FOOD COURTS IN SINGAPORE

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IBM Applied Data Science Capstone
The Battle of Neighborhoods

BUSINESS PROBLEM

1. Does a relationship exist between population density and the number of food courts surrounding that population?
2. Where should local municipalities / entrepreneurs consider opening additional food courts that could meet population demands?

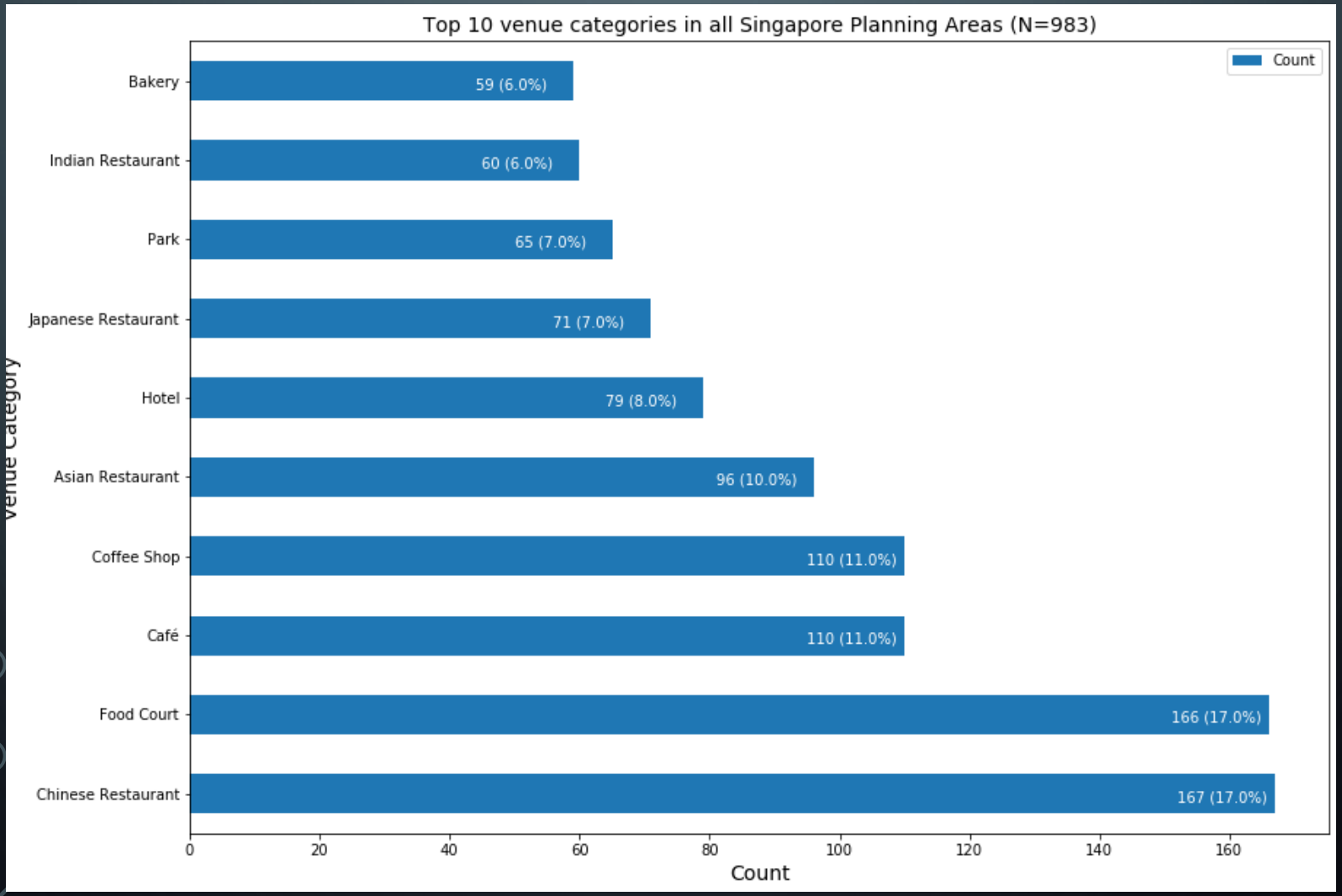
DATA SOURCES

1. Get list of Planning Areas and density from Wikipedia
2. Get coordinates for each Planning Area using Nominatim geocoder
3. Get list of venues using Foursquare API for each Planning Area

