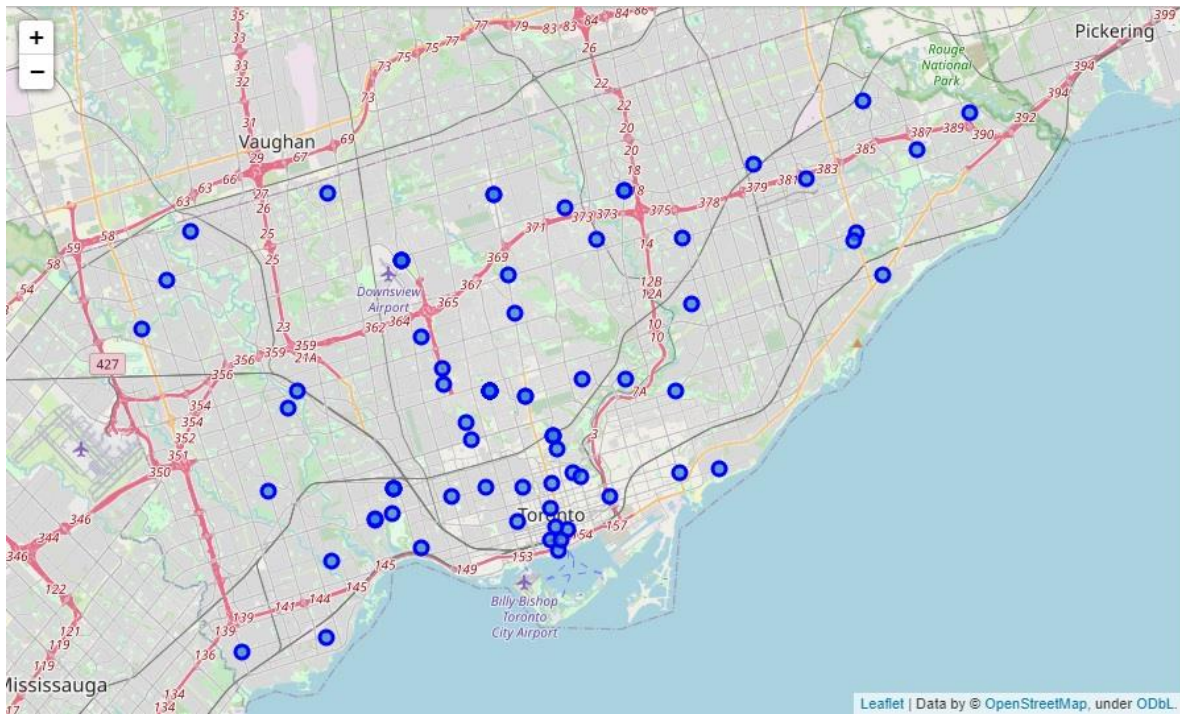
4.2.3. Main dataset

To get the main dataset it was necessary to scan for four days due to the restriction with the free Foursquare, which let do 900 calls or so per day.

The first two days, I got every venue for Cartagena and Toronto.

Cartagena

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Id	Venue	Venue Latitude	Venue Longitude	Venue Category
Alameda La Victoria	10.384171	-75.474273	4f24bc3fe4b0eec7fe8b7ef5	El Tropezon	10.387691	-75.473635	Bar
Alameda La Victoria	10.384171	-75.474273	549503eb498e778f198bece7	Restaurante Anca Y Mar	10.387800	-75.473465	Seafood Restaurant
Alameda La Victoria	10.384171	-75.474273	4ed1207b754ad8083f23e667	Comidas Rápidas El York	10.387683	-75.473759	Fast Food Restaurant
Alameda La Victoria	10.384171	-75.474273	4f54b6b8e4b063296f7a3f9b	EDS Terpel San Buenaventura	10.384420	-75.469864	Gas Station
Alameda La Victoria	10.384171	-75.474273	50b6b70c498ea7a45b29a6ab	Cancha Sintetica Palogrande	10.384212	-75.470706	Soccer Field

