

Liverpool Versus Manchester:

Where to Open a German Restaurant

Overview

- I. Introduction
- II. Data Acquisition
- III. Methodology
- IV. Results
- V. Discussion
- VI. Conclusion

Introduction

- **Problem:** Determine the best neighborhood in either Liverpool or Manchester to open a new German restaurant
- **Background:**
 - Liverpool and Manchester- Two northern cities in England
 - Liverpool: Capital of Culture in 2008, diverse population, 7th most visited city in the UK
 - Manchester: Music scene, architecture, 3rd most visited city in the UK
- **Interests:** Analysis is useful for restaurant owners that want to determine the best location to open a new restaurant

Data Acquisition

- Data Sources
 - BeautifulSoup used to scrape Wikipedia Tables for Manchester and Liverpool neighborhoods
 - Cleaned Tables:
 - Liverpool: 40 postcode districts
 - Manchester: 43 postcode districts
 - Geocoder used to add Latitude and Longitude to Liverpool and Manchester Neighborhoods
 - Final Table Example:

	Postcode District	Neighborhoods	Latitude	Longitude
0	L1	City Centre	53.395980	-2.981387
1	L2	City Centre	53.405595	-2.993264
2	L3	City Centre, Everton, Vauxhall	53.415671	-3.001066
3	L4	Anfield, Kirkdale, Walton	53.431620	-2.963469
4	L5	Anfield, Everton, Kirkdale, Vauxhall	53.427500	-2.969472

Data Acquisition

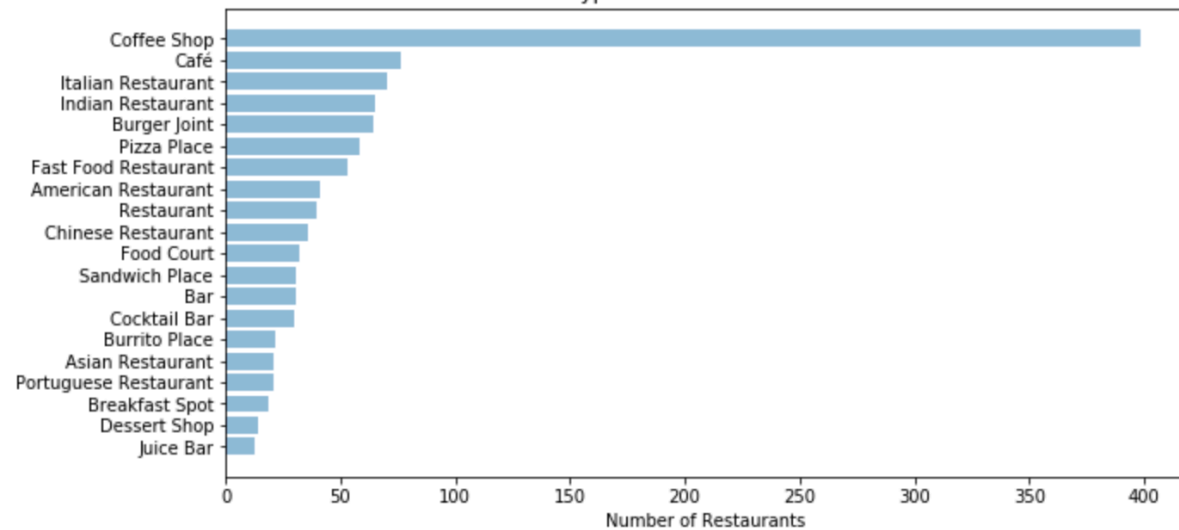
- Venue data obtained from FourSquare
- Table created containing restaurant venues only
- Final table example:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue ID	Venue Category
0	City Centre	53.39598	-2.981387	Coffee and Fandisha	53.396111	-2.979320	53d90299498e26f5393fd813	Café
1	City Centre	53.39598	-2.981387	Chapters Of Us	53.395713	-2.981771	5dfcd47e675fbf0008425a29	Café
2	City Centre	53.39598	-2.981387	Love Lane Brewery	53.396368	-2.982862	5a455db8b8fd9d6ba910f246	Pub
3	City Centre	53.39598	-2.981387	Camp & Furnace	53.394294	-2.980541	4e70c1761838f0daa0b42646	Gastropub
4	City Centre	53.39598	-2.981387	McDonald's	53.396291	-2.984367	4b8970fcf964a520903632e3	Fast Food Restaurant

