Toronto Sporting Goods Store Placement Plan

Skyler Routon

July 20, 2020

1 - Introduction

1.1 - Background

Toronto's Foursquare data includes many categories of venues, but many are sports-related venues. Given the amount, sporting goods stores are one of the most relevant venues and therefore should be looked into.

1.2 - Problem

Due to the extensive amount of sporting venues, a sporting goods store would be highly profitable if located near as many sporting venues as possible. The problem to solve is finding the location in which a maximum number of sporting venues are nearby, while at the same time avoiding any existing sporting goods stores.

1.3 - Interest

Business owners looking to open a new sporting goods shop or extend their existing brand into a new neighborhood would have immense interest in the conclusion of the study. In addition, existing sporting goods shop owners would also be interested in order to better prepare for potential competitors entering the area.

2- Data Acquisition

2.1 - Data Sources

The data in this study includes the Canadian postal code dataset found here, Canadian geospatial data found here, and also the nearby Toronto venues gathered from the Foursquare API.

2.2 - Data Cleaning

The postal code dataset and the geospatial datasets were both collected and then combined into a single pandas dataframe. This way, all neighborhood titles and locations were located within a single dataframe. All cells that contained NaN values in the "Latitude" and "Longitude" columns were removed, along with any cells that happened to contain NaN values for the "Neighborhood" or "Borough" columns as well. At this point, the dataframe is ready to be combined with the individual venues within the city.

2.3 - Feature Selection

The resulting dataframe includes the Neighborhood, Borough and also coordinates, paired with the individual venue data. Neighborhood rows are merged, resulting in each row representing a neighborhood instead of a single venue and duplicates are removed. A new dataframe is created which only includes the relevant sporting venues: Baseball fields, College gyms, Fields, Golf courses, Gyms, Gyms/Fitness centers, Lakes, Parks, Playgrounds, Pools, Rivers, Sporting Goods shops (to be avoided), and also Tennis Courts. These categories of venues are the features to focus on, with the most emphasis on Baseball fields, Gyms, Parks and Tennis courts.

3 - Exploratory Data Analysis

3.1 - Calculation of Target Variables

The new dataframe can be sorted in descending order of any specified venue type. Gyms and parks were the most plentiful within individual neighborhoods with the maximum being four and three respectively within individual neighborhoods. In addition, more neighborhoods contained gyms and parks than any of the other categories which is one of the reasons why gyms and parks are two of the heavily emphasized venue categories.

### 3.2 - Neighborhood Candidates and Danger Zones

The best neighborhood happened to already contain a sporting goods store. This neighborhood was Scarborough Village and had five venues including the store, so that neighborhood would be avoided along with the other neighborhoods that already contained sporting goods stores.

4 - Results

The most attractive candidates for the new sporting goods store location came down to six potential neighborhoods for the store location:

-Birch Cliff, Cliffside West (1 Park, 1 Pool, 1 River)

-Dufferin, Dovercourt Village (2 Parks, 1 Playground)

-Humewood-Cedarvale (3 Parks)

-Downsview (1 Gym, 3 Parks, 1 Pool)

-Harbourfront East, Union Station, Toronto Islands (3 Gyms, 1 Gym/Recreation Center)

-Bathurst Manor, Wilson Heights, Downsview North (2 Gyms, 1 Park, 1 Tennis Court)

The reason Bathurst Manor was preferred over Downsview was both the variety as well as the tennis court over a pool because of the additional equipment that could be sold for tennis courts over the amount of products relevant to a pool. In addition, Downsview is still the second closest neighborhood to Bathurst Manor excluding neighborhoods with preexisting sporting goods stores.
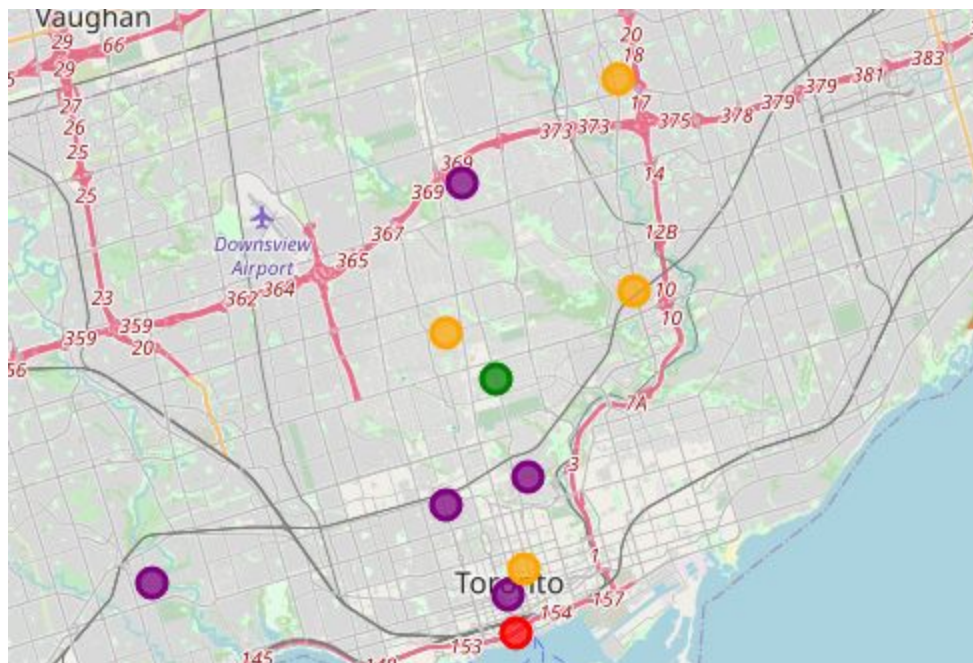
The green circle represents Bathurst Manor, which is the best choice for a new store location. The purple circles represent all of the other neighborhoods previously listed which do not contain

any competing stores and are the alternate choices. All yellow circles represent other neighborhoods with a significant amount of sporting venues but are those which contain an existing sporting goods store location. Lastly, the red circle represents Little Portugal, which contains three sporting goods stores.

5 - Conclusion and Discussion

In this study, the various venues of Toronto were analyzed for an optimal sporting goods store location. Venue data was broken down by neighborhood and all irrelevant venues were discarded. Based on the remaining venues, six neighborhoods were valid locations. The details of the variety and quantity of each neighborhood's venues were analyzed along with the distance between the candidates and the neighborhoods to avoid. The neighborhood "Bathurst Manor, Wilson Heights, Downsview North" had the best variety and quantity of sporting venues in addition to no existing sporting goods stores within the neighborhood. In addition, the chosen neighborhood was located nearby other potential neighborhoods without sporting stores. The only downside to the location is the closest relevant neighborhood, ,happens to have a competing sporting goods store, although that neighborhood is also quite rich in the amount of relevant venues so the new store will provide worthy competition to the nearby neighborhood. Another reason for recommending the particular neighborhood instead of the two candidates to the south, is because south of those two candidates lies two neighborhoods which contain one and four sporting goods stores. Being located nearby four other sporting goods stores is not a recommended move. Therefore, the chosen location up north results in only one nearby sporting goods store while still having access to three valuable neighborhoods nearby in addition to the neighborhood's own venues.

All in all, business owners looking to open a sporting goods store in Toronto should look into the "Bathurst Manor, Wilson Heights, Downsview North" neighborhood as a recommended store location based on neighborhood sporting venues as well as proximity to other valuable neighborhoods and enough distance from competitors. Existing sporting goods store owners should also pay attention to the recommended neighborhood to protect their own business

interests and either make changes to account for a possible competitor in the area, or instead open up a new location in the neighborhood before someone else does.