



# Optimizing Location for Restaurant in Vancouver British Columbia

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# Introduction

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- Vancouver is located towards the west end of Canada and encompasses a population of approximately 676,000 people.
- Coordinates : 49.2827° N, 123.1207° W
- Covers an area that totals about 115 kilometres squared
- This city is ethnically diverse and known for its local seafood like salmon, halibut, and prawns. Vancouver is also seen to be a popular tourist spot due to the astonishing mountains and it is home to The Vancouver art gallery.
- We will be looking at locations in Vancouver by their postal code and cross-reference it by what is located nearby and also look at the relative population of the area to make an informed decision.

# Data Acquisition

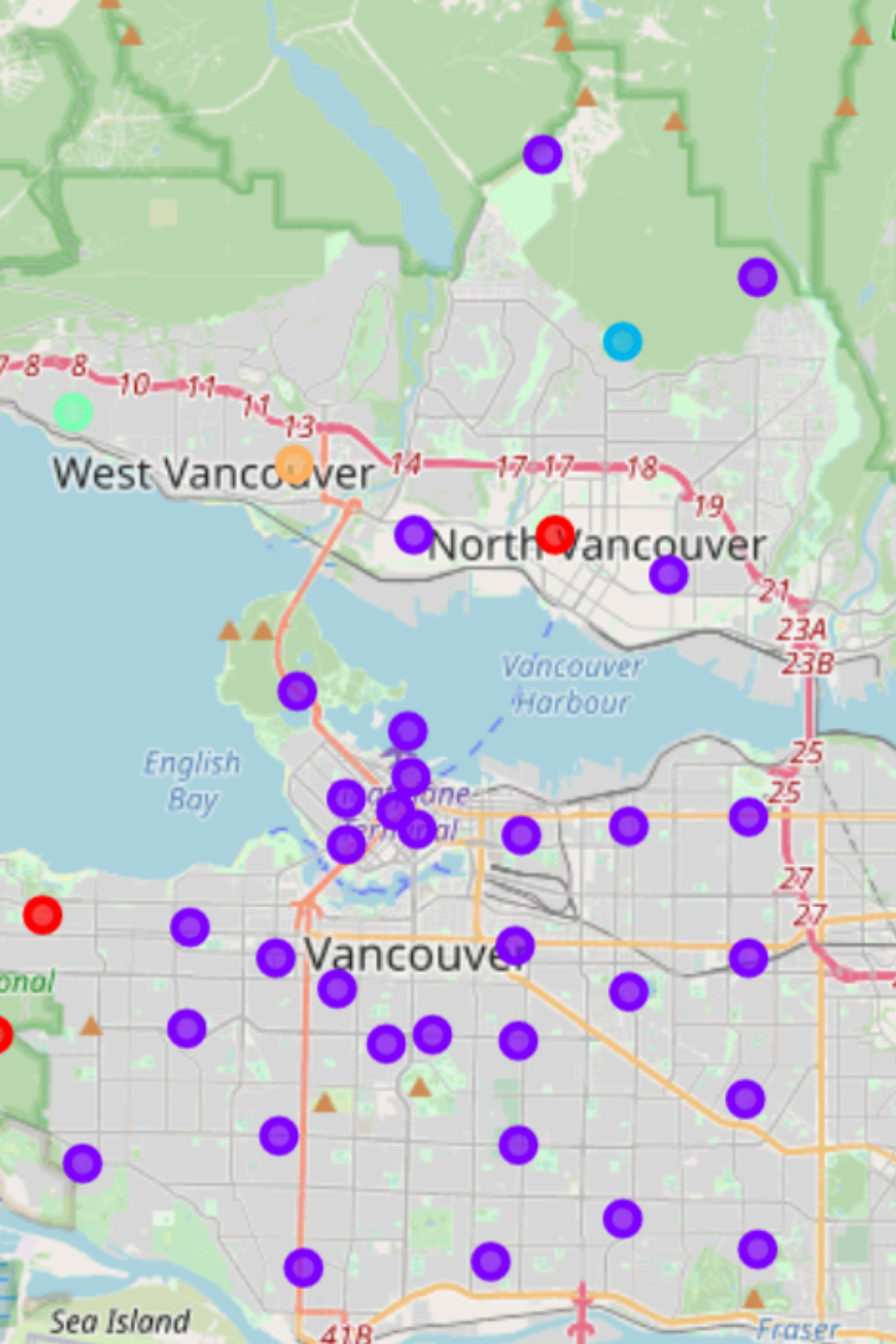
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- We will obtain our pulled our postal code data from Wikipedia and population data from StatsCan.
- The information about what is in the locals will be brought from the four-square API. All this information will help us create and analyze clusters to make an informed decision on where we should open.
- There will need to be some cleaning and reorganizing of the data in order to be able to use it for clustering and further analysis.

# Data Cleaning

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- Cleaning persisted of things like dealing with values that were not available and deleting values that were redundant or not used in our clustering algorithms.
- The data set we had access to have the postal code data for the all of Canada, so we had to remove all values except those from Vancouver.
- We also need to add our population data and match it to the its corresponding region. From here on we were able to use folium to map our key locations and regions.

