

# **Impact of the Coronavirus in the Tourism and Relationship of visiting Museum, Restaurants and Coffees shops**

**Case of Study: London UK.**

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## **A) The problem and Discussion of the Background.**

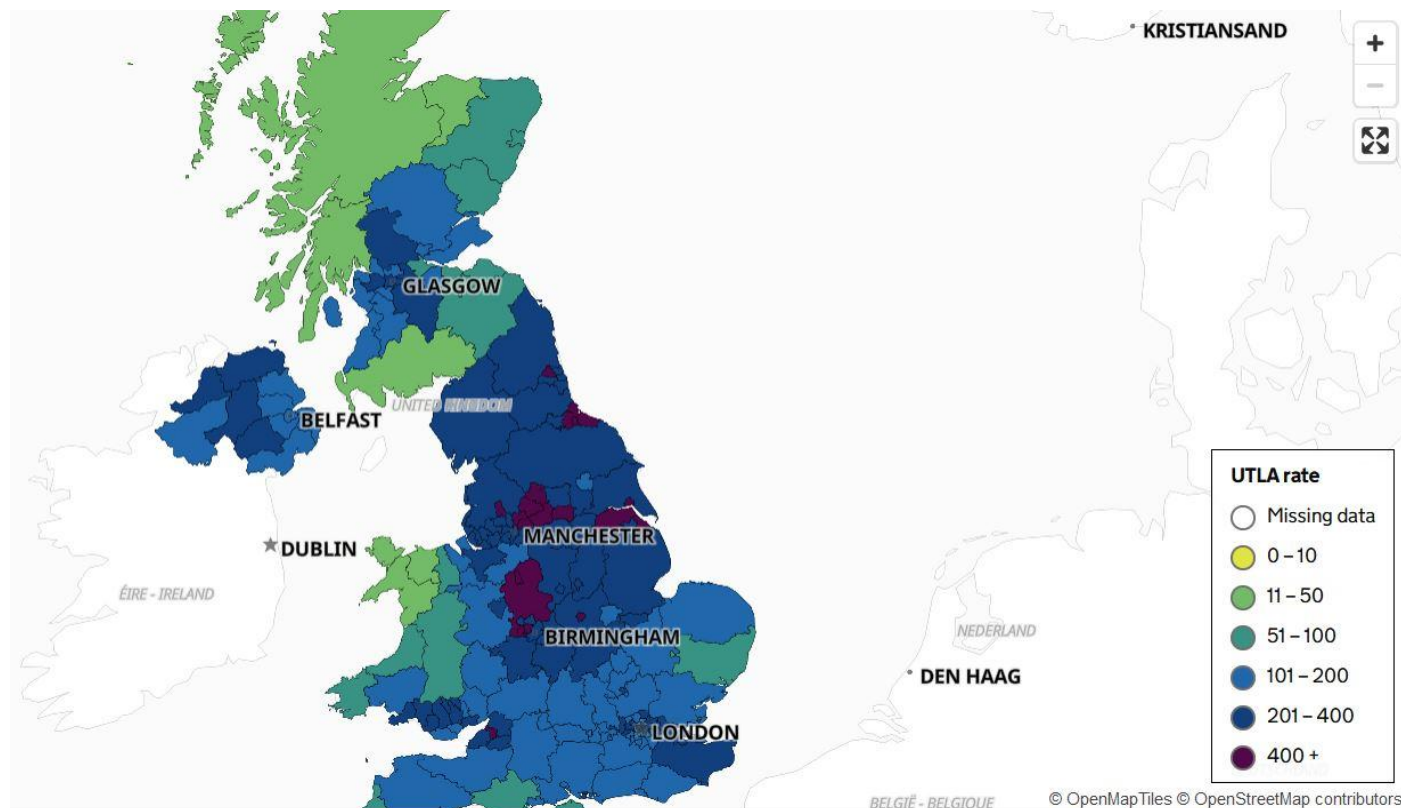
In the United Kingdom, the confirmed cases of coronavirus are 1,493,300, according to Public Health England. As of Saturday afternoon (November 21, 2020), 54,626 people had died. Due to a data entry error, nearly 16,000 people who tested positive between Sept. 25 and Oct. 2 were not recorded in the daily number of reported cases.

Everyone knows about the increase in Coronavirus cases. However, we are interested in finding out, which is the risk of contagion?, that is, there is really a greater risk of contagion if I dedicate to the tourism activities, such as visiting or working in a museum, or in the other hand, If I am owner of a Restaurant or a coffee.

## **Hypothesis:**

Our hypothesis is: This virus (Covid-19) is affecting much more in highly populated regions, and very dense areas. We will analyze the neighborhoods of London and specifically where the main London Museums are located, in order to determine if someone who lives or travels to this area is more likely to contract this disease.

