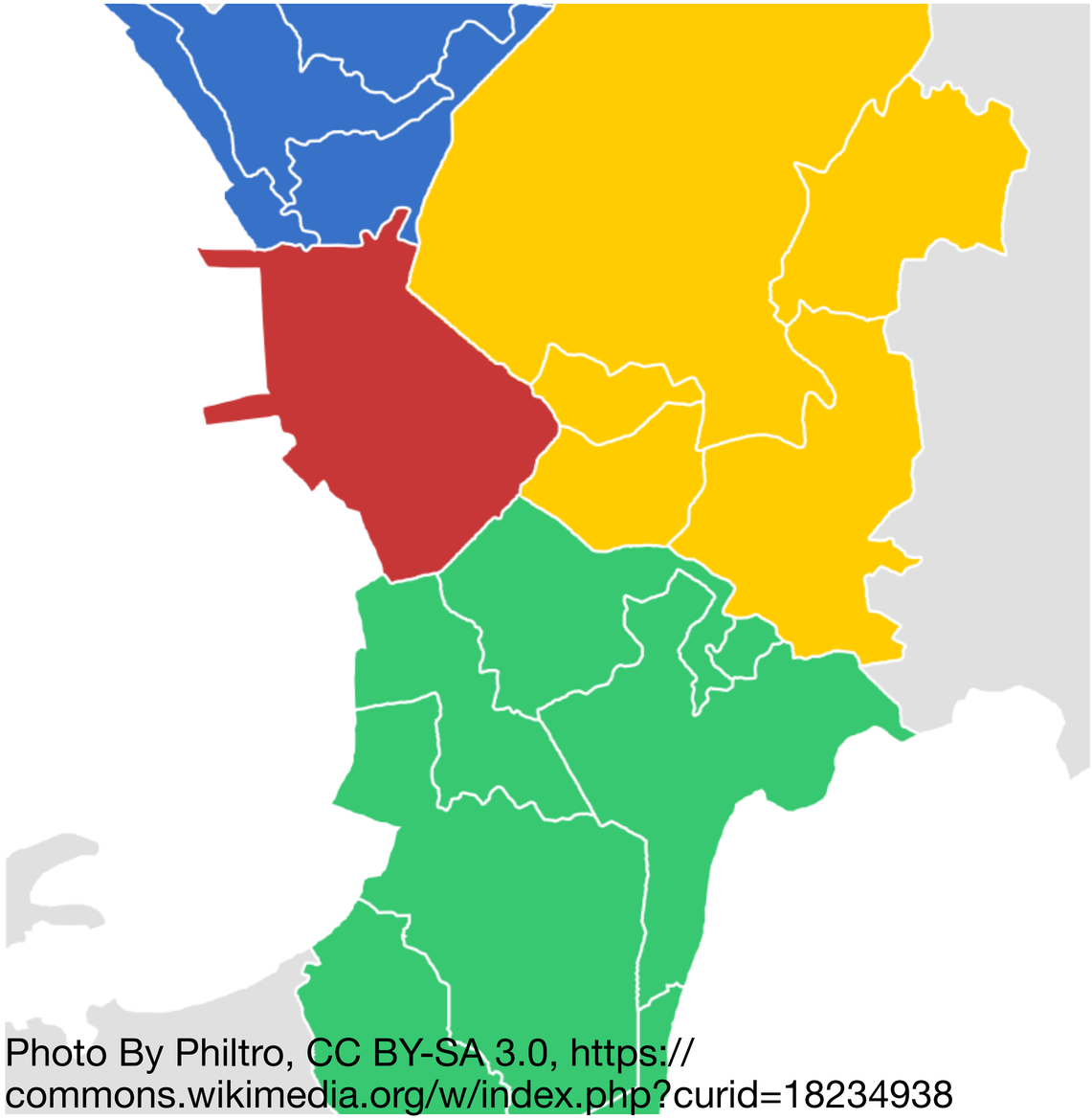
Starting a gym in Metro Manila

Metro Manila - the Philippine capital

- 100 million people
- 12th most populated in the world
- 36th largest GDP
- projected to grow to 20th largest by 2020



- Metro Manila is the most densely populated metropolitan area in the Philippines, and the 5th most densely populated in the world

- It also accounts for 37.2% of the Philippine GDP

- As an economy grows and the population get more spending power, so will the need for non-essential goods and services

Problem: Starting a gym in Metro Manila

Which area should I set up a new gym/fitness area in Metro Manila?

