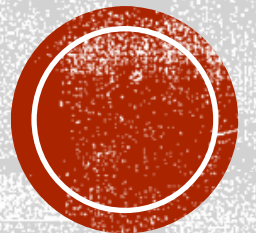
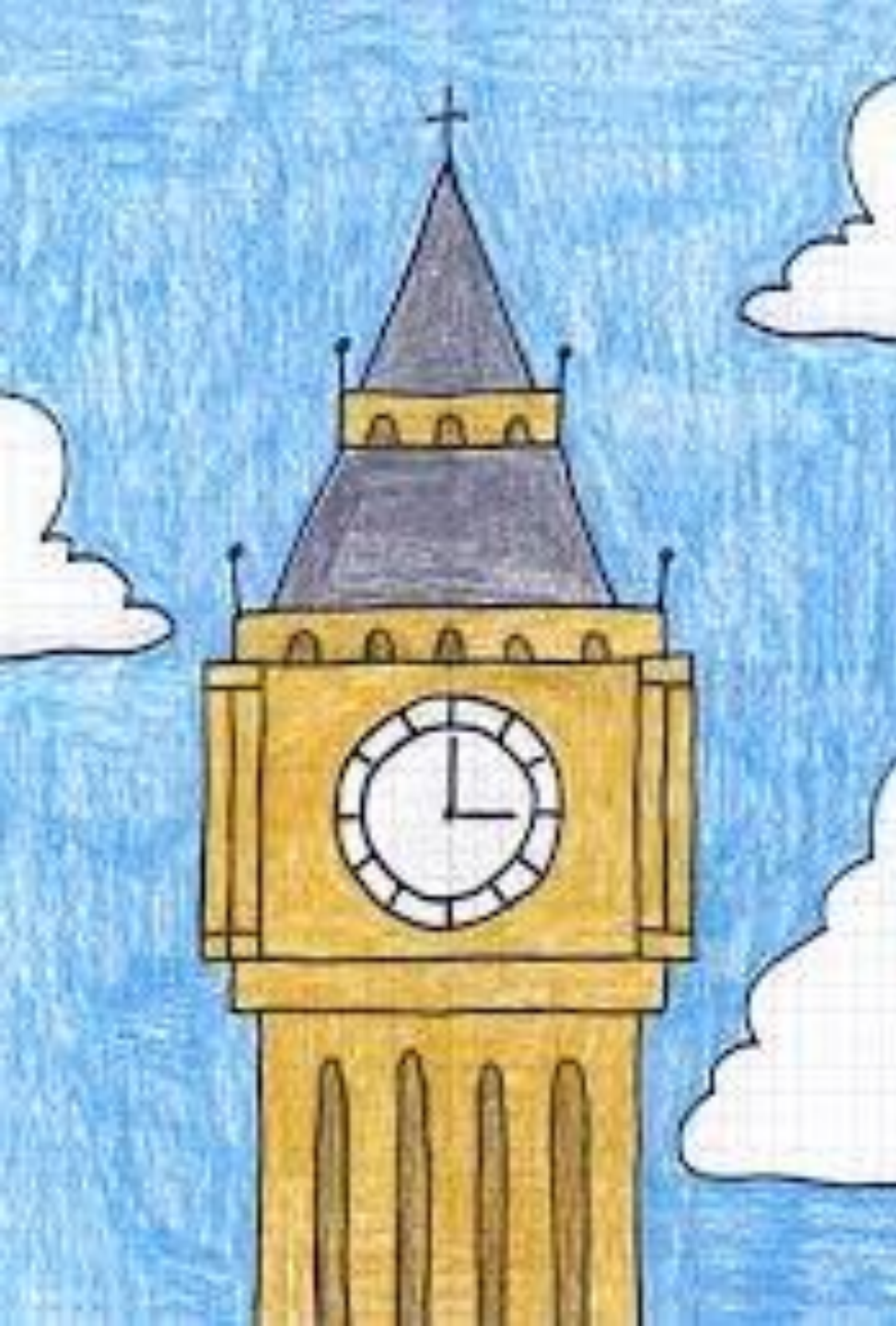


LONDON NEIGHBORHOOD FOR EXPATRIATES

The Battle of Neighborhoods:
Applied Data Science Capstone





IF YOU WERE MOVING TO LONDON, WHERE WOULD YOU STAY?