Macro studies have been carried out with data from all over the country, as can be seen in figure 1. World data has also been counted. However, there are a very few micro analysis of the neighborhoods of a City, to know if there are some areas where the contagion has decreased. And it is towards that micro-analysis of the city of London and its neighbourhoods' that we focus.



**Figure 1. Map of the United Kingdom showing the areas most affected by Covid-19. The areas in dark blue are between 201 to 400 cases per 100,000 inhabitants, and those in dark red correspond to 400 cases per 100,000 inhabitants by October 2020.**

**B) A description of the data and how it will be used to solve the problem.**
















### In this case the data is distributed by different Web sites:

- 1) For example, In Wikipedia we find the list of the most visited museums in the United Kingdom during the year 2017. This list can be found at the following link:  
[https://en.wikipedia.org/wiki/List\\_of\\_most\\_visited\\_museums\\_in\\_the\\_United\\_Kingdom](https://en.wikipedia.org/wiki/List_of_most_visited_museums_in_the_United_Kingdom)  
[\(https://en.wikipedia.org/wiki/List\\_of\\_most\\_visited\\_museums\\_in\\_the\\_United\\_Kingdom\)](https://en.wikipedia.org/wiki/List_of_most_visited_museums_in_the_United_Kingdom). In figure 2. One part of this list is shown.

## List of most visited museums in the United Kingdom

From Wikipedia, the free encyclopedia

This article **lists the most visited museums in the United Kingdom** (including **art galleries**). The list of 40 is based on the 2017 of the Association of Leading Visitor Attractions unless otherwise noted.<sup>[1]</sup>

Rank ↕	Museum ↕	Location ↕	Country ↕	Visitor count ↕
1	<a href="#">British Museum</a>	<a href="#">London</a>	 <a href="#">England</a>	5,906,716
2	<a href="#">Tate Modern</a>	<a href="#">London</a>	 <a href="#">England</a>	5,656,004
3	<a href="#">National Gallery</a>	<a href="#">London</a>	 <a href="#">England</a>	5,229,192
4	<a href="#">Natural History Museum</a>	<a href="#">London</a>	 <a href="#">England</a>	4,434,520
5	<a href="#">Victoria and Albert Museum</a>	<a href="#">London</a>	 <a href="#">England</a>	3,789,748
6	<a href="#">Science Museum</a>	<a href="#">London</a>	 <a href="#">England</a>	3,251,000
7	<a href="#">Royal Museums Greenwich</a>	<a href="#">London</a>	 <a href="#">England</a>	2,607,099
8	<a href="#">National Museum of Scotland</a>	<a href="#">Edinburgh</a>	 <a href="#">Scotland</a>	2,165,601
9	<a href="#">Tate Britain</a>	<a href="#">London</a>	 <a href="#">England</a>	1,777,877
10	<a href="#">Scottish National Gallery</a>	<a href="#">Edinburgh</a>	 <a href="#">Scotland</a>	1,600,761
11	<a href="#">Riverside Museum</a>	<a href="#">Glasgow</a>	 <a href="#">Scotland</a>	1,355,359
12	<a href="#">Kelvingrove Art Gallery &amp; Museum</a>	<a href="#">Glasgow</a>	 <a href="#">Scotland</a>	1,304,072
13	<a href="#">National Portrait Gallery</a>	<a href="#">London</a>	 <a href="#">England</a>	1,271,920
14	<a href="#">National Museum of the Royal Navy</a>	<a href="#">Portsmouth</a>	 <a href="#">England</a>	1,081,909
15	<a href="#">Imperial War Museum</a>	<a href="#">London</a>	 <a href="#">England</a>	992,690
16	<a href="#">Horniman Museum and Gardens</a>	<a href="#">London</a>	 <a href="#">England</a>	942,971
17	<a href="#">Ashmolean Museum</a>	<a href="#">Oxford</a>	 <a href="#">England</a>	937,568

**Figure 2. List of most visited museums in the United Kingdom in 2017.**

- 2) We have a database with data from each of the London neighborhoods, their population, the number of coronavirus cases for the first week of October for each neighborhood; the number of coronavirus cases for the second week of October and its rate of increase per 100,000 inhabitants. This data was obtained from the UK government Web page using the following link: <https://www.gov.uk/government/publications/lower-tier-local-authority-watchlist-epidemiological-data-23-october-2020/case-rates-by-region> (<https://www.gov.uk/government/publications/lower-tier-local-authority-watchlist-epidemiological-data-23-october-2020/case-rates-by-region>). Figure 3 shows the .CSV file that I will analyse:

	A	B	C	D	E	F	G	H	I	J
1	Case numbers and rates for previous two weeks by local authority									
2	England									
3										
4	Local Authority	Total population	Oct to 14 Oct 2020	ct to 07 Oct 2020	ct to 14 Oct 2020	ct to 07 Oct 2020	Rank	recent week	category [for map]	
5	Barking and Dagenham	212906	236	160	110.8	75.2	14	35.6	100-199.9/100k	
6	Barnet	395869	435	424	109.9	107.1	15	2.8	100-199.9/100k	
7	Bexley	248287	183	165	73.7	66.5	31	7.2	50-99.9/100k	
8	Brent	329771	319	299	96.7	90.7	23	6	50-99.9/100k	
9	Bromley	332336	268	222	80.6	66.8	29	13.8	50-99.9/100k	
10	Camden	270029	310	242	114.8	89.6	11	25.2	100-199.9/100k	
11	City of London	9721	3	5	30.9	51.4	33	-20.5	25-49.9/100k	
12	Croydon	386710	295	270	76.3	69.8	30	6.5	50-99.9/100k	
13	Ealing	341806	491	449	143.6	131.4	1	12.2	100-199.9/100k	
14	Enfield	333794	334	269	100.1	80.6	21	19.5	100-199.9/100k	
15	Greenwich	287942	212	206	73.6	71.5	32	2.1	50-99.9/100k	
16	Hackney	281120	357	396	127	140.9	5	-13.9	100-199.9/100k	
17	Hammersmith and Fulham	185143	242	178	130.7	96.1	3	34.6	100-199.9/100k	
18	Haringey	268647	330	271	122.8	100.9	6	21.9	100-199.9/100k	
19	Harrow	251160	294	304	117.1	121	9	-3.9	100-199.9/100k	
20	Havering	259552	298	206	114.8	79.4	12	35.4	100-199.9/100k	
21	Hillingdon	306870	353	303	115	98.7	10	16.3	100-199.9/100k	
22	Hounslow	271523	319	276	117.5	101.6	8	15.9	100-199.9/100k	
23	Islington	242467	261	190	107.6	78.4	16	29.2	100-199.9/100k	
24	Kensington and Chelsea	156129	163	152	104.4	97.4	19	7	100-199.9/100k	
25	Kingston upon Thames	177507	209	178	117.7	100.3	7	17.4	100-199.9/100k	
26	Lambeth	326034	329	299	100.9	91.7	20	9.2	100-199.9/100k	
27	Lewisham	305842	247	228	80.8	74.5	28	6.3	50-99.9/100k	
28	Merton	206548	172	139	83.3	67.3	26	16	50-99.9/100k	
29	Newham	353134	404	329	114.4	93.2	13	21.2	100-199.9/100k	
	Coronavirus_Cases_Neighborhood_		North_East	North_West	South_East	South_West	East_of_England	East_M ...		

**Figure 3. Database with new cases of coronavirus in neighborhoods near the city of London. The name of the Neighborhood, the total population on each Neighborhood, Number of infections in the second week of October, etc. are shown.**

- 3) A list with the names of the neighborhoods and their GSS\_Code, plus their location in latitude and longitude. This list was found on Wikipedia and the link where it is found is: [https://en.wikipedia.org/wiki/List\\_of\\_London\\_boroughs](https://en.wikipedia.org/wiki/List_of_London_boroughs) ([https://en.wikipedia.org/wiki/List\\_of\\_London\\_boroughs](https://en.wikipedia.org/wiki/List_of_London_boroughs)). The important part is to obtain the latitude and longitude for each of London's neighborhoods. The others columns can be discarded. Figure 4 shows that list:

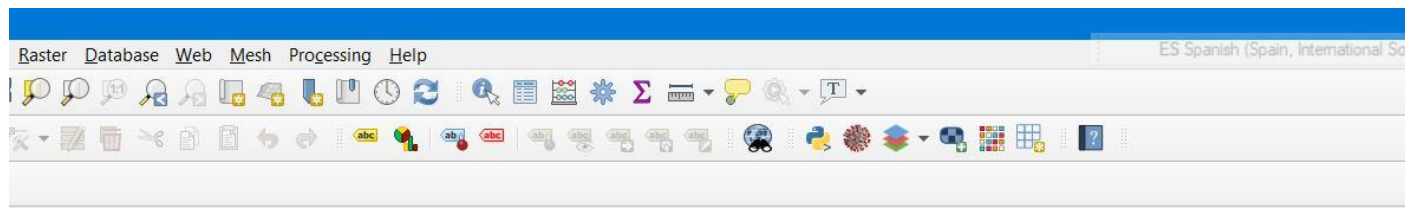


List of boroughs and local authorities [\[ edit \]](#)

