

# MANCHESTER HOUSING MARKET CLUSTERING

Capstone Final Project

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# BUSINESS PROBLEM

- Search for all optimal UK wards within possible price for a client who wants to buy a property.
- Nowadays that is always a problem to find a good place in new city for living. This project helps us as seekers for property in a new city to find interesting wards to consider within our budget.
- Specifically, this report will be targeted to people, who wants to find all different kinds of offers on Manchester housing market with price below 175000.

# DATA

- "National Statistics Postcode Lookup UK" (614529 rows × 16 columns)
- "Land Registry 2019 Open Dataset" (1753031 rows × 4 columns)
- Source of data: [data.gov.uk](https://data.gov.uk)
- Cleaned data contains 84 wards with their name, coordinates and Mean property price.
- Foursquare API provides 74 different types of venues

	Ward Name	Price	Latitude	Longitude
3	Atherleigh	133690.242537	53.520424	-2.504809
5	Audenshaw	168528.720000	53.473169	-2.128313
7	Barton	151272.531481	53.478252	-2.357463
8	Besses	157128.371795	53.547343	-2.281292
11	Bucklow-St Martins	156611.996528	53.418071	-2.427692

# Data Example and Visualization

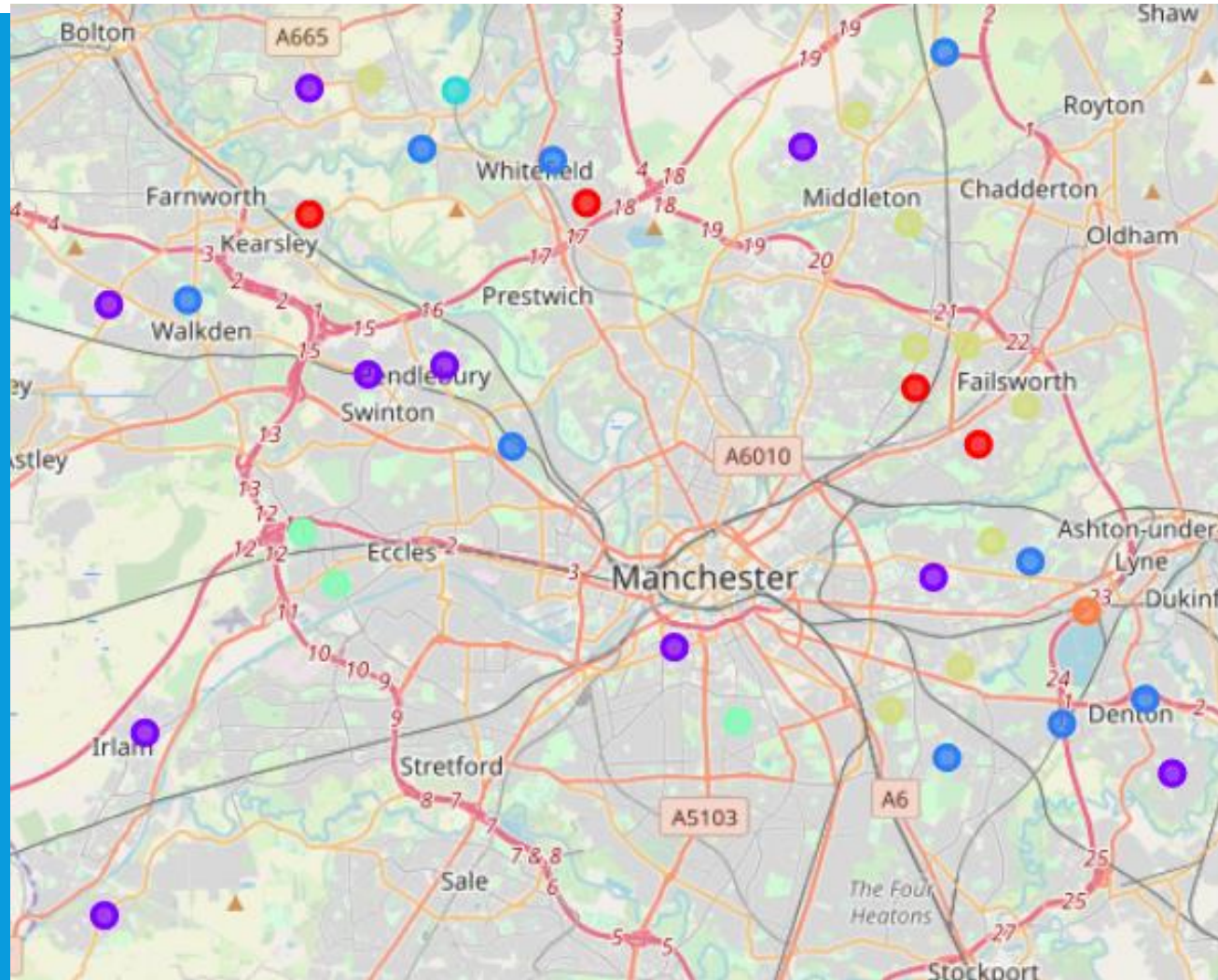


# DATA EXAMPLE (VENUES)

	Ward	Asian Restaurant	Athletics & Sports	Auto Garage	Auto Workshop	Bakery	Bar	Breakfast Spot	Bus Line	Bus Stop	...	Tailor Shop	Tanning Salon	Theater	Track	Trail	Train Station	Tram Station
0	Atherleigh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.00	0.0	0.0	0.0	0.0	0.0	0.0
1	Audenshaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.00	0.0	0.0	0.0	0.0	0.0	0.0
2	Barton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.00	0.0	0.0	0.0	0.0	0.0	0.0
3	Besses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.00	0.0	0.0	0.0	0.0	0.0	0.0
4	Bucklow-St Martins	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.25	0.0	0.0	0.0	0.0	0.0	0.0



# POSSIBLE WARDS (CLUSTER MAPS)



# CLUSTER'S DESCRIPTION (EXAMPLE)

## Cluster 1

```
clusters_analysis.loc[clusters_analysis['Cluster'] == 0, clusters_analysis.columns[[1] + list(range(2, clusters_analysis.
```

	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
3	Shop & Service	Pub	Women's Store	Food & Drink Shop	Discount Store	Dive Bar	Farm	Fast Food Restaurant	Fish & Chips Shop	Flower Shop
16	Pub	Sporting Goods Shop	Women's Store	Food & Drink Shop	Discount Store	Dive Bar	Farm	Fast Food Restaurant	Fish & Chips Shop	Flower Shop
22	Pub	Italian Restaurant	Food Truck	Discount Store	Dive Bar	Farm	Fast Food Restaurant	Fish & Chips Shop	Flower Shop	Food & Drink Shop
27	Soccer Stadium	Pub	Women's Store	Food & Drink Shop	Discount Store	Dive Bar	Farm	Fast Food Restaurant	Fish & Chips Shop	Flower Shop
40	Pub	Deli / Bodega	Discount Store	Dive Bar	Farm	Fast Food Restaurant	Fish & Chips Shop	Flower Shop	Food & Drink Shop	Women's Store

As we can see, Cluster 1 is the most "**pubbed**" (sorry) cluster with a lot of venues for good friday evening

# RESULTS

- 7 zones containing different possible wards for our customer.
- This, of course, does not imply that those zones are actually optimal locations!
- Purpose of this analysis was to only provide info on areas, but not prove impossibility of buying property in others wards.
- It is entirely possible that there will be a very good offer in any of those areas.
- Recommended zones should therefore be considered only as a starting point for more detailed analysis which could eventually result in location which has not only good price but also other factors taken into account and all other relevant conditions met.