

THE BATTLE OF NEIGHBORHOODS

Open a Kid's Mall in Vancouver

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BUSINESS PROBLEM

Explore optimal neighborhoods to open a kid's mall.

Finding a kids mall that would suffice all the needs of children is rare. A place that would be convenient especially for parents to buy baby food, clothing, toys, etc. at one stop with no need to travel different places for different requirement.

Stakeholders: Residents of Vancouver especially parents that would get benefit of all the services at one stop.

DATA SOURCE

- For information related to Vancouver city and its postal codes; web scrapping would be done from List of postal codes of Canada: V [1]
Vancouver's neighborhoods along with postal codes would be extracted.
- Get location co-ordinates of each postal code using- Geopy [2].
- Venue related data such as venue name, type, location, tips via- Foursquare API [3]
- Venue types- garden, parks, playground, kids store would be used for analysis
- Vancouver city official website [4]

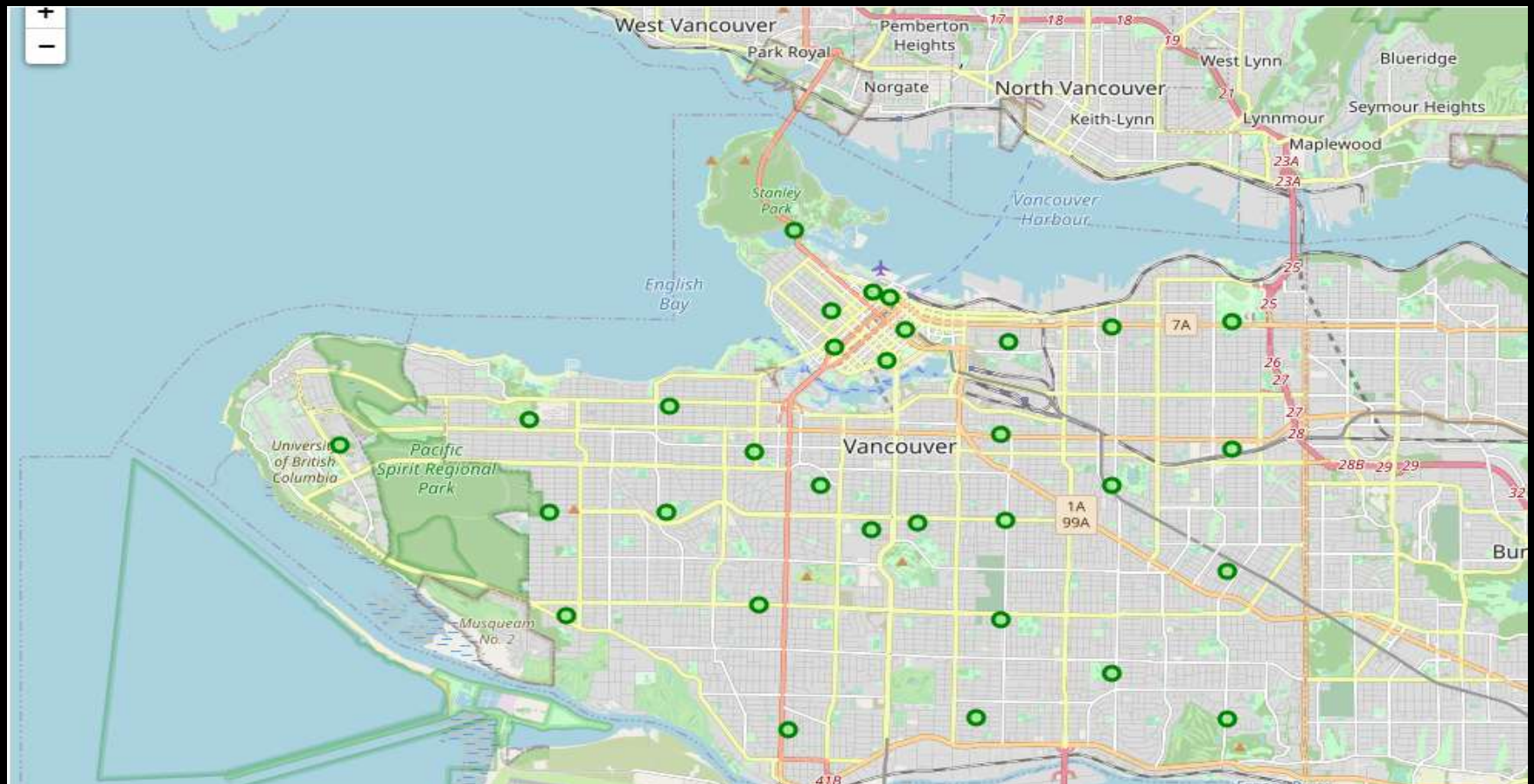
METHODOLOGY-

WEB SCRAPPING

Beautiful Soup and Geopy libraries are used to extract and create a data frame as below

