Finding the Best House to Buy in Brooklyn, New York

# Introduction:

Buying a house is one of the biggest financial investments that people make during their lives and many factors go into that decision. The choice of what city to live in is often determined by the location of one’s employment, friends, family and other considerations. But even within certain cities, neighborhoods vary greatly in terms of cost and character. Knowing what you are looking for in a neighborhood as well as how much money they can spend can help a person decide which neighborhoods to look at when buying a house.

In this paper I will use the example of a young couple with small children and a limited budget. They both have friends and family in different parts of Brooklyn and want to buy a house there.

Since they have small children they want to be close to schools. Neighborhoods with a variety of schools can give them more choices when choosing a school for their children. Also, neighborhoods with many schools are likely to have more young families making it more likely they and their children will make friends.

They also want to be near parks and playgrounds and other outdoor recreational venues. Being able to easily enjoy fresh air and exercise outside will benefit both their and their children’s quality of life.

Lastly, though they do not go to restaurants very often, they want to be near grocery stores, supermarkets, and other stores where they can buy food. Having these types of stores nearby is a convenience that can save them lots of time in their busy lives.

This couple is would like to buy a home in a neighborhood that fulfils the above needs and want to know what their options are as well as how much houses in those neighborhoods generally cost.

# Data

To find the right neighborhood for the couple I will use information taken from the following locations:

* Geographic data on Brooklyn, including the longitude and latitude of each neighborhood was taken from <https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-DS0701EN-SkillsNetwork/labs/newyork_data.json>. These are the coordinates used to search for the desired nearby venues.
* A geojson of New York neighborhoods used to create a choropleth map of Brooklyn was downloaded from <https://data.cityofnewyork.us/City-Government/Neighborhood-Tabulation-Areas-NTA-/cpf4-rkhq>. This map can help visualize the location of each neighborhood.
* For data on the cost of housing in Brooklyn I used the table provided at: <https://www.propertyshark.com/mason/market-trends/residential/nyc/brooklyn/brooklyn-heights>. Not all neighborhoods were listed on this table so neighborhoods with no housing data were removed from the neighborhoods dataframe. Information was available for 50 out of 70 neighborhoods. Those were the neighborhoods used in this analysis.
* I got information about schools, parks and shops in Brooklyn from the **Foursquare API**. This data will be used to see the relationship between each of those factors and the price of houses in each neighborhood.