# Introduction to the business Problem

In this project, I am interested in The Bronx neighborhood.  The Bronx has a rich history and has passed through many stages in it is history.   Its history during the 20th century may be divided into four periods: a boom period during 1900–29, with a population growth by a factor of six from 200,000 in 1900 to 1.3 million in 1930. The Great Depression and post-World War II years saw a slowing of growth leading into an eventual decline. The mid to late century were hard times, the Bronx declined 1950–85 from a predominantly moderate-income to a predominantly lower-income area with high rates of violent crime and poverty. The Bronx has experienced an economic and developmental resurgence starting in the late 1980s that continues into today.

As a Middle Eastern, I always had a passion to open a Middle Eastern restaurant.  As we all aware location is the primary success factor in restaurant business.   The Bronx is ideal for opening a Middle Eastern restaurant due to its diversity.   My problem is to find the proper location that will give me a competitive edge but yet an attraction zoon. The competition is going to be high so in my study, I will look for neighborhoods with many restaurants but with few Middle Eastern options.

# A description of the data and how it will be used to solve the problem.

The data comes from New York Geo Data Center from the following link https://geo.nyu.edu/catalog/nyu_2451_34572.  The data contains neighborhood information the larger city of New York.  The data is formatted in JSON and it contains the following objects

{'type': 'Feature',
 'id': 'nyu_2451_34572.1',
 'geometry': {'type': 'Point',
  'coordinates': [-73.84720052054902, 40.89470517661]},
 'geometry_name': 'geom',
 'properties': {'name': 'Wakefield',
  'stacked': 1,
  'annoline1': 'Wakefield',
  'annoline2': None,
  'annoline3': None,
  'annoangle': 0.0,
  'borough': 'Bronx',
  'bbox': [-73.84720052054902,
   40.89470517661,
   -73.84720052054902,
   40.89470517661]}}

From the JSON object we are interested in the following attributes.

- properties.name
- properties.borough
- geometry.coordinates

After extracting and reading JSON objects, we will translate the above data into a Pandas data frame for processing which would look like this

| | Borough | Neighborhood | Latitude | Longitude |
|---|---|---|---|---|
| 0 | Bronx | Wakefield | 40.894705 | -73.847201 |
| 1 | Bronx | Co-op City | 40.874294 | -73.829939 |
| 2 | Bronx | Eastchester | 40.887556 | -73.827806 |
| 3 | Bronx | Fieldston | 40.895437 | -73.905643 |
| 4 | Bronx | Riverdale | 40.890834 | -73.912585 |

The next step is to take at all the neighborhoods in the Bronx and get the 100 restaurant venues within a radius of 500 meters. The source of the data related to the venues comes from the FourSquares. The venues data looks like this

| | Neighborhood | Neighborhood Latitude | Neighborhood Longitude | Venue | Venue Latitude | Venue Longitude | Venue Category |
|---|---|---|---|---|---|---|---|
| 0 | Wakefield | 40.894705 | -73.847201 | Lollipops Gelato | 40.894123 | -73.845892 | Dessert Shop |
| 1 | Wakefield | 40.894705 | -73.847201 | Rite Aid | 40.896649 | -73.844846 | Pharmacy |
| 2 | Wakefield | 40.894705 | -73.847201 | Carvel Ice Cream | 40.890487 | -73.848568 | Ice Cream Shop |
| 3 | Wakefield | 40.894705 | -73.847201 | Cooler Runnings Jamaican Restaurant Inc | 40.898276 | -73.850381 | Caribbean Restaurant |
| 4 | Wakefield | 40.894705 | -73.847201 | Dunkin' | 40.890459 | -73.849089 | Donut Shop |

The next thing to do is to examine each neighborhood and check the number and type of restaurants available. The neighborhood with many restaurants and few Middle Eastern options will be my main areas of focus.