Optimizing Coffee Shop Locations in Toronto, Canada

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1. Introduction

a. Problem

The problem at hand is to determine the ideal location to place a coffee shop in the city of Toronto. The analysis of this problem is important to maximize traffic and revenue to this newly placed coffee shop.

b. Interest

The target audience of this problem are people interested in opening up a new coffee shop and they would care about the ideal location so that they can maximize the efficiency and profitability of this new store.

2. Data

The data I will be using to solve the problem of the ideal location for a coffee shop is the population and average salary of the area of interest in the city of Toronto. This will be helpful because we will be able to see where the people who would be most willing to pay for the high end coffee are located and maximize our chances of having random customers walk in to purchase something merely based off of the amount of people walking by the shop.

3. Methodology

a. Exploratory Data Analysis

The data was collected and analyzed to find the ideal location for a coffee shop based on the variables. Then, analyses were performed to obtain the desired results.

b. Statistical Testing

First, we needed to find the specific neighborhoods in Toronto. I obtained these answers by finding the neighborhoods containing the borough of Toronto.

c. Machine Learning

Next, I used the K Means machine learning algorithm to cluster the data into the most desirable locations. After performing this text, we can extrapolate the results and make our final decision.

4. Results

The results from the K Means algorithm are as follows:
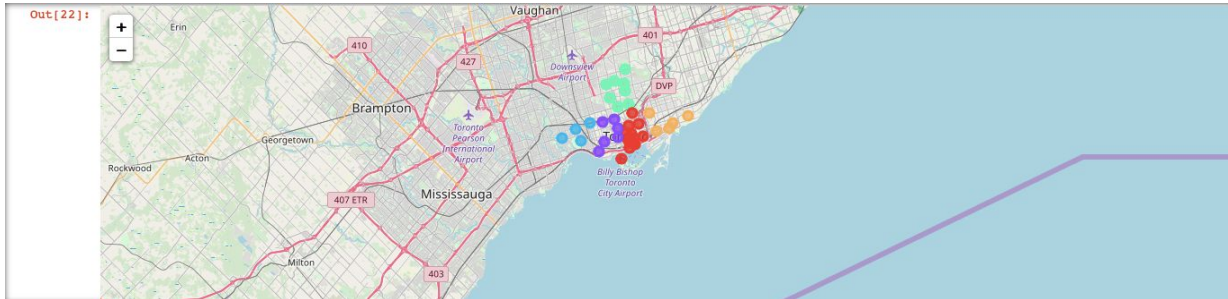
As you can see, there are 4 clusters of neighborhoods, with each dot representing a high density cluster of traffic and income. They are mostly in downtown Toronto, and I will further discuss this in the upcoming section.

5. Conclusion

Based on the results from the study, the ideal location for a coffee shop in Toronto would be in the central location. Our statistical model provides this recommendation based on the clustering analyses. The more dots and the more density of dots present, the better the location. So, based on the dataset, the central location towards the water is the best possible location for a coffee shop.

6. Discussion

Although we will not know if this is the perfect location, it is definitely reasonable to say that it is the most suitable location. The central location of Toronto ensures that we will get traffic from all sides of the city, while also gaining the attention of visitors and tourists. Hopefully, we will be a successful coffee shop!