



LONDON FOODIE MAP

MAGDALENA MITRASZEWSKA

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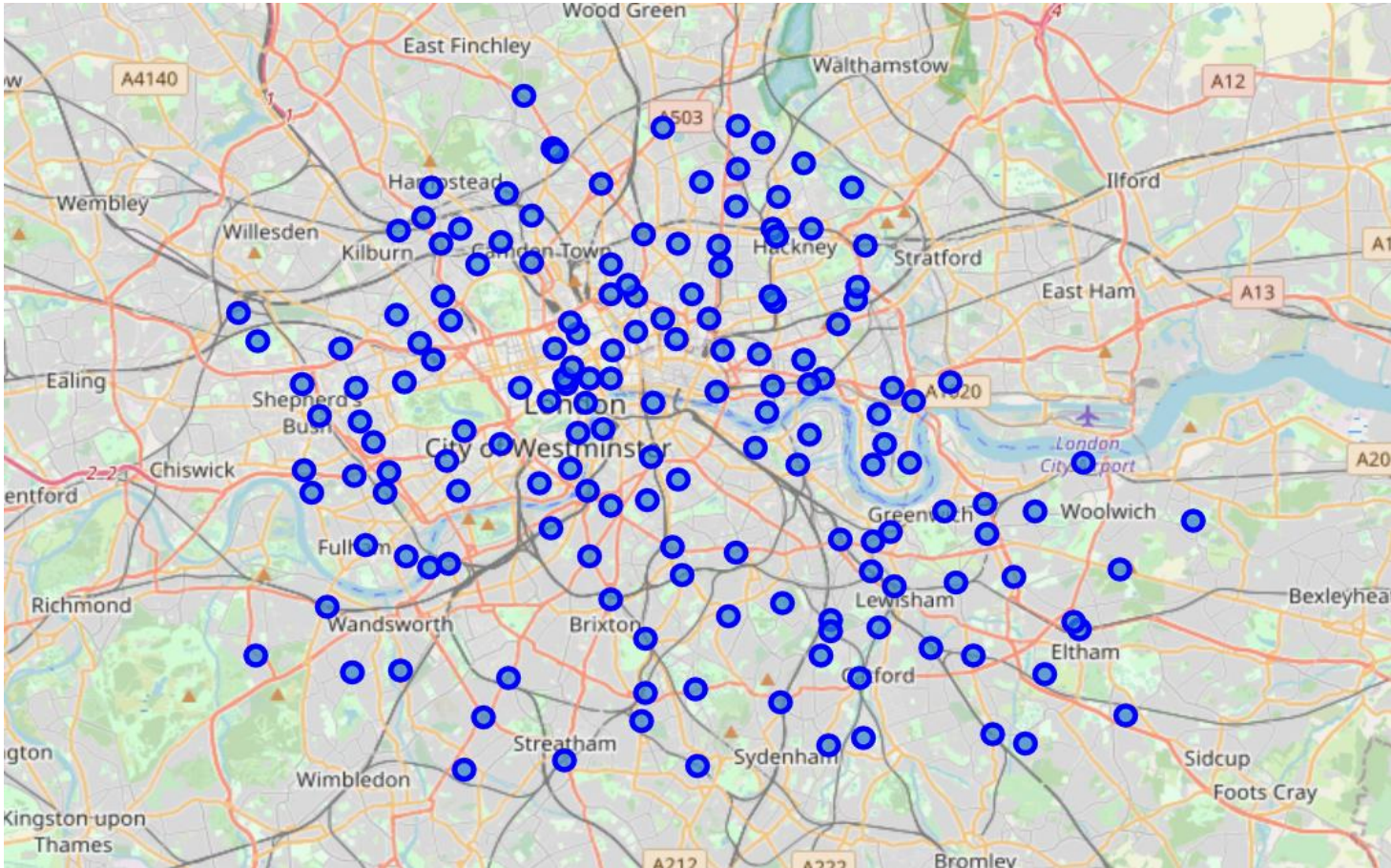
LONDON NEIGHBORHOODS CLUSTERING BY MOST COMMON TYPES OF RESTAURANTS

- More than 11 thousands restaurants in London.
- 20 million tourists coming to London each year.
- The aim is to organize London neighborhoods in clusters according to the types of restaurant most common in the area.
- Interesting and valuable both for people visiting London (tourist or business reasons) as well as entrepreneurs planning to open their own restaurants.