	PostalCode		City	Neighborhood	Latitude	Longitude
0	V5K	Vancouver		North Hastings-Sunrise	49.28167	-123.03998
1	V5L	Vancouver		North Grandview-Woodland	49.28070	-123.06684
2	V5M	Vancouver	South Hastings-Sunrise , North Renfrew-Colling...		49.26043	-123.04009
3	V5N	Vancouver	South Grandview-Woodland , NE Kensington-Cedar...		49.25442	-123.06680
4	V5P	Vancouver	SE Kensington-Cedar Cottage , Victoria-Fraserview		49.22293	-123.06688

MAP TO VISUALISE VANCOUVER'S NEIGHBORHOOD



EXPLORE VANCOUVER'S NEIGHBORHOOD

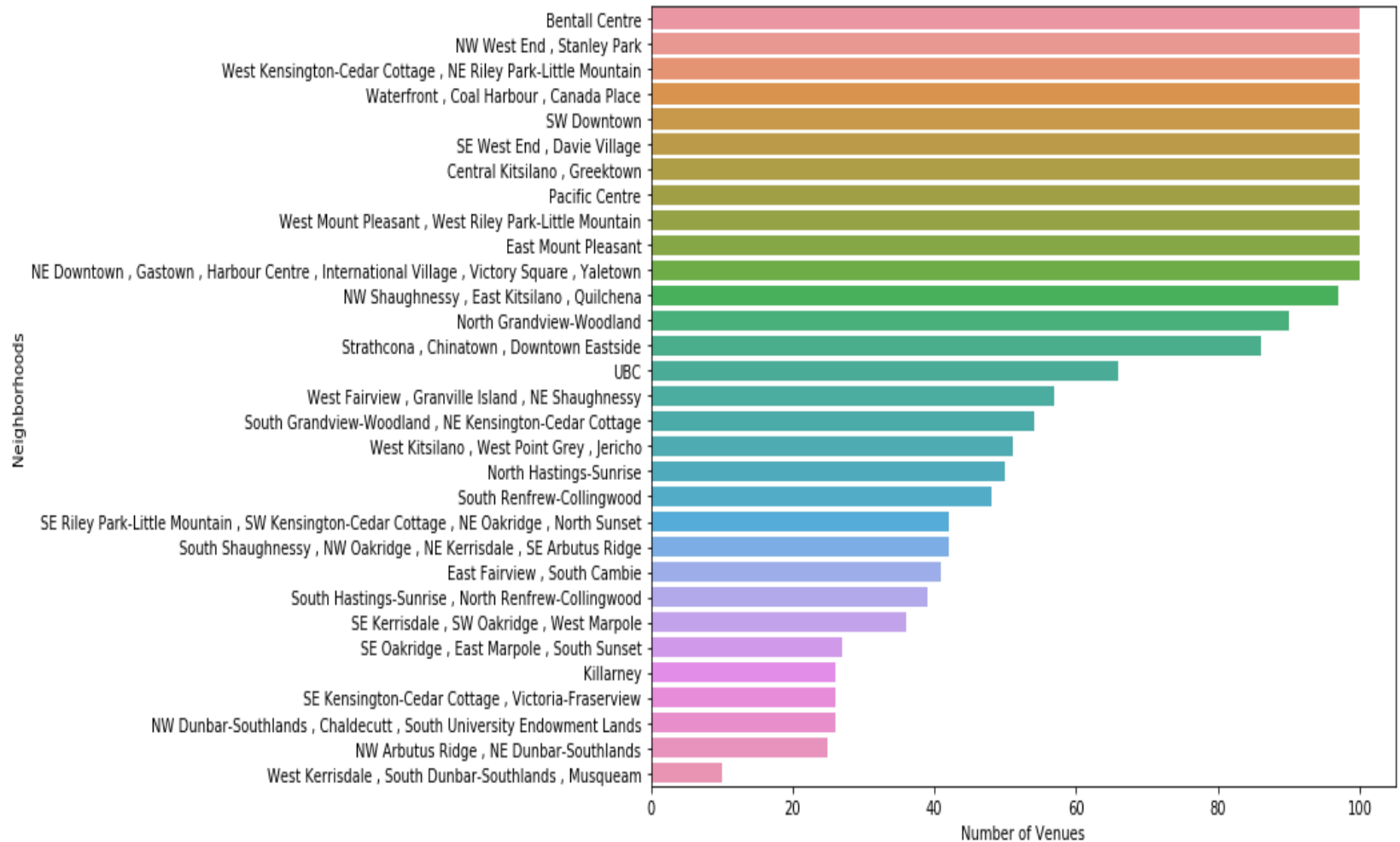
Data provided by Foursquare API (radius 1000m) -

