# Analysis of Covid-19 cases in the city of Buenos Aires

IBM Data Science Professional Certificate – Capstone Project

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# 1. Introduction

## 1.1 Background

As it is well known, the COVID-19 pandemic has created an enormous amount of challenges and difficulties worldwide, and Argentina has been no exception. In Argentina, the first case of COVID-19 was reported on March 3, 2020 (1) and two weeks later, a mandatory nation-wide lockdown was announced (2), which remains in effect in its capital, the city of Buenos Aires.

As of June 11, 2020, 13,209 COVID-19 cases have been reported, only in the city of Buenos Aires, which represent 48.3% of the total cases reported in the country. Additionally, 279 people have died in the city due to this pandemic. (3, p. 12)

## 1.2 Problem

The statistics of infections and deaths that are reported periodically only display the total of cases or, sometimes, the information about gender or age group, but other variables are not reported. The purpose of this project is to collect and analyze different data in order to locate the *comunas* (communes)[1] with the majority of cases and other factors that might have a strong correlation with the reported cases of COVID-19. Then, applying machine learning techniques the *comunas* will be clustered based on the variables shown in the exploratory analysis

## 1.3 Audience

This analysis may possibly be of use for different social organizations and projects; that said, the audience who might benefit the most from the results are government officials and health experts. These data could provide an additional insight to the plans that are designed to prevent the spread of similar epidemics.

[1] The city of Buenos Aires is administratively divided into fifteen comunas (communes).

# 2. Data

## 2.1 Data description

The main data collected for this project consisted in the number of COVID-19 cases reported in the city of Buenos Aires, which was scrapped from the webpage of the newspaper La Nación (3, 4), and the geographical location of each neighborhood and *comuna* of the city, which was retrieved from Wikipedia (5) and from GeoHack (6), that was fundamental to get the decimal values of the *comuna's* coordinates.

For the exploratory analysis, the following financial and sociodemographic data were obtained from the official webpage of the City of Buenos Aires (7):

- Population density: Total number of people per square kilometer.

- Crime: Number of crimes registered during the year 2019 in the city.

- Overcrowding situation: Percentage of households between the years 2010 and 2018, with respect to their overcrowding situation as follows: No Overcrowding: Less than two people per room; Overcrowding non-critical: two to three people per room; Overcrowding critical: more than three people per room.

- Employment rate: Employment and unemployment rates in 2019 for each *comuna* in the city.

- Subway data: Location of subway stations and passengers per station in 2019.

- Health budget: Financial resources allocated to health topics in 2019 in the city.

Additionally, **the Foursquare API** was used to determine the similarities and most common venues of the clusters obtained from the machine learning algorithms.

# 3. References


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