



Capstone Project - The Battle of Neighborhoods (Week 1)

Report title:

Covid-19 Explore Analysis in Cairo, Egypt

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1. Problem Statement

1- Introduction

Since the beginning of Covid-19 outbreak in China, world wide governments had been watching the growth of such disease caused by the novel corona virus. The problem is how to control such exponential growth? Actually it is too late now since the WHO announced it is a world wide pandemic. However, the game is not over yet, we still can slow down the spreading rate at least in the countries where the total number of covid-19 cases is below than 200 such as Cairo, Egypt. In the next section, we will explain the strategy to do that.

2- Problem

The problem is the exponential growth of Covid-19 cases. The strategy is to slowdown this growth by targeting the areas which has the highest population and the highest traffic (i.e many visitors).

This can be translated into two factors:

- 1- The population: the number of people who lives in each neighborhood in Cairo, Egypt
→ this information is available on population analysis websites on the web.
- 2- The traffic: this factor can be expressed by how many popular places each neighborhood actually has → this info can be found by an explore request to Foursquare API.

The output of this project is simply a list of the suggested neighborhoods where governments can do massive scans to the people in these areas to try to catch as many Covid-19 positive cases as possible.



Figure 1.1 Corona virus positive test

2. Data overview

	Governorate	Neighborhood	Population
0	Al-Qāhirah	15 Māyū [15th of May City]	96522
1	Al-Qāhirah	'Ābidīn	41605
2	Al-Qāhirah	Ad-Darb al-Aḥmar	60336
3	Al-Jīzah	Ad-Duqqī	73309
4	Al-Qāhirah	'Ain Schams	633798
5	Al-Jīzah	Al-Ahrām	681383
6	Al-Jīzah	Al-'Ajūzah	287818
7	Al-Qāhirah	Al-Amīriyah	157378
8	Al-Qāhirah	Al-Azbakiyah [Azbakeya]	20393
9	Al-Jīzah	Al-Badrashayn [Badrshain]	563294
10	Al-Qāhirah	Al-Basātīn	511052
11	Al-Jīzah	Al-Ḥawāmidīyah	198042
12	Al-Qāhirah	Al-Jamāliyah	37517

Figure 2.1 Dataset for neighborhood populations in Cairo

In Fig 2.1, the dataset has 75 rows and 3 columns (Governorates, Neighborhoods and Population). This data will be used to identify the population of each neighborhood to get the information about the first factor.

Fig 2.2 represents the dataset from Foursquare API which has the nearby neighborhoods in great Cairo city, with the column items which has the data of popularity.

	city	name	categories	lat	lng	items
0	وسط البلد	Halawa (حلاوة)	Clothing Store	30.050450	31.244201	[{'summary': 'This spot is popular', 'type': '...'}]
1	وسط البلد	Simonds	Coffee Shop	30.049971	31.242260	[{'summary': 'This spot is popular', 'type': '...'}]
2	Downtown	Happy City Roof Bar	Hotel Bar	30.046346	31.243932	[{'summary': 'This spot is popular', 'type': '...'}]
3	Downtown	Dar El Maaref (دار المعارف)	Bookstore	30.050467	31.242328	[{'summary': 'This spot is popular', 'type': '...'}]
4	Downtown	El Abd (العبد)	Pastry Shop	30.049617	31.239840	[{'summary': 'This spot is popular', 'type': '...'}]
5	وسط البلد	Costa Coffee	Coffee Shop	30.048983	31.242256	[{'summary': 'This spot is popular', 'type': '...'}]
6	Downtown	Kunst Gallery & Cafe	Café	30.049947	31.242113	[{'summary': 'This spot is popular', 'type': '...'}]

Figure 2.2 Foursquare API dataset of different venues in Cairo

In Capstone Project - The Battle of Neighborhoods (Week 2), both datasets will be connected to come up with a list of neighborhoods which has the highest probability of Covid-19 virus spread.