

An aerial view of London, England, featuring the River Thames, Big Ben, and the London Eye. The text is overlaid on the image.

# Applied Data Science Capstone Project

- Catering Investment In London

## Presentation

# Background

London is a diverse place. It is both a famous tourism destination and a financial and political capital. There are many opportunities to invest in catering in London. From stakeholders to self-business starters, many people would be interested in this. An investment needs to take into account a lot of aspects – location, scalability, target people, concepts, etc.

And I am here to help.

# Data & Methodology

I am going to combine data files of London Borough Information and geographical details, and tidy it up. Then with use of Foursquare API and machine learning techniques, in particular clustering, I can make an appropriate suggestion.

The reason for using k-means clustering is that firstly, it is good in solving our problem of finding a best location of investment. And secondly, it is efficient especially for large data sets, which is suitable for this problem. Although it potentially returns deferent clusters each time it is run due to random initialisation of centroids, this can be compensated by running this algorithm a few times to reduce randomness and improve accuracy.

# Results – Popular venues

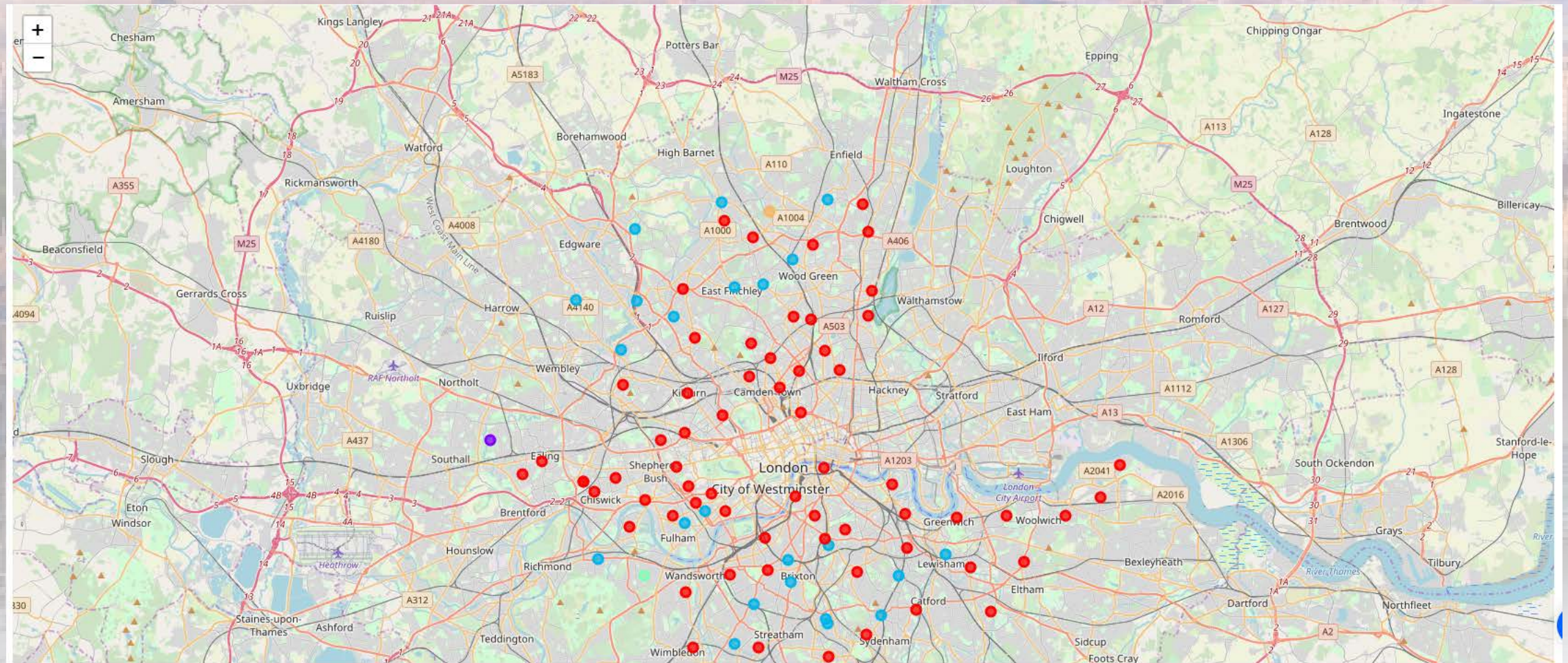
London\_merged.head(20)

