

Clustering Bristol Neighbourhoods that consider anti-social behaviour and noise are problems locally

Introduction/Business Problem:

Bristol is the largest city in South West of England with a population of over 460,000 and 34 neighbourhoods. Bristol is one of the most popular tourist destinations whose economy is built on the creative media, electronics, aerospace industries and city center docks as symbols of heritage and culture. Bristol has a unique blend of pubs, restaurants, and Cafés that are just as famous for the street food as fine dining.

This project attempts to cluster the neighborhoods in Bristol based on the venues around their centroids and identify neighborhoods that consider anti-social behavior and noise from pubs, clubs and entertainment are problems locally. The analysis provided by this project can be useful for city planners, security agencies, charities, business investors, house buyers, etc., to understand the neighborhoods that share common characteristics for planning and effective decision making.

Data:

The data required to answer the question was extracted from multiple sources.

1. A list of neighborhoods was scrapped from Wikipedia by using html5lib library.

	Rank	Ward	Population	Address
0	1	Lawrence Hill	18942	Lawrence Hill, Bristol, United Kingdom
1	2	Ashley	16225	Ashley, Bristol, United Kingdom
2	3	Cabot	15940	Cabot, Bristol, United Kingdom
3	4	Bishopston	13871	Bishopston, Bristol, United Kingdom
4	5	Easton	13541	Easton, Bristol, United Kingdom

2. The information on anti-social behavior and noise indicators was downloaded from Open Data Bristol, an online data source maintained by Bristol City Council. The excel file was uploaded using pandas.

	Ward	Noise Problem	Anti-Social Behaviour
0	Ashley	29.391346	42.393488
1	Avonmouth	12.609684	44.049799
2	Bedminster	17.130083	35.448836
3	Bishopston	16.436375	11.607648
4	Bishopsworth	10.415815	32.944118

3. Neighborhoods Location coordinates were added to the main data-frame using geopy library.

	Rank	Ward	Population	Address		Coordinates	latitude	longitude
0	1	Lawrence Hill	18942	Lawrence Hill, Bristol, United Kingdom	(Lawrence Hill, Church Road, Newtown, Lawrence...		51.458580	-2.564170
1	2	Ashley	16225	Ashley, Bristol, United Kingdom	(Ashley Down, Bristol, City of Bristol, South ...		51.478287	-2.585152
2	3	Cabot	15940	Cabot, Bristol, United Kingdom	(Cabot Circus, Broadmead, Bristol, City of Bri...		51.458382	-2.585432
3	4	Bishopston	13871	Bishopston, Bristol, United Kingdom	(Bishopston, Bristol, City of Bristol, South W...		51.478305	-2.595453
4	5	Easton	13541	Easton, Bristol, United Kingdom	(Easton, Bristol, City of Bristol, South West ...		51.464703	-2.567684

4. Venues data was imported from Foresquare location data services using API. The data consisted of venue names, categories and their coordinates.

	name	categories	lat	lng
0	Small Street Espresso	Coffee Shop	51.454766	-2.594400
1	Swoon	Ice Cream Shop	51.452660	-2.600179
2	The Christmas Steps	Bar	51.455979	-2.596378
3	Small Bar	Pub	51.451791	-2.594948
4	Eatchu	Japanese Restaurant	51.453325	-2.594141