- There have been more expatriates and London is one of the popular destinations
- Finding a place to stay is one of the most stressful parts of moving to another country
- This project aims to help expatriates find an ideal neighborhood to stay in London



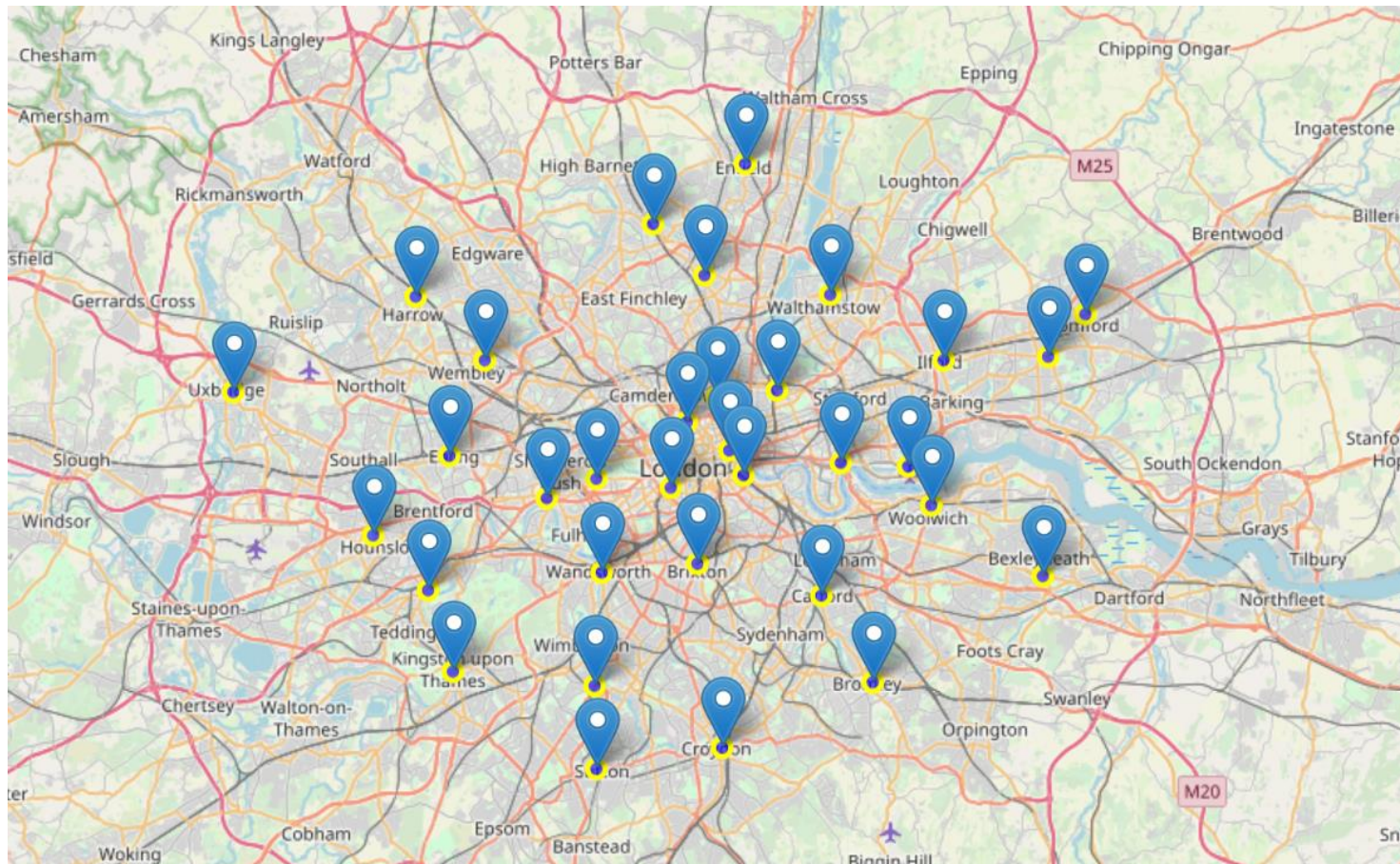


Geographical Coordinates of
London Neighborhoods

Foursquare Venue Data

London Borough Profiles

GEOGRAPHICAL LOCATION



- Geographical coordinates of all neighborhoods were taken from https://en.wikipedia.org/wiki/List_of_London_boroughs
- For visualisation of neighborhoods' spatial distribution in London



