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Avoid Risk Neighbourhoods: General Insecurity & COVID-19

Introduction/Business Problem

Every year is unique and particular. But, 2020 brought the world the special planetary pandemic challenge of COVID-19. It spread and penetrated rapidly into different parts of the globe. And, the autonomous city of Buenos Aires (CABA: Ciudad Autonoma de Buenos Aires) is not an exception.

In this particular setting, I contemplated for the capstone project a hypothetical corporate client from abroad, an international trading firm (The Client), that is planning to relocate their representative family to the city of Buenos Aires, once the pandemic-related restrictions are lifted. Since this would be its very first entry to Buenos Aires, the city is still an unknown territory for the Client. Very concerned with the two risks—the general security risk (crime) and the pandemic risk (COVID-19)—the Client wants to exclude high risk neighbourhoods in the selection of the location for the relocation plan.

At the same time, the Client wants to understand the characteristics of neighbourhoods by popular commercial venue categories such as restaurants, shops, and sports facilities. In this context, the Client hired me as an independent consultant to conduct a preliminary research for its future plan. The Client sets the following three objectives for this assignment.

1. Identify outlier high risk neighbourhoods (the Outlier Neighbourhood/Cluster) in terms of these two risks—the general security risk (crime) and the pandemic risk (COVID-19).
2. Segment non-outlier neighbours into several clusters (the Non-Outlier Neighbourhoods/Clusters) based on a quantitative risk metrics (the general security risk and the pandemic risk).
3. Characterize the Non-Outlier Neighbourhoods based on popular venues, using Foursquare API.

The autonomous city of Buenos Aires is a densely populated city: the total population of approximately 3 million in the area of 203 km^2. And each neighbourhood has its own distinct size of area and population. The city is divided

into 48 administrative division, aka ‘barrios’, to which I will refer as ‘neighbourhoods’ in this report.

These two given risks of the Client’s interest—the general security risk (crime) and the pandemic risk (COVID-19)—are likely affected by the population density profiles. Especially, the fact that as ‘social distancing’ is a key to the prevention of COVID-19 suggests that population density is a significant attribute for the pandemic risk. In other words, the higher the population density, the higher the infection rate. The similar would be the case for the general insecurity. In other words, in the conduct of this research, I would likely need to incorporate into the analysis the differences in the population density among neighbourhoods. Obviously, this preconception needs to be assessed based on the actual data in the course of the project.