

# APPLIED DATA SCIENCE CAPSTONE FROM IBM BY COURSERA

## CAPSTONE PROJECT

“Analysis of places to start a pharmacy business”

Author: Carlos A. Evangelista Busso

### 1. Business Problem:

The present project is born in the middle of a problem caused by the virus called: Coronavirus or Covid-19, which shakes the entire world in 2020, in most countries, quarantine was established by governments to prevent the spread of said virus, keeping people in their homes. Much of the population, and also in my case, was to spend almost the entire period of quarantine inside my home, and even more so due to my work situation in the mining sector that suspended all activities.

The days I stayed at home I had the opportunity to observe with my family the activity carried out by the business located in front of my home, a pharmacy, where merchandise arrived day after day, since their activities had not been suspended because it was the area of health and this was something that we did not notice despite its years of existence. At first glance, it is a very profitable business to stay active even in times of crisis; it was at that moment where together with my family we asked ourselves the following question: What place or areas are profitable to open a pharmacy business?

The city of Metropolitan Lima is the capital of Peru and has about 9.5 million inhabitants [1] and in this there are approximately 198 first-level health establishments [2]. It is in this city that this project is focused and an analysis will be carried out using geolocation to be able to determine the location where a pharmacy business could be started and justify the reasons for it to be profitable.

### 2. Data Description:

To solve the problem, an analysis was made of the areas around the main hospitals in Lima. Logically, it is through these places that people who are treated and subsequently prescribed to acquire medicines by doctors pass through.

- In order to obtain the coordinate information of these places, first we must have a list of the names of the hospitals with which we will work. This data collection was performed through a web search [3] and subsequent use of the method: Web Scraping.
- Once the list of all hospital names has been obtained, information is extracted from the coordinates of each one; this is done using the Google Maps API: Places API [4].
- With the coordinates, the Foursquare API was used to obtain the most common places around each hospital within a radius of 500 meters [5].

### 3. References:

- [1] "LIMA METROPOLITANA ESTADISTICAS", Mimp.gob.pe, 2020. [Online]. Available: [https://www.mimp.gob.pe/adultomayor/regiones/Lima\\_Metro2.html](https://www.mimp.gob.pe/adultomayor/regiones/Lima_Metro2.html).
- [2] M. Lopez, "Aniversario de Lima: ¿cuántos establecimientos de salud funcionan en la capital y cuáles son sus carencias?". [Online]. Available: <https://rpp.pe>.
- [3] "Hospitales en Lima | Inicia", Inicia. [Online]. Available: <https://inicia.pe/hospitales-lima>.
- [4] "Overview | Places API | Google Developers", Google Developers, 2020. [Online]. Available: <https://developers.google.com/places/web-service/intro>.
- [5] [Online]. Available: <https://foursquare.com/>.