# FINDING THE OPTIMAL COASTAL CITY FOR INVESTMENT BETWEEN CAPE TOWN AND DURBAN (SOUTH AFRICA)

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# About Cape Town and Durban

TWO OF THE MOST POPULAR CITIES IN SOUTH AFRICA

BOTH BUSINESS CENTERS/ BUSINESS HUBS

BOTH ARE COSTAL CITIES

# Problem – Where to invest?

- Both cities are similar and have their unique attractions.

- Hard for investors to choose one city and know which business category to invest in

- Questions to answer
  - Which city to start a business in?
  - What kind of business to build?

**Cape Town**



**Durban**

# Data

**Data Acquisition**

◦ Obtained Cape Town and Durban data from csv files containing neighbourhood names and postal codes from these GitHub links ([cape town link](#), [Durban link](#))

◦ Used GeoPy library to get latitude and longitude for each neighbourhood

◦ Retrieved popular neighbourhoods from foursquare 'venues/explore' endpoint using neighbourhood names and coordinates
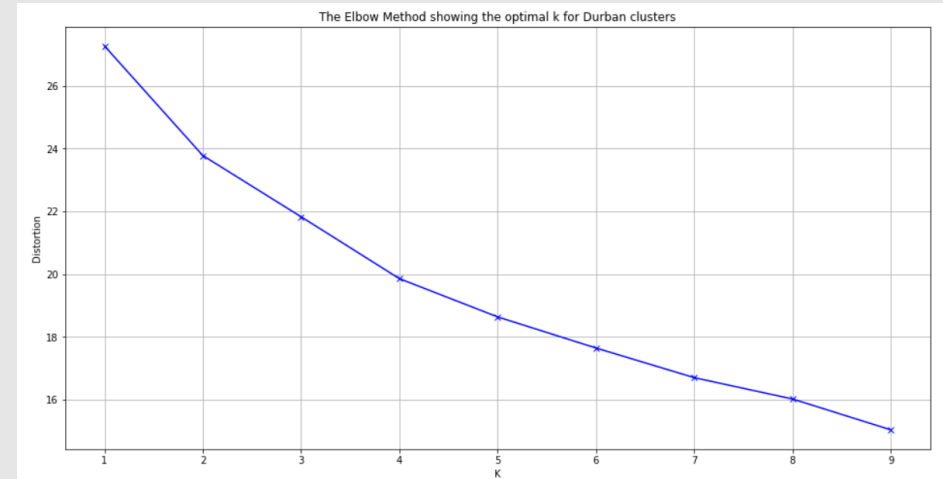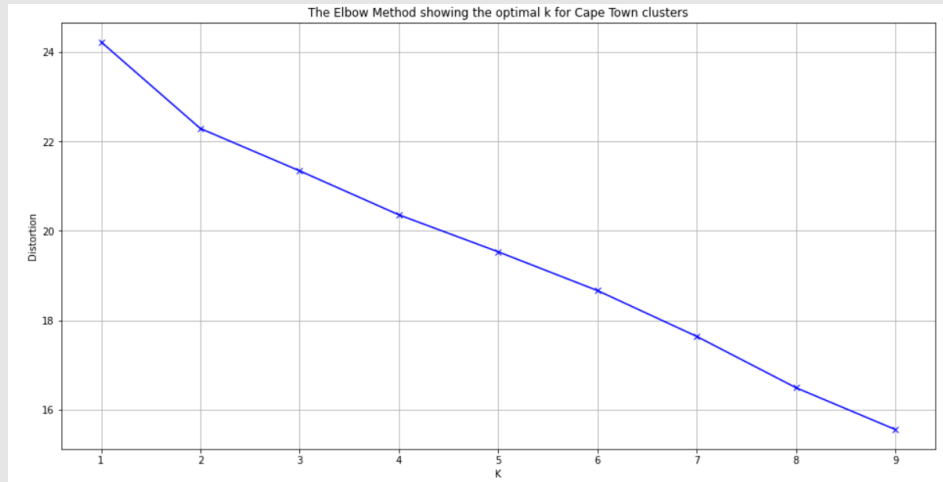
**Data Cleansing**

