

Capstone Project – The Battle of Neighbourhoods

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Exploring the neighbourhoods of London for information on Nursery Schools

Introduction:

For the Capstone Project – The Battle of Neighbourhoods, I have chosen the city of London, United Kingdom.

Background:

London is the capital and largest city of England and the United Kingdom. London has been a major settlement for two millennia. London is one of the world's most important global cities and has been called the world's most powerful, most desirable, most influential, most visited, most expensive, sustainable, most investment-friendly, and most-popular-for-work city. It exerts a considerable impact upon the arts, commerce, **education**, entertainment, fashion, finance, healthcare, media, professional services, research and development, tourism and transportation. London ranks 26th out of 300 major cities for economic performance. It is one of the largest financial centres and has either the fifth- or sixth-largest metropolitan area GDP. It is the most-visited city as measured by international arrivals and has the busiest city airport system as measured by passenger traffic. It is the leading investment destination, hosting more international retailers than any other city. As of 2020, London has the second-

highest number of billionaires of any city in Europe, after Moscow. In 2019, London had the highest number of ultra high-net-worth individuals in Europe. London's universities form the largest concentration of higher education institutes in Europe, and London is home to highly ranked institutions such as Imperial College London in natural and applied sciences, and the London School of Economics in social sciences. In 2012, London became the first city to have hosted three modern Summer Olympic Games. The 2011 census recorded that 2,998,264 people or 36.7% of London's population are foreign-born (including 24.5% born in a non-European country) making London the city with the second largest immigrant population in absolute terms, after New York City.

Problem Description:

With the population of London thriving and growing because of the natives and the large number of immigrants from all over the world, arises the need to better educational institutions. The larger part of the population being young parents, apparently, the demand for nursery schools is on the rise.

This Capstone Project is an attempt to help anyone who is looking forward to starting a new nursery school on their own and young parents, to locate a nursery school for their little ones and move into the nearby locality.

Data Description:

- The information on the nursery schools in London can be obtained from <https://www.daynurseries.co.uk/>
- The spatial data such as latitude and longitude will be obtained using 'geopy.geocoders' Python library.
- The data obtained will be processed in the following ways:

- ◆ Obtain the geographical coordinates.
- ◆ Clean the data and create a data frame
- ◆ Explore and analyse the neighbourhood with boroughs
- ◆ Group by boroughs
- ◆ Clustering neighbourhood
- ◆ Visualizing the resulting clusters
- ◆ Making a recommendation

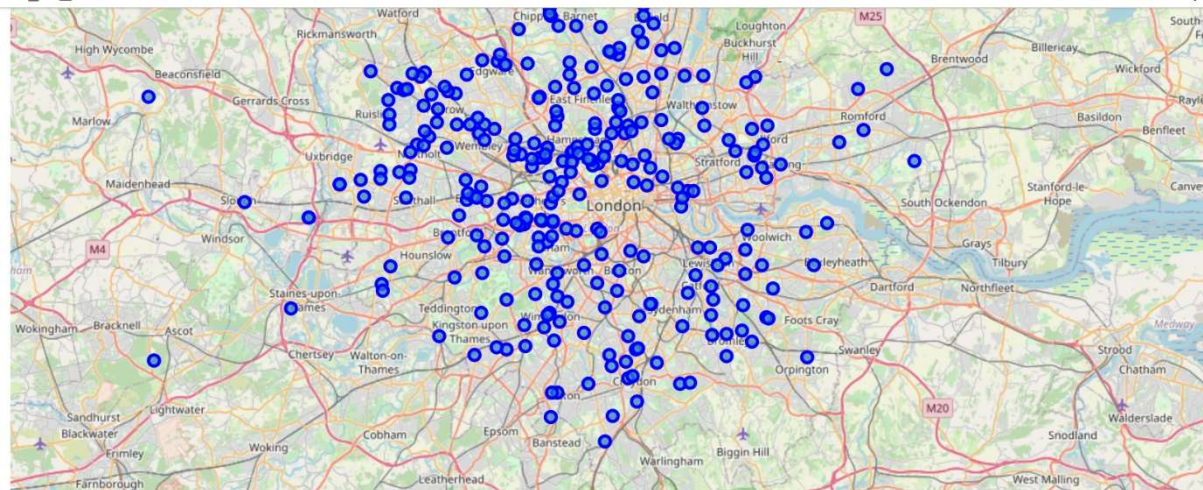
The raw data obtained from the website is cleansed for any redundancy and grouped according to the boroughs. I have used Google Maps for the information on latitudes and longitudes. I have used Foursquare API to explore the neighbourhood surrounding the location of any pre-school, for areas of interest that might attract settlements.

Methodology:

My master data has the 4 columns – Name of the Preschool, Borough in which it is located, its latitude and longitude.

| [3]: | Nursery Name | Borough | Latitude | Longitude |
|------|--|--------------------|-----------|-----------|
| 0 | YMCA Thames Gateway Romford Pre School | Barking & Dagenham | 51.564939 | 0.182207 |
| 1 | Playland Pre-School | Barking & Dagenham | 51.538405 | 0.079790 |
| 2 | Cornerstone Academy | Barking & Dagenham | 51.555600 | 0.152300 |
| 3 | Starlings Nursery | Barnet | 51.645535 | -0.174664 |
| 4 | Hendon Prep Preschool | Barnet | 51.591068 | -0.219317 |
| 5 | Lubavitch of Edgware Kindergarten | Barnet | 51.618344 | -0.271386 |
| 6 | Nagila Preschool | Barnet | 51.618865 | -0.290961 |
| 7 | The Four Seasons Montessori | Barnet | 51.616410 | -0.234389 |
| 8 | The Wood Street Montessori | Barnet | 51.653259 | -0.206563 |
| 9 | Alban Pre-school | Barnet | 51.658763 | -0.206912 |
| 10 | Pardes House | Barnet | 51.598712 | -0.200104 |

I then used geopy to get the geographical coordinates of London and used **folium** library to visualize the map of London, superimposed with the pre-schools.



I then used the Foursquare API to explore all the nearby venues pertaining to any preschool.

