

# ***Opening a Gym where Best seems Fit***

Chris Hamian



# ***Introduction***

- I'm helping a client decide the best and proper area to open a gym in Manhattan
- Location is primitive especially when considering a massive and populated city like Manhattan
- Data on Manhattan will be divided by postal code
- The plan is to research and gather information on every individual zip code
- This data will be utilized to weave out the locations that don't seem fit our objective

# *Data*

Source #1: Foursquare

- Used to identify the venues in each area
- Will help us total the number of gyms in each zip code
- Available at <https://foursquare.com/>

Source #2: ZipAtlas

- Contains all the essential information on each area
- Dataset includes, latitude/longitude, population, and average household income
- Dataset available at <http://zipatlas.com/us/ny/new-york/zip-code-comparison/median-household-income.htm>

# *Sample of our Condensed Dataset*

	Zip Code	Population	Avg Income	Gyms
7	10022	30642	80406.0	2
9	10024	61414	78066.0	7
10	10028	44987	77565.0	3
11	10021	102078	75472.0	4
12	10023	62206	72424.0	3

- “Gyms” refers to the number of existing gyms in that Zip Code

# Segmenting our Dataset by # of Gyms

Areas with <3 Gyms

	Zip Code	Population	Avg Income	Gyms	C
7	10022	30642	80406.0	2	
21	10019	36012	55869.0	1	
23	10025	97086	49733.0	2	
25	10036	18751	41002.0	1	
26	10001	17310	40932.0	2	
29	10033	58259	31348.0	2	
31	10034	41756	29479.0	0	

(7 Areas)

Areas with 3 Gyms

	Zip Code	Population	Avg Income	Gyms	C
10	10028	44987	77565.0	3	
12	10023	62206	72424.0	3	
16	10016	51217	66342.0	3	
20	10012	26000	58313.0	3	
27	10009	58595	40176.0	3	

(5 Areas)

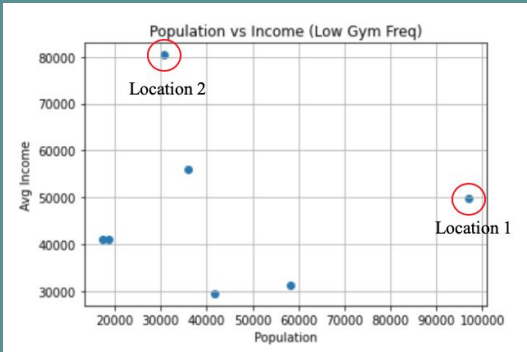
Areas with 3> Gyms

	Zip Code	Population	Avg Income	Gyms	C
9	10024	61414	78066.0	7	
11	10021	102078	75472.0	4	
13	10128	59856	70031.0	5	
14	10017	16201	69273.0	4	
15	10014	32667	66601.0	5	
17	10010	26408	62467.0	7	
18	10011	46669	61986.0	8	
19	10003	53673	60891.0	6	
28	10013	25042	38304.0	4	

(9 Areas)

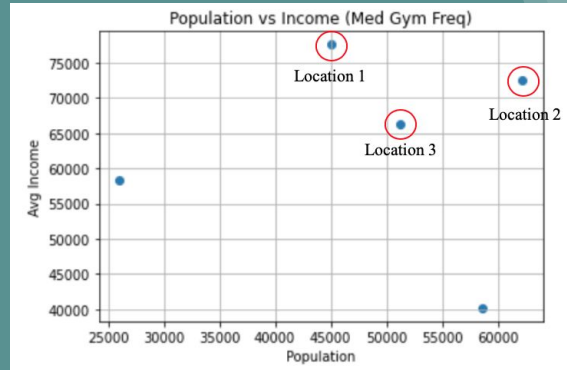
# Analyzing the Different Segments

Areas with <3 Gyms



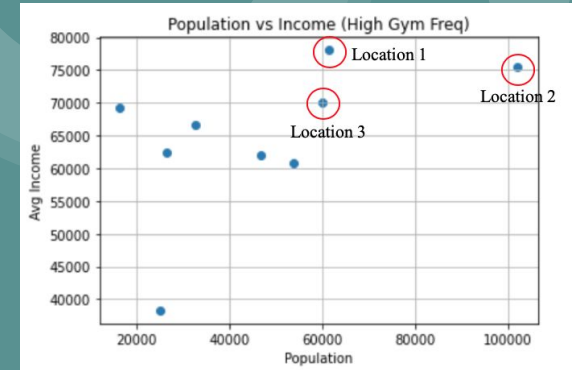
(2 Points)

Areas with 3 Gyms



(3 Points)

Areas with 3> Gyms



(3 Points)

# Assessing our Final Points (High Freq)

Population Rank	Income Rank	# of Gyms (least)
Location 2	Location 1	Location 2
Location 1	Location 2	Location 3
Location 3	Location 3	Location 1

High Freq- Location 1 comparison to Location 2  
Population Difference: -40664  
Average Income Difference: 2594.0  
Total Gyms Difference: 3

High Freq- Location 1 comparison to Location 3  
Population Difference: 1558  
Average Income Difference: 8035.0  
Total Gyms Difference: 2

High Freq- Location 2 comparison to Location 3  
Population Difference: 42222  
Average Income Difference: 5441.0  
Total Gyms Difference: -1

Location 2 is the most optimal.

# Assessing our Final Points (Med Freq)

Population Rank	Income Rank	# of Gyms (least)
Location 2	Location 3	N/A
Location 3	Location 2	N/A
Location 1	Location 1	N/A

Med Freq- Location 1 comparison to Location 2  
Population Difference: -17219  
Average Income Difference: 5141.0

Med Freq- Location 1 comparison to Location 3  
Population Difference: -6230  
Average Income Difference: 11223.0

Med Freq- Location 2 comparison to Location 3  
Population Difference: 10989  
Average Income Difference: 6082.0

Location 2 is the most optimal.



# *Assessing our Final Points (Low Freq)*

Population Rank	Income Rank	# of Gyms (least)
Location 2	Location 1	Same
Location 1	Location 2	Same

```
Low Freq- Location 1 comparison to Location 2
Population Difference:  -66444
Average Income Difference:  30673.0
Total Gyms Difference:  0
```

Neither location is optimal.

# ***Final Comparison***

Zip Code	Population	Average Income	# of Existing Gyms
10021	102,078	\$75,472	4
10023	62,206	\$72,424	3

**Conclusion:** Zip Code 10021 is the most optimal area to open a new gym.

## ***Conclusions (cont'd) and Future Directions***

- Accurately found the best location for the client with the given data
- Final location would've been more accurate if we had the full (purchased) dataset
- With a few minor adjustments, this program/process could be used for any type of venue
- Could look into more specifics about each gym in an area (ex. company, type of gym, offered services, etc.)