**Capstone Project – Battle of Neighborhoods**

**Introduction/Business Problem**

A research team wants to analyze New York city properties sale data and visualize the sale activities for each of its 5 boroughs. As part of this project, they also have a requirement to find out the “Borough” that made the most sales.

New York City has diverse culture and point of interests uniquely spread across 5 boroughs and its distinct neighborhoods make the city so special. Therefore, the city’s data set was chosen for this project.

The team would leverage the Kaggle dataset for properties sold in New York city over a 12-month period from September 2016 to September 2017 and Foursquare location data to explore the most common neighborhood venues and details.

The team would identify the borough with most sales based on sale data, then would utilize the Foursquare APIs/location data to identify the recommendations for common/popular venues in the neighborhoods. Using K means, the common venues will be clustered in groups Finally this data will be projected and visualized on a city neighborhood map.

**Data**

**1. Kaggle data set will be primarily used for this project.**

* <https://www.kaggle.com/new-york-city/nyc-property-sales/data>

This dataset is a record of every building or building unit (apartment, etc.) sold in the New York City property market over a 12-month period, from September 2016 to September 2017

This dataset contains the location, address, type, sale price, and sale date of building units sold. A reference on the trickier fields:

* + **BOROUGH**: A digit code for the borough the property is located in; in order these are Manhattan (1), Bronx (2), Brooklyn (3), Queens (4), and Staten Island (5).
  + **BLOCK**; **LOT**: The combination of borough, block, and lot forms a unique key for property in New York City. Commonly called a BBL
  + **BUILDING CLASS AT PRESENT** and **BUILDING CLASS AT TIME OF SALE**: The type of building at various points in time

**2. Top Picks/Common venues in the most transacted borough’s neighborhood of New York city.**

* Foursquare API
  + GET [https://api.foursquare.com/v2/venues/explore/\*](https://api.foursquare.com/v2/venues/explore/*).
  + Response – The following attributes are retrieved from the API response
    - Neighborhood: Name of the neighborhood
    - Neighborhood - latitude & longitude
    - Venue: Venue Name
    - Venue – latitude & longitude
    - Venue Category: category of the venue
* By using the API, we will explore the “top Picks” or recommended venues in the borough