DATA ACQUISITION AND CLEANING

- Data cleaning:
 - Only neighborhoods located in Inner London districts: Camden, Greenwich, Hackney, Hammersmith and Fulham, Islington, Kensington and Chelsea, Lambeth, Lewisham, Southwark, Tower Hamlets, Wandsworth, Westminster.
 - Foursquare data: only restaurants, dropping category „Restaurant” (non-informative in this case).
- Sources:
 - Restaurant data acquired from Foursquare (www.foursquare.com).
 - Borough and neighborhood data scraped from the Wikipedia page - https://en.wikipedia.org/wiki/List_of_areas_of_London.
- In the final dataset there are 1422 restaurants of 77 types and 168 neighborhoods.

MAPPING LONDON NEIGHBORHOODS



(Geographical coordinates obtained by using geopy library.)

LONDON RESTAURANTS 1/2

- One-hot encoding used to prepare categorical data about restaurant types for analysis.
- Part of the dataframe showing the results grouped and encoded:

	Neighborhood	Afghan Restaurant	African Restaurant	American Restaurant	Arepa Restaurant	Argentinian Restaurant	Asian Restaurant	Australian Restaurant	Austrian Restaurant	Brazilian Restaurant	...	S Re
0	Aldwych	0.000000	0.0	0.071429	0.0	0.071429	0.000000	0.000000	0.000000	0.0	...	
1	Angel	0.052632	0.0	0.000000	0.0	0.000000	0.000000	0.000000	0.052632	0.0	...	
2	Archway	0.000000	0.0	0.000000	0.0	0.000000	0.142857	0.000000	0.000000	0.0	...	
3	Balham	0.000000	0.0	0.000000	0.0	0.000000	0.090909	0.000000	0.000000	0.0	...	
4	Bankside	0.000000	0.0	0.000000	0.0	0.000000	0.052632	0.052632	0.000000	0.0	...	