Toronto

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Id	Venue	Venue Latitude	Venue Longitude	Venue Category
Parkwoods	43.75772	-79.315941	4b8991cbf964a520814232e3	Allwyn's Bakery	43.759840	-79.324719	Caribbean Restaurant
Parkwoods	43.75772	-79.315941	4bdccf4cafe8c9b6da285185	LCBO	43.757774	-79.314257	Liquor Store
Parkwoods	43.75772	-79.315941	4cd56bc194848cfa2b1ae6b1	Kostas Meat Market	43.760605	-79.301830	Greek Restaurant
Parkwoods	43.75772	-79.315941	500982f0e4b034274e8373e8	Naan & Kabob Halal	43.742903	-79.305148	Middle Eastern Restaurant
Parkwoods	43.75772	-79.315941	4dd19e051838a75196486487	Ghadir Mid-Eastern Grocery	43.743638	-79.304233	Grocery Store

The last two days, I got the amount of "likes" per venue for Cartagena and Toronto.

Cartagena

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Id	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue Count Likes	Venue Summary Likes
Alameda La Victoria	10.384171	-75.474273	4f24bc3fe4b0eec7fe8b7ef5	El Tropezon	10.387691	-75.473635	Bar	6	6 Likes
Alameda La Victoria	10.384171	-75.474273	549503eb498e778f198bece7	Restaurante Anca Y Mar	10.387800	-75.473465	Seafood Restaurant	9	9 Likes
Alameda La Victoria	10.384171	-75.474273	4ed1207b754ad8083f23e667	Comidas Rápidas El York	10.387683	-75.473759	Fast Food Restaurant	6	6 Likes
Alameda La Victoria	10.384171	-75.474273	4f54b6b8e4b063296f7a3f9b	EDS Terpel San Buenaventura	10.384420	-75.469864	Gas Station	5	5 Likes
Alameda La Victoria	10.384171	-75.474273	50b6b70c498ea7a45b29a6ab	Cancha Sintetica Palogrande	10.384212	-75.470706	Soccer Field	1	1 Like

Toronto

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Id	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue Count Likes	Venue Summary Likes
Parkwoods	43.75772	-79.315941	4b8991cbf964a520814232e3	Allwyn's Bakery	43.759840	-79.324719	Caribbean Restaurant	18	18 Likes
Parkwoods	43.75772	-79.315941	4bdccf4cafe8c9b6da285185	LCBO	43.757774	-79.314257	Liquor Store	15	15 Likes
Parkwoods	43.75772	-79.315941	4cd56bc194848cfa2b1ae6b1	Kostas Meat Market	43.760605	-79.301830	Greek Restaurant	17	17 Likes
Parkwoods	43.75772	-79.315941	500982f0e4b034274e8373e8	Naan & Kabob Halal	43.742903	-79.305148	Middle Eastern Restaurant	23	23 Likes
Parkwoods	43.75772	-79.315941	4dd19e051838a75196486487	Ghadir Mid-Eastern Grocery	43.743638	-79.304233	Grocery Store	9	9 Likes

Finally, it was necessary to add the Main category based on Foursquare categories dataset

Cartagena

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Id	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue Count Likes	Venue Summary Likes	Main_Category
Alameda La Victoria	10.384171	-75.474273	4f24bc3fe4b0eec7fe8b7ef5	El Tropezon	10.387691	-75.473635	Bar	6	6 Likes	Nightlife Spot
Alameda La Victoria	10.384171	-75.474273	549503eb498e778f198bece7	Restaurante Anca Y Mar	10.387800	-75.473465	Seafood Restaurant	9	9 Likes	Food
Alameda La Victoria	10.384171	-75.474273	4ed1207b754ad8083f23e667	Comidas Rápidas El York	10.387683	-75.473759	Fast Food Restaurant	6	6 Likes	Food
Alameda La Victoria	10.384171	-75.474273	4f54b6b8e4b063296f7a3f9b	EDS Terpel San Buenaventura	10.384420	-75.469864	Gas Station	5	5 Likes	Shop & Service
Alameda La Victoria	10.384171	-75.474273	50b6b70c498ea7a45b29a6ab	Cancha Sintetica Palogrande	10.384212	-75.470706	Soccer Field	1	1 Like	Outdoors & Recreation