1. Total 236 unique venue categories
2. 2039 venues
3. 31 postal codes

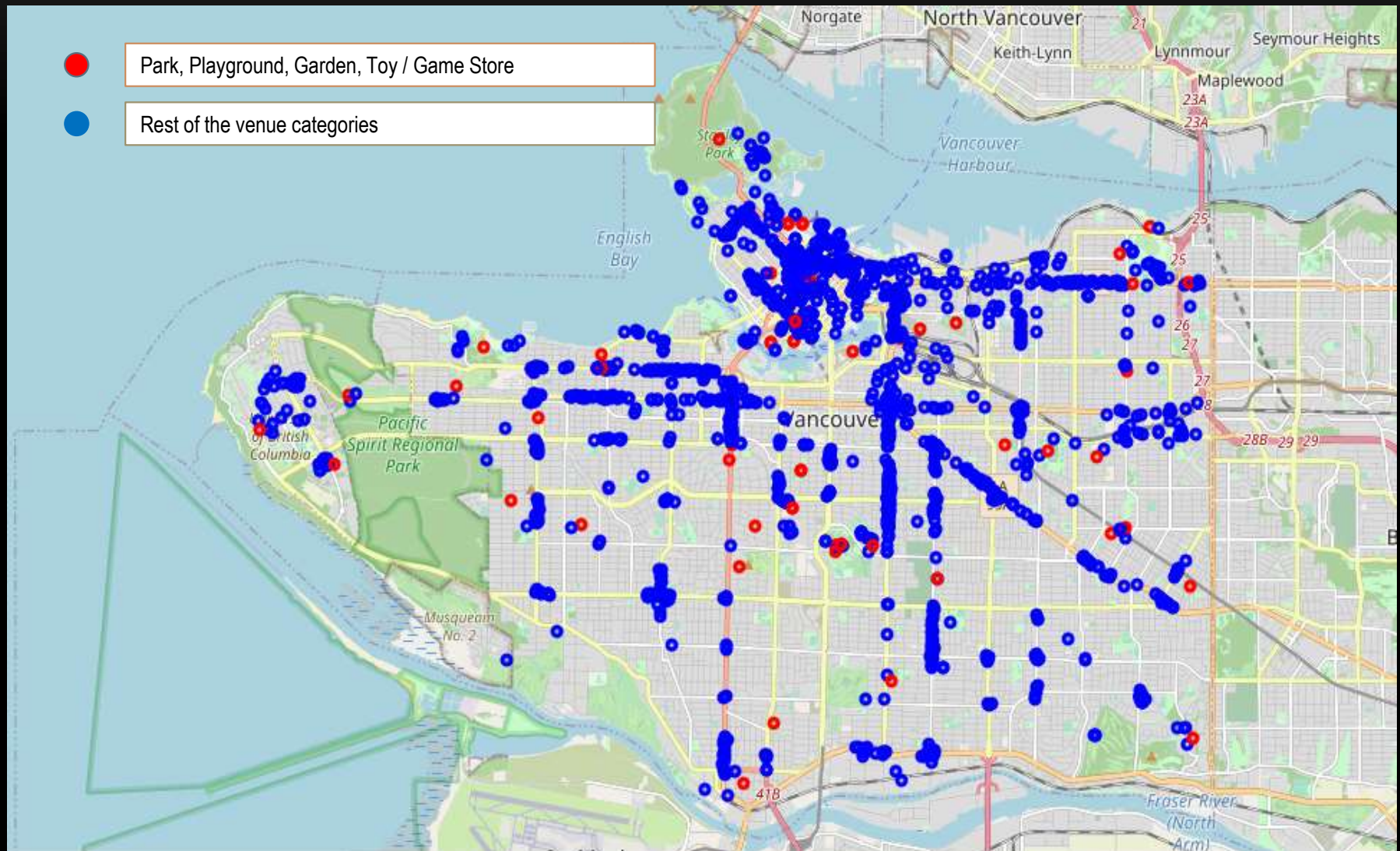
The 4 Venue Categories of our interest are-