Neighborhood	Afghan Restaurant	African Restaurant	Airport	Airport Service	American Restaurant	Argentinian Restaurant	Art Gallery	Art Museum	Arts & Crafts Store	Asian Restaurant	Athletics & Sports	Austrian Restaurant	Auto Garage	BBQ Joint	Bagel Shop
Barking and Dagenham	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.00	0.00	0.000000	0.000000	0.00	0.000000	0.000000	0.00
Barnet	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.00	0.00	0.000000	0.000000	0.00	0.000000	0.000000	0.00
Bexley	0.000000	0.000000	0.000000	0.000000	0.041667	0.00	0.000000	0.00	0.00	0.000000	0.000000	0.00	0.000000	0.000000	0.00
Brent	0.000000	0.000000	0.000000	0.000000	0.022222	0.00	0.000000	0.00	0.00	0.011111	0.000000	0.00	0.000000	0.000000	0.00
Bromley	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.00	0.00	0.015625	0.000000	0.00	0.015625	0.000000	0.00
Camden	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.010000	0.00	0.00	0.010000	0.000000	0.00	0.000000	0.000000	0.00
City of London	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.020000	0.00	0.00	0.020000	0.000000	0.00	0.000000	0.000000	0.00
Croydon	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.00	0.00	0.024096	0.000000	0.00	0.000000	0.000000	0.00
Ealing	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.010000	0.00	0.00	0.010000	0.000000	0.00	0.000000	0.000000	0.02
Enfield	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.00	0.00	0.000000	0.000000	0.00	0.000000	0.000000	0.00
Greenwich	0.000000	0.016129	0.000000	0.000000	0.000000	0.00	0.000000	0.00	0.00	0.016129	0.000000	0.00	0.000000	0.000000	0.00
Hackney	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.010309	0.00	0.00	0.000000	0.000000	0.00	0.000000	0.000000	0.00
Hammersmith and Fulham	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.00	0.00	0.010000	0.000000	0.00	0.000000	0.000000	0.00

FOURSQUARE VENUE DATA

- Venues in a 1000m radius of each neighborhood were extracted from Foursquare
- To get an overview of the amenities in each neighborhood



LONDON BOROUGH PROFILES

- Data taken from <https://data.london.gov.uk/>
- Only indicators that were more helpful in choosing a neighborhood were considered (boxed in red)
- Crime rate = Safety
- House price = Affordability
- Transport accessibility = Ease of commuting to work



Neighborhood	Crime rates per thousand population	Employment Rate	Average Age	Median House Price	Average Public Transport Accessibility score
City of London	85.46	64.6	43.2	799999	7.86
Barking and Dagenham	83.36	65.8	32.9	243500	2.97
Barnet	62.74	68.5	37.3	445000	3.00
Bexley	51.83	75.1	39	275000	2.55
Brent	78.80	69.5	35.6	407250	3.65
Bromley	64.13	75.3	40.2	374975	2.78
Camden	123.50	69.2	36.4	700000	5.69
Croydon	77.04	75.4	37	300000	3.22
Ealing	75.48	72.7	36.2	430000	3.30
Enfield	69.37	73	36.3	320000	2.97
Greenwich	79.38	72.1	35	340000	3.44
Hackney	99.65	69	33.1	485000	4.92
Hammersmith and Fulham	113.23	77.5	35.7	730000	4.67
Haringey	90.21	71.3	35.1	432500	4.31
Harrow	50.40	73.9	38.3	396150	2.87
Havering	62.93	76.5	40.3	287500	2.50
Hillingdon	76.62	73.2	36.4	350000	2.36