Toronto

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Id	Venue	Venue Latitude	Venue Longitude	Venue Category	Venue Count Likes	Venue Summary Likes	Main_Category
Old Mill South, King's Mill Park, Sunnylea	43.6363	-79.4985	4b11a52ef964a5204b8123e3	Momiji Sushi Bar & Grill	43.647843	-79.508534	Sushi Restaurant	36	36 Likes	Food
Old Mill South, King's Mill Park, Sunnylea	43.6363	-79.4985	4bb7e2d498c7ef3b28883002	The Kingsway Theatre	43.647164	-79.512232	Indie Movie Theater	13	13 Likes	Arts & Entertainment
Old Mill South, King's Mill Park, Sunnylea	43.6363	-79.4985	511992d3e4b04d760b8ff836	Gourmet Bakery (Islington Station)	43.644919	-79.524711	Bakery	11	11 Likes	Food
Old Mill South, King's Mill Park, Sunnylea	43.6363	-79.4985	4bcb9b5a68f976b0717e6183	Anatolia Restaurant	43.644596	-79.532810	Turkish Restaurant	55	55 Likes	Food
Old Mill South, King's Mill Park, Sunnylea	43.6363	-79.4985	543b1213498e97d631e83226	U-Know Sushi	43.630326	-79.485386	Sushi Restaurant	5	5 Likes	Food

4.3. Feature Section

To keep up the integrity of the information it was necessary to get rid of duplicate rows in the datasets. That is why, I deleted the venues duplicated.

Cartagena

Let's check the size of the resulting dataframe

```
[21]: #cartagena_venues.to_csv(r'cartagena_venues3.csv', index = False)
      #cartagena_venues=pd.read_csv('cartagena_venues3.csv')
      cartagena_venues.shape

[21]: (2025, 8)
```

```
[14]: print('There are {} uniques categories.'.format(len(cartagena_venues['Venue Category'].unique())))
      print('There are {} uniques venues.'.format(len(cartagena_venues['Venue'].unique())))

      There are 164 uniques categories.
      There are 626 uniques venues.
```

4.3.1. Get unique values per Venue in Cartagena

```
[15]: ca_filtered = cartagena_venues.drop_duplicates(subset=['Venue'],keep='first')
      ca_filtered.to_csv(r'ca_filtered2.csv', index = False)
      ca_filtered.shape

[15]: (626, 8)
```

Toronto

Let's check the size of the resulting dataframe

```
[23]: print(toronto_venues.shape)
      toronto_venues.shape

      (10213, 8)
[23]: (10213, 8)
```

```
[24]: toronto_venues.to_csv(r'toronto_venues.csv', index = False)
      #toronto_venues=pd.read_csv('toronto_venues6.csv')
```

5.3.1. Get unique values per Venue in Toronto

```
[25]: print('There are {} uniques categories.'.format(len(toronto_venues['Venue Category'].unique())))
      print('There are {} uniques venues.'.format(len(toronto_venues['Venue'].unique())))

      There are 240 uniques categories.
      There are 1436 uniques venues.
```

```
[42]: to_filtered = toronto_venues.drop_duplicates(subset=['Venue'],keep='first')
      to_filtered.to_csv(r'to_filtered2.csv', index = False)
      to_filtered.shape
```

```
[42]: (1436, 8)
```

5. Exploratory Data Analysis

Having gotten the dataset per city, it is necessary to demonstrate what are the top venues to visit and the best neighborhoods to live in. That is why, the datasets were organized according to the likes received per tourists or citizens.