1. Park
2. Playground
3. Garden
4. Toy / Game Store

VENUES PER NEIGHBORHOOD



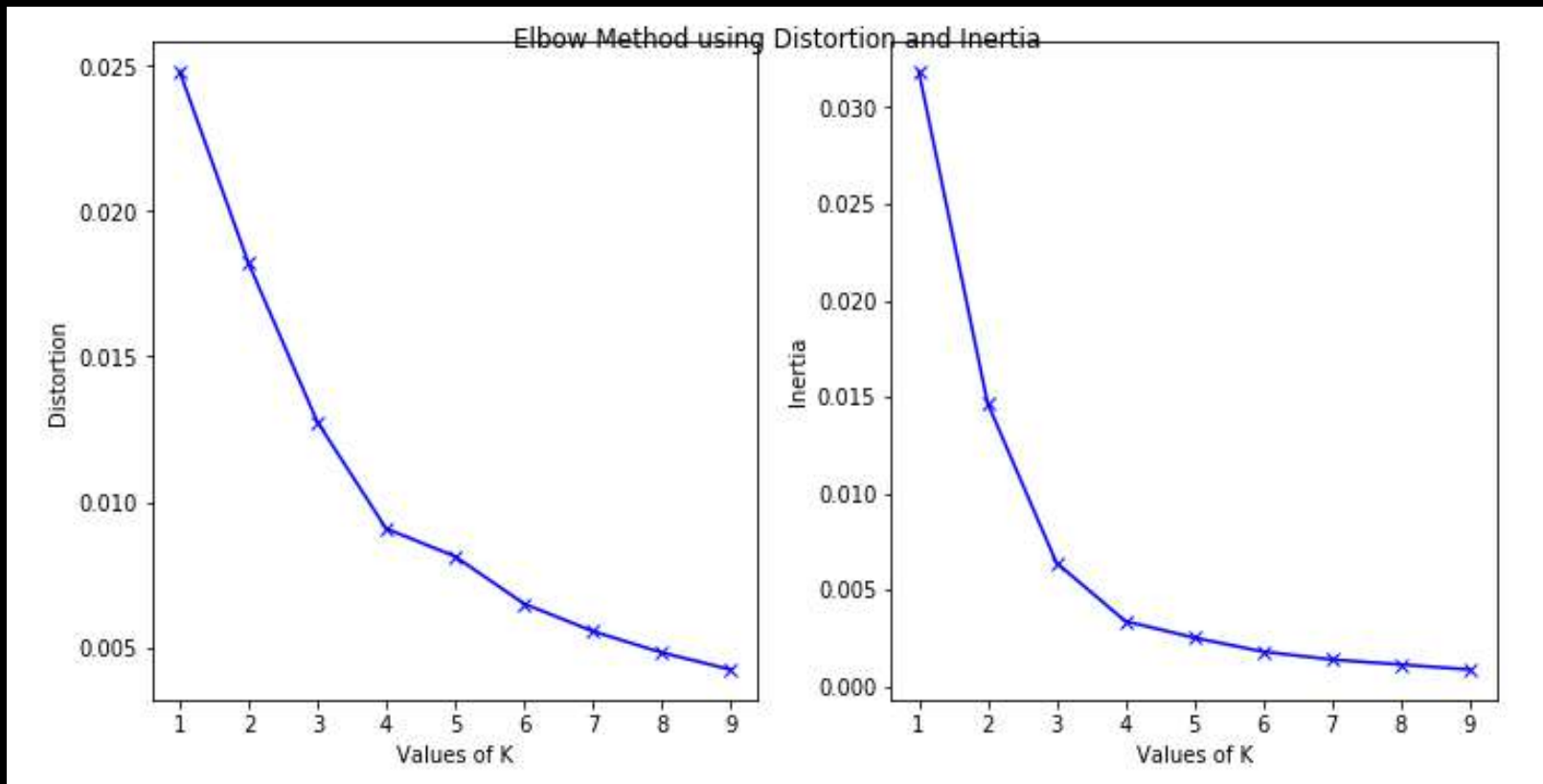
VISUALIZE VENUE CATEGORIES



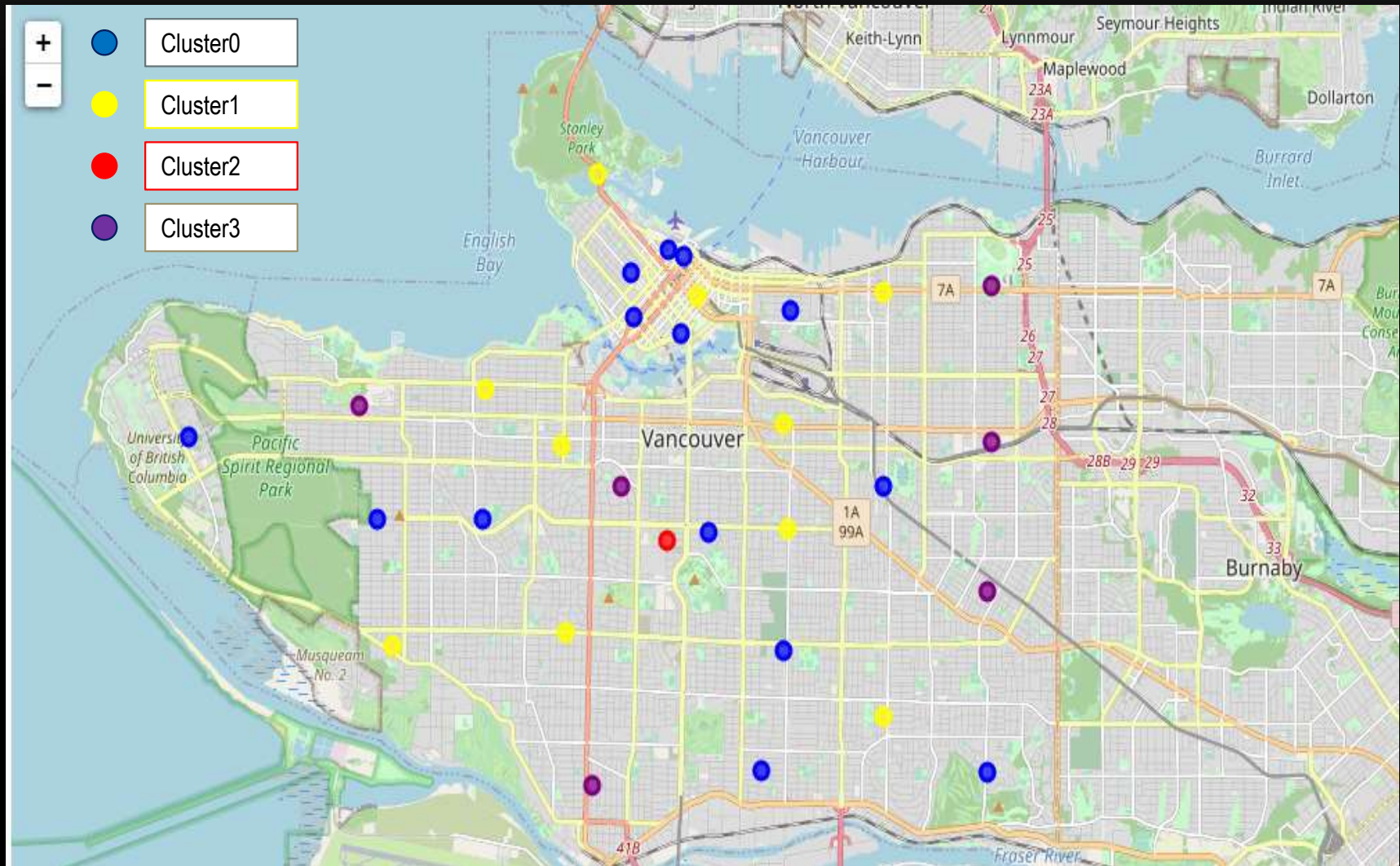