5]:

	index	Borough	id	postcode	latitude	longitude	A	B	ClusterLabels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	0	Islington, Barnsbury, Canonbury	772525	N1 9QQ	51.532829	-0.114887	N1	9QQ	0	Café	Pub	Vegetarian / Vegan Restaurant	Thai Restaurant	Hotel
1	2149	East Finchley	764225	N2 9ED	51.590841	-0.164371	N2	9ED	2	Coffee Shop	Café	Platform	Pub	Grocery Store
2	2666	Finchley Central	761725	N3 3DY	51.589698	-0.202630	N3	3DY	0	Sandwich Place	Bus Stop	Bakery	Grocery Store	Middle Eastern Restaurant
3	3274	Finsbury Park, Manor House	760725	N4 4QJ	51.575607	-0.107157	N4	4QJ	0	Nature Preserve	Tapas Restaurant	Convenience Store	Train Station	Bus Stop
4	4016	Highbury	760425	N5 2LT	51.561173	-0.097080	N5	2LT	0	Café	Pizza Place	Pub	Gym / Fitness Center	Sports Bar
5	4409	Highgate	759825	N6 6EL	51.564542	-0.151450	N6	6EL	0	Lake	Mediterranean Restaurant	Bakery	Italian Restaurant	Tennis Court
6	4893	Holloway	758825	N7 9SZ	51.551863	-0.115817	N7	9SZ	0	Café	Gym / Fitness Center	Coffee Shop	Grocery Store	Vegetarian / Vegan Restaurant
7	5700	Hornsey, Crouch End	758225	N8 9AX	51.577043	-0.119841	N8	9AX	0	Pub	Café	Coffee Shop	Bakery	Bus Stop
8	6347	Lower Edmonton	757325	N9 9PJ	51.628959	-0.068483	N9	9PJ	0	Pub	Fast Food Restaurant	Gym / Fitness Center	Train Station	Turkish Restaurant
9	7208	Muswell Hill	771928	N10 3XB	51.592193	-0.142849	N10	3XB	2	Café	Pub	Coffee Shop	Pizza Place	Restaurant
10	7686	Friern Barnet, New Southgate	771425	N11 3GS	51.613808	-0.150662	N11	3GS	0	Sporting Goods Shop	Gym / Fitness Center	Residential Building (Apartment / Condo)	Café	Zoo
11	8294	North Finchley, Woodside Park	770625	N12 9JR	51.621526	-0.171483	N12	9JR	0	Tennis Court	Auto Garage	Rental Car Location	Turkish Restaurant	Zoo
12	8968	Palmers Green	770025	N13 6AR	51.610353	-0.105438	N13	6AR	0	Food & Drink Shop	Bus Stop	Greek Restaurant	Grocery Store	Rental Car Location
13	9478	Southgate	769225	N14 7NA	51.625502	-0.137776	N14	7NA	4	Pizza Place	Zoo	Ethiopian Restaurant	Food & Drink Shop	Food
14	10140	Seven Sisters	768725	N15 6BJ	51.577655	-0.064568	N15	6BJ	0	River	Park	Bus Station	Road	Zoo
15	10804	Stoke Newington, Stamford Hill	767325	N16 9PS	51.552425	-0.085545	N16	9PS	0	Pub	Café	Turkish Restaurant	Pizza Place	Park
16	11895	Tottenham	766325	N17 9LP	51.589142	-0.061496	N17	9LP	0	Fast Food Restaurant	Café	Brewery	Park	Coffee Shop
17	12878	Upper Edmonton	765825	N18 2TZ	51.616150	-0.064448	N18	2TZ	0	Turkish Restaurant	Fast Food Restaurant	Bakery	Grocery Store	Kebab Restaurant
18	13395	Archway, Tufnell Park	765225	N19 5EG	51.557912	-0.137610	N19	5EG	0	Café	Pub	Italian Restaurant	Convenience Store	Coffee Shop
19	13997	Whetstone, Totteridge	763625	N20 9EY	51.629860	-0.173677	N20	9EY	2	Coffee Shop	Pub	Café	Italian Restaurant	Park

