

Battle of the Neighbourhood Capstone (Week 2) → Vancouver Fitness Center

Introduction/Business Problem Section:

For the Coursea Capstone, my project consists of searching for the ideal location to open a fitness center in the city of Vancouver. Vancouver is the third largest city in Canada with a population of 631,436 as of 2020 [1]. It is coastal city with warmer weather year around compared to most cities in Canada with on average higher living expenses. With beaches, seaports, and a high number of tourists, it looks to be an ideal city for a stakeholder who is interested in opening a fitness center. This report will explore the **23 neighbourhoods** that make up the city of Vancouver and will analyze for each neighbourhood; the population, income level, number of fitness centers, and crime rate [2]. From this a recommendation will be made on where the stakeholder should open their new fitness center.

Data Section:

The data that will be used to compare neighbourhoods are as follows:

- 1) Population
- 2) Median Income level
- 3) Crime Rate
- 4) Number of Gyms/Fitness Centers

Using Foursquare API location data along with city of Vancouver statistics, data from the above points will be obtained [3, 4, 5].

Methodology/Analysis:

After the desired data has been collected (shown in the notebook), a ranking system will be made in order recommend the best neighbourhood to open up a gym in the city of Vancouver. Ideally, the aim for the stakeholder would be to open a gym/fitness center in a neighbourhood with high income, high population, low crime rate, and low number of surrounding fitness centers.

The Ranking system will therefore work as follows:

- Population - highest # = 1 (best rank neighbourhood), lowest # = 23 (worst rank neighbourhood)
- Income - highest # = 1 (best rank neighbourhood), lowest # = 23 (worst rank neighbourhood)
- Crime - lowest # = 1 (best rank neighbourhood), highest # = 23 (worst rank neighbourhood)
- Fitness center - lowest # = 1 (best rank neighbourhood), highest # = 23 (worst rank neighbourhood)

Results/Discussion:

From the ranking table (table 1 below), we can see which neighbourhoods are most ideal and which are not! More detail of what the stakeholder would desire for their gym/fitness center would affect which neighbourhood it would be placed in. However, we can see that if each column of the final rank table is of equal importance to the stakeholder (**which is the assumption here**), they now have a sense of where they should place their new facility. From Table 1, we can see that the neighbourhood of Shaughnessy is recommended as the top choice to open a new facility. We can see that the neighbourhood with the highest income and lowest crime has a relatively low population. It seems like a relationship exists between population and income, where the table suggests that the higher the income the lower the population. The neighbourhood of Dunbar-Southlands comes in at a close second, which is probably more favorable due to the much higher population rank it has compared to Shaughnessy.

Table 1: Ranking Table

	Neighbourhood	Population Rank	Income Rank	Crime Rank	Gym Rank	Sum of Rank
0	Shaughnessy	21	1	1.0	6	29
1	Dunbar-Southlands	15	2	3.0	10	30
2	Kerrisdale	17	7	6.0	1	31
3	Killarney	11	9	7.0	5	32
4	South Cambie	22	6	2.0	3	33
5	Arbutus-Ridge	16	10	5.0	4	35
6	Victoria-Fraserview	10	15	9.0	2	36
7	Riley Park	14	5	11.0	8	38
8	West Point Grey	18	4	4.0	15	41
9	Renfrew-Collingwood	2	18	15.0	7	42
10	Kensington-Cedar Cottage	3	11	14.0	14	42
11	Sunset	6	13	12.0	13	44
12	Hastings-Sunrise	7	14	13.0	12	46
13	Kitsilano	5	8	16.0	21	50
14	Marpole	13	21	10.0	11	55
15	Oakridge	19	19	8.0	9	55
16	Fairview	8	12	17.0	22	59
17	Downtown	1	17	22.0	23	63
18	University Lands	23	3	23.0	16	65
19	Mount Pleasant	9	16	20.0	20	65
20	West End	4	22	21.0	19	66
21	Grandview-Woodland	12	20	18.0	17	67
22	Strathcona	20	23	19.0	18	80

Conclusion:

Overall, the ranking table provides insight for the stakeholder in to which neighbourhood they should build their fitness center. Depending on their preference for one of the columns over another, they would be able to choose that neighbourhood to fit their needs. There are of course limitations to the ranking table as it does not include topics such as gym ratings, age demographic per neighbourhood, or average business hours gym/fitness centers per neighbourhood. This is because this data could not be obtained as most gyms did not have this info when explored by Foursquare API. Other limitations include the number of fitness centers found by Foursquare API. The python code uses 18 search words related to physical fitness and the names of popular gyms. The more search words used the more reliable the number of fitness centers in each neighbourhood would be. However, due to the limitations of using Foursquare API on a free trial version (limit of 950 API calls per day) the python code for finding the number of fitness centers can only be run a few times before reaching this limit.

References:

- [1] Vancouver Population Statistic - <https://vancouver.ca/news-calendar/population.aspx>
- [2] Vancouver Neighbourhood Breakdown - <https://vancouver.ca/news-calendar/areas-of-the-city.aspx>
- [3] Vancouver neighbourhood census data on income - <https://vancouver.ca/files/cov/Downtown-census-data.pdf> (example here is from downtown)
- [4] Vancouver profile overview - <https://vancouver.ca/files/cov/social-indicators-profile-city-of-vancouver.pdf>
- [5] Vancouver crime rate statistics - <https://vancouver.ca/police/Planning/2016/2016YEN.pdf>