CLUSTER NEIGHBORHOODS

ELBOW METHOD TO DETERMINE VALUE OF K

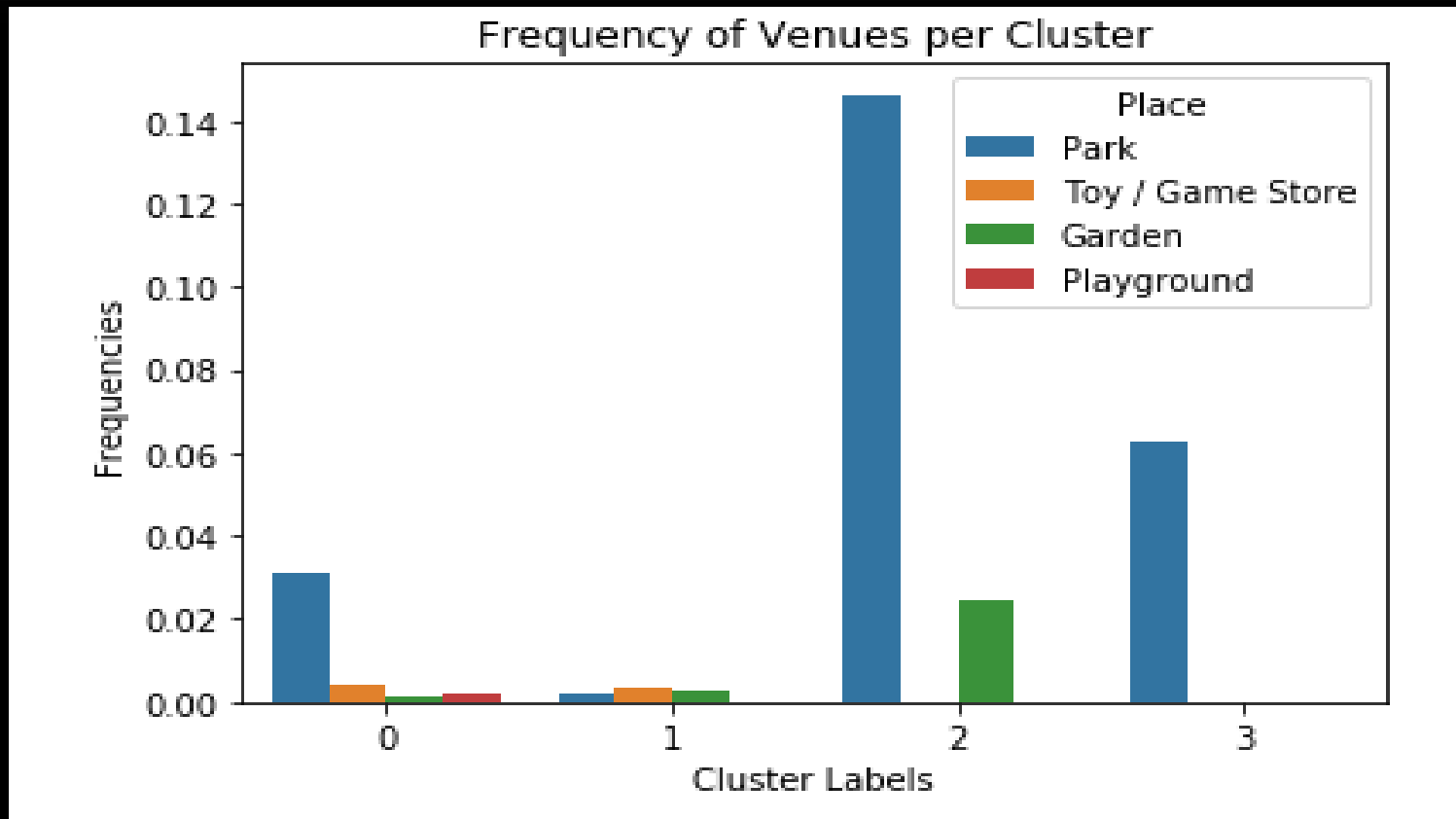
Optimal value of $K=4$



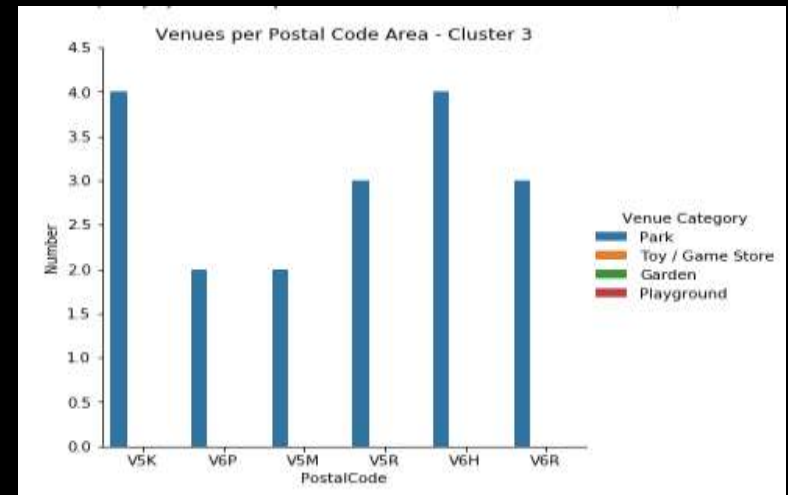
