Capstone Project - The Battle of Neighborhoods (Week 1)

1. A description of the problem and a discussion of the background.

Introduction: Business Problem

In this project we will try to find an optimal location for a restaurant. Specifically, this report will be targeted to stakeholders interested in opening an **Indian restaurant** in **London**, UK.

Since there are lots of restaurants in London we will try to detect **locations that are not already crowded with restaurants**. We are also particularly interested in **areas with no Indian restaurants in vicinity**. We would also prefer locations **as close to city center as possible**, assuming that first two conditions are met.

We will use our data science powers to generate a few most promising neighborhoods based on these criteria. Advantages of each area will then be clearly expressed so that best possible final location can be chosen by stakeholders.

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

Based on definition of our problem, factors that will influence our decision are:

- number of existing restaurants in the neighborhood (any type of restaurant)
- number of and distance to Indian restaurants in the neighborhood if any
- distance of neighborhood from city center

We decided to use regularly spaced grid of locations, centered around city center, to define our neighborhoods.

Following data sources will be needed to extract/generate the required information:

- centers of candidate areas will be generated algorithmically and approximate addresses of centers of those areas will be obtained using **Foursquare API reverse geocoding**
- number of restaurants and their type and location in every neighborhood will be obtained using **Foursquare API**
- coordinate of London center will be obtained using **Foursquare API geocoding** of well-known London location (Trafalgar Square).