



MOVING OUT: HELPING AN INTERNATIONAL STUDENT

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Introduction

- The idea behind this project is to find out which are the best apartment options for an international student from Rio de Janeiro, based on rent price, location and ways of transportation, in this case subway. Venues around the neighborhood is a key factor too, because it's important to keep the surround of the student similar to his current neighborhood, to make easier to adapt to the new country.
- The decision is based on the location of the apartment and rental price. The student needs a apartment close to the university campus or a rent option that offers another way of transportation to the university (in this project, only subway will be considered).

Data

- The data required to find out a solution for the best rent option includes:
 - *Available options for rent (including: rental price, address, latitude, longitude, number of bedrooms)*
 - *List of subway stations of the city (including: station name, address, latitude, longitude)*
 - *Data about venues from the birth city of the international student*
 - *Data about venues in each neighborhood in Toronto*

Data

- Information about rental data in Toronto can easily be found in Kaggle datasets (<https://www.kaggle.com/rajacsp/toronto-apartment-price>).
 - This dataset however, has not been updated since January. To complement the data, I scraped a rental website from Toronto and collected some more data. The website scraped was <https://toronto.craigslist.org/search/ap>.
- The subway data could be found in a blogpost, available in CSV format. Here's the link to access the website: <http://scruss.com/blog/2005/12/14/toronto-subway-station-gps-locations/>.
- Information about venues from Toronto were part of another project, and are already done. In case you're interested in checking it out, here's the link: https://github.com/danielmmir/Coursera_Capstone/blob/master/Scraping_Neigh_data_Toronto.ipynb.

The project Goal

- The main objective of this project is to be able to answer the key questions above:
 - *What is the cost of available rental places that meet the demands?*
 - *What is the area of Toronto with best rental pricing that meets criteria established?*
 - *What are the venues of the two best places to live? How the prices compare?*
 - *How venues distribute among Toronto neighborhoods?*
 - *Are there tradeoffs between size and price and location?*
 - *Any other interesting statistical data findings of the real estate and overall data.*

