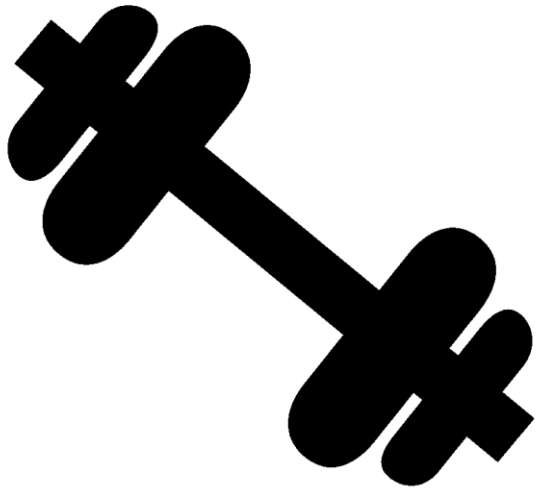


Battle of the Neighbourhood Capstone

Vancouver Fitness Center



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IBM Data Science Certificate

Introduction/Business Problem

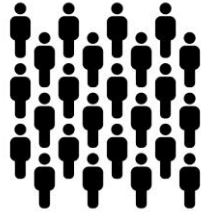
- For the Coursea Capstone, my project consists of searching for the ideal location to open a fitness center in the city of Vancouver
- It explores the 23 neighbourhoods in the city of Vancouver, using Foursquare API to count the number of fitness centers in each neighbourhood
- The goal for the stakeholder would be to find the best neighbourhood to open a new fitness center where they would want low competition, a lot of people living in the area with a high level of income and is relatively safe from crime



Data Section

The data that will be used to compare the 23 neighbourhoods are as follows:

1) Population



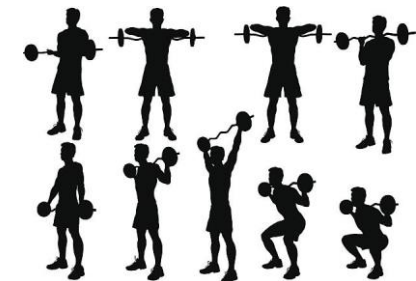
2) Median Income level



3) Crime Rate



4) # of Fitness Centers



Methodology/Analysis

- The desired data was collected from statistics displayed from city of Vancouver website along with Foursquare API to find the number of fitness centers per neighbourhood
- A ranking system will be made for analyzing which neighbourhood would be recommended for the stakeholder, focusing on 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 Centers - lowest # = 1 (best rank neighbourhood), highest # = 23 (worst rank neighbourhood)

Results/Discussion

- From the ranking table (on the right), 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
- We can see that the **neighbourhood of Shaughnessy is recommended** as the top choice to open a new fitness center
- 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.

	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 fitness centers 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.