Deprivation and Venue Data Analysis of London

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1. Introduction

1.1 Background

London, the capital of England and the United Kingdom, is a 21st-century city with history stretching back to Roman times. London is considered to be one of the world's most important global cities and has been termed the world's most popular for work city. The metro population in 2020 is estimated to be as much as 9.30 million according to the UN's World Urbanization Prospects. London has a diverse range of people and cultures, and more than 300 languages are spoken.

Investigators are looking to grab the opportunities in the investment friendly city of London in 2020, and the rich and mighty are seeking to build their mansions in the wealthiest parts of London. Despite there being greater economic opportunity, there are people who have gone through great hardship through 2019 or are struggling to get by. A significant number of local people continue to face persistent inequalities and are disproportionately affected by poverty, unemployment, long term health conditions and welfare dependency. There are also groups who are in work but are struggling with the rising cost of living as well as job and wage insecurity. Some areas have changed immeasurably over the last decade. Once neglected, now desirable places for business. However, as is typically the way with inner-city gentrification, there are many that have been left behind – particularly among poorer communities.

1.2 Problem

Charities/ NGOs/ local authorities and people with compassionate hearts are looking for ways to reach out to the poor & needy communities and help them out in their struggles. Though there are number of different statistics available for information and research, it is difficult to obtain information at one place to satisfy these needs, get useful data in front of the right people in the right format that can be used to help make decisions.

This project aim to analyse and identify most deprived neighbourhoods for development in London using data science methodology and machine learning techniques.

1.3 Target Audience

The results and recommendation of the projects will be useful for Charities, NGOs and local authorities to identify most deprived neighbourhoods and initiate, organise and carry out appropriate development projects for the affected areas.

2. Data Description

2.1 Data used to solve the problem

Deprivation describes the lack of material benefits, such as a job, income, decent home and education that are generally considered to be necessary in a society. Relative levels of deprivation are a crucial determinant of 'need' for many of the services that local authorities provide. Deprivation is the key driver of need in many demand-led services and a key cost driver in the current local government funding formulas and significantly affects the distribution of funding. Measures of deprivation are used in adjusting funding for Social services, Children's services, Environmental services, Fire and Rescue services and the police.

Index of Multiple Deprivation (**IMD**) draws together information from the following seven sources of official data, known as 'domains', to produce an overall measure of relative deprivation between one area and another

- o Income Deprivation (22.5%)
- o Employment Deprivation (22.5%)
- o Education, Skills and Training Deprivation (13.5%)
- o Health Deprivation and Disability (13.5%)
- o Crime (9.3%)
- o Barriers to Housing and Services (9.3%)
- o Living Environment Deprivation (9.3%)

- **Postal data with IMD** from London data store

  Info. including Postcode, Ward/District, Constituency and IMD

  Along with IMD data we will also use Homelessness and recorded crime data for the analysis

- Venues from **Foursquare API** for clustering on neighbourhoods

- Geometry coordinates London geojson from GitHub

- List of London sub-regions from Wikipedia for the analysis by sub-regions of London (Central, East, North, South, West)