

# Where should you open a gym in KC?

How to fight increasing obesity rates

# Problem

According to [www.stateofobesity.org](http://www.stateofobesity.org) Kansas currently has an obesity rate of 32% for adults. This percentage has increased over 10% in just the last 20 years. If the same trend continues by 2050 close to 50% of the population will be obese.

Opening gyms and fitness centers and strategically placing them in areas where they would be more accessible to the population will help tackle these increasing obesity rates.

# We will look at the 3 following variables

## Cities

We will look at following 12 cities within the KC metropolitan area

- Overland Park, Kansas
- Kansas City, KS
- Kansas City, MO
- Leavenworth
- Leawood
- Liberty
- Olathe, Kansas
- Independence, Missouri
- Lee's Summit, Missouri
- Shawnee, Kansas
- Blue Springs, Missouri
- Lenexa, Kansas

## Population Density

We will see how many people live in that city per square mile

## Gym Count

We will look at how many gyms are already in that area and compare it to the population density.

# Data

Looking at foursquare data

Gathering data about population  
and gym locations within the 12  
chosen cites

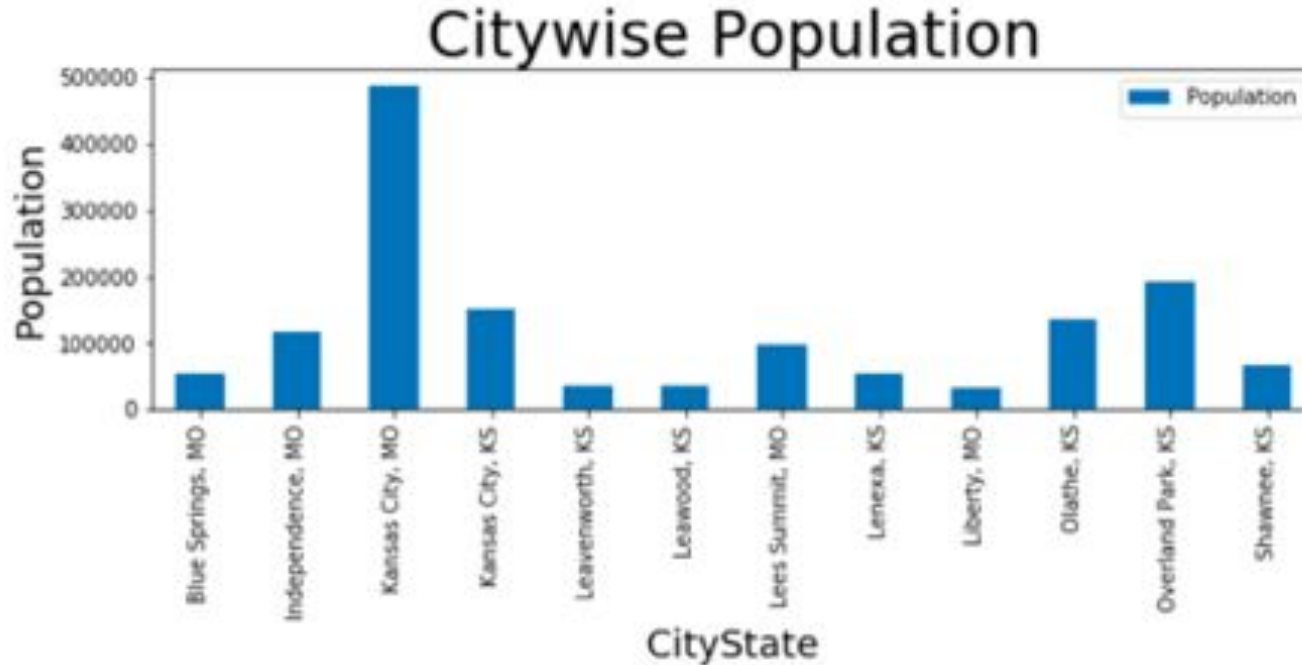
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# Data Collection Methods

- I collected various data like area, population from data.gov and using Google
- Number of Gym / Fitness Centers is collected using FourSquare API. Issue I faced with FourSquare API is it returned only 50 records maximum. So, it was not covering all the 12 Cities that fell under Kansas City Metropolitan Area. So, I collected this data by individually querying each City + State and getting number of Gym / Fitness Center in that City + State. I used City+State as index as Kansas City is part of both Kansas and Missouri state.