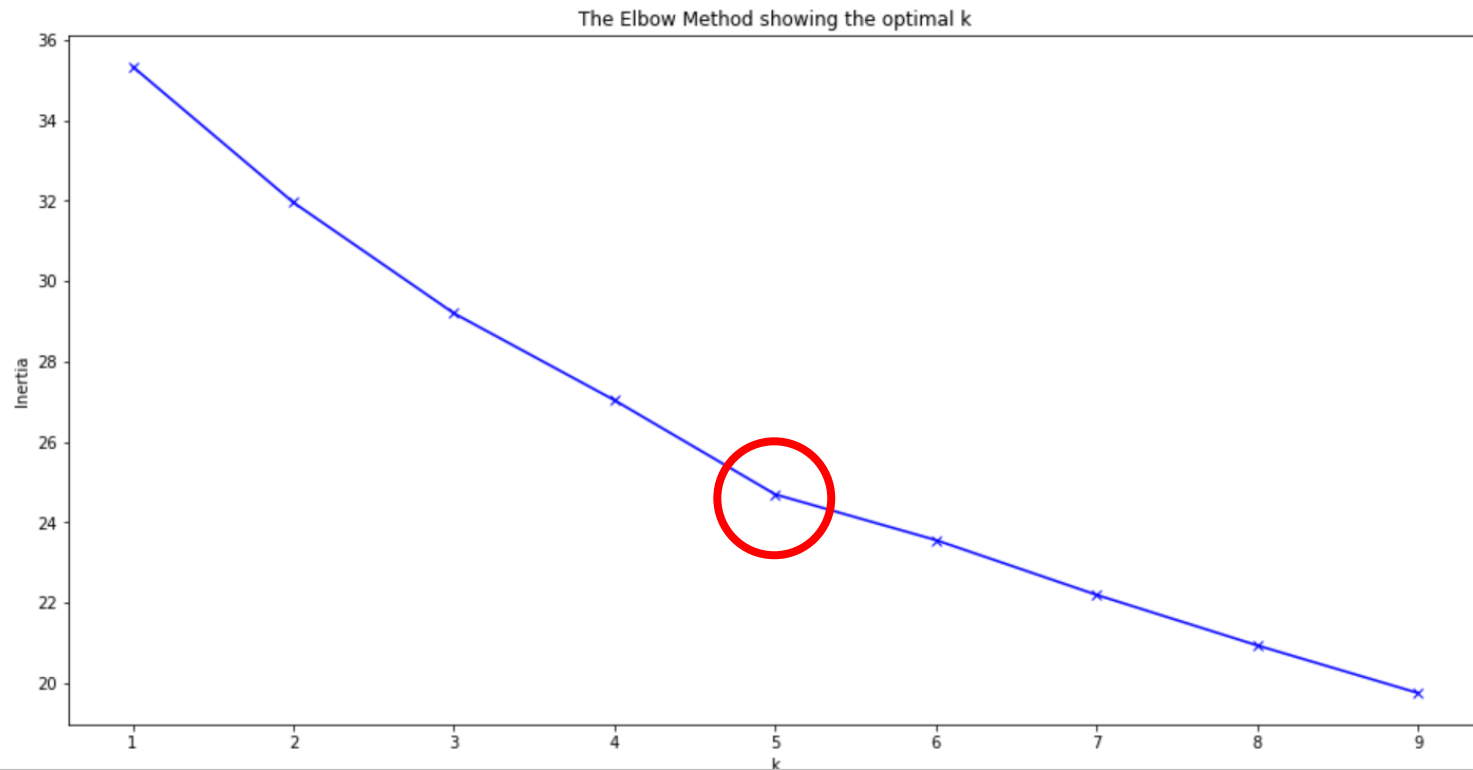
LONDON RESTAURANTS 2/2

- Top 10 most common types of restaurants for each neighborhood put in a dataframe:

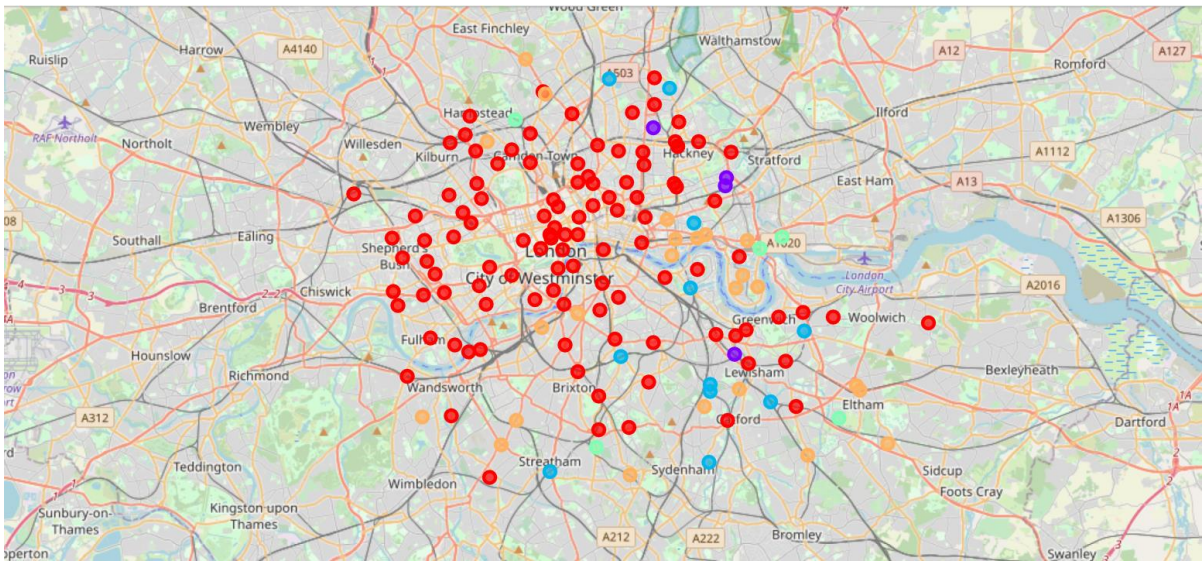
	Neighborhood	1st Most Common Restaurant	2nd Most Common Restaurant	3rd Most Common Restaurant	4th Most Common Restaurant	5th Most Common Restaurant	6th Most Common Restaurant	7th Most Common Restaurant	8th Most Common Restaurant	9th Most Common Restaurant	10th Most Common Restaurant
0	Aldwych	Japanese Restaurant	French Restaurant	American Restaurant	Lebanese Restaurant	Argentinian Restaurant	Korean Restaurant	Turkish Restaurant	Italian Restaurant	North Indian Restaurant	Peruvian Restaurant
1	Angel	Mediterranean Restaurant	Vietnamese Restaurant	Indian Restaurant	French Restaurant	Caucasian Restaurant	Mexican Restaurant	Korean Restaurant	Japanese Restaurant	Hunan Restaurant	Sushi Restaurant
2	Archway	Italian Restaurant	Indian Restaurant	Asian Restaurant	Vegetarian / Vegan Restaurant	Kebab Restaurant	Japanese Restaurant	Persian Restaurant	Pakistani Restaurant	Paella Restaurant	Okonomiyaki Restaurant
3	Balham	Italian Restaurant	Indian Restaurant	Moroccan Restaurant	Asian Restaurant	Japanese Restaurant	Portuguese Restaurant	North Indian Restaurant	Peruvian Restaurant	Persian Restaurant	Pakistani Restaurant
4	Bankside	Italian Restaurant	Portuguese Restaurant	Israeli Restaurant	Vietnamese Restaurant	Ramen Restaurant	Asian Restaurant	Australian Restaurant	Modern European Restaurant	Indian Restaurant	Spanish Restaurant