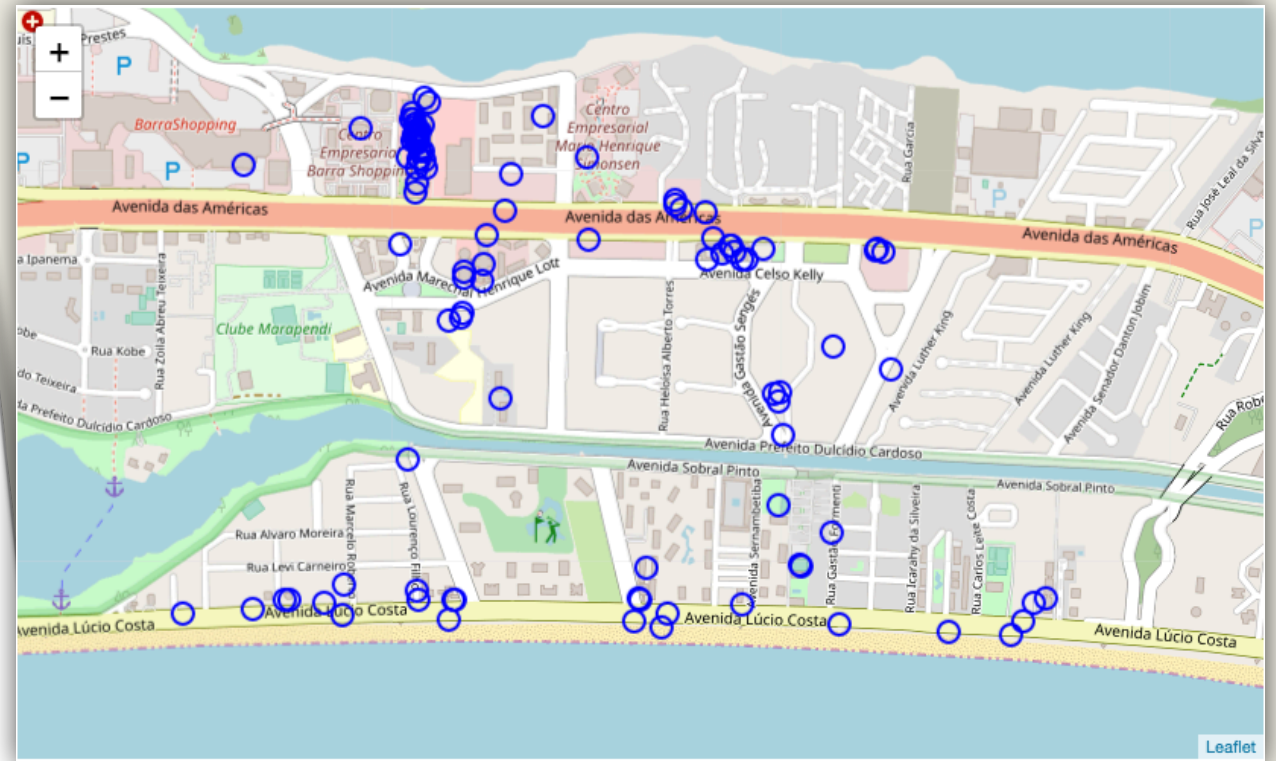
Data Analysis

Exploring current student neighborhood

venues near current student residence place

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gNearby_venues.head(15)
```

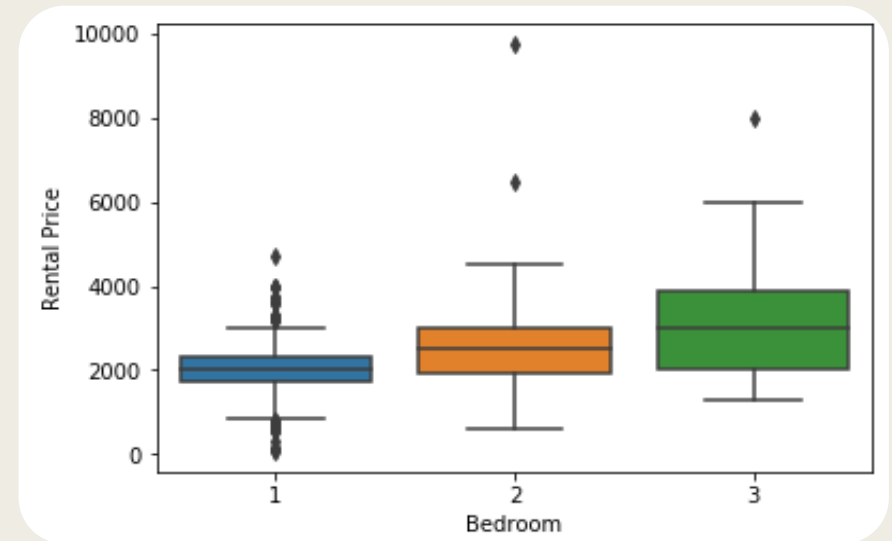
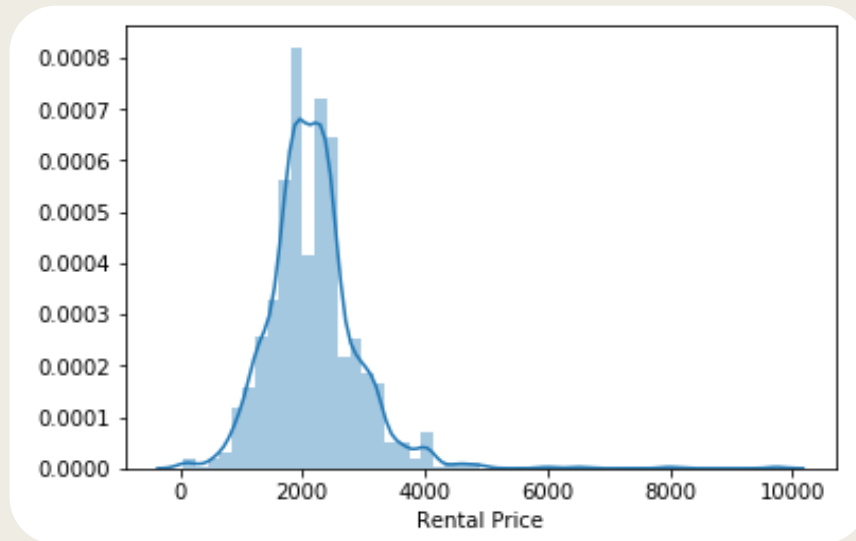
	name	categories	lat	lng
0	Windsor Marapendi	Hotel	-23.009734	-43.351354
1	Deli Golden Green	Deli / Bodega	-23.009934	-43.350338
2	Novotel Barra da Tijuca	Hotel	-23.009942	-43.351312
3	Praia da Barra da Tijuca	Beach	-23.010654	-43.344461
4	Posto 6	Bathing Area	-23.010300	-43.344277
5	Golden Sucos	Sandwich Place	-23.009952	-43.350278
6	Posto 7	Bathing Area	-23.010342	-43.353454
7	Hotel Laghetto Stilo Barra Rio	Hotel	-23.009566	-43.353403
