

New Restaurant in Toronto

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1. Introduction

A new investor has contacted us looking to open a restaurant in Toronto. They are looking for guidance on where to locate the restaurant and what kind of restaurant/bar to open.

We will study the success of the existing business in the Toronto area, using the information obtained through the Foursquare API, together with the vehicle and foot traffic of the streets in Toronto, to decide an appropriate location.

We will associate the success of each restaurant to the number of 'tips' and their 'rating'.

2. Data Collection and Curation

We will collect our data from multiple sources:

- a. https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
- b. http://cocl.us/Geospatial_data
- c. <https://www.toronto.ca/city-government/data-research-maps/open-data/open-data-catalogue/transportation/#7c8e7c62-7630-8b0f-43ed-a2dfe24aadc9>
- d. Foursquare API

The first one contains the names of the postal codes areas in the Toronto area.

The second one contains the latitude and longitude of these areas.

The third one contains the traffic information of the streets in the central Toronto area.

The Foursquare API will give us all the results for the search “Restaurant” in each Postal code Area in the centre of Toronto within a 250m radius.

We will eliminate duplicate restaurants and obtain the number of tips and their rating. For those restaurants without a rating we will assign a value of 5.

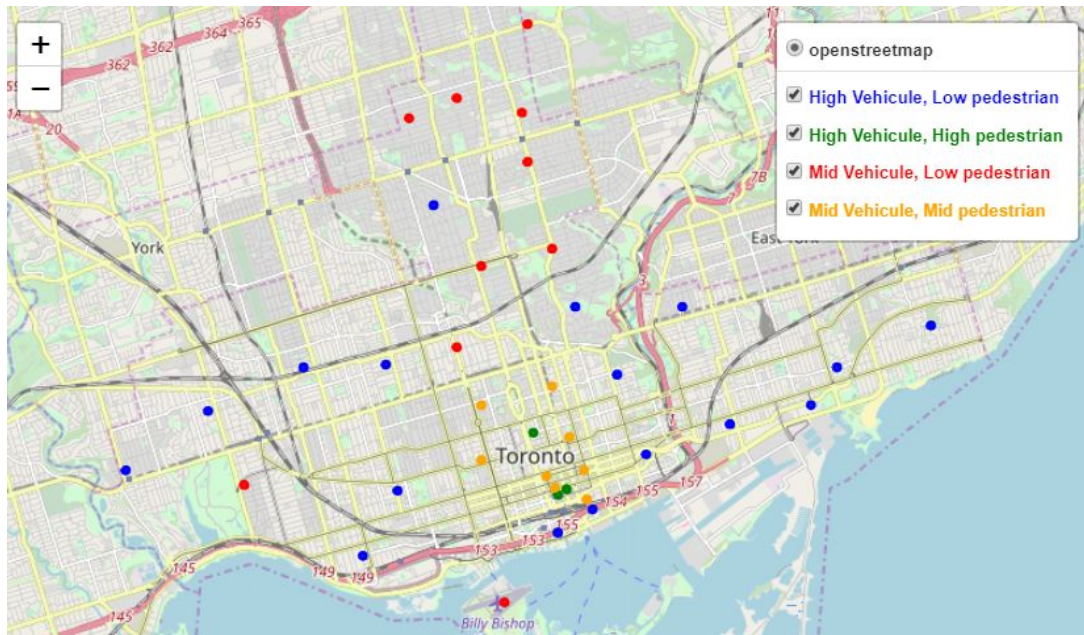
Finally we will save the dataframes that we have curated for further analysis, visualization and Machine learning predictions.

3. Data Analysis and Visualization

First of all we want to visualize how the traffic and the restaurants are distributed around Toronto.



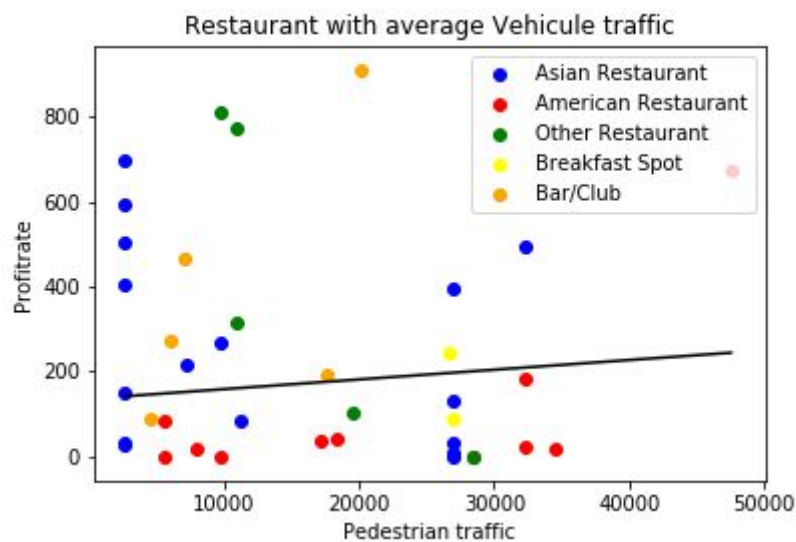
We see that most restaurants are located in the centre of Toronto in the Downtown area.