Exploratory Data Analysis

K-Means Clustering

Silhouette Score

Sorting

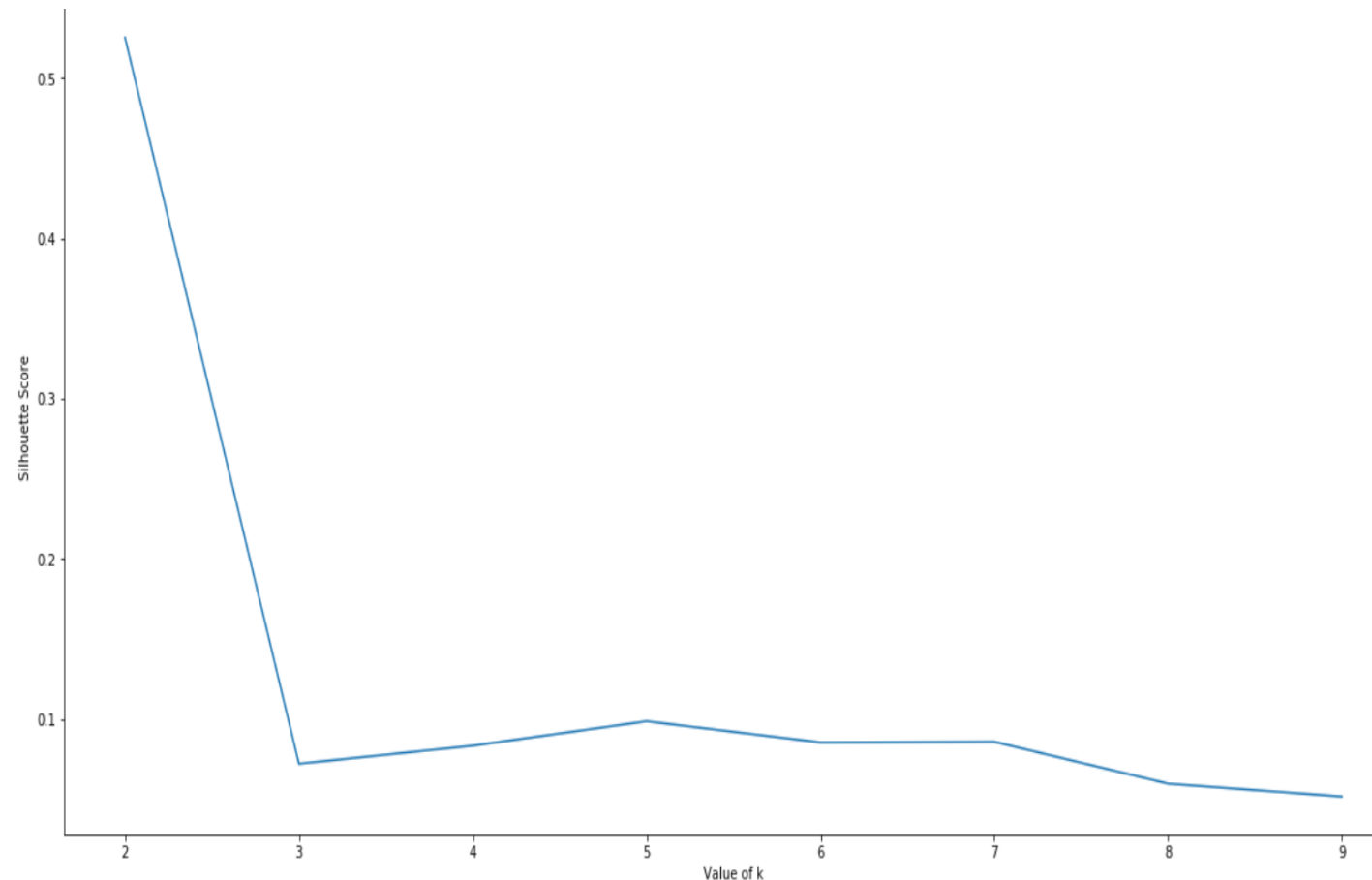
Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
Barking and Dagenham	Bus Stop	Pool	Gym / Fitness Center	Gas Station	Soccer Field	Golf Course	Supermarket	Turkish Restaurant	Diner	Grocery Store
Barnet	Park	Pub	Bus Stop	Gym	Café	Fast Food Restaurant	Falafel Restaurant	Farm	Farmers Market	Yoga Studio
Bexley	Pub	Clothing Store	Fast Food Restaurant	Supermarket	Coffee Shop	Hotel	American Restaurant	Pharmacy	Italian Restaurant	Chinese Restaurant
Brent	Hotel	Coffee Shop	Bar	Sporting Goods Shop	Clothing Store	Grocery Store	Sandwich Place	Indian Restaurant	Warehouse Store	Pizza Place
Bromley	Pub	Clothing Store	Coffee Shop	Supermarket	Indian Restaurant	Gym / Fitness Center	Café	Park	Pizza Place	Bar
Camden	Coffee Shop	Hotel	Pub	Café	Sandwich Place	Burger Joint	Pizza Place	Breakfast Spot	Bookstore	Plaza
City of London	Coffee Shop	Gym / Fitness Center	Italian Restaurant	Scenic Lookout	Hotel	Plaza	Boxing Gym	Seafood Restaurant	Steakhouse	French Restaurant
Croydon	Coffee Shop	Pub	Clothing Store	Hotel	Indian Restaurant	Italian Restaurant	Mediterranean Restaurant	Bookstore	Portuguese Restaurant	Sushi Restaurant