5.1. Top Venues preferred

Cartagena

Venue	Venue Count Likes
Centro Histórico de Cartagena / Ciudad Amurallada	1799
Café del Mar	1231
Aeropuerto Internacional Rafael Núñez (CTG) (A...	1143
Castillo de San Felipe de Barajas	809
La Cevicheria	604
Torre del Reloj	565
Restaurante La Mulata	549
La Palettería	491
Plaza Santo Domingo	490
Mila Pasteleria	470

Toronto

Venue	Venue Count Likes
Toronto Pearson International Airport (YYZ) (T...	4177
Rogers Centre	2220
Scotiabank Arena	2203
CN Tower	2007
Yorkdale Shopping Centre	1545
Royal Ontario Museum	1497
Ripley's Aquarium of Canada	1443
Art Gallery of Ontario	1317
St. Lawrence Market (South Building)	1269
Yonge-Dundas Square	823

5.2. Top Neighborhood preferred

Cartagena

Neighborhood	Venue Count Likes
Centro	12406
Getsemani	2535
La Matuna	1809
El Laguito	1390
Crespo	1292
Espinal	1043
Pie De La Popa	930
Ii	723
Brucelas	720
Chambacu	632

Toronto

| Neighborhood	Venue Count Likes
Regent Park, Harbourfront	25662
Northwest, West Humber - Clairville	5194
Queen's Park, Ontario Provincial Government	5079
Lawrence Manor, Lawrence Heights	4608
Woodbine Heights	4452
Parkwoods	3911
Christie	2846
St. James Town	2258
Islington Avenue, Humber Valley Village	2096
Malvern, Rouge	2011

6. Results

Now, it is time to make a comparison between Cartagena, Colombia and Toronto, Canada. Therefore, the two final datasets where merged to create the following graph.
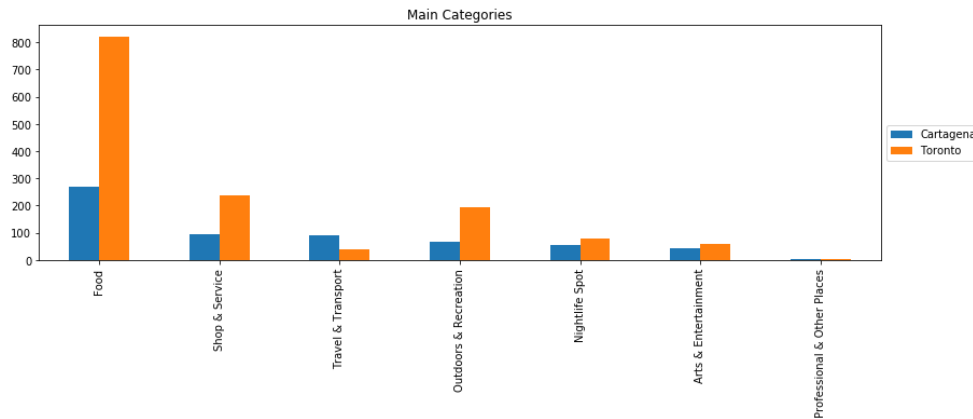
Main_Category	Cartagena	Toronto
Food	269	821
Shop & Service	95	237
Travel & Transport	91	39
Outdoors & Recreation	65	194
Nightlife Spot	57	77
Arts & Entertainment	43	61
Professional & Other Places	5	5

As can be seen from chart, Cartagena, Colombia is a place where you could get fun during your holidays or live peacefully as soon as you get retired. On the other hand, Toronto, Canada is a place which is highly possible to do almost everything due to their large number of businesses which work out there.

Comparison between Cartagena and Toronto
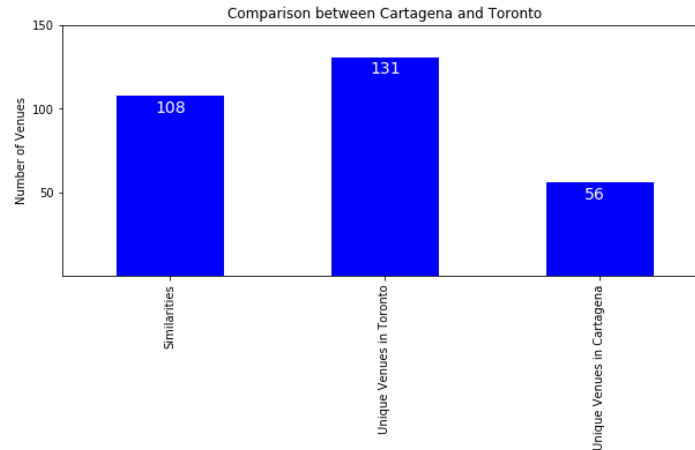
More than 30% of the venues are available in both cities for instance Restaurants, Coffee Shop, Fitness Center, Museums, among other.