8	Bodytech	Gym / Fitness Center	-23.010077	-43.342172
9	Barrabella Hotel Residência	Hotel	-23.009137	-43.344867
10	Supermercado Zona Sul	Supermarket	-23.009920	-43.345096
11	Gracie Barra Praia	Martial Arts Dojo	-23.006299	-43.351604
12	The Bife	Steakhouse	-23.002715	-43.350476
13	Quiosque do Ceará	Beach Bar	-23.010454	-43.350465
14	Academia de Dança Ramalho's	Dance Studio	-23.009980	-43.349516



Data Analysis

Exploring Toronto: Rental data

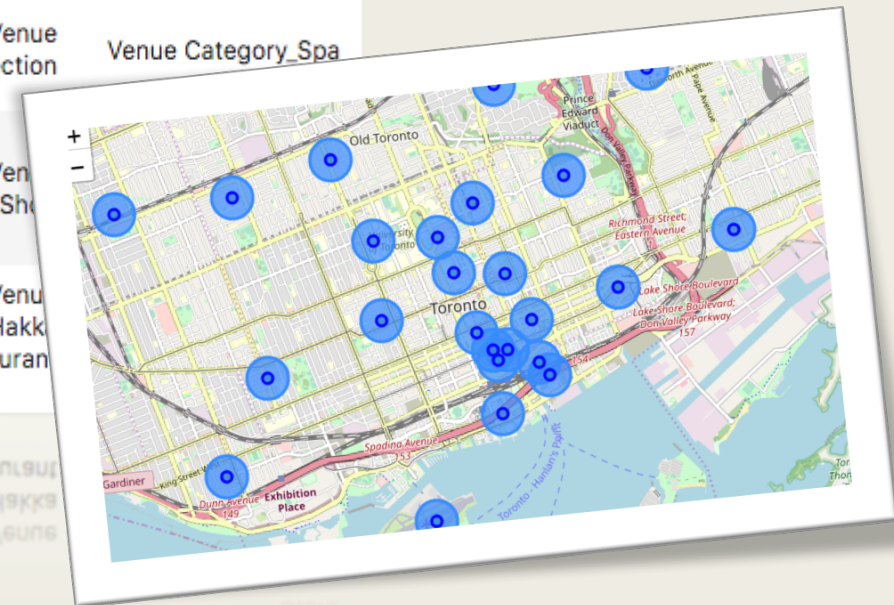
■ Price Analysis



Data Analysis

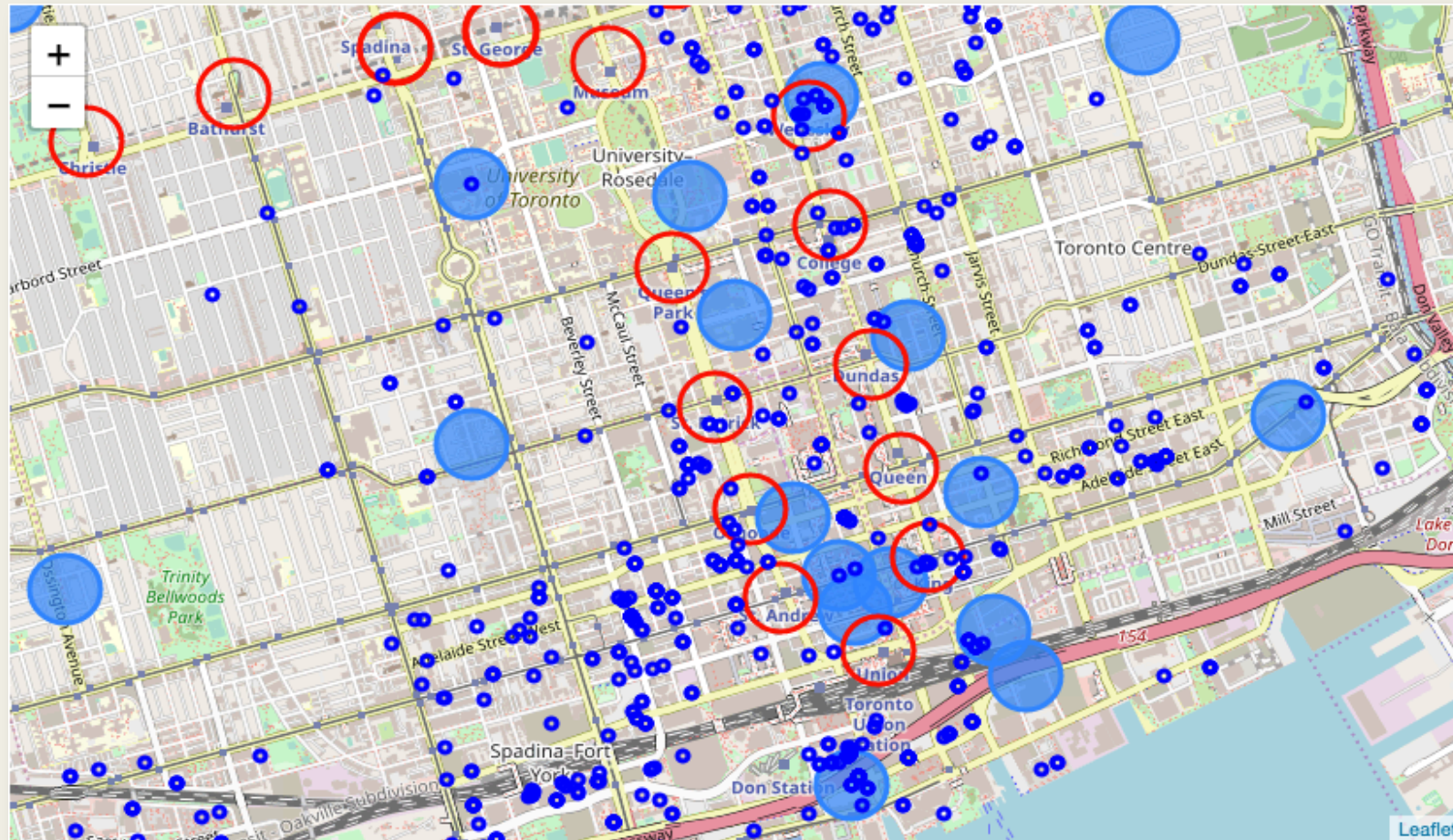
Exploring Toronto: Neighborhood venues


Postcode	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
M1B	Scarborough	Rouge,Malvern	43.806686	-79.194353	0.0	Venue Category_Fast Food Restaurant	Venue Category_Print Shop
