The Beverage Battle of the Neighborhoods in London, UK

CAPSTONE PROJECT

Background

- Beverages like coffee, tea, and alcohol

--are crucial to British people

--can be purchased at coffee shops, cafés, pubs, and bars

- London: the largest commercial city and most populated place in the UK

--with the largest number of coffee shops, cafés, pubs, and bars

The Problem

- The city of London is facing a problem:
  - The beverage supplies are NOT reliable and LESS ideal
  - Many coffee shops, cafés, pubs, and bars in London heavily rely on suppliers located outside of the city

- The problem can serve as a business opportunity:
  - A stakeholder is interested in setting up a company to supply beverage and the ingredients to these shops, cafés, pubs, and bars in London

The Goal

- To identify the most suitable neighborhood as the new company location using existing open-access data

Data Descriptions

- Data from "The List of areas of London" on Wikipedia was used
- The aforementioned list contains 533 areas in London, UK
- Each area has the information of 'Location', 'Borough', 'PostalCode', 'Dial code, 'OS grid ref'
  - ➢ 'OS grid ref' was converted to 'latitude' and 'longitude'

Methodology

- Necessary python packages: Beautifulsoup, wikipedia, pandas, numpy, geopy, folium, scipy, sklearn

- Data cleaning, including: renaming 'Location' 'Neighborhood', dropping 'Dial code', selecting data in the post town, London, for analysis

- Garnering information about the top 5 most common venues in each neighborhood of the main London area using the Foursquare API.

Methodology (cont.)

- Exploratory analysis with k-means cluster analysis (k= 5)
- Afterwards, chi-squared test was employed to test whether there was a significant difference in the top 3 most common venues between clusters
- The cluster with the highest frequency of all the top 3 most common venues being the target categories (i.e., coffee shops, cafés, pubs, and bars) was further analyzed
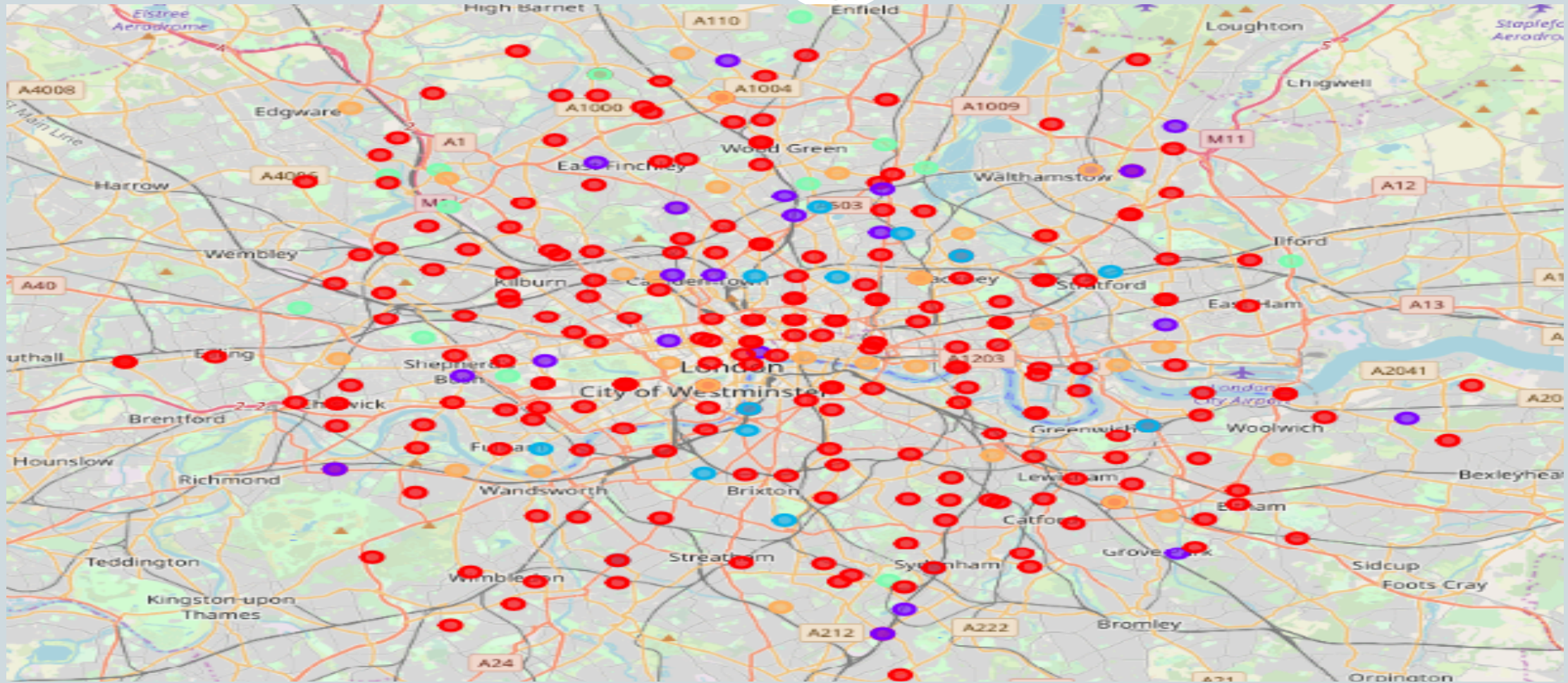
- The locations of the neighborhoods with the top 3 most common venues being the target categories were presented on the map