As for Toronto, it is only possible to find venues like Hockey Arena, Basketball Stadium, Aquarium, etc.
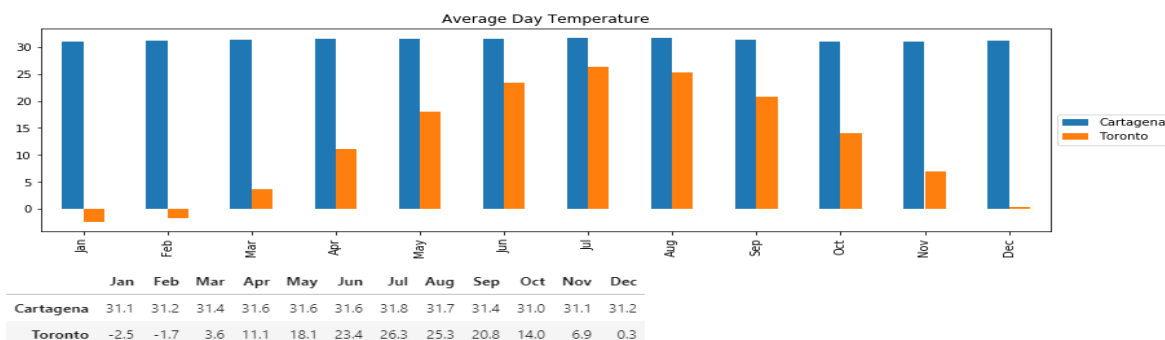
Finally, Cartagena is a place in which everyone could find Arepa Restaurant, Art Museum, Ciudad Amurallada, etc.

7. Discussion section

In this section, it is remarkable that weather could play an important role to decide what kind of activities you could do, what is the best place to live or spend your holidays.
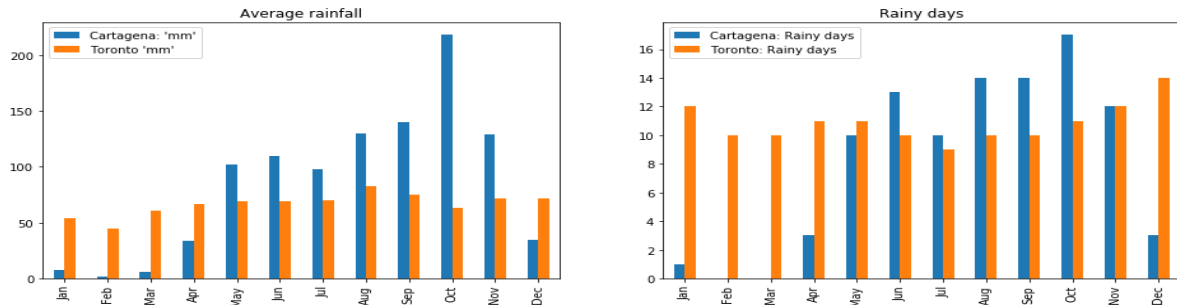
7.1. Average day temperature

Cartagena lets enjoy an outstanding weather throughout the whole year. Meanwhile, Toronto is significantly different.