EXPLORATORY DATA ANALYSIS

- Top 10 most common venues in each neighborhood
- Gives an indication of the kinds of conveniences associated with the neighborhood
- Like to go to coffee shops? There are plenty in Camden!



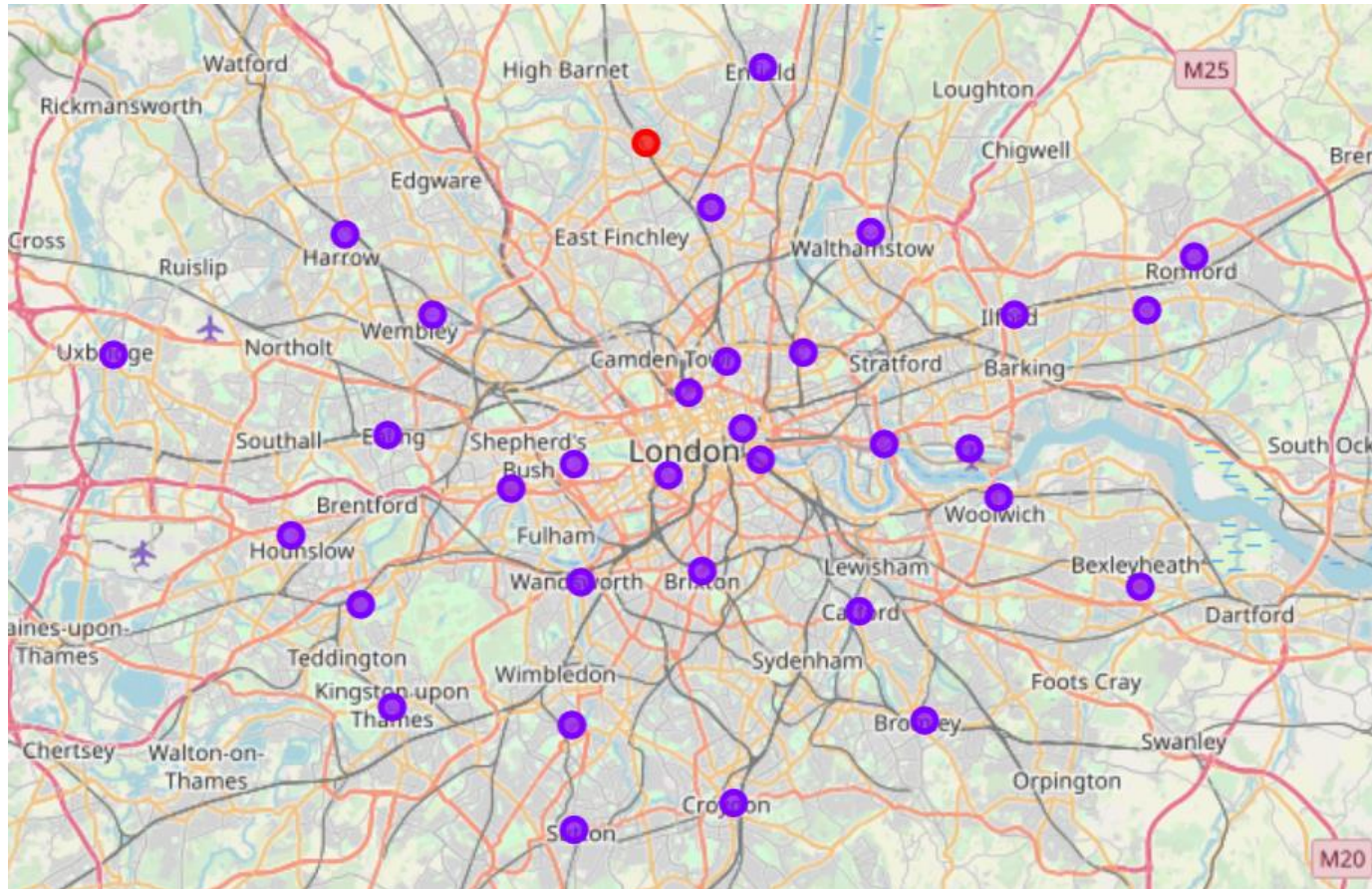
K-MEANS CLUSTERING & SILHOUETTE SCORE



- K-means clustering used to group neighborhoods according to similarities
- Silhouette score used to determine optimum value of k
- Based on graph, **k=2**



K-MEANS CLUSTERING



- Using $k=2$, we find that there is only 1 neighborhood in one of the clusters



	Neighborhood	Crime rates per thousand population	Median House Price	Average Public Transport Accessibility score	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
14	Harrow	50.396101	396150	2.870196	Coffee Shop	Indian Restaurant	Sandwich Place	Clothing Store	Gym / Fitness Center	Fast Food Restaurant	Pharmacy	Park	Afghan Restaurant	Thai Restaurant
28	Sutton	55.856141	320000	2.854086	Clothing Store	Coffee Shop	Pub	Pizza Place	Café	Sandwich Place	Supermarket	Bar	Bakery	Italian Restaurant
20	Kingston upon Thames	58.455691	410000	2.928251	Coffee Shop	Café	Pub	Clothing Store	Italian Restaurant	Burger Joint	Thai Restaurant	Park	Department Store	Bookstore
23	Merton	59.747174	415000	3.405588	Supermarket	Café	Tram Station	Train Station	Park	Italian Restaurant	Fast Food Restaurant	Pizza Place	Bookstore	Sandwich Place
25	Redbridge	69.687656	345000	2.982147	Grocery Store	Clothing Store	Fast Food Restaurant	Supermarket	Coffee Shop	Bakery	Pub	Sandwich Place	Gym / Fitness Center	Bookstore

SORTING BY OTHER INDICATORS

- Crime rate from lowest to highest