METHODOLOGY

- Get Planning Area data from Wikipedia page
- Get coordinates using geocoder
- Get venues surrounding each Planning Area using Foursquare API
- Filter venue category by Food Court
- Perform k-means clustering on data
- Visualise map clusters using Folium

TOP 10 VENUE CATEGORIES

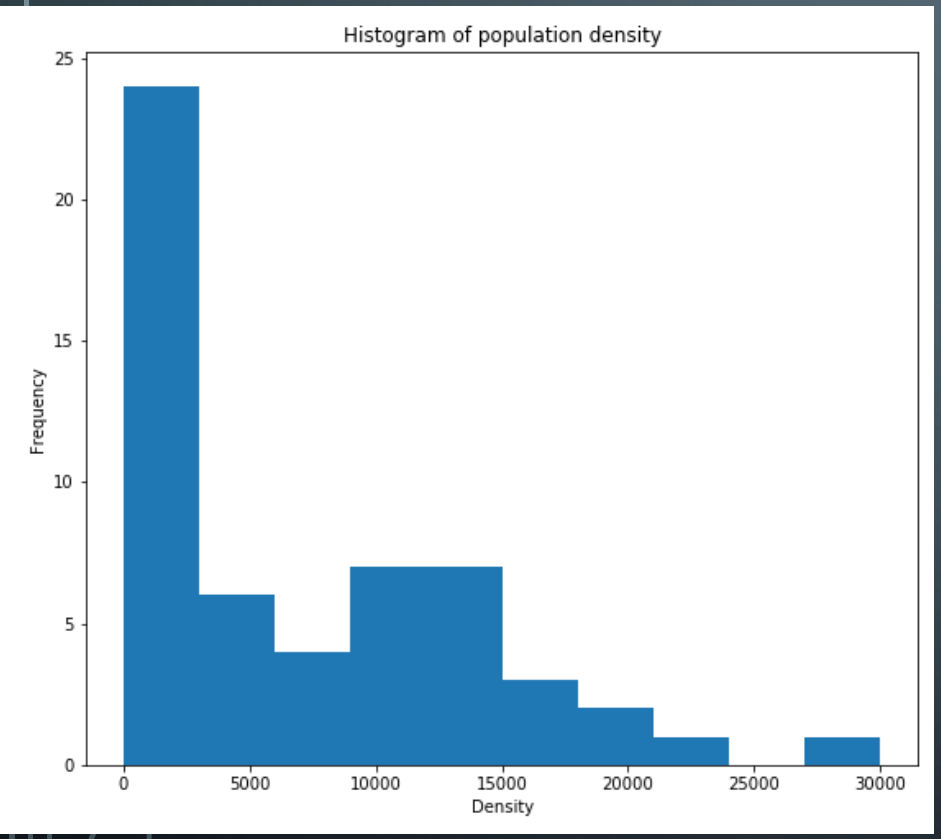


CORRELATIONS WITH DENSITY

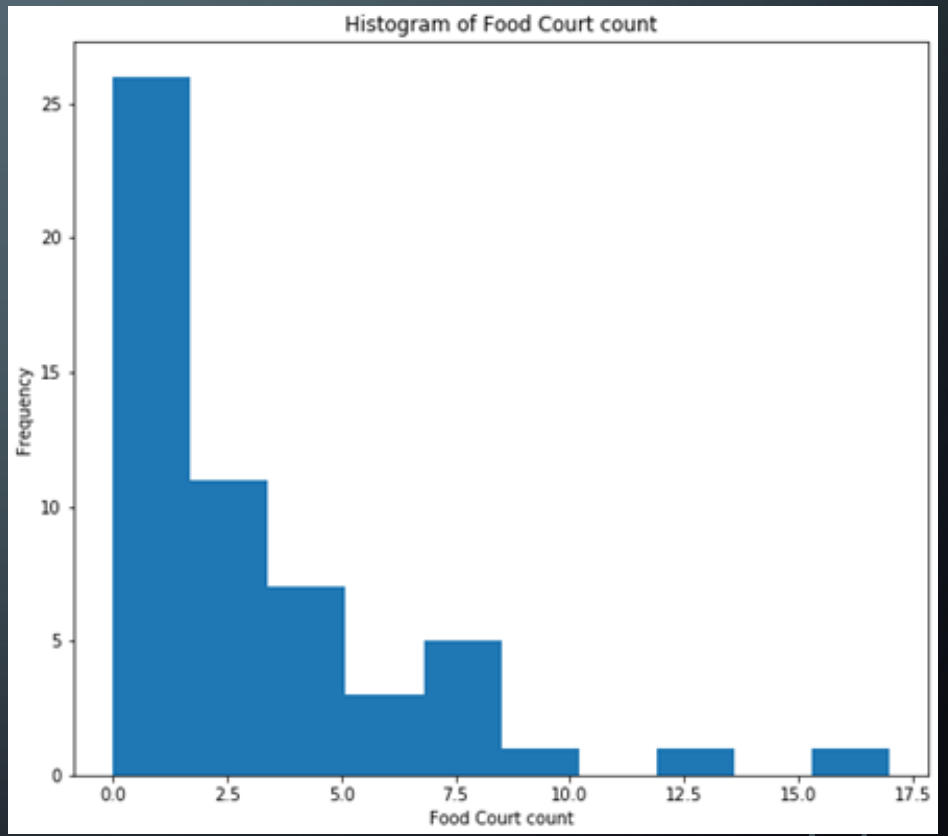
Top 5 pearson correlations:

