

Introduction

COVID-19 pandemic has transformed the world in a manner which was imaginable only in the movies (we cannot speak of it as unimaginable since a movie depicted such an outbreak only a few years ago). Not all countries have been affected to a similar degree, however. While the disease originated in China and was limited to China for a long period, the world's largest country by population is not among the worst affected countries today. The US, Brazil and India have seen the largest number of cases to date.

Faced with the outbreak of the pandemic, India tried to tackle it through a series of total national lockdowns beginning at the end of March. The effectiveness of the lockdowns is questionable at best, given the number of fresh cases each day has hit the 35000 mark recently and the total number of cases in the country exceeded 1 million. In India, too, the effect of COVID-19 has varied from place to place. Maharashtra, and especially Mumbai, the commercial capital of India, have been the worst hit of all places in India. As the country moved from a total national lockdown to lockdown of hotspots/containment zones, Mumbai remains the city which has taken the worst hit. As per a report published on '<https://www.scribd.com/document/468160449/Mumbai-Containment-Zones#download>', there were 741 containment zones in the city. The people living in the containment zones have major restrictions on movement. In such a situation, especially in a city like Mumbai, where millions of young professionals come and stay and have no access to a domestic help they would be otherwise used to, getting food delivered from nearby restaurants is a go to solution. This is especially applicable to people who are working full-time from home.

Problem

The project aims to map the localities of Mumbai based on the number of containment zones in each locality. Then, the number of pure Indian-style Restaurants (as against other food outlets) available in the locality will be mapped onto these localities. The logic of finding only Indian-style restaurants is that when people are ordering food on a continuous basis, day-after-day, they would prefer food that their appetite is more used to. The map will thus show the localities by the number of containment zones they have and how rich they are in terms of access to Indian-style food.

Target Audience

The target audience includes people in the containment zones. But, the map will also help future migrants to the city to find places where they will get better access to Indian-style food. Also people who wish to open Indian-style food outlets in Mumbai can use the map to know the competition in each locality.

Data

The data used will include the following.

1. Data from the link '<https://www.scribd.com/document/468160449/Mumbai-Containment-Zones#download>'.
2. Restaurants data for Mumbai from Foursquare API.
3. List of Pincodes in Mumbai from '<https://finkode.com/mh/mumbai.html>'.
4. Latitudes and Longitudes of the localities. This will be obtained from Geocode.

Method

The method would include clustering of localities based on containment zones and based on number of Indian-style restaurants and superimposing the two on each other for the localities. The clustering technique used will be the K-Means clustering. Map from Folium will be utilized.