K-MEANS CLUSTERING

- Choosing the optimal k:



RESULTS



	Cluster_Labels	1st Most Common Restaurant	2nd Most Common Restaurant	3rd Most Common Restaurant	4th Most Common Restaurant	5th Most Common Restaurant	6th Most Common Restaurant	7th Most Common Restaurant	8th Most Common Restaurant	9th Most Common Restaurant	10th Most Common Restaurant
0	 0	Italian Restaurant	Japanese Restaurant	Thai Restaurant	French Restaurant	Indian Restaurant	Middle Eastern Restaurant	Vietnamese Restaurant	Fast Food Restaurant	Turkish Restaurant	English Restaurant
1	 1	Turkish Restaurant	Sri Lankan Restaurant	Cuban Restaurant	Kebab Restaurant	Mediterranean Restaurant	Modern European Restaurant	Afghan Restaurant	Peruvian Restaurant	Persian Restaurant	Pakistani Restaurant
2	 2	Chinese Restaurant	Fast Food Restaurant	Malay Restaurant	Vietnamese Restaurant	Turkish Restaurant	Thai Restaurant	Portuguese Restaurant	American Restaurant	Mamak Restaurant	Okonomiyaki Restaurant
3	 3	Italian Restaurant	Chinese Restaurant	Afghan Restaurant	North Indian Restaurant	Polish Restaurant	Peruvian Restaurant	Persian Restaurant	Pakistani Restaurant	Paella Restaurant	Okonomiyaki Restaurant
4	 4	Indian Restaurant	Italian Restaurant	Chinese Restaurant	Fast Food Restaurant	Turkish Restaurant	Kebab Restaurant	Japanese Restaurant	Korean Restaurant	Asian Restaurant	Tapas Restaurant

CONCLUSIONS AND DISCUSSION

- Created 5 clusters of neighborhoods according to the most common types of restaurants located in the area.
- More than 2/3 of all neighborhoods in one cluster:

Neighborhood	
Cluster_Labels	
0	108
1	4
2	11
3	5
4	24

- Is K-Means Clustering the best algorithm in this case?
- 77 different types of restaurant – too many?
 - An idea for the future – categorizing restaurant types into cuisines, for example “Middle Eastern, “Asian”, “Mediterranean”