# Population

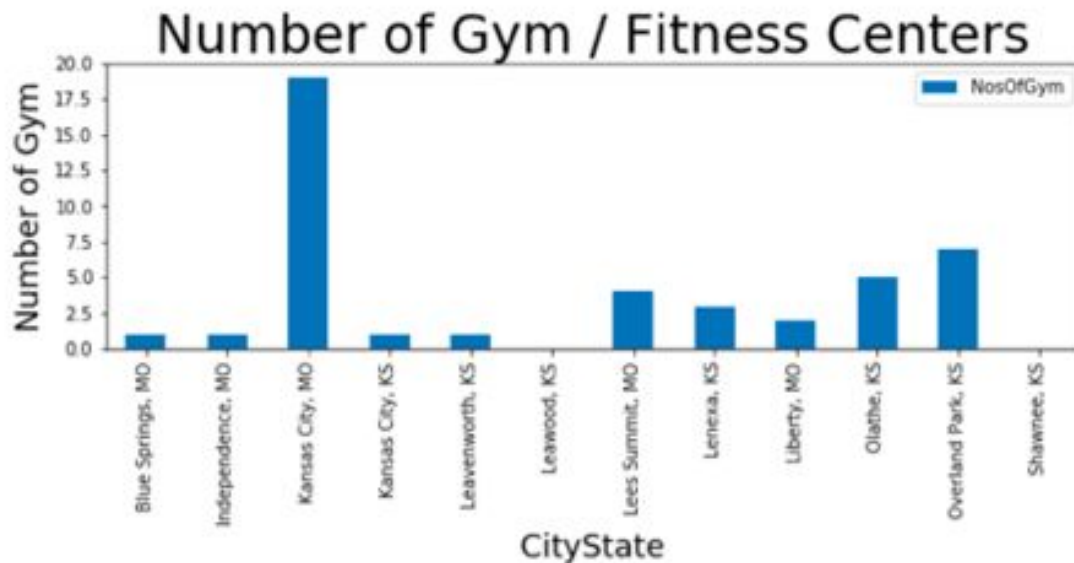
Populations of each of the cities



# Gym

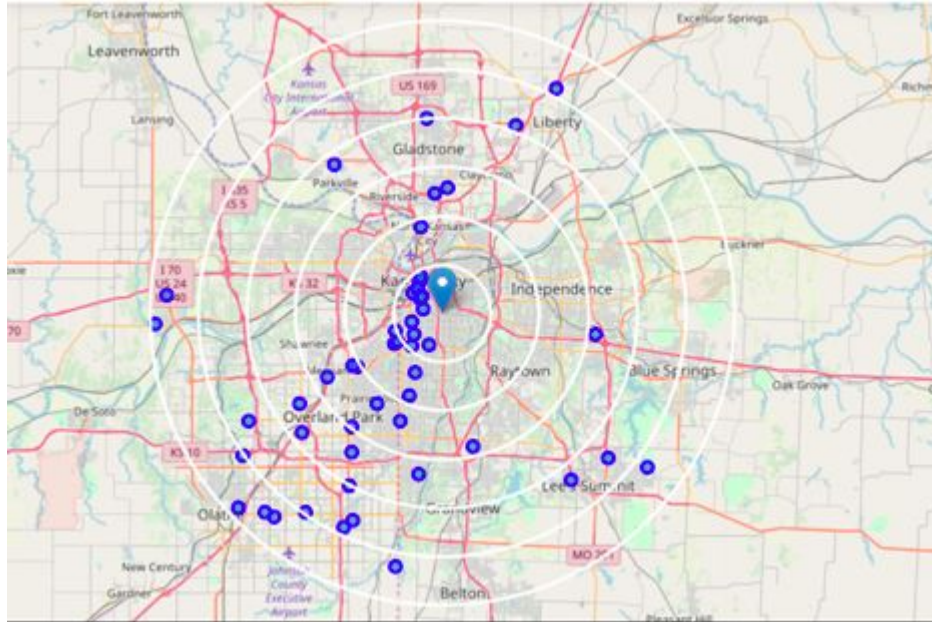
Number of gyms already in those cities

Note: Leawood and Shawnee have 0 according to foursquare



# Gym Locations in KC Area

As we can see most of the gyms are concentrated near downtown KCMO





# Results

Where to open more gyms

Looking at the number of gyms compared to population density is the ideal way to decide where to open new gyms.

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# Population Density to Gym Ratio

This graph shows the number of gyms and the population density. Ideally the number of gyms should correlate to the population density.

City	State	Area	Population	Density	Nos of Gym / Fitness Centers
Blue Springs	MO	22.44	54,945	2448.53	1
Independence	MO	78.25	117,306	1499.12	1
Kansas City	MO	319	488,943	1532.74	19
Kansas City	KS	128.4	152,938	1191.11	1
Leavenworth	KS	24.06	36,210	1504.99	1
Leawood	KS	15.16	34,659	2286.21	0
Lee's Summit	MO	65.39	97,290	1487.84	4
Lenexa	KS	34.45	53,553	1554.51	3
Liberty	MO	29.15	31,507	1080.86	2
Olathe	KS	60.42	137,472	2275.27	5
Overland Park	KS	75.37	191,278	2537.85	7
Shawnee	KS	42.86	65,513	1528.53	0
Notes:					
Population is as per year 2017					
Density is number of people living in square mile					
Area are in square mile					

# Gyms per person ratio

This graph shows how many people will be able to attend one gym. The higher the Population Per Gym number is the worse it is. In KCK there is only one gym for 152938 people which is the worst. And in Liberty there is one gym for 15754 people which is the best. I have left out Leawood and Shawnee because according to foursquare they had no gyms which is the worst result of them all.

City	State	Population Per Gym
Kansas City	KS	152938
Independence	MO	117306
Blue Springs	MO	54945
Leavenworth	KS	36210
Olathe	KS	27494
Overland Park	KS	27325
Kansas City	MO	25734
Lee's Summit	MO	24323
Lenexa	KS	17851
Liberty	MO	15754

# Where should more gyms be built?

Since Leawood and Shawnee have zero gyms the first priority should be given to those cities.

Secondly more gyms should be built in cities starting from top to bottom on this graph. The goal being having the Population Per Gym number be close to the same for all cities.



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Thank You