Contributing factors:

1. Size of potential market - Having a large potential customer base with a large per-capita income will give us access to a good market.

2. Competitors in the area - We want to minimize the number of competing establishments, to optimize our reach.

Data

Gathering the information for analysis

- the list of cities in Metro Manila: https://en.wikipedia.org/wiki/Metro_Manila
- population densities for the respective cities
- income per capita in Metro Manila: https://psa.gov.ph/sites/default/files/attachments/hsd/article/Table%202%20AVERAGE%20PER%20CAPITA%20INCOME%20AND%20AVERAGE%20PER%20CAPITA%20EXPENDITURE.pdf
- districts in the target cities in Metro Manila: https://en.wikipedia.org/wiki/List_of_ZIP_codes_in_the_Philippines
- the list of gym/recreation venues in selected districts via foursquare

Analysis: Population

Market size analysis

- Using the city data, we looked at population density for each city
- We looked at the per capita income per city and used this in combination with the population density to calculate the potential market size (Income x Density)
- Makati gives us the best access to a high-income population.

City	Population	AreaKM	Density	PerCapitaIncome	TotalIncome
Makati	582602.0	27.36	21293.932749	140275.0	2.987006e+09
Manila	1780148.0	42.88	41514.645522	60687.0	2.519399e+09
Mandaluyong	386276.0	11.06	34925.497288	67143.0	2.345003e+09
San Juan	122180.0	5.87	20814.310051	103855.0	2.161670e+09
Pasig	755300.0	31.46	24008.264463	73961.0	1.775675e+09
Las Piñas	588894.0	32.02	18391.442848	93172.0	1.713568e+09
Caloocan	1583978.0	53.33	29701.443840	52855.0	1.569870e+09
Quezon City	2936116.0	165.33	17759.124176	75465.0	1.340192e+09
Pasay	416522.0	18.64	22345.600858	57212.0	1.278437e+09
Malabon	365525.0	15.96	22902.568922	50720.0	1.161618e+09
Parañaque	664822.0	47.28	14061.379019	75207.0	1.057514e+09
Marikina	450741.0	22.64	19909.054770	51198.0	1.019304e+09
Taguig	804915.0	45.18	17815.737052	52528.0	9.358250e+08
Muntinlupa	504509.0	41.67	12107.247420	57121.0	6.915781e+08
Navotas	249463.0	11.51	21673.588184	31431.0	6.812226e+08
Valenzuela	620422.0	45.75	13561.136612	46603.0	6.319896e+08

Analysis: Competing venues

Defining a list of competing venues to Gym/Fitness

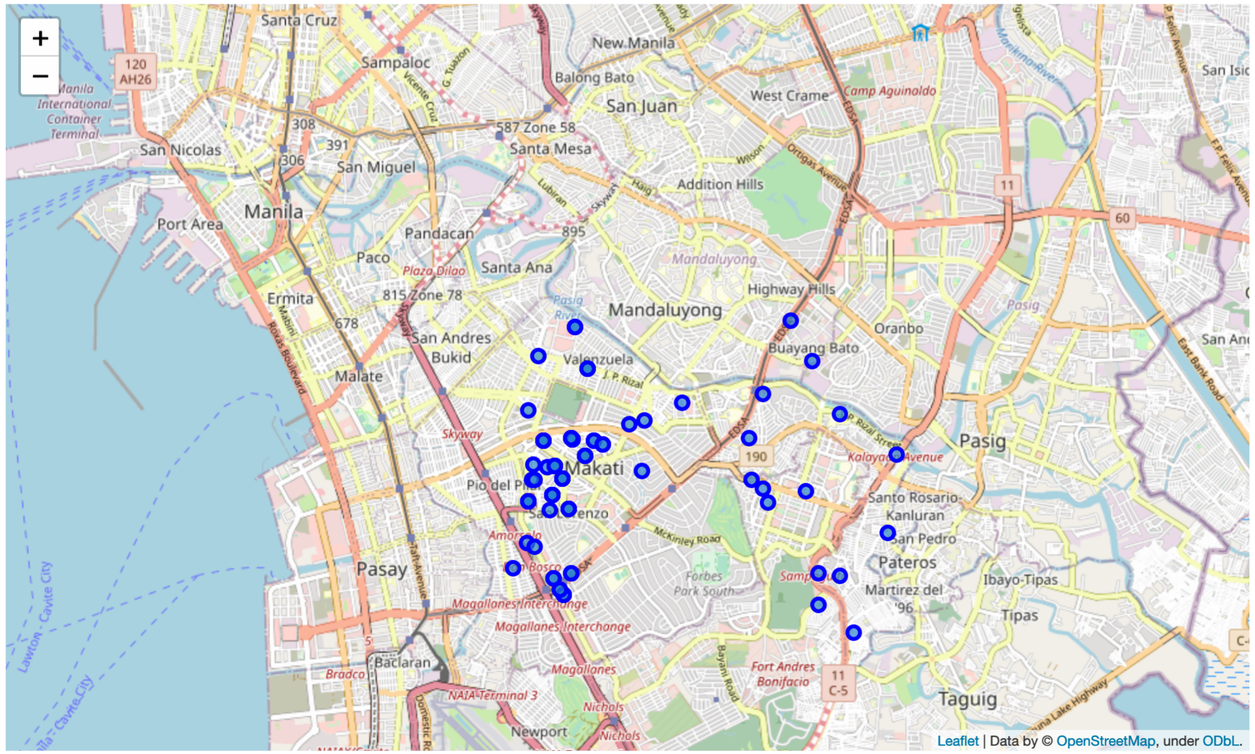
We look at all possible competing venue types related to gym/fitness and recreation, using the most popular sports in the Philippines (https://en.wikipedia.org/wiki/Sport- s_in_the_Philippines):