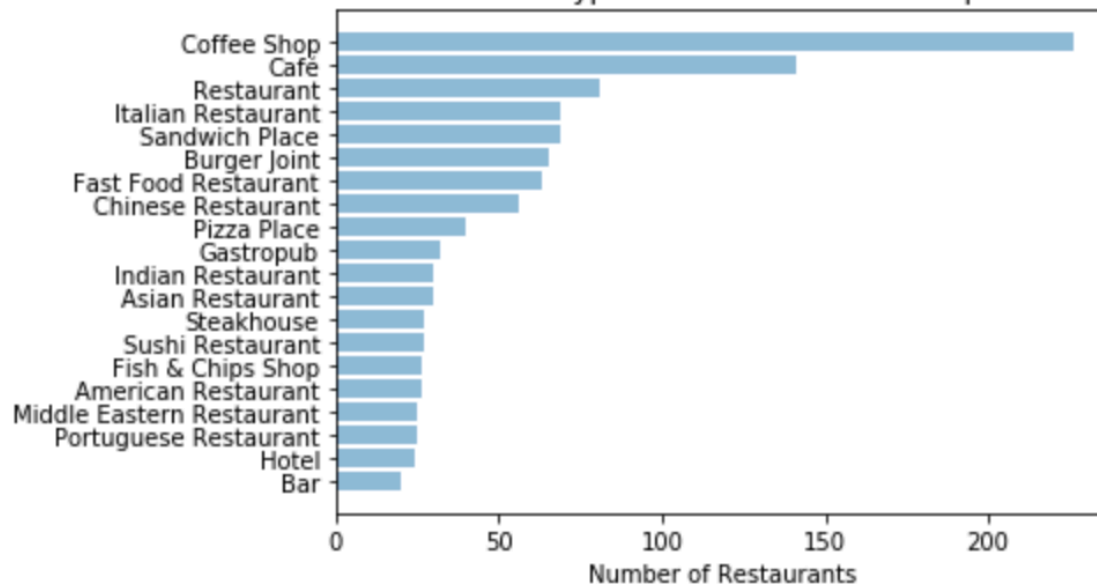
Methodology

- Restaurant Diversity

Different Types of Restaurants in Manchester

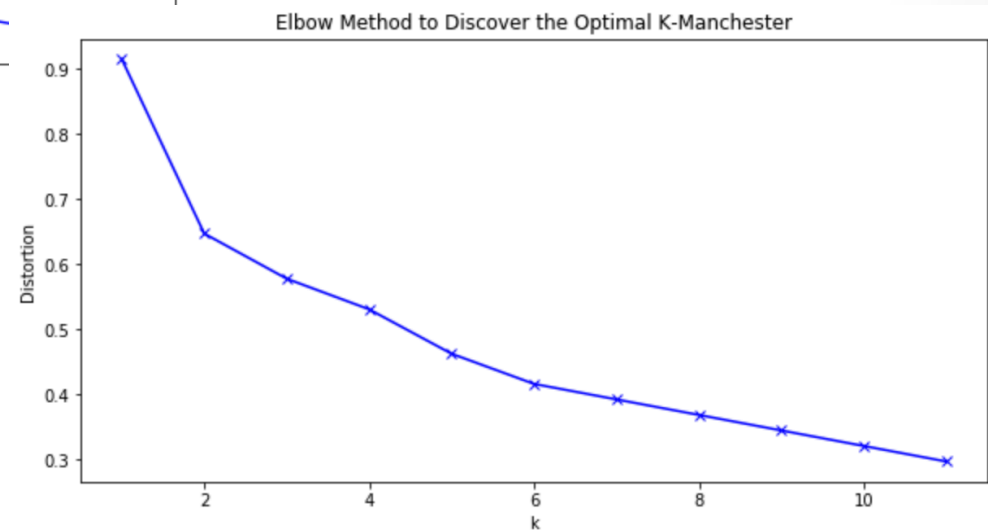
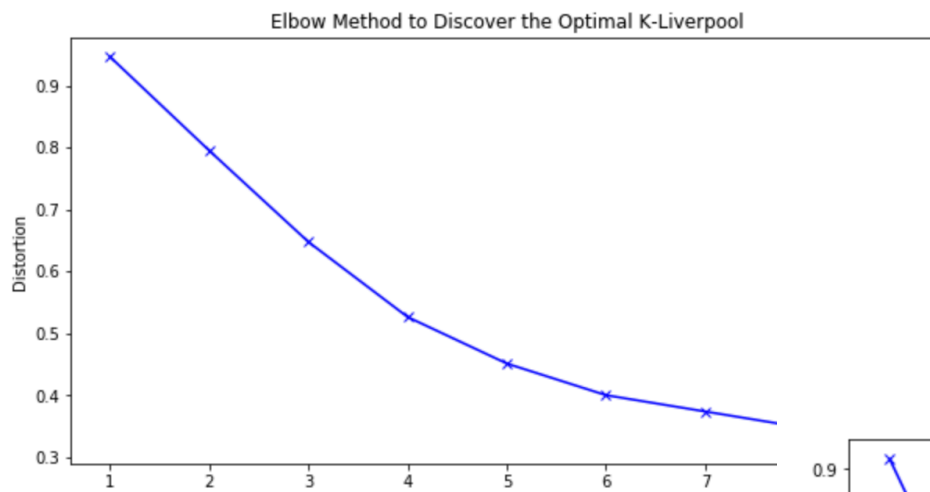


