

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 centers 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 analyze 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

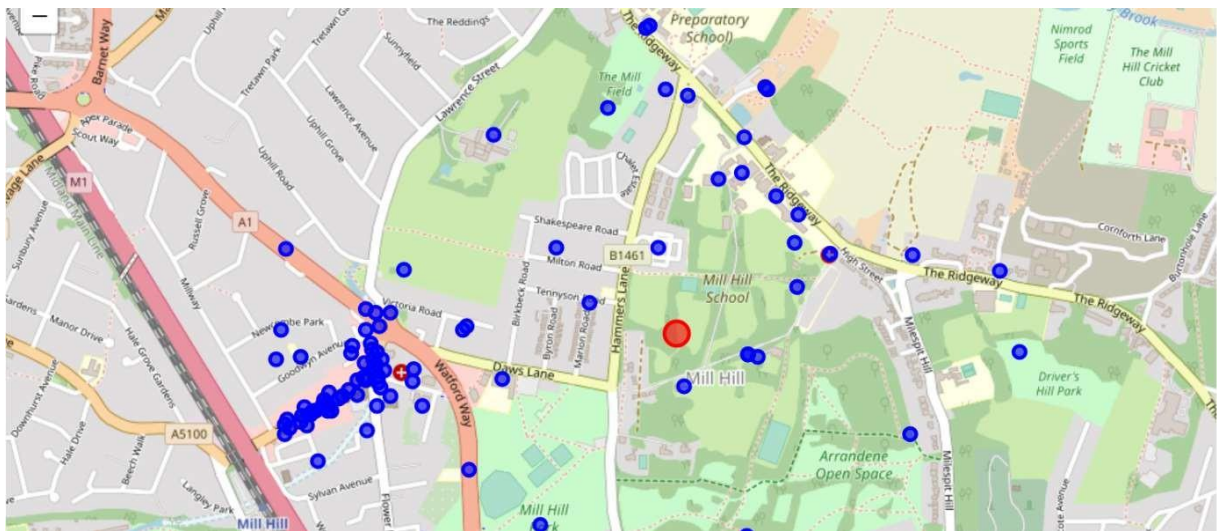
I then used geopy to get the geographical coordinates of London and used **folium** library to visualize the map of London, superimposed with the pre-schools.



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

[12]:	name	categories	address	lat	lng	labeledLatLngs	distance	postalCode	cc	city	state	country	formattedAddress	crossStreet
0	Tesco Express	Grocery Store	59-61 Mill Hill Broadway	51.614986	-0.246705	[('label': 'display', 'lat': 51.61498633725799...	865	NW7 3DA	GB	Mill Hill	Greater London	United Kingdom	[59-61 Mill Hill Broadway, Mill Hill, Greater ...	NaN
1	Mill Hill Park	Park	Daws Ln.	51.612261	-0.239167	[('label': 'display', 'lat': 51.61226060593113...	567	NW 7 4	GB	Mill Hill	Greater London	United Kingdom	[Daws Ln., Mill Hill, Greater London, NW 7 4, ...	NaN
2	Mill Hill School Foundation	College & University	NaN	51.618401	-0.230266	[('label': 'display', 'lat': 51.61840117440904...	360	NaN	GB	Mill Hill	Greater London	United Kingdom	[The Ridgeway, Mill Hill, Greater London, Unit...	The Ridgeway
3	Domino's Pizza	Pizza Place	127 The Broadway, Mill Hill	51.616202	-0.245110	[('label': 'display', 'lat': 51.6162015, 'lng': ...	741	NW7 3TJ	GB	London	Greater London	United Kingdom	[127 The Broadway, Mill Hill, London, Greater ...	NaN

I have then superimposed the results from Foursquare API onto the map of London.



Result:

This gives us a fair idea of where the preschools are in London and the neighbourhood of each. This thereby helps the younger population to plan their settlement and also people who wish to start a preschool on their own.