◦ Removed neighbourhoods with missing latitude and longitude from data

**Feature Selection**

◦ Removed postal code column from data as it is not needed for analysis
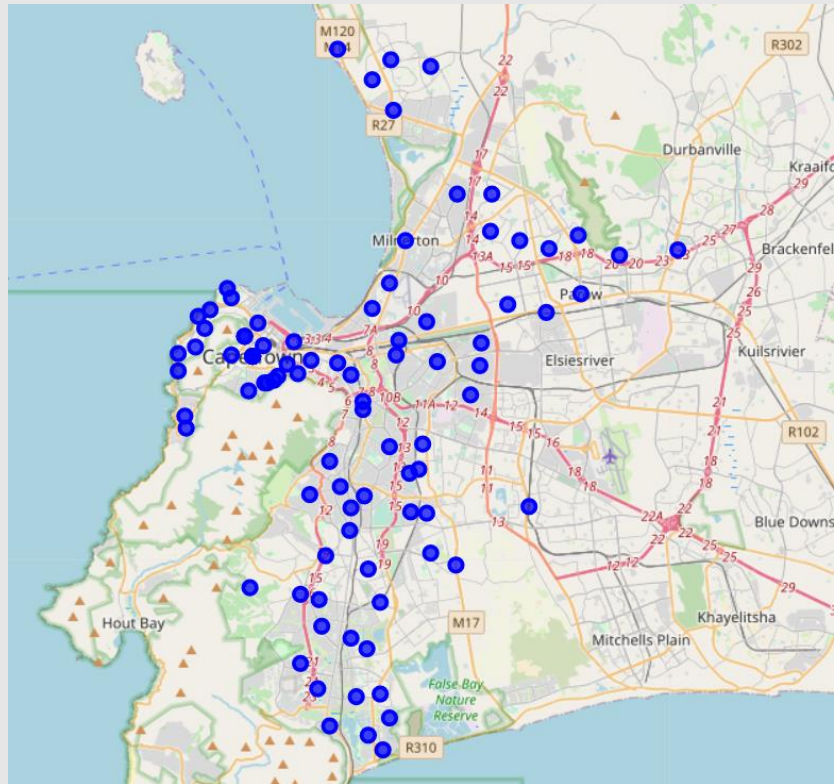
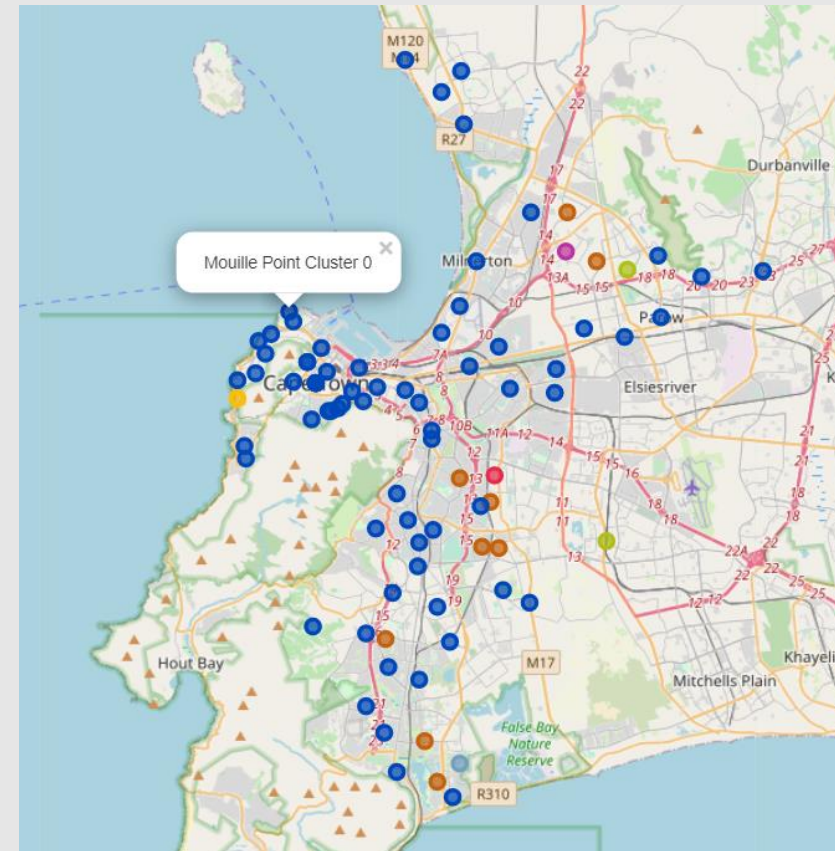# Using K Means algorithm