Average Day Temperature

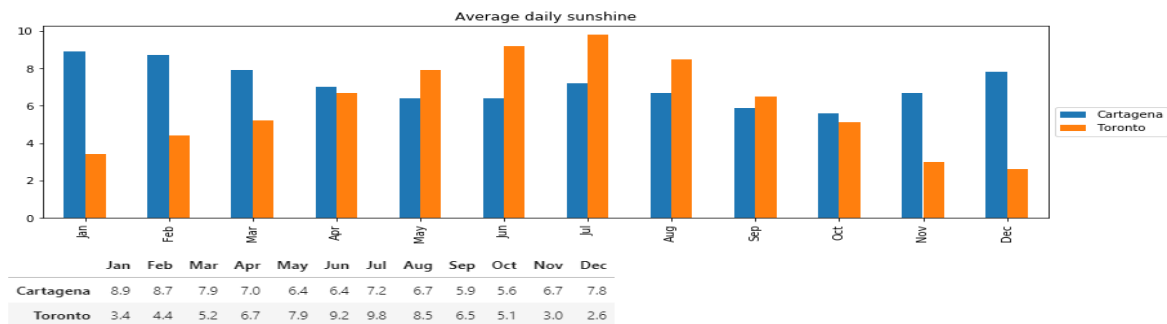|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cartagena	31.1	31.2	31.4	31.6	31.6	31.6	31.8	31.7	31.4	31.0	31.1	31.2
Toronto	-2.5	-1.7	3.6	11.1	18.1	23.4	26.3	25.3	20.8	14.0	6.9	0.3

7.2. Average rainfall and rainy days

Average rainy days in Toronto is 10 days per month. However, Cartagena has four months in which the number of rainy days surpass more than 10 days.


7.3. Average daily sunshine

As can be seen in the chart below Toronto lets enjoy eight hours of sunshine for four months.

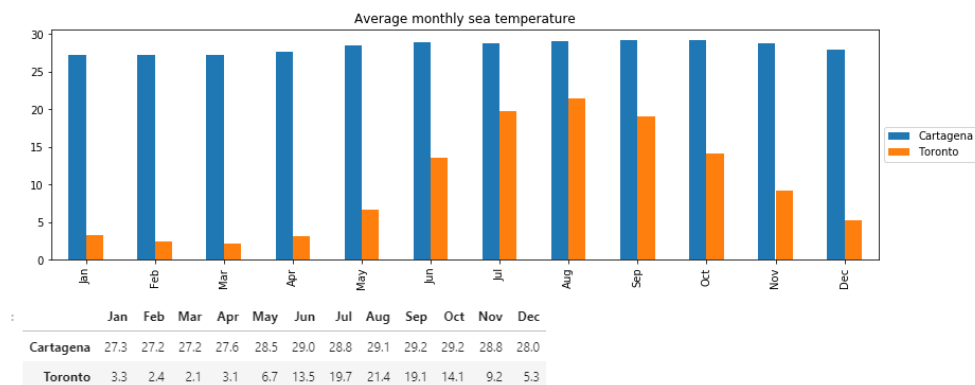|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cartagena	8.9	8.7	7.9	7.0	6.4	6.4	7.2	6.7	5.9	5.6	6.7	7.8
Toronto	3.4	4.4	5.2	6.7	7.9	9.2	9.8	8.5	6.5	5.1	3.0	2.6

7.4. Average day / night temperatures

Toronto lets enjoy an outstanding weather for four months. Meanwhile, Cartagena is significantly better during the whole year.
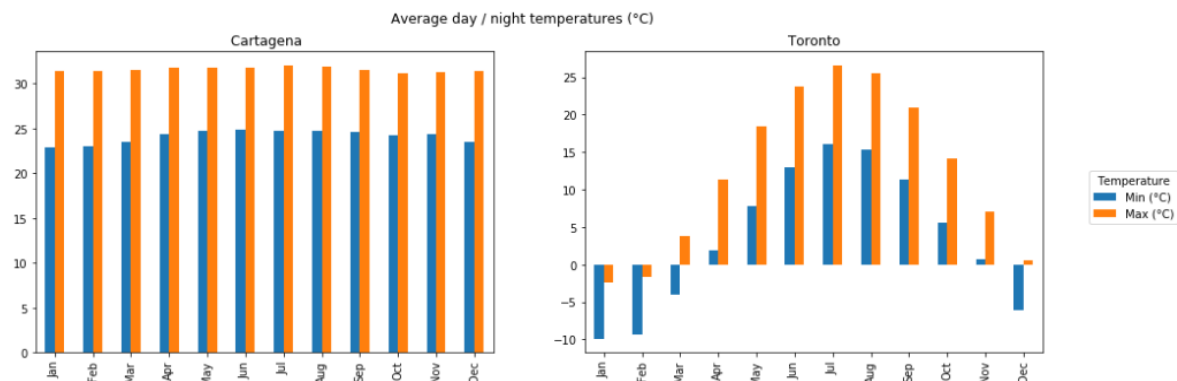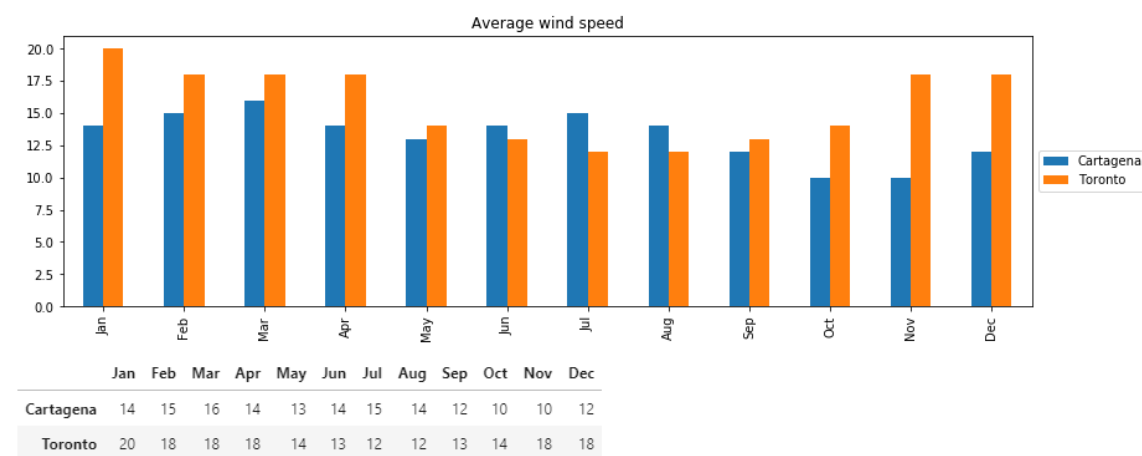
7.5. Average monthly sea temperature

The sea temperature in Cartagena remains steadily during the whole year.
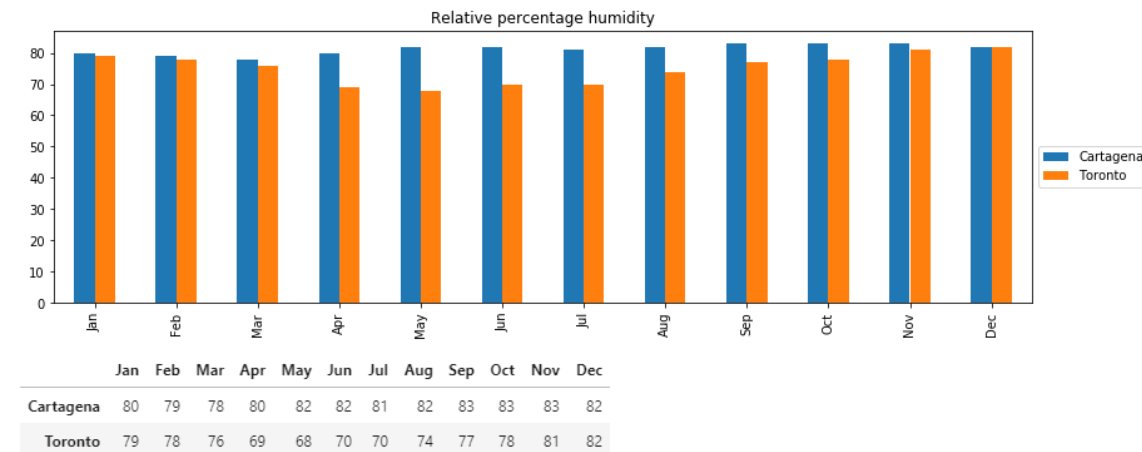

