

Capstone Project – The Battle of the Neighborhoods (Week 1)

Question / Business Problem

Do lower income neighborhoods in Vancouver have the proper access to cultural resources?

Introduction

It is no secret that exposure to arts and relevant education can improve one's social well-being and outcome in life. Access to cultural resources from a young age can provide people with a plethora of benefits, including a better chance to graduate from high school and from college, decline in child abuse, and reduction in crime rate. Challenges that are especially impacting residents of lower income and disadvantaged neighborhoods.

Vancouver is a western seaport in British Columbia, Canada. As of 2017, it has a population of 675,000. The city includes a total of 22 neighbourhoods. We will review each neighborhood in Vancouver and examine the relationship between the household average income, and cultural resources available to its residents. Next, we will determine if the cultural venues set by the city of Vancouver are uniformly distributed in all neighbourhoods, irrespective of their household income, or whether an imbalance of distribution is present in favor of the wealthier neighbourhoods.

The results of this analysis can be of interest to policy makers, city architects and urban developers, who can realize the benefits of emphasizing the allocation of cultural resources in low income and disadvantaged neighborhoods.

The Vancouver neighbourhoods are:

- Arbutus-Ridge
- Downtown
- Dunbar-Southlands
- Fairview
- Grandview-Woodland
- Hastings-Sunrise
- Kensington-Cedar Cottage
- Kerrisdale

- Killarney
- Kitsilano
- Marpole
- Mount Pleasant
- Oakridge
- Renfrew-
Collingwood
- Riley Park
- Shaughnessy
- South Cambie
- Strathcona
- Sunset
- Victoria-
Fraserview
- West End
- West Point Grey

Data

Household average income

Retrieved from the Open Data Portal for the 2016 Vancouver Census. The census provides the average household income per each neighbourhood of the city of Vancouver. This data is being used in a Choropleth map to superimpose a specific color which depicts a specific neighbourhood with a determined range based on average income. The dataset can be found here: <https://webtransfer.vancouver.ca/opendata/csv/CensusLocalAreaProfiles2016.csv>.

Neighborhood boundary coordinates

A Keyhole Markup Language (KML) retrieved from the Vancouver Data Postal, which include boundary coordinates for all 22 each neighbourhoods. The data is being used to superimpose the boundaries on the Choropleth map. The file can be found here:

https://data.vancouver.ca/download/kml/cov_localareas.kml

Neighborhood center coordinates

Latitude and longitude data for all 22 neighbourhoods had been retrieved using Python code utilizing the [GeoPy](#)'s Nominating package. This data is being used to identify relevant venues in each neighborhood and superimpose them on the Choropleth map.

Venues

The Foursquare API is being used to retrieve venues and relevant information in a specified radius from the neighbourhoods' center. The information for each venue includes: name, latitude, longitude and the relevant category. The venues will be limited to the following groupings: community centers, museums, art galleries, music & performing arts, and libraries.

Final dataset

The data collected from the 2016 Vancouver Census, the geospatial data retrieved from GeoPy, and the venues' information retrieved via the Foursquare API are being merged into the one XLSX dataset. The key of the dataset is the neighborhood. The following is a sample of the dataset:

| Neighborhood | Average Household Income(\$) | Neighborhood Latitude | Neighborhood Longitude |
|--------------------------|------------------------------|-----------------------|------------------------|
| Arbutus-Ridge | 62675 | 49.2409677 | -123.1670008 |
| Downtown | 63251 | 49.283393 | -123.1174563 |
| Dunbar-Southlands | 78117 | 49.2534601 | -123.1850439 |
| Fairview | 61627 | 49.5051487 | -117.2746391 |
| Grandview-Woodland | 42896 | 49.2705588 | -123.0679417 |
| Hastings-Sunrise | 38258 | 49.2775935 | -123.0439199 |
| Kensington-Cedar Cottage | 38411 | 49.2476321 | -123.0842067 |
| Kerrisdale | 77248 | 49.2346728 | -123.1553893 |
| Killarney | 39013 | 49.2242738 | -123.0462504 |
| Kitsilano | 63092 | 49.2694099 | -123.155267 |
| Marpole | 39020 | 49.2092233 | -123.1361495 |
| Mount Pleasant | 54260 | 49.2633296 | -123.0965885 |
| Oakridge | 46515 | 49.2308288 | -123.1311342 |
| Renfrew-Collingwood | 33360 | 49.2420242 | -123.0576794 |
| Riley Park | 53060 | 49.2474381 | -123.1029664 |
| Shaughnessy | 118668 | 49.8537374 | -112.8417925 |
| South Cambie | 65459 | 49.2466847 | -123.120915 |
| Strathcona | 31534 | 49.279554 | -123.0899788 |
| Sunset | 34212 | 49.2195929 | -123.0902386 |
| Victoria-Fraserview | 34298 | 49.2184156 | -123.0732871 |
| West End | 47253 | 49.2841308 | -123.1317949 |
| West Point Grey | 82042 | 49.2644843 | -123.1854326 |

#Community centers

#Museums

#Art Gallery

#Music & Performing Arts

#Libraries

#Arts & Culture

#Performing Arts