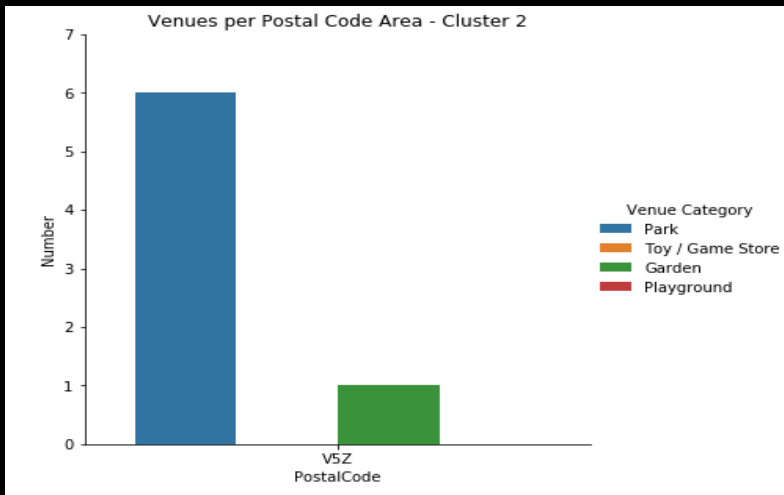
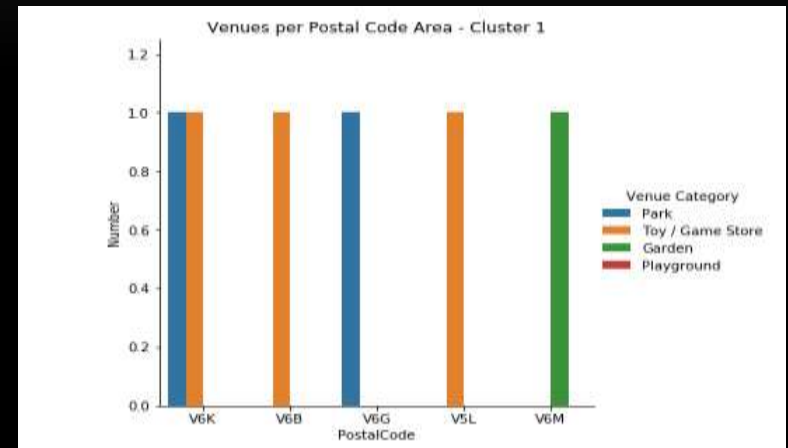
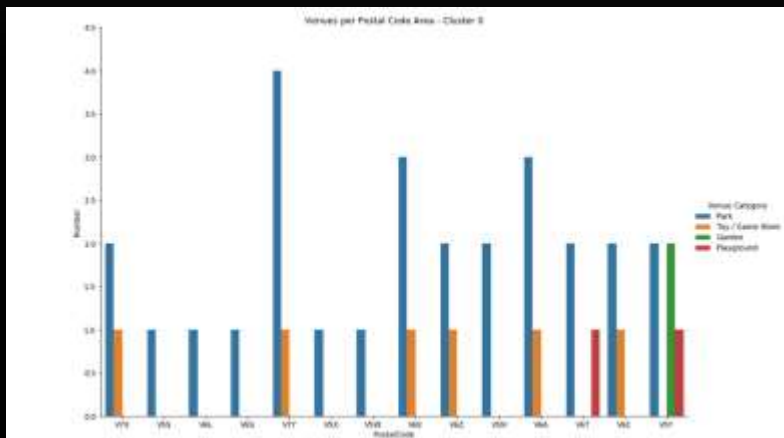
VISUALISE CLUSTERED NEIGHBORHOODS