Food Court	0.641849
Coffee Shop	0.532433
Pool	0.521503
Chinese Restaurant	0.472719
Market	0.448904

HISTOGRAMS OF POPULATION DENSITY AND FOOD COURTS

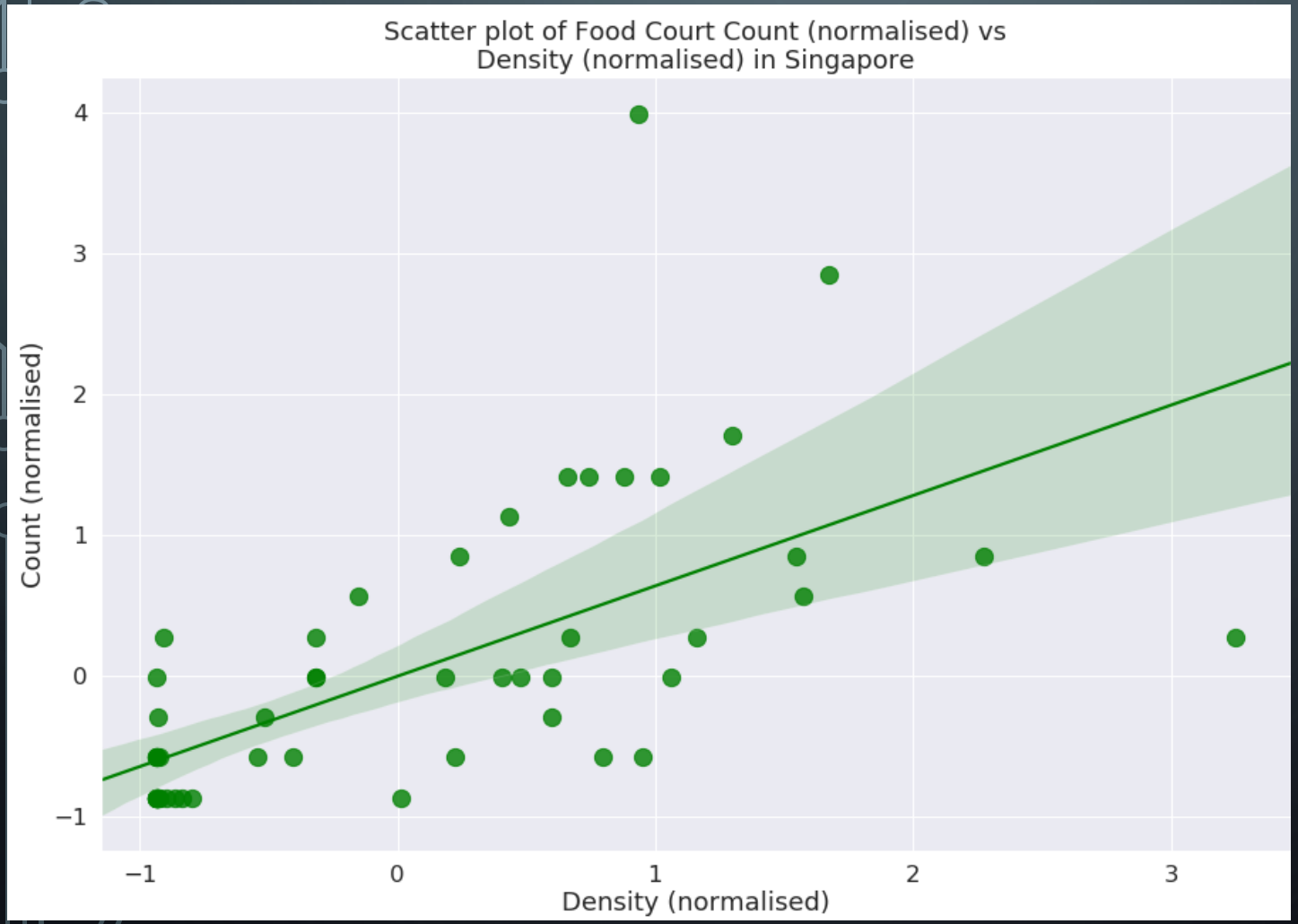


Histogram of population density



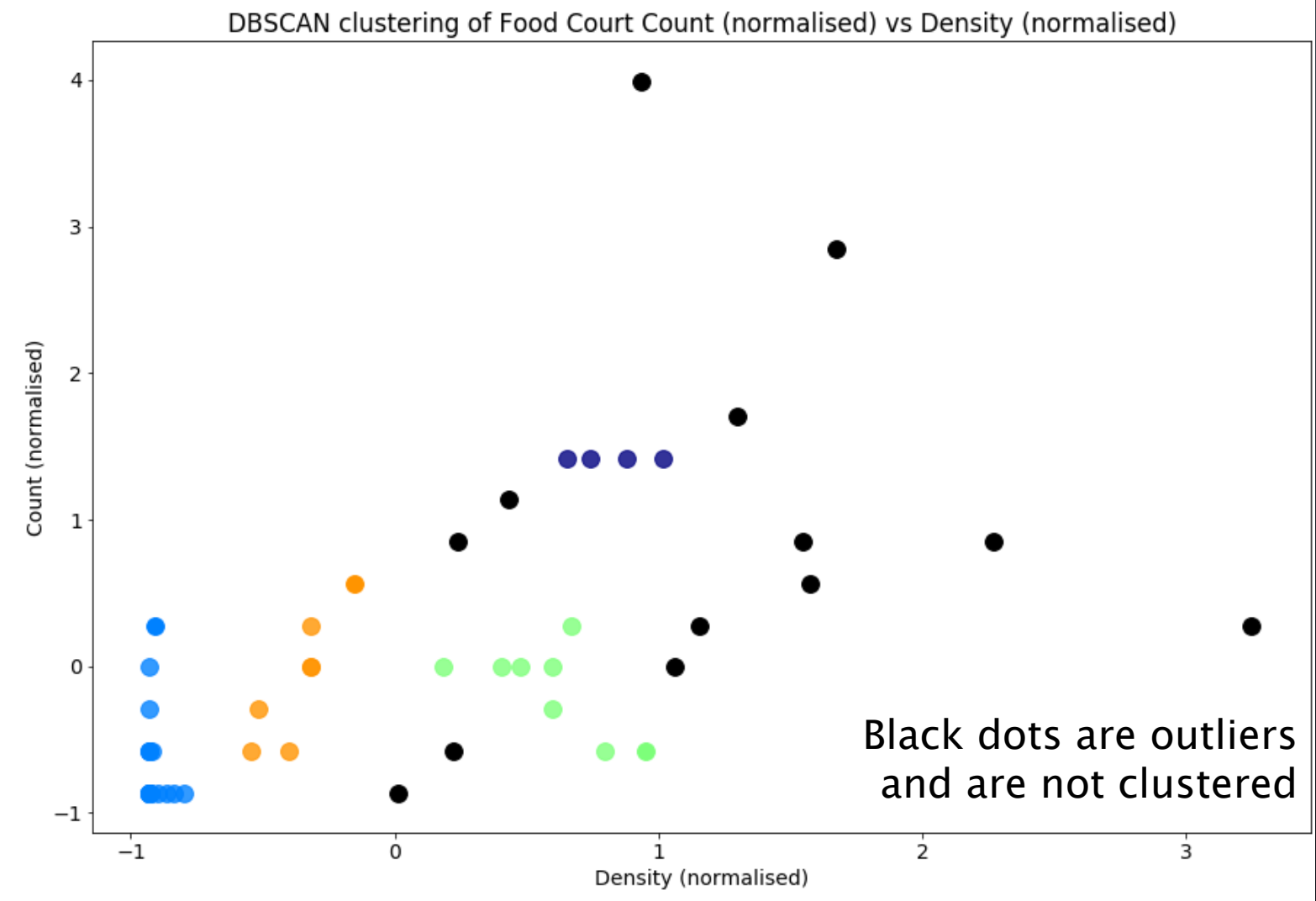
Histogram of food court count

SCATTER PLOT BETWEEN DENSITY AND FOOD COURT

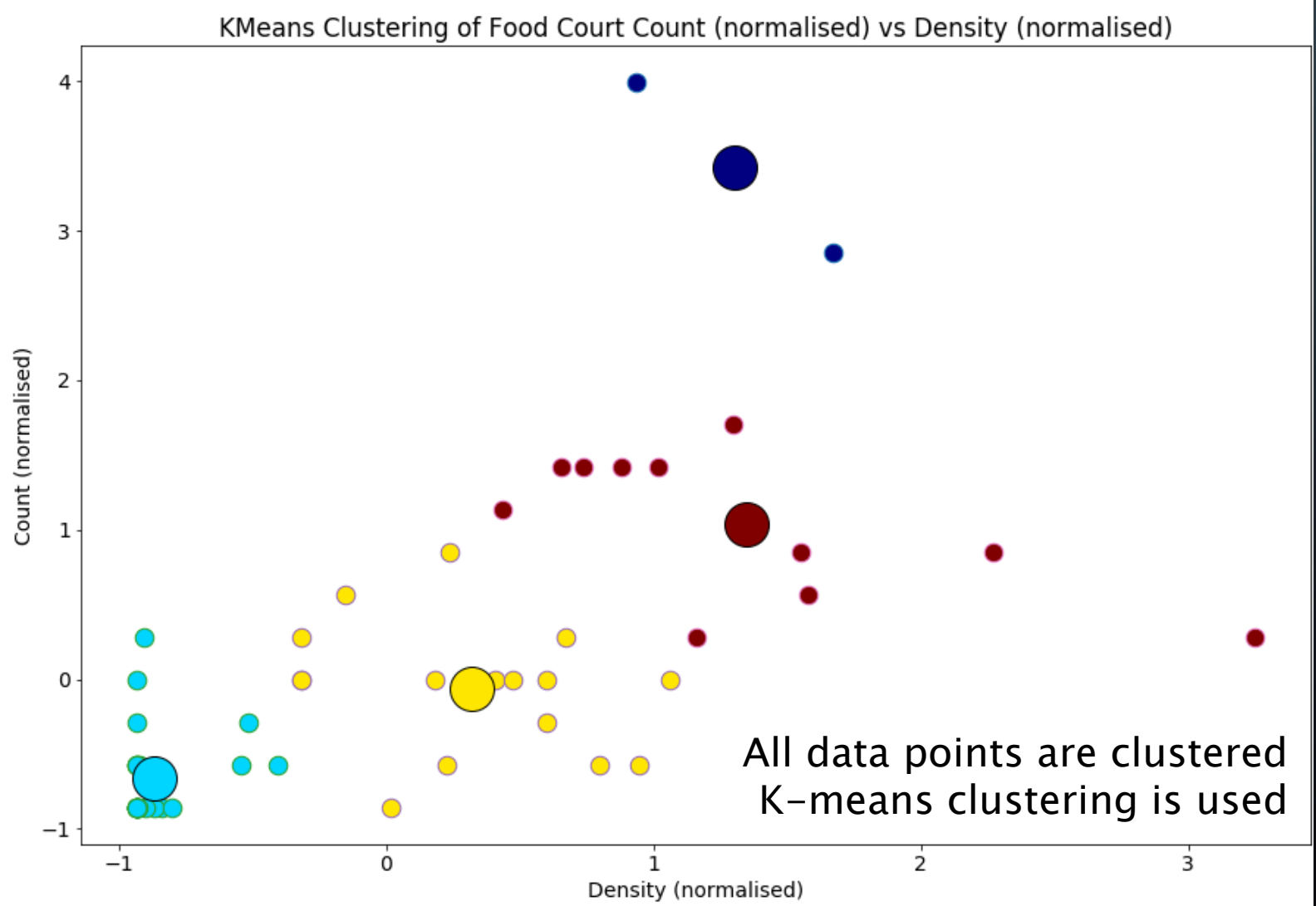