- Yoga studios
- Volleyball courts
- Basketball courts
- Soccer/Football fields
- Boxing gyms
- Athletics gyms
- Badminton courts
- All other gyms
- Recreation areas (other general purpose gyms that are set up for each district)
- Fitness centers

Analysis: Competing venues

Mapping area coverage

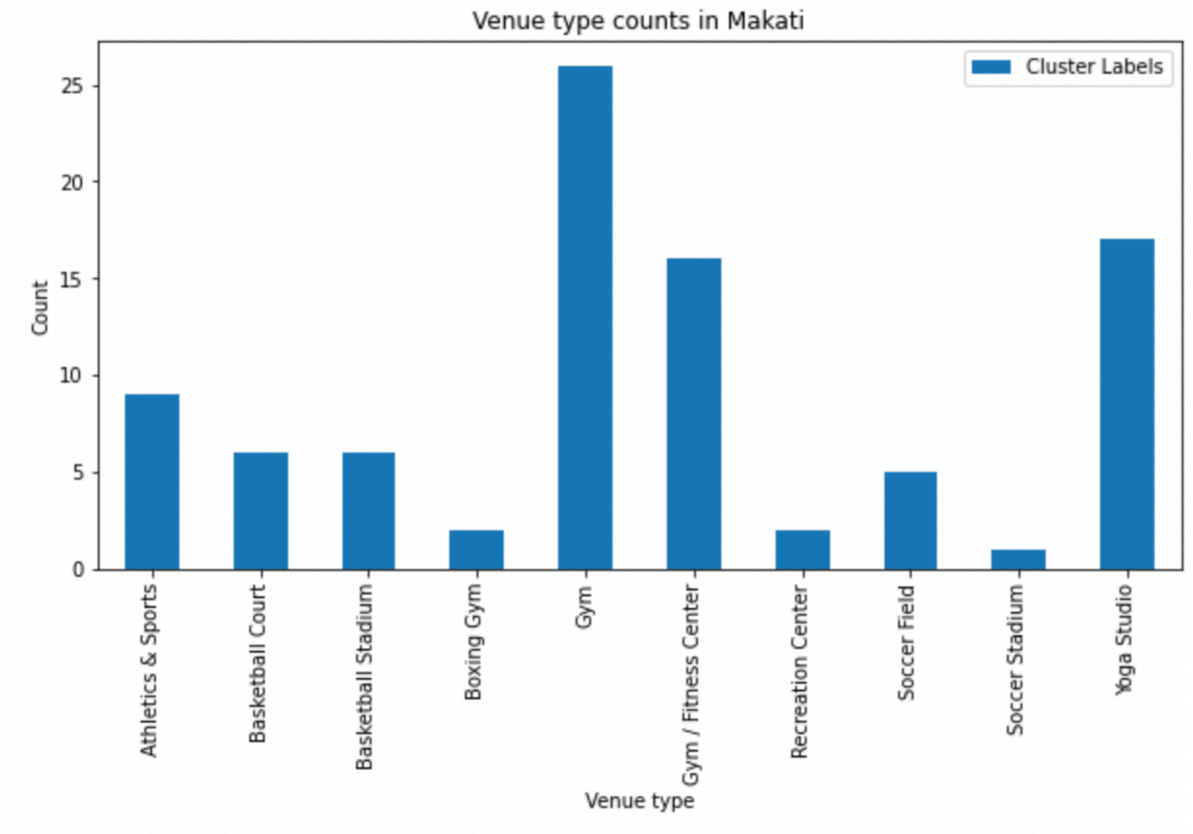
- used Foursquare Places API to query the venues (based on the districts within Makati)
- mapped coverage using Folium



