

The Battle of Alberta

Clustering Neighbourhoods in Calgary and Edmonton

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The Problem

Context

- The Battle of Alberta refers to the rivalry between the two largest cities in the province of Alberta, Canada - Calgary and Edmonton.
- Public discourse focuses on their differences.
- The two cities are similar from their demographics, to the outdoor and urban adventures they offer, the food scene and urban planning.

Problem Statement

- To determine how similar Calgary and Edmonton are, in terms of the experiences offered by the neighbourhoods in each city.
- This will contribute to the Battle of Alberta debate and also help anyone looking to emigrate to Alberta decide on which big city to settle in.
- A recommendation will be provided to advise a person on a limited budget looking to settle in Alberta.

Data Description

Neighbourhood Data

Neighbourhood information including:

- Postal code
- Borough
- Neighbourhood
- Latitude
- Longitude

Real Estate Pricing Data

Real estate pricing information including:

- Postal code
- Average Price
- Total listings

Foursquare API Data

Neighbourhood venue information including:

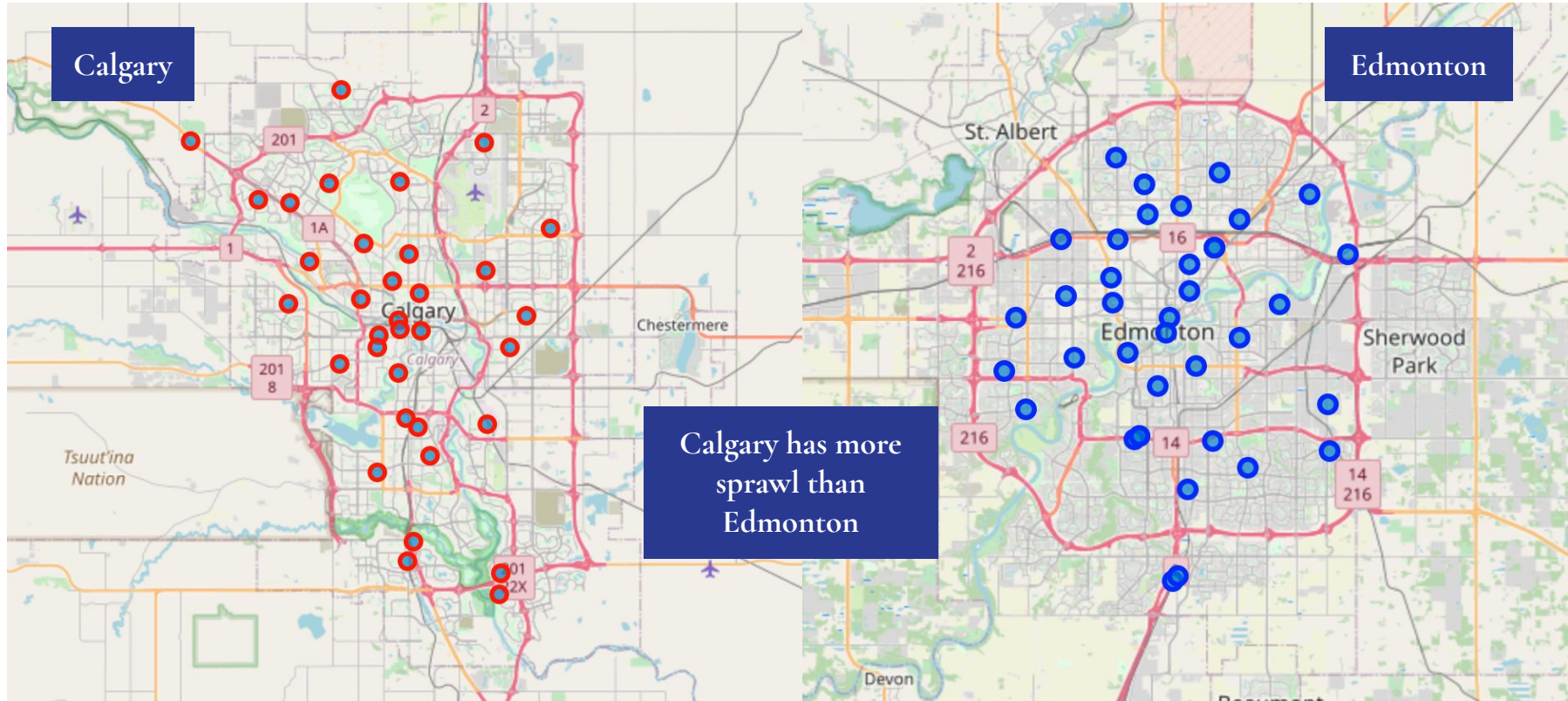
- Neighbourhood
- Latitude
- Longitude
- Venue, Venue Name
- Venue Latitude
- Venue Longitude
- Venue Category

Data Processing

The venue information was processed as follows:

- Venue Categories were encoded using One-hot encoding;
- The encoded venues categories were grouped using the mean occurrence of each;
- The top 10 most occurring venue categories were used.

Neighbourhood Maps



Model

K-Means Clustering

Number of clusters = 5

```
km = KMeans(n_clusters = 5,  
random_state = 125).fit(dataset)
```

Results

69 neighbourhoods were group into
5 clusters

Cluster 1 - 44 (Calgary = 19, Edmonton = 25)

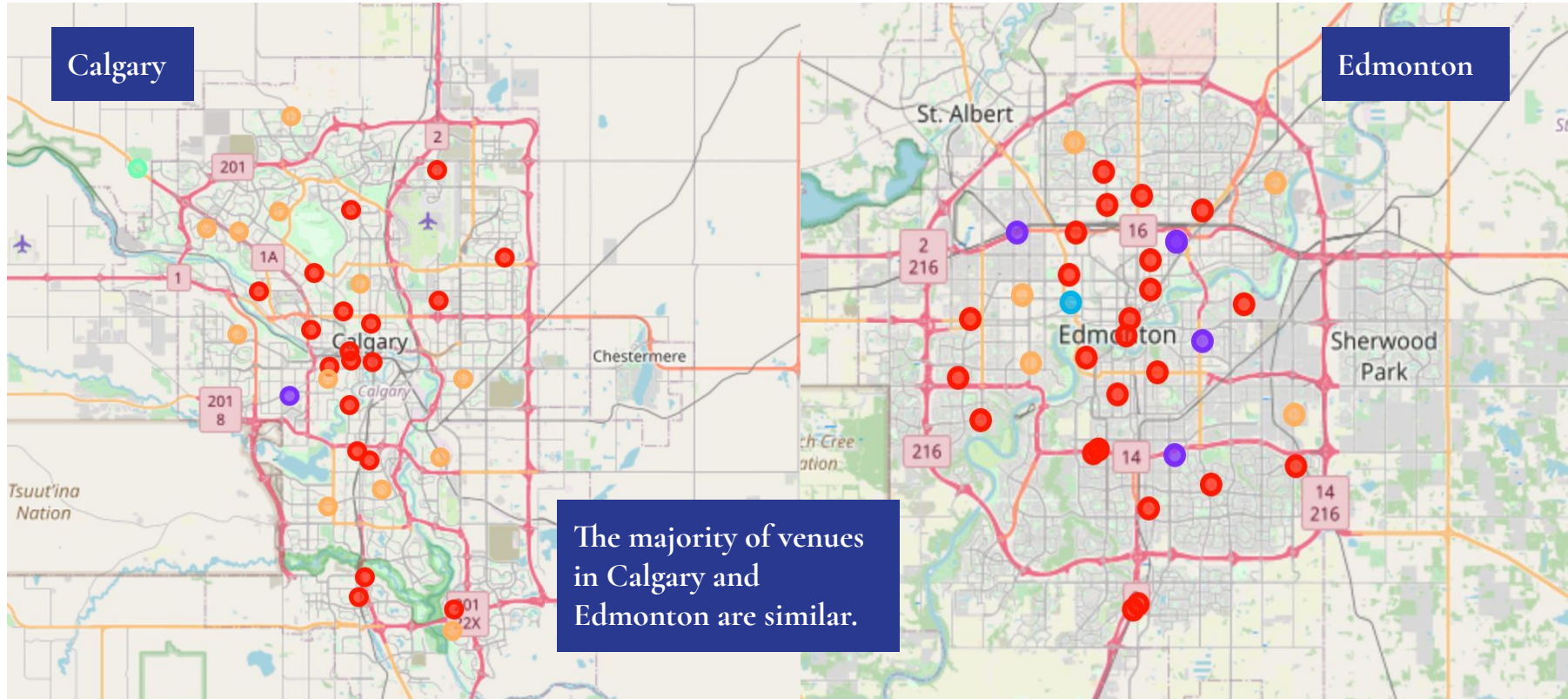
Cluster 2 - 6 (Calgary = 1, Edmonton = 5)

Cluster 3 - 1 (Edmonton)

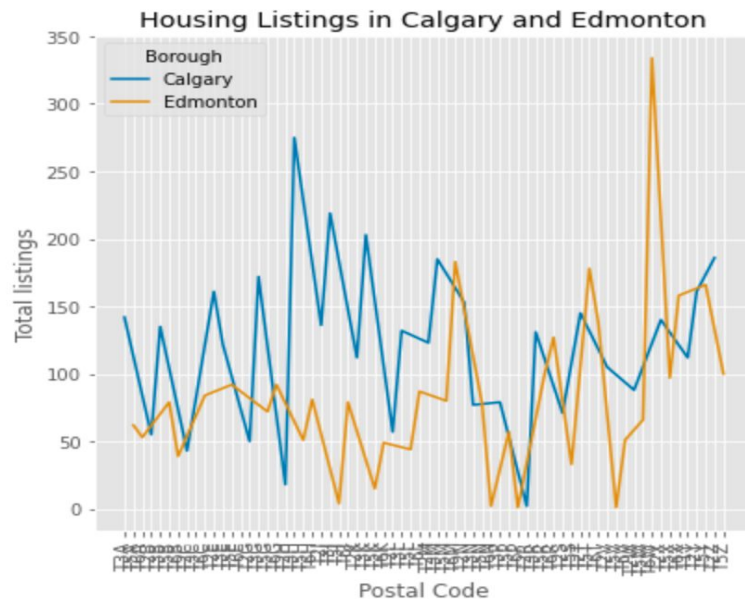
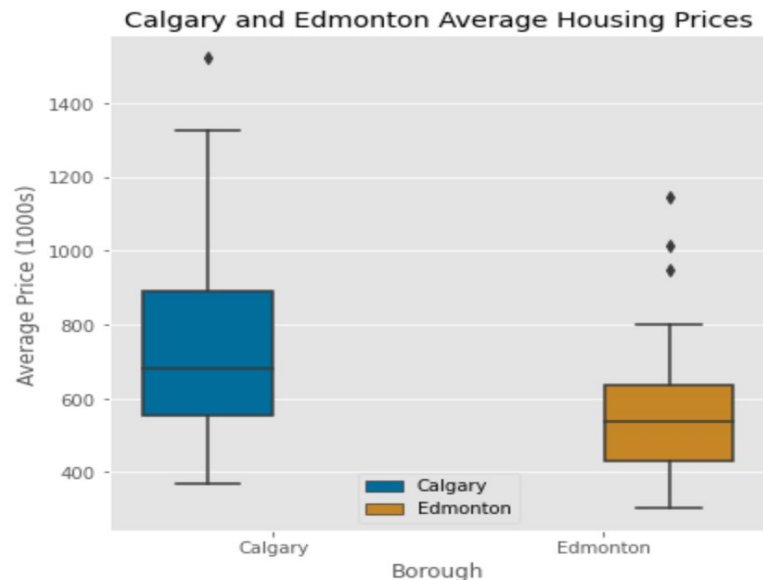
Cluster 4 - 1 (Calgary)

Cluster 5 - 17 (Calgary = 12, Edmonton = 5)

Results - Map of Clusters

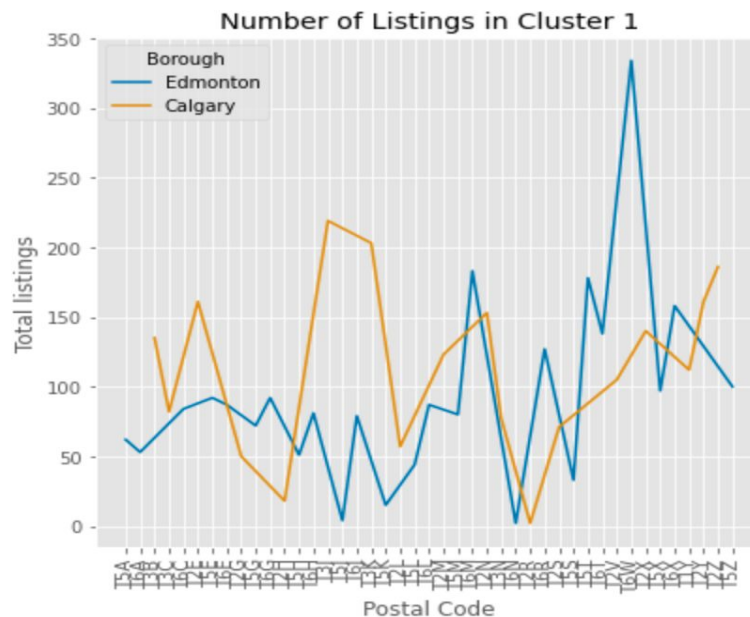
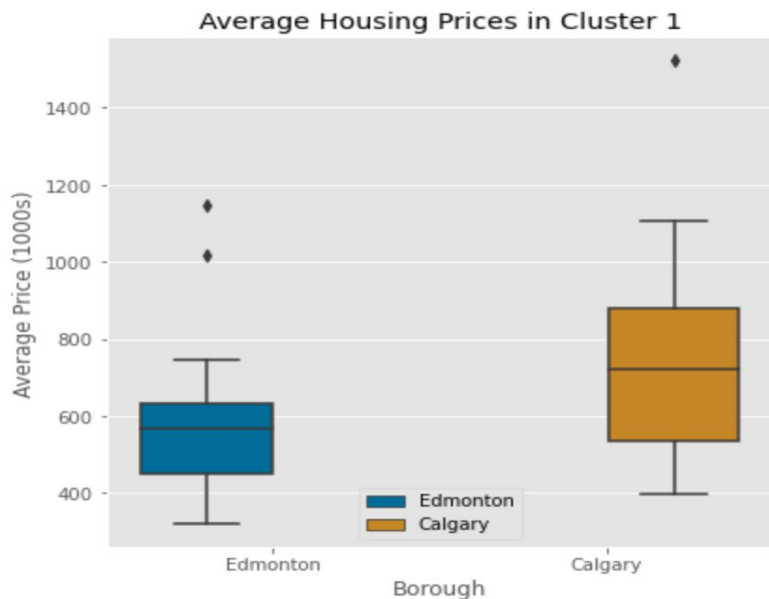


Results - Average Overall Real Estate Pricing



Average housing prices are significantly higher in Calgary compared to Edmonton. There are comparatively the same number of listings in both cities.

Results - Average Cluster 1 Real Estate Pricing



Average house prices in neighbourhoods in cluster 1 are higher in Calgary compared to Edmonton.

Discussion & Conclusion

Calgary and Edmonton are similar.

Edmonton is recommended for relocation for someone on a limited budget.

- Venues in these neighbourhoods in Calgary and Edmonton tend to be places like restaurants, fast food outlets, pubs, liquor stores, movie theaters etc.
 - Neighbourhoods in both cities offer similar experiences.
 - Average housing prices are significantly higher in Calgary compared to Edmonton.
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Thank you!