Scatter plot with regression line between Food Court and Density
R =0.64

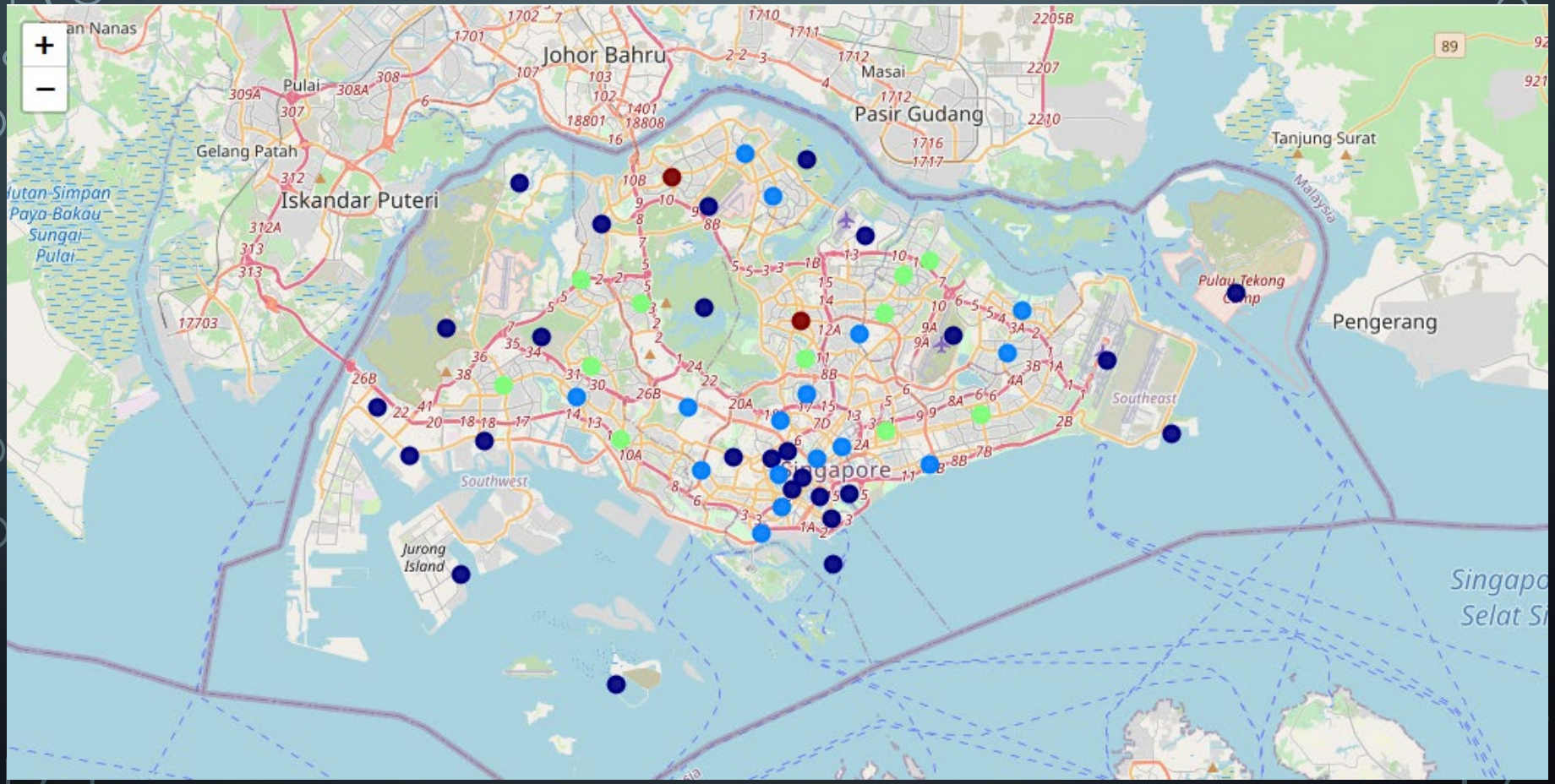
DBSCAN CLUSTERING



K-MEANS CLUSTERING



MAP WITH K-MEANS CLUSTERING



Brown map markers (cluster 0), dark blue map markers (cluster 1), light blue map markers (cluster 2), light green map markers (cluster 3).

DISCUSSION

- Cluster 0 (n=2) are areas with high numbers of Food Courts per Planning Area (range: 13 – 17) with moderate Population Density
- Cluster 1 (n=26) are places with low numbers of Food Courts per Planning Area (range: 0 – 4) with low Population Density
- Cluster 2 (n=16) are areas with low numbers of Food Courts per Planning Area (range: 0 – 6) with moderate Population Density
- Cluster 3 (n=11) are areas with medium number of Food Courts per Planning Area (range: 4 – 9) with high Population Density

CONCLUSION

- A moderately positive relationship exists between population density and food courts
- Local municipalities / entrepreneurs should consider opening additional food courts in Cluster 3, i.e. areas with high population density and medium number of Food Courts.

Thank You