**Finding K Value using elbow method**



◦ K value of 7 chosen for Cape Town clustering and 7 for Durban clustering

◦ The data was fitted to the k means model using k value of 7 to produce 7 clusters in each city
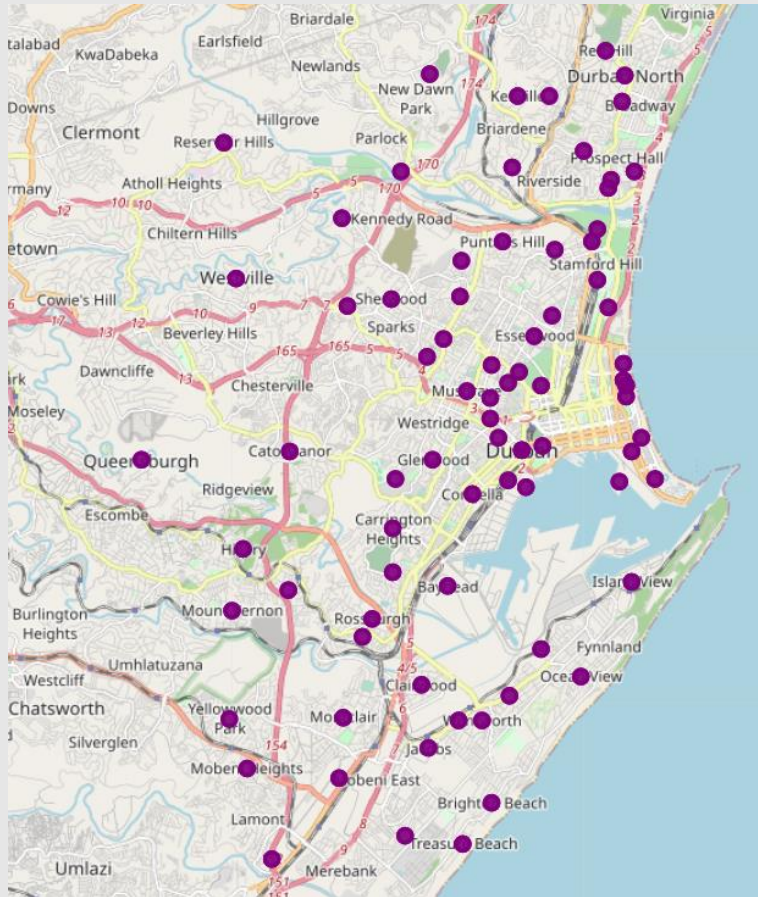
# Cape Town clusters
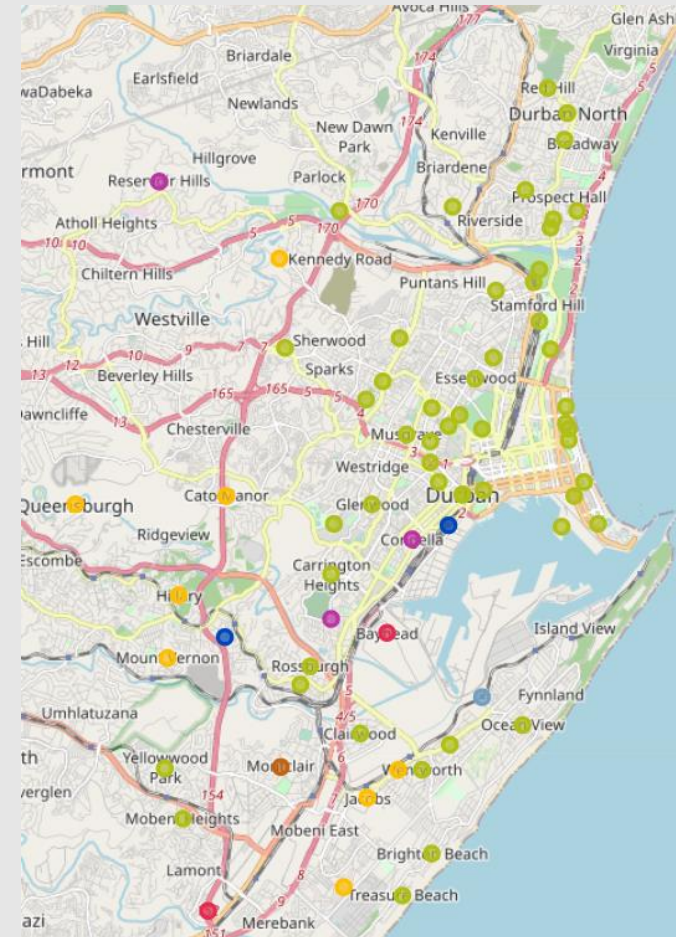
**Cape Town before clustering**
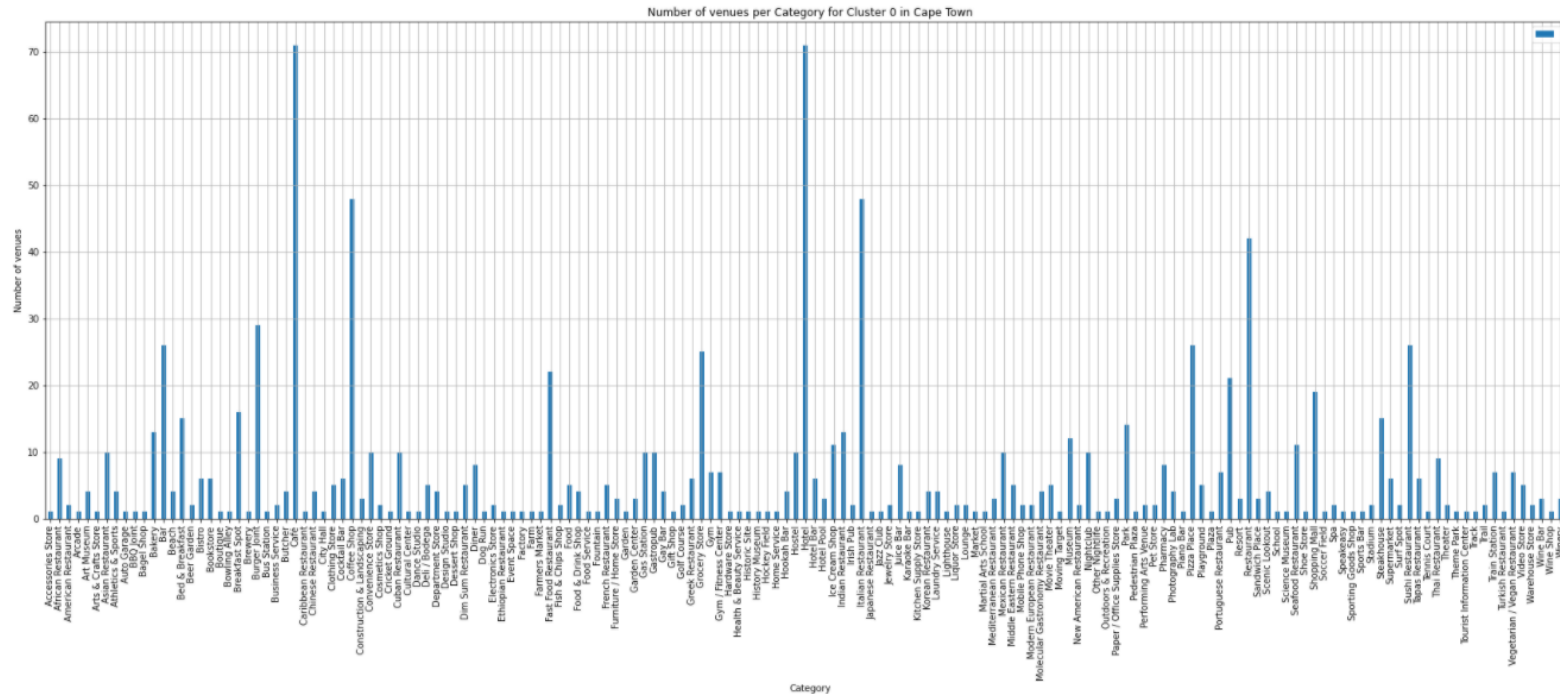