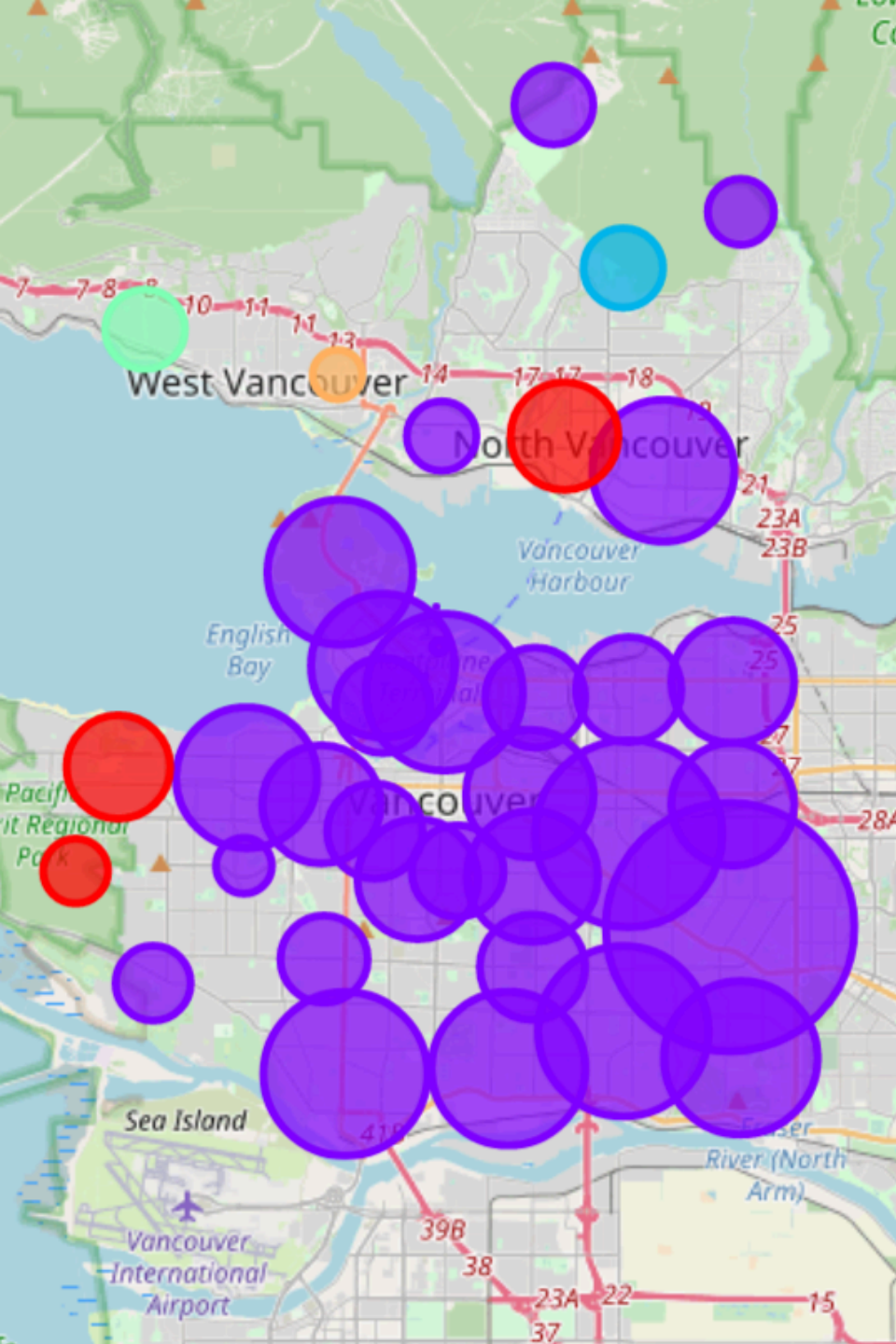


# Map of Clusters

- The results after using k-means clustering show that we can cluster in to five categories.
- The purpose of this map was to try to cluster regions with the number of restaurants and other facilities.
- From this we were able to create five distinct clusters that represented the city of Vancouver :

From greatest number of restaurants and facilities in a region to least:

1. Purple Cluster Points
2. Red Cluster Points
3. Turquoise Cluster Points
4. Cyan Cluster Points
5. Orange Cluster Points



