Capstone Project - The Battle of Neighborhoods (Week 1)

# Introduction

This is the report for the final project of IBM’s Applied Data Science caps-tone in Coursera. During the course, we used python and the Foursquare API to explore the cities of New York and Toronto. This project will use the-se tools to explore the neighborhoods in the city of Madrid, Spain. We will use open data sources and the Foursquare API and try to get an idea of the characteristics of the neighborhoods in Madrid.

# The Problem and the Approach

Madrid (Spain) is a large city, with more than 4 million inhabitants, and comprises 21 districts

and 131 neighborhoods. Madrid is a very diverse city, with

very densely populated neighborhoods, tourist and popular neighborhoods

with commercial areas, etc.

Suppose we want to open a restaurant in Madrid, we still have to decide

the type of restaurant - a Spanish restaurant? or something else

exotic?

To make a decision, we will use data analysis to explore the different

neighborhoods of Madrid, including aspects such as:

• What type of business is there in the neighborhood? (i.e. what is the

the most popular type of cuisine in the neighborhood? what is the average

price of a menu in a neighborhood restaurant?)

• How many similar businesses are there in the neighborhood?

We will import and analyze this data and try to decide the best place to

open a restaurant.

# The Data

As requested by the project, we will use the Foursquare API to get a listing recommended venues in each neighborhood. For the rest of the information, the Municipality of Madrid has an Open Data Portal where they share up-to-date data about different aspects of the city, such as number of in-habitants, their ages and other socioeconomic indicators.

We will use the following data:

• Madrid neighborhoods, (CSV, 10 KB)with information about the perimeter and area.

• Catalog of venues and their activities (December 2020) (CSV, 60491 KB), organized per neighborhood

• Neighborhoods GeoJson, with geographical information about the neighborhoods in Madrid (provided by CartoDB)

From the FourSquare API, we will get:

• All recommended venues around a location.

• All recommended venues around a location by price category.