# Introduction

As a resident of Bristol, Phil has not yet found an Italian restaurant he likes so decides to set one up with a business partner. In order to open up in the right area, Phil wants an overview of the competition and other types of restaurants in each postcode area of Bristol.

Data science can help Phil by quickly and easily getting details on venues for each area of Bristol, and cluster them together in order to quickly include/exclude areas from consideration. The results of the code will change as venues from the Foursquare API change - so Phil can re-run the code whenever he finds a potential venue for his restaurant to get an up to date result to base his decision upon.

# Data to be used

The data sources used will be as follows:

* Scraping a Wikipedia page (<https://en.wikipedia.org/wiki/BS_postcode_area>)
* Using an openly available .csv from the web with latitude and longitude data by postcode (https://www.freemaptools.com/download/outcode-postcodes/postcode-outcodes.csv)
* Using the Foursquare API for venue details

# Methodology

The main purpose of the project was to provide exploratory data analysis, to be used in conjunction with some clustering to make an informed decision on where to open the restaurant.

I started by building a data frame with the postcode prefixes and location data to then narrow it down to suitable, central locations around the city to analyse. Next I extracted all the venues for these areas from Foursquare, cut them down the just the restaurants as the relevant venue types for this project, and then found the most common restaurants, per area from here.

Finally, I clustered these and used info on the number of restaurants in the areas along with the cluster data to make an informed decision.

# Results

The results showed clear differences in the number and types of restaurants present across the main, central locations within Bristol. There is, as expected, many more restaurants in the central areas. There is a really wide range of cuisines available in the city

# Discussion

There is a lack of restaurants, and different types of restaurants in the south of the city compared to the north. From here, you could look in more depth at the demographics and economics of each area to understand why the fluctuations are there and improve your insight into where to open the restaurant.

# Conclusion

From looking at the makeup of the clusters, and the map - I think BS4 or BS13 would be the best places to potentially open an Italian restaurants, neither of them are flooded with too many restaurants, and both are in a cluster with no other Italian restaurants