The Battle of Neighborhoods - Finding The Right Location For a Gym

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1 Introduction

New York City is slowly starting to become the leading capital of the fast food nation, according to an article from Crain's New York. Christian González-Rivera in his report found that the most numerous type of national retailer in the city in 2017 was fast food restaurant. Also, according to the Food Institute's analysis of data from the Bureau of Labor Statistics, the average American family spends half their food budget on restaurant food in 2018.

All of these findings show that Americans, and New Yorkers especially, love fast food so much that they cannot do without, although it tends to contain various substances that are generally unhealthful. It is high in sugar, salt, and saturated or trans fats, as well as many processed preservatives and ingredients. It is also low in beneficial nutrients. This means that people are consuming a large amount of unhealthy calories in the shape of fast food which leads to weight gain and ultimately obesity. Of course, an occasional night of fast food will not hurt, but a habit of eating out could pose a serious danger to human health.

Now obesity has become a public health problem in most nations. In New York City, more than half of adult New Yorkers have overweight (34%) or obesity (22%). People who are overweight are at increased risk for diabetes, heart disease, stroke, high blood pressure, arthritis and cancer. As a consequence, exercise is more important now than ever. It is becoming a necessity for maintaining a healthy weight or losing weight or, moreover, reducing the risk of chronic diseases. Simply walking or jogging on a daily basis can help people control their weight and improve their health, but it is not always enough. Currently, gyms or health clubs are considered as a part of the solution for the health and wellbeing of future generations. They play an essential role in promoting physical, mental and emotional wellness.

In order to help entrepreneurs or business owners, who want to open a gym in New York City, better choose the right location we will use the Foursquare API and clustering. Also, to make our analysis more useful, as an example, we will look at whether there is a relationship between gym and burger joint and between gym and park.

2 Data

New York City has a total of 5 boroughs and 306 neighborhoods. In order to segement the neighborhoods and explore them, we will first need a dataset that contains the 5 boroughs and the neighborhoods that exist in each borough as well as the the latitude and longitude coordinates of each neighborhood. After collecting the required data, the second step is to get the number of gyms, burger joints and parks that exist in each neighborhood using the Foursquare API. Then, we will create a pandas dataframe that includes the name of neighborhoods within the five boroughs of the City of New York, the latitude and longitude coordinates of each neighborhood and the number of gyms, burger joints and parks that exist in each neighborhood.