**Cape Town after clustering**
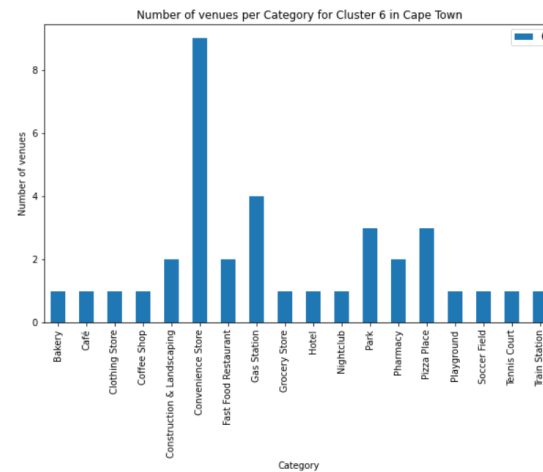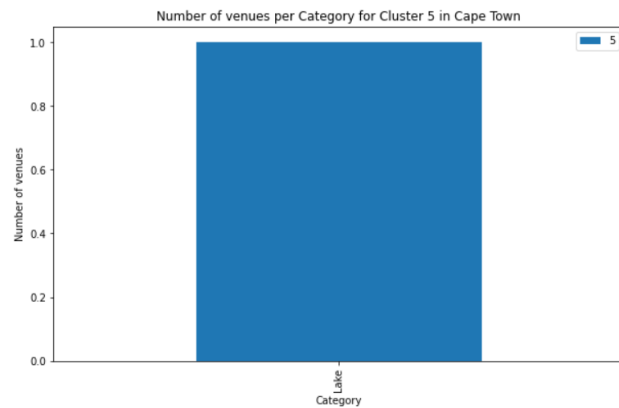
# Durban clusters

**Durban before clustering**



**Durban after clustering**

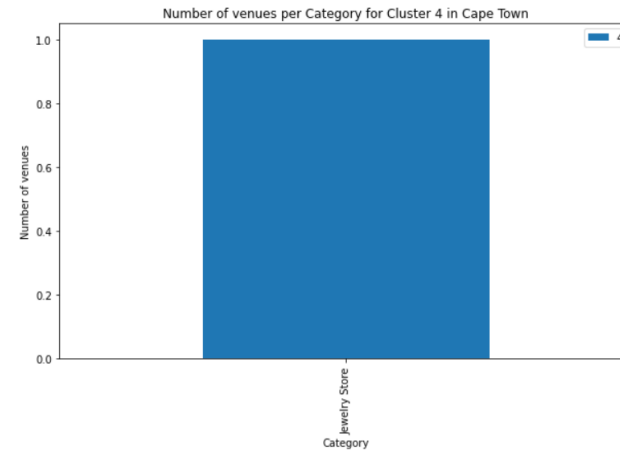Number of venues per Category for Cluster 0 in Cape Town
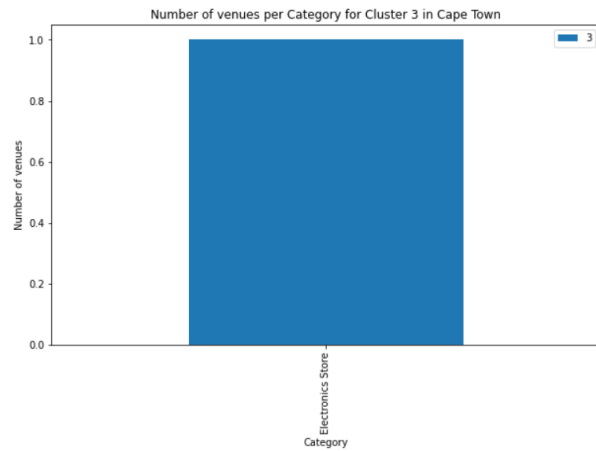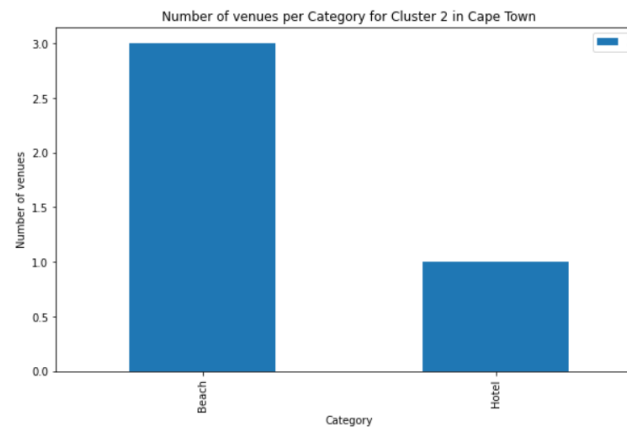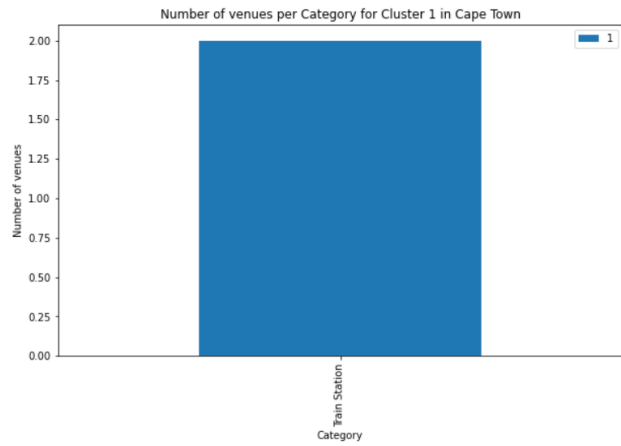
# Visualising Cape Town clusters