Borough	Inner	Status	Local authority	Political control	Headquarters	Area (sq mi)	Population (2013 est) <sup>[1]</sup>	Co-ordinates	Nr. in map
Barking and Dagenham <sup>[note 1]</sup>			Barking and Dagenham London Borough Council	Labour	Town Hall, 1 Town Square	13.93	194,352	<span><span><span><span><span>51.5607°N</span> <span>0.1557°E</span></span></span><span><span>﻿</span></span></span></span>	25
Barnet			Barnet London Borough Council	Conservative	Barnet House, 2 Bristol Avenue, Colindale	33.49	369,088	<span><span><span><span><span>51.6252°N</span> <span>0.1517°W</span></span></span><span><span>﻿</span></span></span></span>	31
Bexley			Bexley London Borough Council	Conservative	Civic Offices, 2 Watling Street	23.38	236,687	<span><span><span><span><span>51.4549°N</span> <span>0.1505°E</span></span></span><span><span>﻿</span></span></span></span>	23
Brent			Brent London Borough Council	Labour	Brent Civic Centre, Engineers Way	16.70	317,264	<span><span><span><span><span>51.5588°N</span> <span>0.2817°W</span></span></span><span><span>﻿</span></span></span></span>	12
Bromley			Bromley London Borough Council	Conservative	Civic Centre, Stockwell Close	57.97	317,899	<span><span><span><span><span>51.4039°N</span> <span>0.0198°E</span></span></span><span><span>﻿</span></span></span></span>	20
Camden	✓		Camden London Borough Council	Labour	Camden Town Hall, Judd Street	8.40	229,719	<span><span><span><span><span>51.5290°N</span> <span>0.1255°W</span></span></span><span><span>﻿</span></span></span></span>	11
Croydon			Croydon London Borough Council	Labour	Bernard Weatherill House, Mint Walk	33.41	372,752	<span><span><span><span><span>51.3714°N</span> <span>0.0977°W</span></span></span><span><span>﻿</span></span></span></span>	19
Ealing			Ealing London Borough Council	Labour	Perceval House, 14-16 Uxbridge Road	21.44	342,494	<span><span><span><span><span>51.5130°N</span> <span>0.3089°W</span></span></span><span><span>﻿</span></span></span></span>	13
Enfield			Enfield London Borough Council	Labour	Civic Centre, Silver Street	31.74	320,524	<span><span><span><span><span>51.6538°N</span> <span>0.0799°W</span></span></span><span><span>﻿</span></span></span></span>	30
Greenwich <sup>[note 2]</sup>	✓ <sup>[note 3]</sup>	Royal	Greenwich London Borough Council	Labour	Woolwich Town Hall, Wellington Street	18.28	264,008	<span><span><span><span><span>51.4892°N</span> <span>0.0648°E</span></span></span><span><span>﻿</span></span></span></span>	22
Hackney	✓		Hackney London Borough Council	Labour	Hackney Town Hall, Mare Street	7.36	257,379	<span><span><span><span><span>51.5450°N</span> <span>0.0553°W</span></span></span><span><span>﻿</span></span></span></span>	9
Hammersmith and Fulham <sup>[note 4]</sup>	✓		Hammersmith and Fulham London Borough Council	Labour	Town Hall, King Street	6.33	178,685	<span><span><span><span><span>51.4927°N</span> <span>0.2338°W</span></span></span><span><span>﻿</span></span></span></span>	4

**Figure 4. List of names and Neighborhood of London and their latitude and longitude.**

- 4) Additionally we have managed to compile the map of the London neighborhoods excluding MHW. Figure 5 shows the London neighborhood map collected from the UK Government website and drawn with the QGIS program.



**Figura 5. Mapa de los vecindarios de Londres y sus alrededores, dibujado con el Programa QGIS.**

## METODOLOGY

As we did with the city of New York and the City of Toronto we will use the Foursquare application to obtain the missing data and solve this Problem. Foursquare will allow me the link between the databases of point (1) List of the names of the names of the most visited museums with the databases (2) and (3). Thus, we can determine the location of the museum on the map, the closest restaurants and stores and be able to compare them with the increases in cases of Coronavirus.

Many of the economic activities of the year 2019, as is the case of Tourism, have fallen drastically. However, a scientific study has not been done to determine if the lockdown really prevents contagion or on the contrary we are lengthening the problems by causing the economy to end up falling below the global economic recession observed in the 1930s.

At the end of this work we will see if the museums are located in neighborhoods with a high risk of contagion or not.

## For the moment we can do:

The World Health Organization WHO has mentioned the following directives. However, I consider that it is very little. Since the WHO is not leading any study with the depth that is required.

- Keep your distance from others. Stay at least six feet away from people outside your household as much as possible.
- Wear a mask outside your home. A mask protects others from your germs, and it protects you from infection as well. The more people who wear masks, the more we all stay safer.
- Wash your hands often. Anytime you come in contact with a surface outside your home, scrub with soap for at least 20 seconds, rinse and then dry your hands with a clean towel.

In [ ]: