

# **APPLIED DATA SCIENCE CAPSTONE**

---

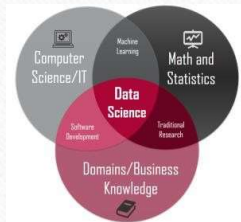
BY  
POLUPARTHI KUSARAJU



# Introduction



Best place for a  
new bar



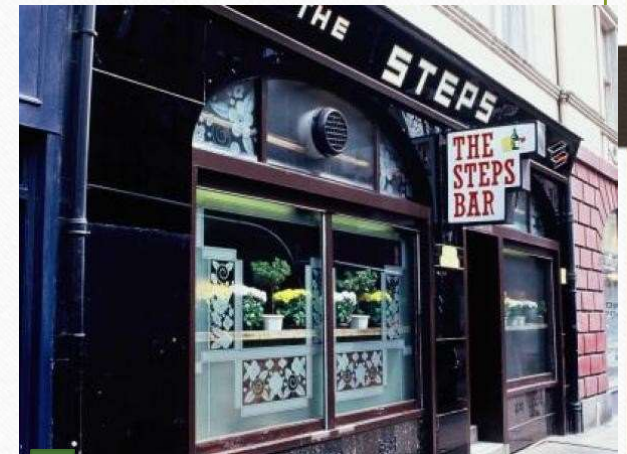
New pub in  
Edinburgh



Edinburgh



The steps bar  
In Glasgow



moving

29/05/2020



# Data set



- Venues data
- Geospace data

Edinburgh EH1 to EH17 & EH28 to EH30 [ edit ]

Postcode district	Post town	Coverage	Local authority area
EH1	EDINBURGH	Mostly consists of Edinburgh's Old Town. Also hosts the old GPO building (at EH1 1AA) and the areas immediately to the north of this are also included, that is St. James Centre and the areas down Leith Street and Broughton Street.	
EH2	EDINBURGH	The New Town and central commercial area of Edinburgh which includes Princes Street.	
EH3	EDINBURGH	An odd shaped area surrounding EH1 and EH2 to the north, west and south. It can be divided into three distinct areas: <ul style="list-style-type: none"> <li>• The New Town area, north of Queen Street and northwards to Stockbridge.</li> <li>• The West End, including some of Edinburgh's financial district</li> <li>• The Tollcross and Fountainbridge areas.</li> </ul>	
EH4	EDINBURGH	Radiates from the older and more central areas out to the suburban areas added to them, as the city grew outwards during the 20th century. EH4, then, branches out from Dean Village and Comely Bank along a corridor centred on the A90 as far as Banton and Cramond. Central to this area is the Sainsbury's in Craigleith Retail Park adjacent to the A90.	
EH5	EDINBURGH	Based on a village formerly separate from the city; in this case, Granton on the Firth of Forth. EH5 extends inwards from the coast to Ferry Road.	
EH6	EDINBURGH	Covers Leith, as well as Newhaven bordering it on the west.	
EH7	EDINBURGH	The inner city area between central Edinburgh and Leith, and radiates out to Restalrig and Craigentiny.	
EH8	EDINBURGH	The inner city <i>Southside</i> , Newington and Canongate areas, in the west of the postcode area. It spreads eastwards around Holyrood Park to take in areas like Abbeyhill and Mountcastle; being in east Edinburgh these areas have no obvious connection with the <i>Southside</i> . However the postcode effectively takes in the area surrounding Holyrood Park.	
EH9	EDINBURGH	The inner city, Marchmont and Grange, Blackford and around Minto Street, including Causewayside.	
EH10	EDINBURGH	A corridor along the A702 from Bruntsfield, through Morningside as far as Fairmilehead.	City of Edinburgh, Midlothian
EH11	EDINBURGH	A corridor (rather thin in shape) along the A71 from Haymarket Station, through Gorgie and Stenhouse to Sighthill and the Calders.	
EH12	EDINBURGH	A corridor along the A8 from Haymarket through Murrayfield and Corstorphine as far as the Gyle.	
EH13	EDINBURGH	Based on the previously separate village of Colinton, and including Oxgangs.	
EH14	BALERNO, CURRIE, EDINBURGH, JUNIPER GREEN	A corridor in south-west Edinburgh starting at Slateford, through Longstone, Wester Hailes, Juniper Green, Currie and on to Balerno.	
EH15	EDINBURGH	Based on Portobello and Duddingston, formerly separate settlements to Edinburgh.	
EH16	EDINBURGH	Based on the formerly separate village of Liberton. It extends north and north-east to Cameron Toll, Craigmillar and Niddrie.	
EH17	EDINBURGH	Based on the formerly separate village of Gilmerton, taking in Moredun and extending westwards as far as Mortonhall.	
EH28	NEWBRIDGE	Newbridge, Ratho	City of Edinburgh Council
EH29	KIRKLISTON	Kirkliston	City of Edinburgh Council
EH30	SOUTH QUEENSFERRY	South Queensferry	
EH77	EDINBURGH	Special postcode used by Census 2021	
EH91	EDINBURGH	Special postcode used by Jobcentre Plus	
EH95	EDINBURGH	Special postcode used by Scottish Gas.	
EH99	EDINBURGH	Special postcode used by the Scottish Parliament.	

[https://en.wikipedia.org/wiki/EH\\_postcode\\_area](https://en.wikipedia.org/wiki/EH_postcode_area)

- Web scraping

# Methodology



Geo data plotted on Edinburgh map

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Mostly consists of Edinburgh's Old Town. Also ...	55.95309	-3.18899	Dishoom	55.953726	-3.192540	Indian Restaurant
1	Mostly consists of Edinburgh's Old Town. Also ...	55.95309	-3.18899	The Balmoral Hotel	55.953113	-3.189509	Hotel
2	Mostly consists of Edinburgh's Old Town. Also ...	55.95309	-3.18899	SCOTCH Whisky Bar	55.953062	-3.190095	Whisky Bar
3	Mostly consists of Edinburgh's Old Town. Also ...	55.95309	-3.18899	Apple Princes Street	55.953354	-3.189947	Electronics Store
4	Mostly consists of Edinburgh's Old Town. Also ...	55.95309	-3.18899	The Milkman	55.950650	-3.191010	Coffee Shop

List on some venues extracted using FoursquareAPI

173 different categories



# Results

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	A corridor (rather thin in shape) along the A7...	Supermarket	Grocery Store	Fish & Chips Shop	Gas Station	Coffee Shop
1	A corridor along the A702 from Bruntsfield, th...	Convenience Store	Pub	Outdoor Supply Store	Mediterranean Restaurant	Pizza Place
2	A corridor along the A8 from Haymarket through...	Grocery Store	Pub	Gym / Fitness Center	Supermarket	Chinese Restaurant
3	A corridor in south-west Edinburgh starting at...	Supermarket	Coffee Shop	Grocery Store	Gas Station	Tennis Court
4	An odd shaped area surrounding EH1 and EH2 to ...	Café	Bar	Pub	Coffee Shop	Bakery

Most common venue per Neighbourhood

K=8



Kmeans Clustering

- Cluster n°1 has 14 group of neighbourhoods.
- Cluster n°2 has 2 group of neighbourhoods.
- Cluster n°3 has 1 group of neighbourhoods.
- Cluster n°4 has 1 group of neighbourhoods.
- Cluster n°5 has 1 group of neighbourhoods.
- Cluster n°6 has 3 group of neighbourhoods.
- Cluster n°7 has 1 group of neighbourhoods.
- Cluster n°8 has 1 group of neighbourhoods.



Clusters location

29/05/2020

# Conclusion

- Cluster n° 1 is the cluster that contains mainly bar and pubs and so the most crowded.

---
- This same cluster is located in the city center
- We conclude that "The steps bar" should open in the city center of Edinburgh.
- Possible further work: comparing the frequencies of pubs in different cities of UK and give some recommendations where it would be most beneficial to open next.