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cartagena	27.3	27.2	27.2	27.6	28.5	29.0	28.8	29.1	29.2	29.2	28.8	28.0
Toronto	3.3	2.4	2.1	3.1	6.7	13.5	19.7	21.4	19.1	14.1	9.2	5.3

7.6. Average wind speed

Cartagena lets enjoy a fresh wind during the whole year.

|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cartagena	14	15	16	14	13	14	15	14	12	10	10	12
Toronto	20	18	18	18	14	13	12	12	13	14	18	18

7.7. Relative percentage humidity

Throughout the whole year Cartagena and Toronto have almost the same level of humidity.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cartagena	80	79	78	80	82	82	81	82	83	83	83	82
Toronto	79	78	76	69	68	70	70	74	77	78	81	82

8. Estimated cost to travel

As what for the traveling costs, it is very noticeable that Cartagena is cheaper than Toronto.
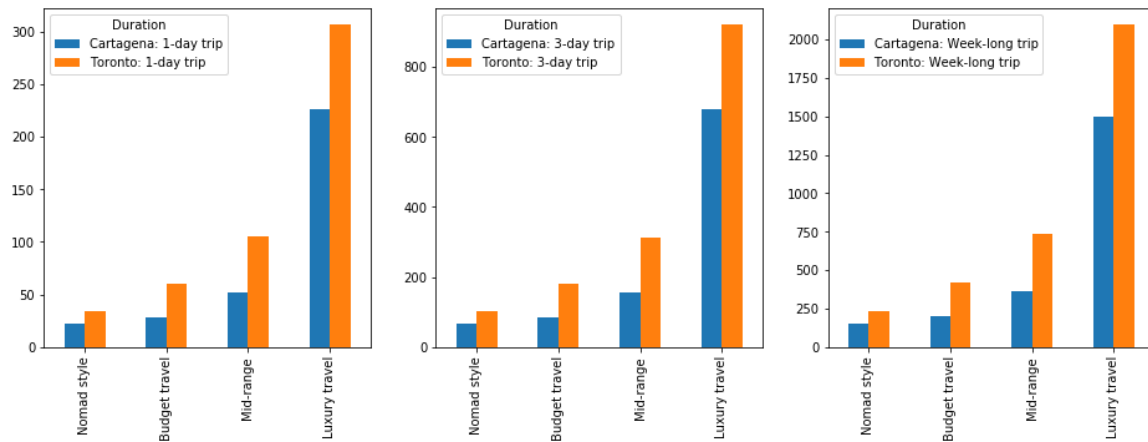
	Duration	Nomad style	Budget travel	Mid-range	Luxury Travel
0	Cartagena: 1-day trip	22 USD	28 USD	52 USD	226 USD
1	Cartagena: 3-day trip	66 USD	85 USD	157 USD	679 USD
2	Cartagena: Week-long trip	153 USD	199 USD	365 USD	1,500 USD
3	Toronto: 1-day trip	34 USD	60 USD	105 USD	307 USD
4	Toronto: 3-day trip	101 USD	181 USD	314 USD	922 USD
5	Toronto: Week-long trip	235 USD	423 USD	732 USD	2,100 USD

9. Conclusion

In this project, most of the evidence presented provides excellent advice for someone who is thinking about living or spend time on holidays in Cartagena or Toronto. Therefore, I could assure you that the best place to travel and enjoy your holidays is: Cartagena due to its leading in Travel & transport category. Moreover, warm weather remains steadily throughout the whole year.

On the other hand, Toronto lets enjoy excellent warm weather between June and August, and it is also the best option to live due to its large number of venues, events activities, and quality of life.

PHOTOS TORONTO AND CARTAGENA