Analysis: Venue type frequency

Competing venue types

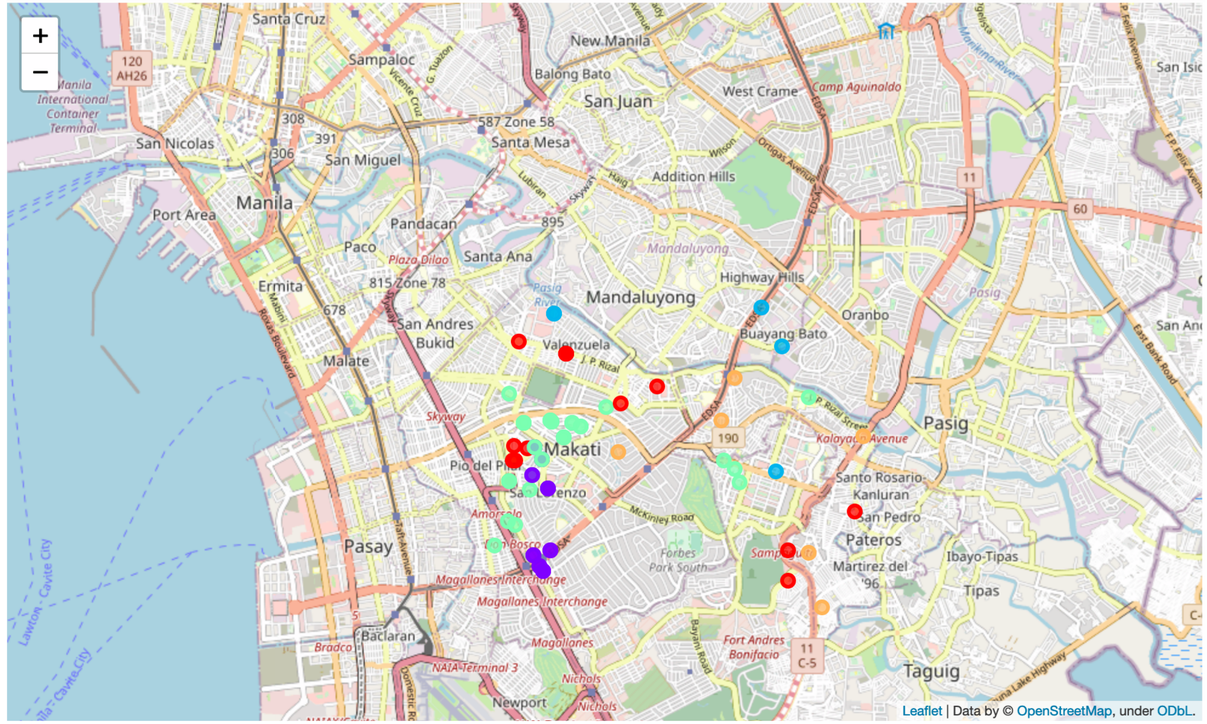
- Using matplotlib, the frequency of each competing venue type was plotted in a bar plot
- The most common competing venue type is Gym/Fitness
- Because of this, we need to select the best area with least competition from the same venue type.