- To further narrow down the neighborhood choices, neighborhoods with all of the top 4 most common venues being the target categories were selected
  - Coffee or tea shops, cafés, pubs, and bars in these neighborhoods were searched using Foursquare API and listed as the potential customers for the new company to reach out

Results: Distribution of London neighborhoods
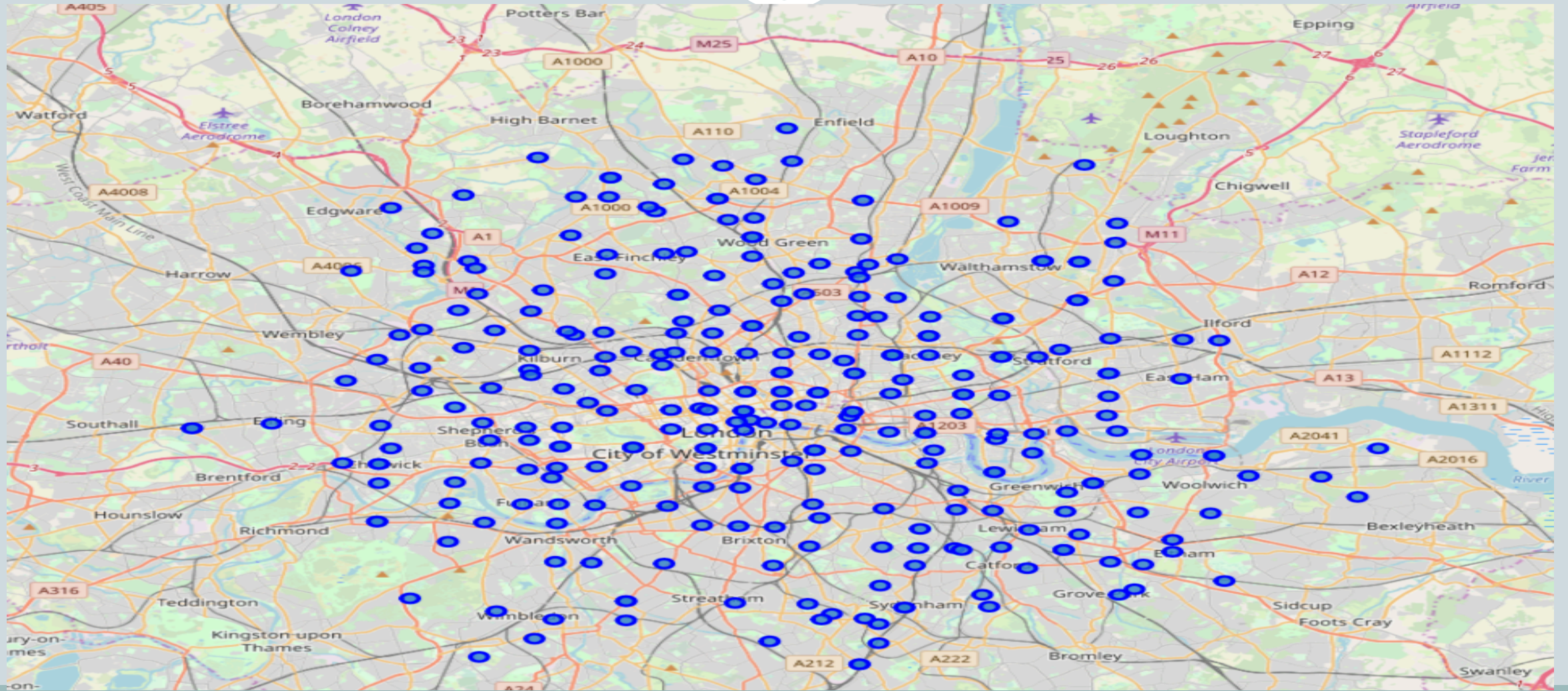
# Results: Distribution of the 5 clusters

Results (cont.)