M1C	Scarborough	Highland Creek,Rouge Hill,Port Union	43.784535	-79.160497	0.0	Venue Category_Construction & Landscaping	Venue Category_Bar
M1E	Scarborough	Guildwood,Morningside,West Hill	43.763573	-79.188711	0.0	Venue Category_Intersection	Venue Category_Spa
M1G	Scarborough	Woburn	43.770992	-79.216917	0.0	Venue Category_Coffee Shop	
M1H	Scarborough	Cedarbrae	43.773136	-79.239476	0.0	Venue Category_Hakk Restaurant	



Data Analysis

Exploring Toronto: Mapping all key factors



 **Subway Stations**

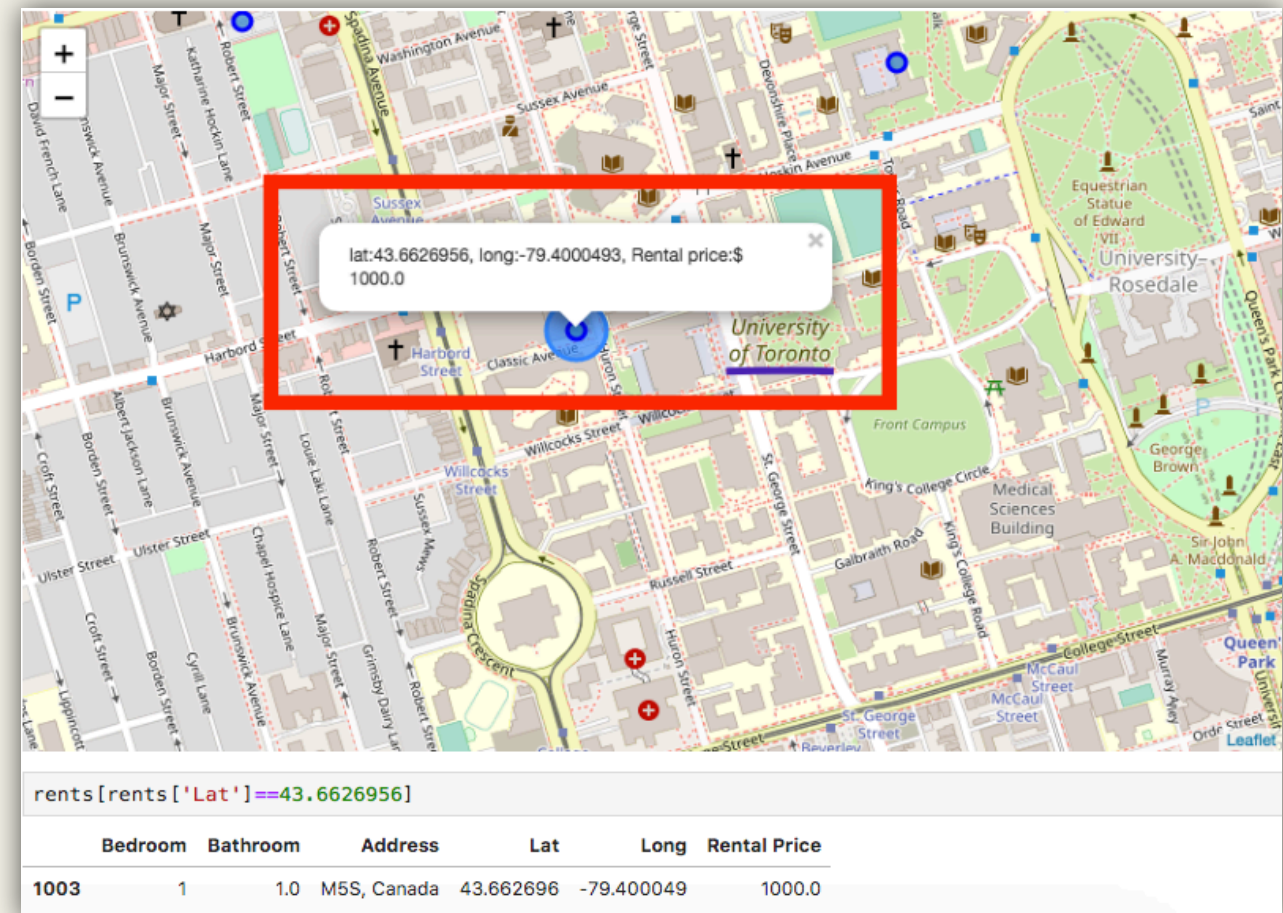
 **Venues Clusters**

 **Rental Options**

Data Analysis

Exploring Toronto: Final analysis

- Option 1: Minimum cost
 - This option counts with 1 bedroom and 1 bathroom. It costs CAD 1000,00 a month, which is less than the half of the average price of rents in Toronto (CAD 2.175).
 - The apartment is extremely close to the university, but far from a subway station.
 - The venues around the apartment are similar to the ones around the student's current home.



Data Analysis

Exploring Toronto: Final analysis

■ Option 2: Near Subway

- This option counts with 1 bedroom and 1 bathroom as well. It costs CAD 1850,00 a month, which is less than the average rental price in Toronto (CAD 2.175), but almost two times the price of the option 1.
- The apartment is slightly far from the university, but counts with a subway station right next to the apartment.
- The venues around the apartment are also similar to the ones around the student's current home.