- House price from lowest to highest
- Public transport accessibility score from highest to lowest





Quiet Lifestyle

Lively Environment

QUIET LIFESTYLE — BARNET

Neighborhood	Crime rates per thousand population	Median House Price	Average Public Transport Accessibility score	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
Barnet	62.738426	445000	2.996701	Park	Pub	Bus Stop	Gym	Café	Fast Food Restaurant	Falafel Restaurant	Farm	Farmers Market	Yoga Studio

- Chosen from cluster 1 that has plenty of green spaces (parks and farms)
- Close to eateries and groceries
- Relatively low crime rate
- Mid-range house prices
- Relatively low public transport accessibility, can has many bus stops



LIVELY ENVIRONMENT – HARROW & SUTTON

Neighborhood	Crime rates per thousand population	Median House Price	Average Public Transport Accessibility score	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
Harrow	50.396101	396150	2.870196	Coffee Shop	Indian Restaurant	Sandwich Place	Clothing Store	Gym / Fitness Center	Fast Food Restaurant	Pharmacy	Park	Afghan Restaurant	Thai Restaurant
Sutton	55.856141	320000	2.854086	Clothing Store	Coffee Shop	Pub	Pizza Place	Café	Sandwich Place	Supermarket	Bar	Bakery	Italian Restaurant

- Chosen from cluster 2 that has more entertainment spaces and retail outlets
- Neighborhoods with either hotels or pubs as the top 2 most common venues were removed (it might get too busy!)
- Relatively low crime rates and housing prices





If you are moving to London, you can consider living in

Barnet

if you prefer a quiet lifestyle

Harrow or Sutton

if you prefer a lively environment



THANK YOU