Analysis: k-means clustering

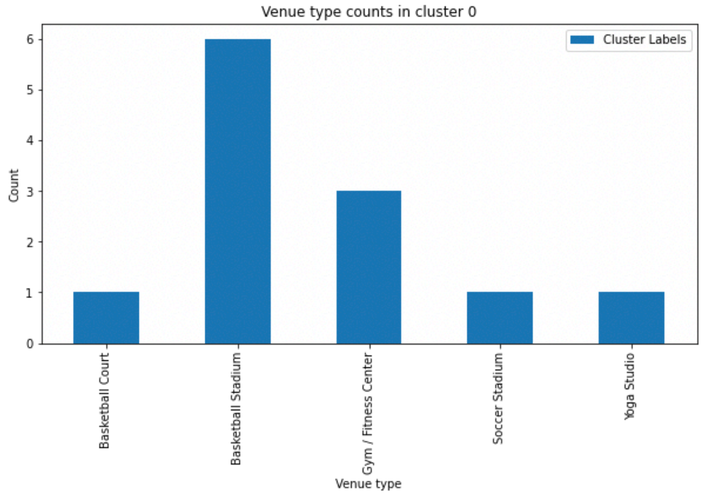
Clustering areas for similarity

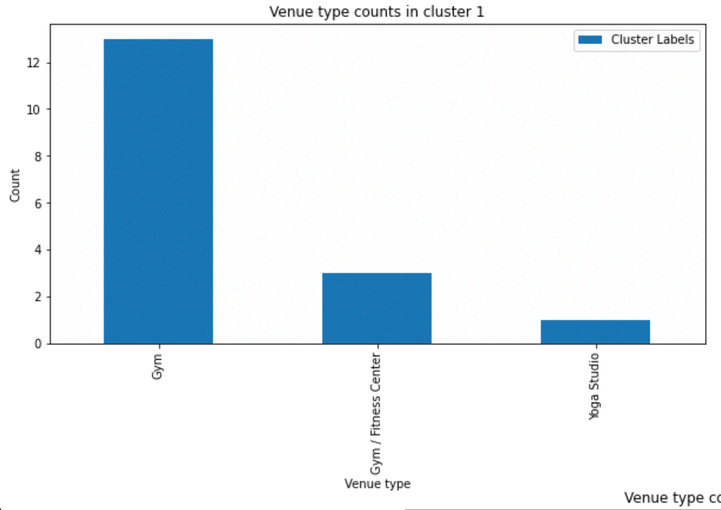
- We used k-means clustering (k = 5) to cluster the areas based on venue type frequency.
- We looked at each cluster for the frequency of venues using bar plots (see next slide).