Different Types of Restaurants in Liverpool



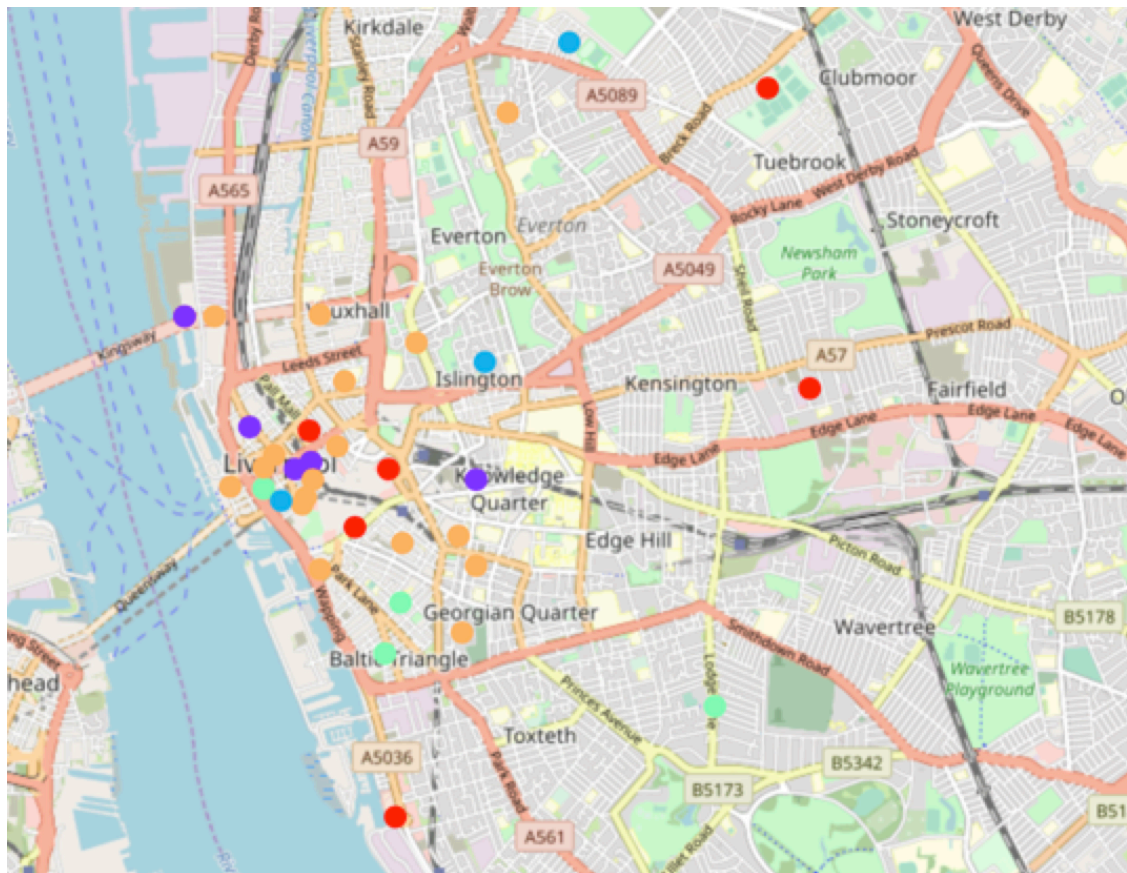
Methodology

Finding K for K-mean Clustering



Methodology

- Mapping Liverpool Clusters

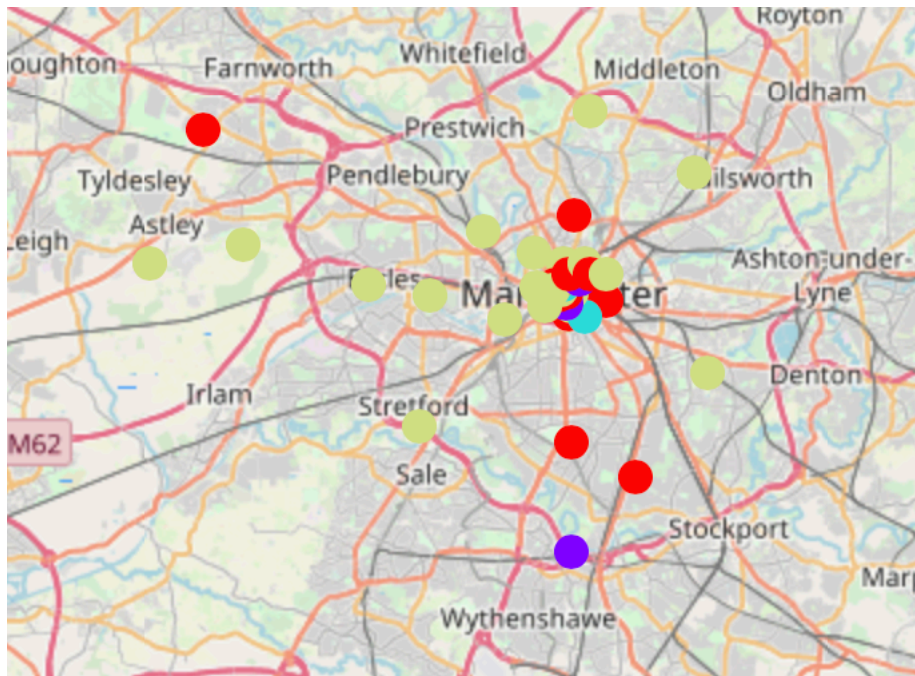


Neighborhood Clusters

- Variety
- Coffee Shops
- Chinese Restaurants
- Restaurants
- Cafés

Methodology

- Mapping Manchester Clusters

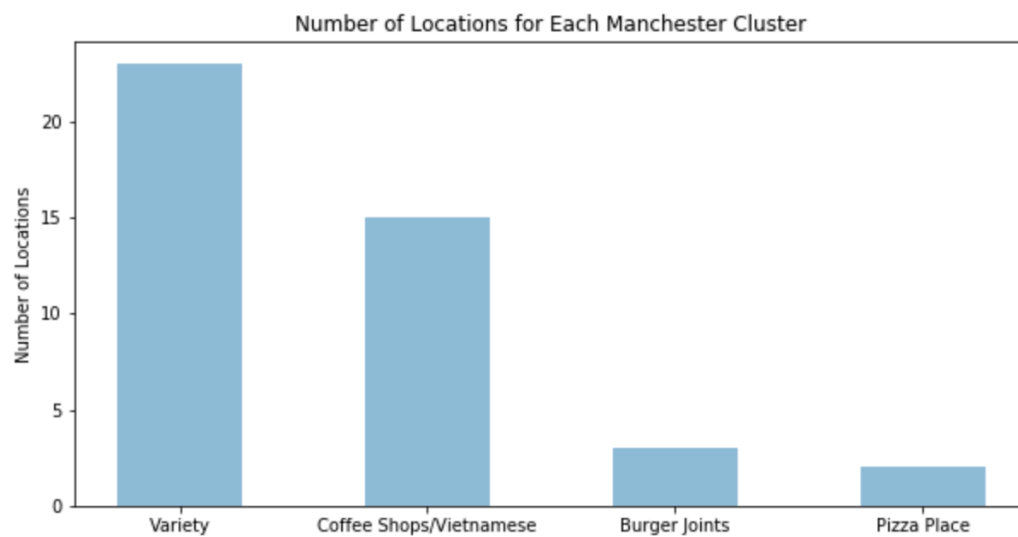


Neighborhood Clusters

- Coffee Shops
- Chinese Restaurants
- Restaurants
- Cafés

Methodology

Number of Neighborhoods
in Each Cluster



Discussion

- Liverpool has more restaurants featuring cuisine from different places around the world
- Both cities have a variety cluster featuring majority of restaurants with different cuisine from different parts of the world
 - Majority of neighborhoods in this cluster are located in downtown area of each city

Conclusion

- A cluster zero (Variety) neighborhood in downtown Liverpool would be best location to open a new German restaurant