Coursera Report: Battle of the Neighbourhoods

Business problem:

Cities and towns in England are often berated for having "identikit", bland city centers, so where should a holidaymaker go if they want to have a good time? Which cities are best for "coffee culture"? Which are best for a more traditional feel? Is there some objective data that the general public (or tour operators) can use to make recommendations instead of relying on the often deceitful marketing material issued by the cities themselves or by the cities' tourist boards? Can we use data science to tell us whether it is worth visiting an English city without being disappointed or mislead by advertising?

Data use:

The starting point will be a list of cities and towns in England. English towns and cities have a rather perplexing nomenclature with both small and large localities being called "towns" or "cities", so we will use the website 'https://www.thegeographist.com/uk-cities-population-1000' to scrape the data and then clean it, removing localities in Wales and Scotland and taking the top 500 or so remaining places to analyze.

The data is in the following format:

1 1 London London London 8,907,918

2 1 Birmingham West Midlands West Midlands 1,153,717

3 1 Glasgow Glasgow Scotland 612,040

4 1 Liverpool Merseyside North West 579,256

5 1 Bristol Bristol South West 571,922

6 2 Manchester Greater Manchester North West 554,400

So we will need to clean it , removing unnecessary columns and all the entries which do not relate to England.

We will then use a geocoder service to find the latitude and longitude of the center of these localities. This will provide us with information such as:

Birmingham, UK

Birmingham, West Midlands Combined Authority, West Midlands, England, United Kingdom

1 City/Town Birmingham

Ceremonial county West Midlands

latitude 52.4797

longitude -1.90269

Name: 1, dtype: object

Liverpool, UK

Liverpool, North West England, England, United Kingdom

3 City/Town Liverpool

Ceremonial county Merseyside

latitude 53.4072

longitude -2.99166

Name: 3, dtype: object

Bristol, UK

Bristol, City of Bristol, South West England, England, United Kingdom

4 City/Town Bristol

Ceremonial county Bristol

latitude 51.4538

longitude -2.5973

Then we will use FourSquare venue explorer to find what venues are available within a reasonable distance to the city center. The information received will be similar to the following:

0 A 52.449601 -1.819154 Costa Coffee 52.446411 -1.822441 Café

1 A 52.449601 -1.819154 Wilko 52.446645 -1.823626 Store

2 A 52.449601 -1.819154 Sainsbury's 52.445749 -1.820319 Supermarket

3 A 52.449601 -1.819154 Subway 52.446418 -1.823159 Restaurant

4 A 52.449601 -1.819154 The Spread Eagle (Wetherspoon) 52.446488 -1.819978 Pub

5 A 52.449601 -1.819154 Quality Hotel Birmingham Airport 52.449284 -1.819689 Hotel

6 A 52.449601 -1.819154 Argos 52.446453 -1.822206 Store

We will use this final data for each location center to cluster the cities and find similar types of cities which will appeal to different type of tourists (or none at all!)