- Among the 5 clusters, Cluster 1 encompassed the largest number of neighborhoods where the top 3 most common venues were the target categories (i.e., coffee shops, cafés, pubs, and bars)

- Within Cluster 1, 8 geographically distinct neighborhoods had all the top 3 most common venues being the target categories
  - ➤ The locations of the 8 neighborhoods are presented in the next slice

Results: 8 neighborhoods with the top 3 most common venues being either coffee shops, cafés, pubs, or bars
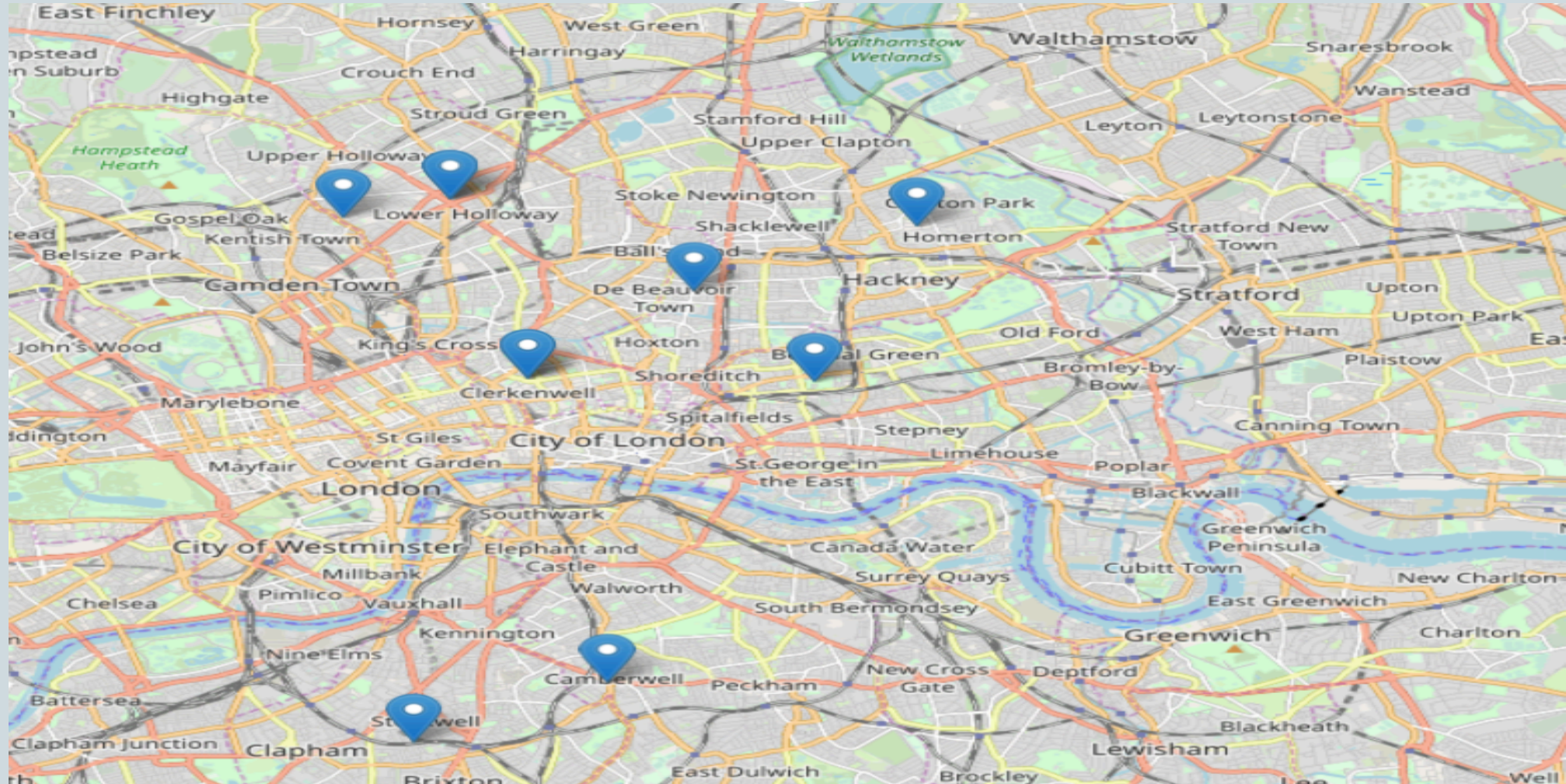
Results (cont.)

- To further narrow down the choices of neighborhoods for the company, I selected neighborhoods with all of the top 4 most common venues being the target categories

  ➢ Only one single neighborhood, Stockwel, met the cirterion

- There were approximately 120 potential customers (i.e., coffee shops, tea shops, cafés, pubs, and bars) in Stockwel for the new company

Discussion

- Cluster 1 significantly had more coffee shops, cafés, pubs, and bars as the most common venues

- Within Cluster 1, 8 neighborhoods with all of the top 3 most common venues being the target categories (i.e., coffee shops, cafés, pubs, and bars)

- Stockwell: the most suitable location for the new company as this neighborhood showed all of the top 4 most common venues being the target categories

  ➢ suggesting the greatest need for beverage and its ingredient supplies.

Discussion (cont.)

- The strength of this project: Data can be easily updated by Foursquare users to reflect any instant changes

- The limitation of this project: Non-Foursquare users may have visited coffee or tea shops, cafés, pubs, and bars more frequently but their movements cannot be traced on Foursquare

Conclusion

- Stockwell would be the most suitable neighborhood in the main London area as the location of the new company supplying beverages and the ingredients to coffee and tea shops, cafés, pubs, and bars.