Cluster label 0

- Most popular venue is hotel and café at 71 venues each

# Visualising Cape Town clusters

Cluster label 1 up to 6

- Smaller clusters with venues that are not as popular as cluster 0

Number of venues per Category for Cluster 1 in Durban

# Visualising Durban clusters

Cluster label 1

- Hotel category is the most popular venue in Durban with 36 venues
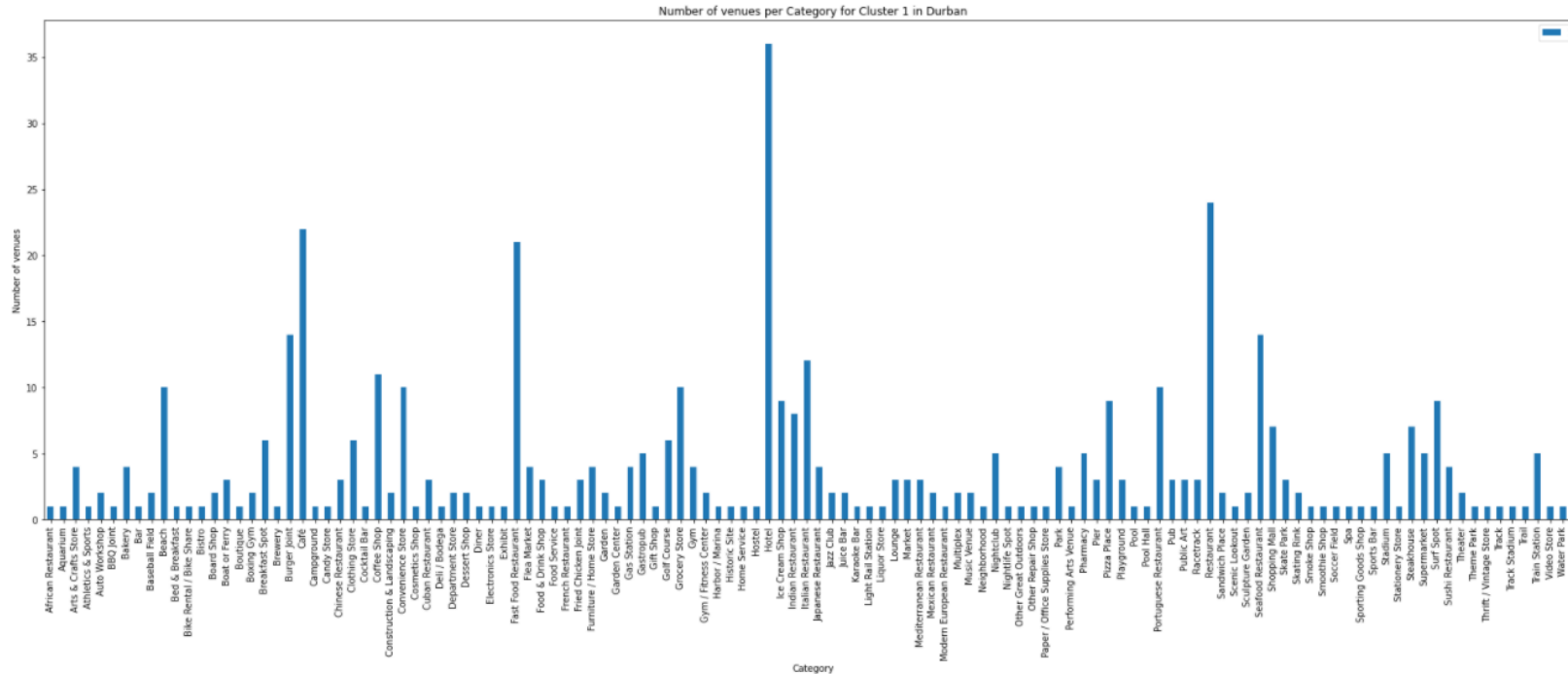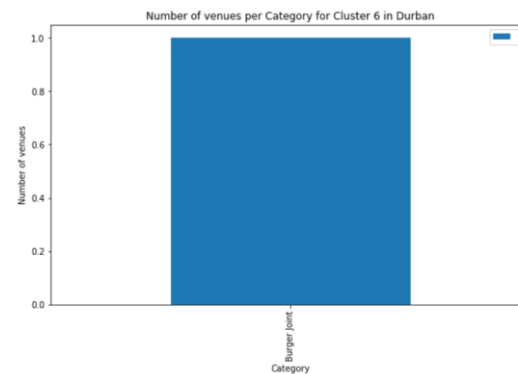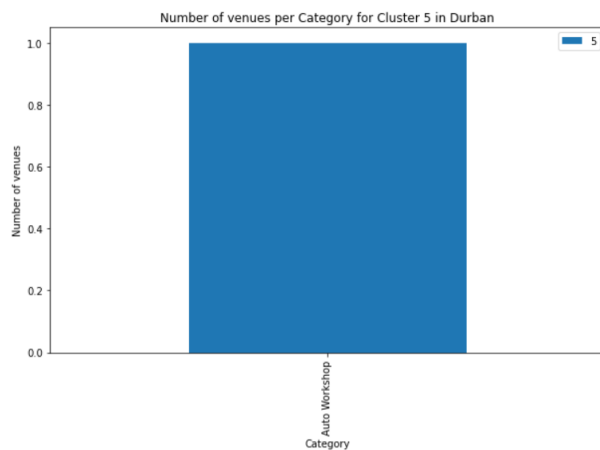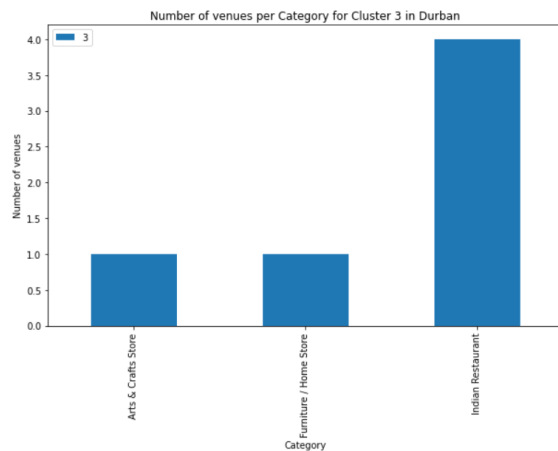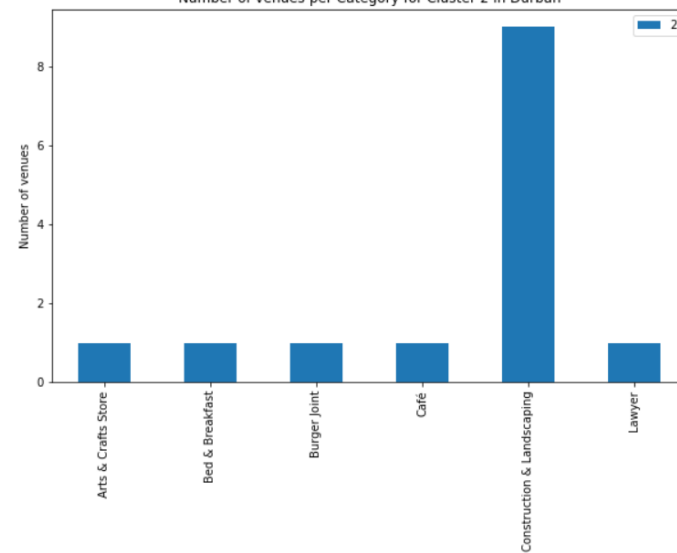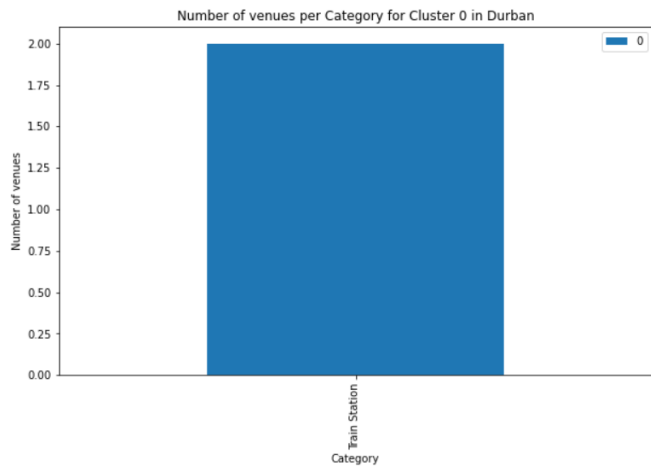
# Visualising Durban clusters

Cluster labels 0,2,3,4,5,6

- Smaller clusters with venues that are not as popular as cluster 1

# Choosing a city and business category

◦ Cape Town popular venue from cluster 0
   ◦ 71 in hotel category
   ◦ 71 in café category
◦ Durban popular venue from cluster 1
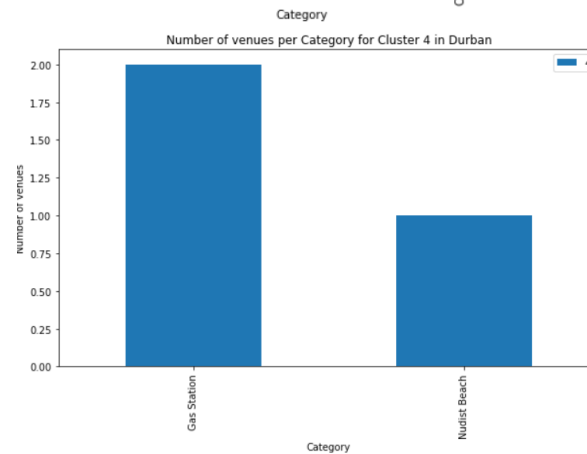   ◦ 36 in hotel category

◦ **Hotel** is the most popular venue among the two cities

◦ **Cape Town** is the city with the most popular categories, so Cape Town is the best city to choose

# Neighbourhoods in Cape Town that contributed to hotel popularity

○ The following neighbourhoods contributed to hotel being the most popular in Cape Town

○ Hotels are most popular in the De Waterkant neighbourhood

| | Neighbourhood | Hotel |
|---|---|---|
| 0 | Bakoven | 1 |
| 1 | Bantry Bay | 3 |
| 2 | Bishopscourt | 1 |
| 3 | Bloubergstrand | 1 |
| 4 | Bo-Kaap | 1 |
| 5 | Camps Bay | 7 |
| 6 | Clovelly | 3 |
| 7 | Darling | 3 |
| 8 | De Waterkant | 12 |
| 9 | Diep River | 2 |
| 10 | Fresnaye | 2 |
| 11 | Gardens | 3 |
| 12 | Green Point | 1 |
| 13 | Kreupelbosch | 2 |
| 14 | Mouille Point | 2 |
| 15 | Ocean View | 3 |
| 16 | Oranjezicht | 1 |
| 17 | Rondebosch East | 1 |

| | | |
|---|---|---|
| 18 | Schotsche Kloof | 1 |
| 19 | Sea Point | 3 |
| 20 | Strand | 3 |
| 21 | Sun Valley | 3 |
| 22 | Tamboerskloof | 6 |
| 23 | Three Anchor Bay | 3 |
| 24 | Vredehoek | 1 |
| 25 | Walmer Estate | 1 |
| 26 | Woodstock | 1 |

# Conclusion

◦ The best decision would be to invest in Cape Town in the hotel category

◦ The De Waterkant neighbourhood in Cape Town has the highest hotel popularity so building near or in that neighbourhood would be beneficial.