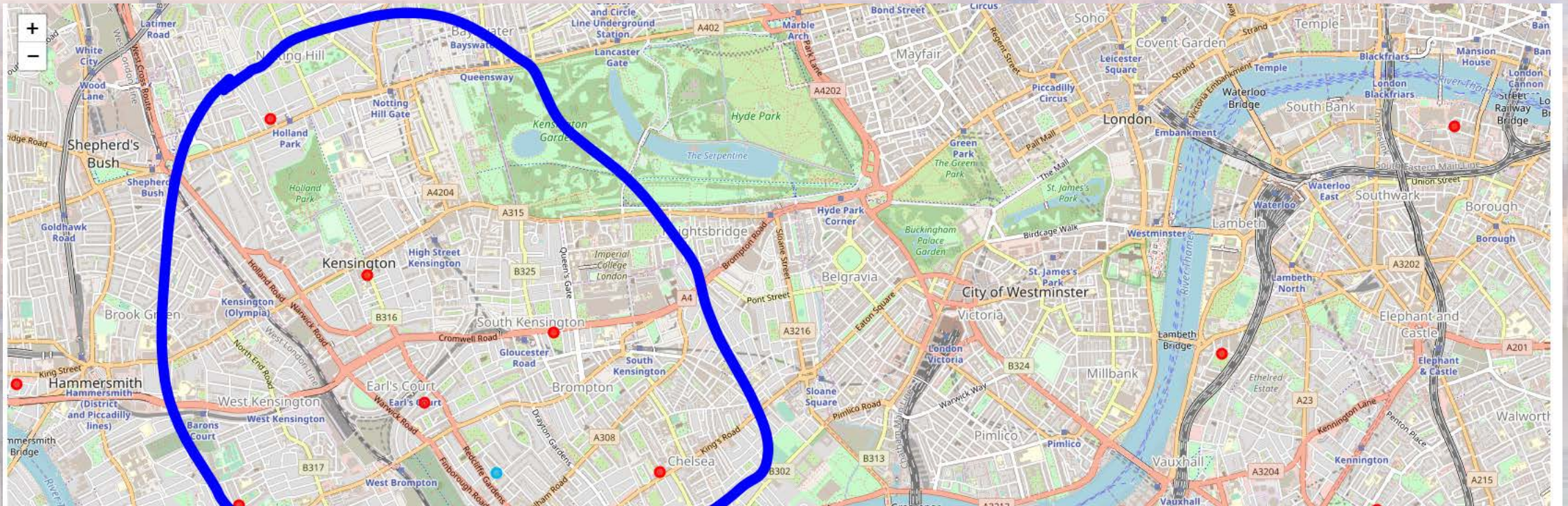


# Results – Map





# Recommendation Discussion



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London_merged[London_merged.Borough.str.contains("Kensington")]
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80]:

	index	Borough	id	postcode	latitude	longitude	A	B	ClusterLabels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
66	50077	South Kensington	237525	SW7 5RN	51.494962	-0.181018	SW7	5RN	0	Hotel	Exhibit	Italian Restaurant	Mediterranean Restaurant	Burger Joint
86	66855	Kensington	98625	W8 7XY	51.498288	-0.198319	W8	7XY	0	Café	Italian Restaurant	Pub	Supermarket	Persian Restaurant
88	68060	Ladbroke Grove, North Kensington	117925	W10 6LH	51.519967	-0.219015	W10	6LH	0	Gym / Fitness Center	Park	Breakfast Spot	Theater	Indoor Play Area
92	70626	West Kensington	114825	W14 9RS	51.484964	-0.210261	W14	9RS	0	Pub	Park	Gym / Fitness Center	Café	Tennis Court

# Conclusion

As we can see from the map and table, London Boroughs are clustered into 5 areas, one of which is centred in Kensington, surrounded by South Kensington, Earls Court, etc.

The table of top 5 venues of each borough tells that café is the top first most common venue in Kensington, with parks, Italian restaurants and exhibits being also popular.

Based on these, I would suggest investing in **a small Italian styled café near park or museums in South Kensington.**

If more data of people group (age, career, etc) and purpose of visit are collected, the recommendation can be more precise.



An aerial photograph of London, England, taken during the "golden hour" of sunset. The River Thames flows through the center of the image. On the left bank, the Elizabeth Tower (Big Ben) is prominent, with its clock face visible. In the foreground, the spires of Westminster Abbey are visible. On the right bank, the London Eye, a large Ferris wheel, stands out against the sky. Several bridges cross the river, and the city skyline is visible in the background under a warm, orange-hued sky.

Thanks!