# Population Cluster Map

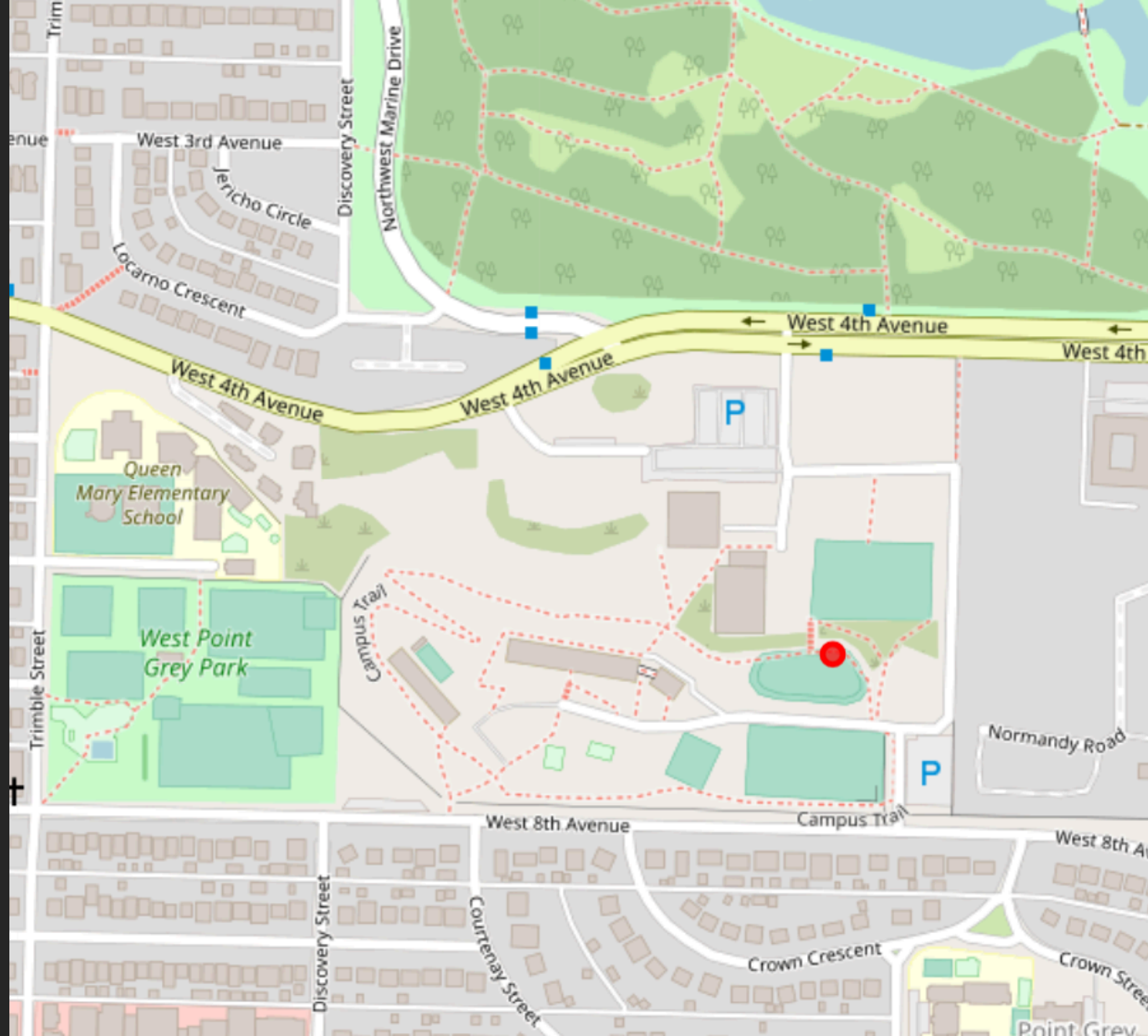
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- The final chart map we will be looking at will help give us perspective in terms of population and tell us where most people reside in Vancouver.
- We can cross-reference this with the number of venues in the area to help find the optimal place to open a restaurant. The clusters follow the same colour pattern as before, so we have five clusters on the map.
- What this adds is the relative population size. The larger the circle the larger the population in that particular area.
- This will give us a general idea of population density in Vancouver.



# Proposed Region

- After looking at all the data presented a potential location to open a restaurant can be at **V6R Vancouver (West Vancouver (West Kitsilano / Jericho))**.
- Let us look at some reasons why this is a potentially optimal location.



# Vancouver (West Vancouver (West Kitsilano / Jericho) Venue Frequency

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Vancouver (West Kitsilano / Jericho)

Venue	Frequency
Park	1.00
Accessories Store	0.0
Office	0.0
Motorcycle Shop	0.0



# Top 10 Common Venues in Vancouver (West Vancouver (West Kitsilano / Jericho) Venue Frequency

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Region	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
Vancouver (West Kitsilano / Jericho)	Park	Yoga Studio	Farm	Food Court	Food & Drink Shop	Fish Market	Fish & Chips Shop	Financial or Legal Service	Filipino Restaurant	Field

# Conclusion

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- The area has a rather modest population of 19416 with 8303 occupied residents.
- If we look at the frequencies of venues in this particular area, we can see the most common facility is parks in this particular area by far.
- Looking at the top 10 venues chart we can see the following parks the next couple common venues are a yoga studio and a farm. This area has tons of potential opening restaurants here.
- If we do look at the already existing restaurants in this area, they are mostly fast food-based establishments.
- There will not be a huge amount of competition in the area that we will have to compete against. This will limit our barrier to enter the market and give us the best chance in success.