# Choosing an ideal location to open a new CrossFit box

## 1. Introduction

### 1.1 Background

CrossFit is a class of fitness philosophy and lifestyle founded in the year 2000 by Greg Glassman and Lauren Jenai.  It has grown in popularity over the last 20 years and has become an international competitive sport.  It is described as 'Functional Fitness' and incorporates Olympic weightlifting, high-intensity interval training, gymnastics skills, powerlifting, calisthenics, among other disciplines, and is designed to bring a dramatic uptake in fitness and strength with a feeling of comradery as it is practiced in groups with the leading of a qualified coach.

### 1.2 Problem

A client is looking to open a new CrossFit training gym in the city of Toronto, Ontario, and has asked for us to come up with an ideal location based on statistics and data from the area.  A CrossFit training gym is known as a Box, and in order to call themselves a CrossFit Box, each gym must pay a yearly membership fee to the CrossFit brand which makes them an affiliate.  As such, Crossfit memberships for individuals are known to be quite pricey, hence, the ideal location would likely be in an area where the household income is on the higher end of the scale.  Also, it would be good to find a location which is not too close to any other CrossFit Box, as the residents of that area may already be members somewhere else.  It would also be a good idea to consider whether the neighbourhood is one where health and fitness is a priority, so one where there are a number of sports and fitness shops and health food stores would be a good fit.

### 1.3

The audience in this case is the client who is looking to open a new Box.  Their obvious reason for interest is to open the Box in an area where they will bring in enough clients to make their gym a success.

## 2. Data

### 2.1 Data Sources

As mentioned, the average income of a neighbourhood is going to be a factor in deciding where to open a new CrossFit Box; the following website has information on just such information:

https://en.wikipedia.org/wiki/Demographics_of_Toronto_neighbourhoods

Another column in this table which may be beneficial to consider is Population Density.  Opening a Box in an area with low population density means there would be fewer potential clients to attract.

I will also use Foursquare location data to find out which neighbourhoods already have a CrossFit Box, and also, I will look for areas which show an interest in personal health and fitness; for example, these areas could have health food and sports equipment stores and a number of other outlets for physical activities.

## 2.2 Data Cleaning and Analysis

I will read the Wikipedia table into a Pandas Data frame in my Jupyter notebook and keep only the columns which are relevant to the given problem. I will create a map using this data to give a visual representation of neighbourhoods which may be suitable.

From the preliminary neighbourhoods given by the initial data cleaning, I will then use Foursquare to search for venues of interest within these locations, as described in section 2.1 – Data Sources.