In a similar manner most of foot traffic is concentrated in the Downtown area, while the vehicle traffic is more dispersed.

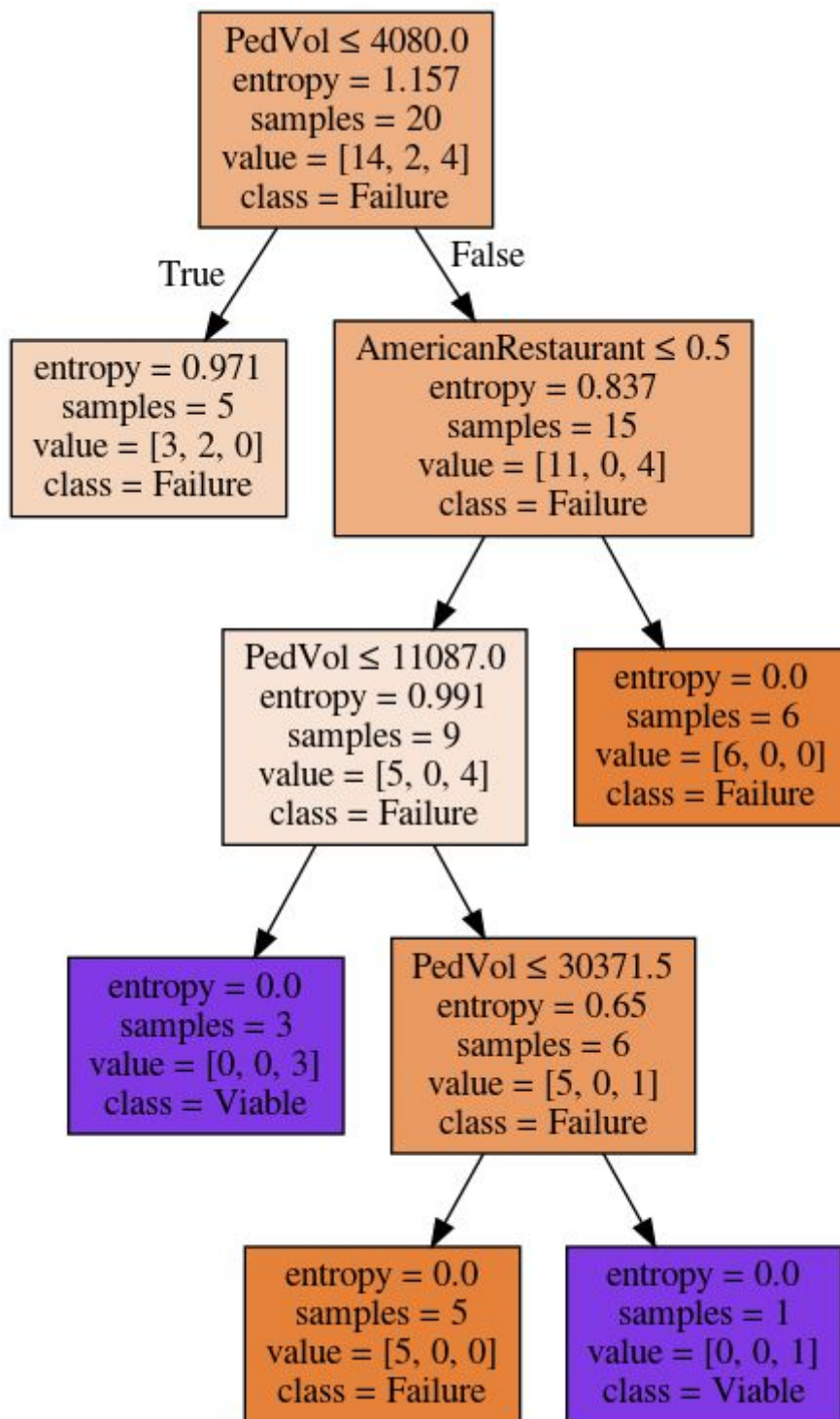
4. Predictive Models

We use Linear Regression to see what the expected profit would be for a restaurant depending on the foot traffic of the street it is in.



We see that pedestrian traffic correlates positively with the profit rate, and that those restaurants in the categories of 'Other Restaurant' and 'Bar/Club' exceed in their profit rates substantially.

We also run a decision Tree to further inform us on our decision.



We see that the restaurant should be placed in a street with foot traffic between 4.080 and 11.087 people at the peak 8hr period of the day. The decision tree also informs us that we should not open an American Restaurant.

5. Conclusion

We recommend our business partner to open the new restaurant in a street with foot traffic nearby 10.000 people at the peak 8hr period of the day. Those would include the neighborhoods in orange and green in our second map.

And to open either a Bar, Nightclub or a Food Restaurant that serves something different than those already existing, this way it would fall in the 'Other Restaurant' category which is also Highly successful and contains Unique restaurants in the area.