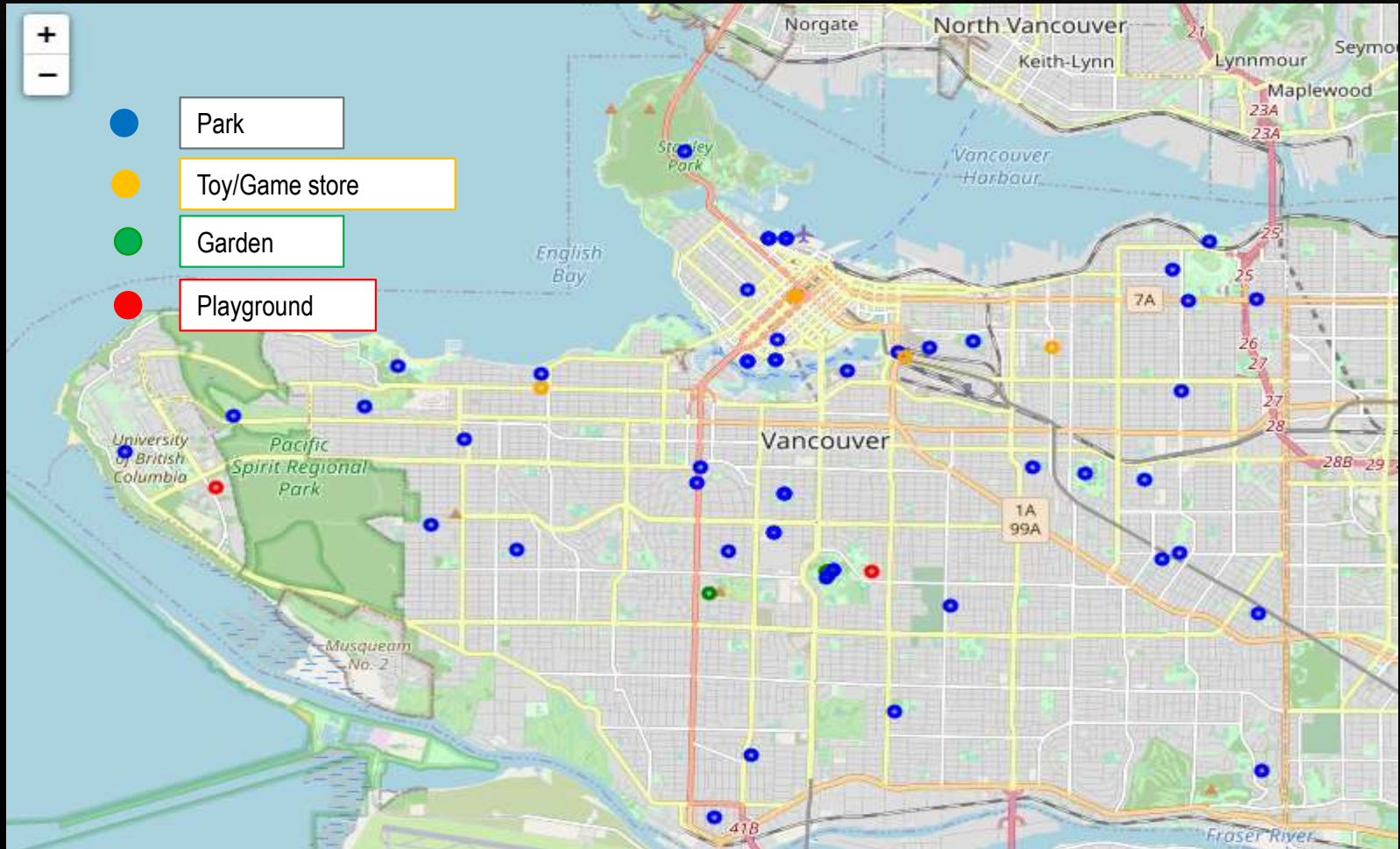
FREQUENCY OF VENUES PER CLUSTER



EXAMINE VENUES PER POSTAL CODE FOR EACH CLUSTER

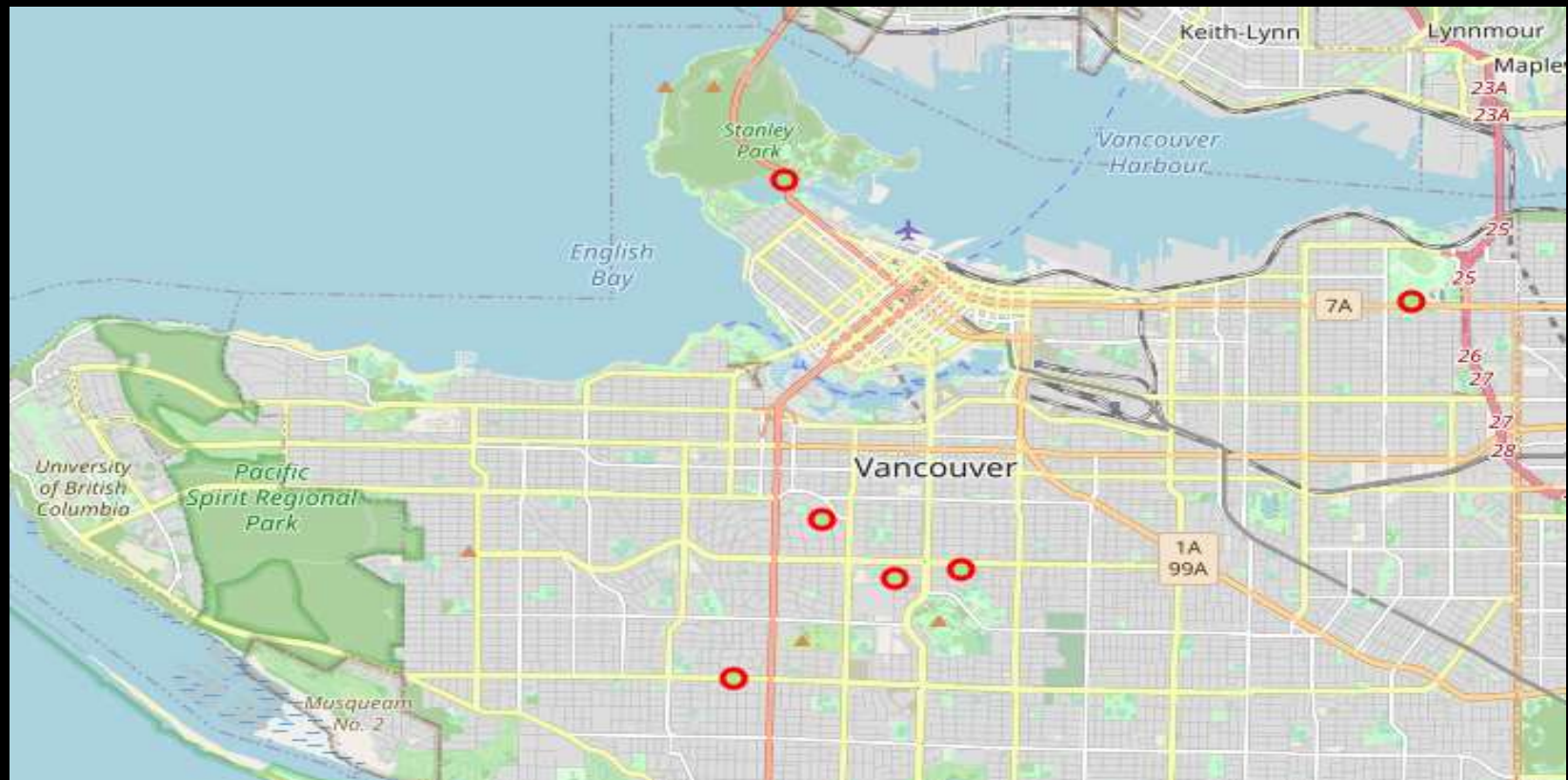


VISUALIZE MAP OF OUR VENUE CATEGORY



CLUSTER ANALYSIS RESULT

Postal codes found to be optimal post analysis-
V5Y, V6G, V6M, V5Z, V5K and V6H.



RESULT

Recommend following places to explore to open a new Kid's Mall-

- **V5K- North Hastings-Sunrise** -> A perfect neighborhood that offers all venues of our interest with no existing competitor (from Cluster0).
- **V6M- South Shaughnessy , NW Oakridge , NE Kerrisdal** -> A residential area with more potential than other neighborhoods in same cluster (from Cluster1)
- **V5Z- East Fairview , South Cambie** -> A new place to explore Kids Mall (from Cluster2)
- **V5K- North Hastings-Sunrise** ->A residential area with many parks attracting more customers to the store (from Cluster3)
- **V6H- West Fairview , Granville Island , NE Shaughnessy**-> A shopping district that would definitely offer customers to Kids Mall (from Cluster3)

CONCLUSION

- In this study, analysis of neighborhoods of Vancouver City is done to explore promising locations to open a Kid's Mall.
- Features like parks, garden, existing kids store/ toy store, playground helped in the analysis of optimal locations. Foursquare API was used to get location details like Venue names, category, etc.
- K-means clustering algorithm helped to clusters the neighborhoods into 4 clusters.
- Postal codes from each neighborhood were analysed in detail with help of visualization. As a result top 5 locations can be presented to stakeholders to open a new kid's store.

RESOURCES

- [1] List of postal codes of Canada: V -
https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_V
- [2] Geopy - <https://pypi.org/project/geopy/>
- [3] Foursquare API - <https://developer.foursquare.com/>
- [4] Vancouver city official website - <https://vancouver.ca/>
- [5] Vancouver Wiki- <https://en.wikipedia.org/wiki/Vancouver>