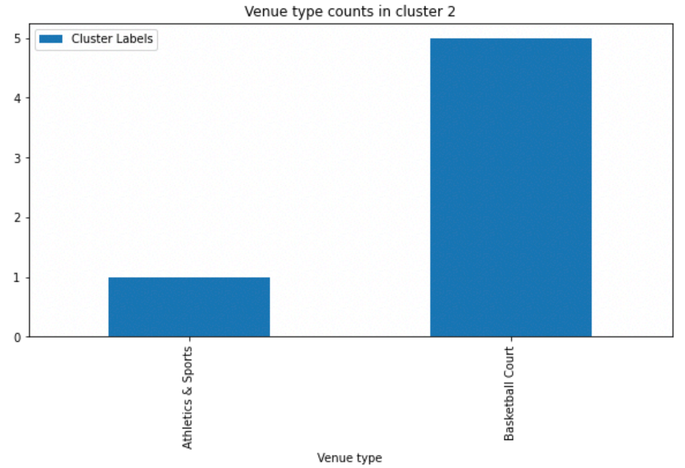


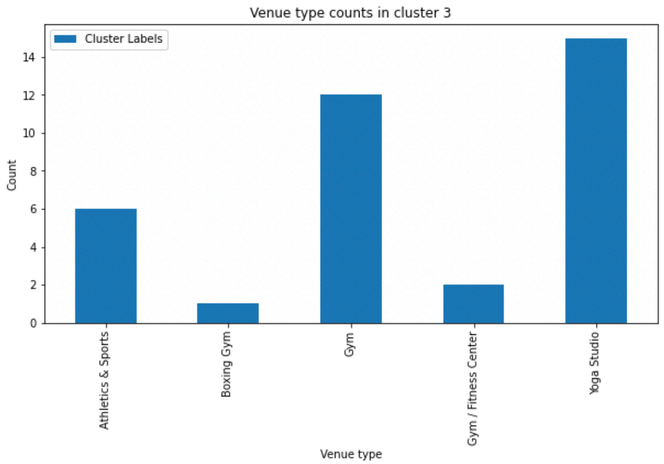
Analysis: Cluster properties

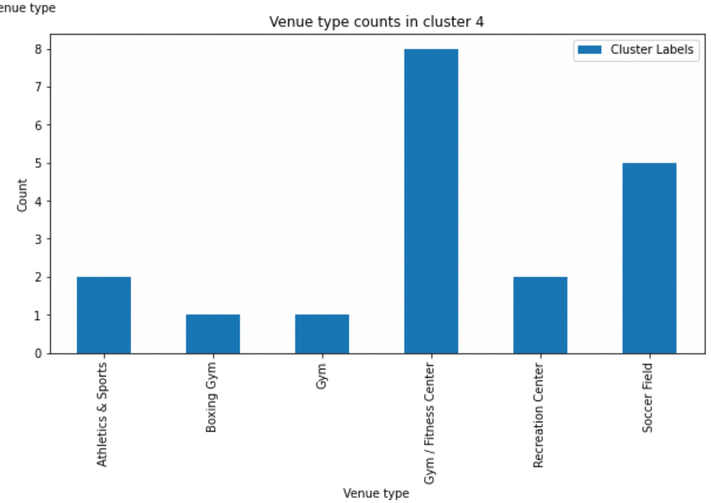
Venue type frequency by cluster







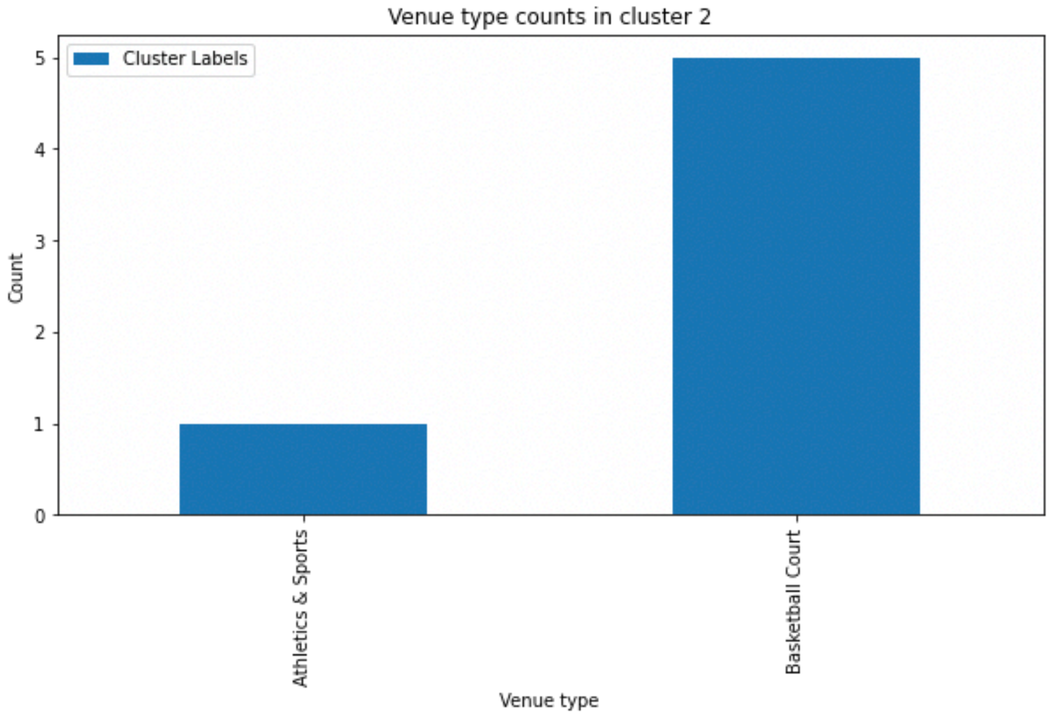




Analysis: Cluster 2

“Basketball” cluster

- All clusters had gym/fitness studies as the most frequent, except for cluster 2.
- Cluster 2’s most frequent venue type was Basketball.
- There is also a lack of competitors in general (6 in total)



Results: Cluster 2 areas

Potential locations for our business

Based on the cluster analysis, we pick the districts in Cluster 2 as the best locations when starting a Gym/Fitness business in Metro Manila:

- Rizal Commercial Banking Corporation (RCBC Plaza)
- Cembo and South Cembo
- East Rembo–Malapad na Bato
- Pembo
- Pio del Pilar

- All five areas are in the city of Makati
- All have good access to a dense population
- All have lack of competing venues in their vicinity.

Conclusion

- k-means clustering was used to find the best potential locations for a gym/fitness business in Metro Manila.
- The analysis selected Makati City as the potential location, further narrowing it down to 5 districts: RCBC Plaza, Cembo, East Rembo, Pembo, and Pio del Pilar.
- This approach can be used for the different venue types/locations.

Recommendations

- Looking at per-district income per-capita (instead of per-city). Data was not available at the time of analysis.
- More coverage of venues in Places API. The study is limited to Foursquare Places API venues, but there are plenty of other venues in Metro Manila that may not been the database.
- Real estate value is one of the possible factors in selecting a location for a business. There is no data for real estate value per district at the time of analysis.