Coffee Venues in Melbourne, Australia

A Coursera Capstone Project by Gareth Chadwick

Coffee Venues

Melburnians love their coffee and there is always room for another venue.

But, in which Melbourne suburb should you open a new cafe in order to have the greatest chance of success?

What factors dictate the number of coffee venues in a suburb, and moreover can we predict the quality of the venues based on suburb demographics?

Data Collection

Foursquare City Guide was used to obtain information on how many cafes are listed in each Melbourne suburb < 20 km from the CBD. Their mean rating was also collected where ratings were available.

The Australian Bureau of Statistics website was used to obtain 2016 census data for each suburb as demographic feature data.

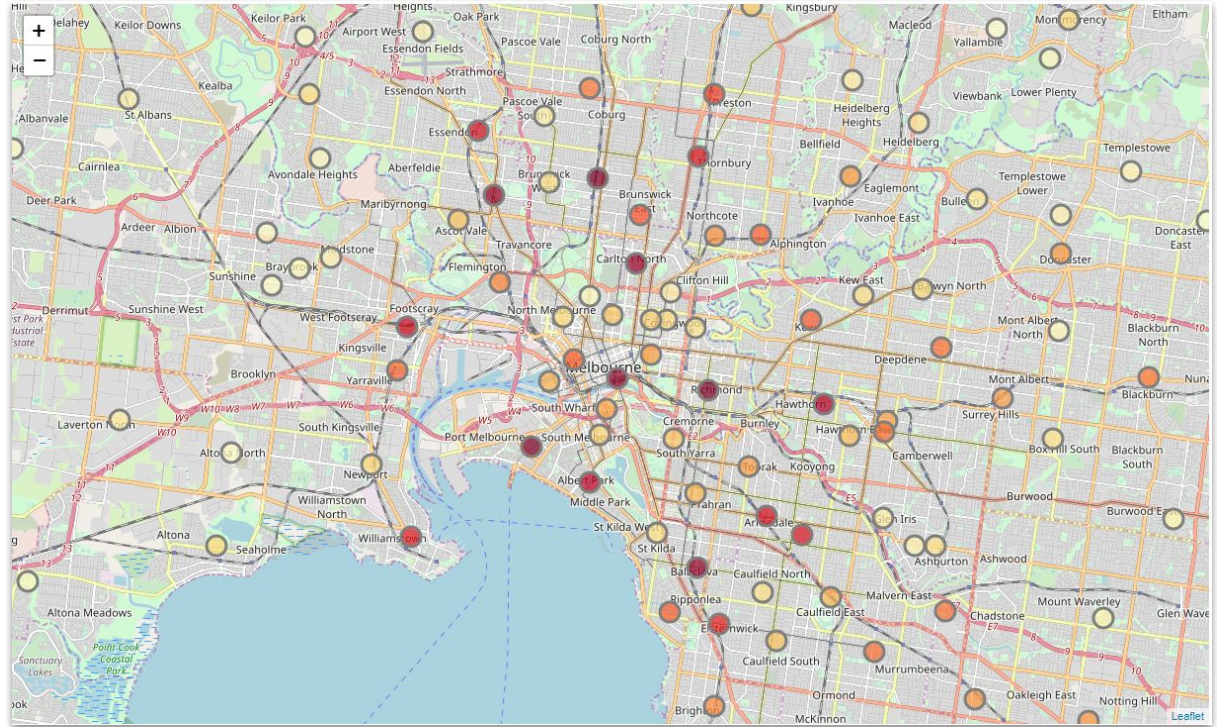# Number of Coffee Venues per Suburb

Map depicting count of coffee venues by colour:

Minimum = 0 (lightest yellow)

 through to

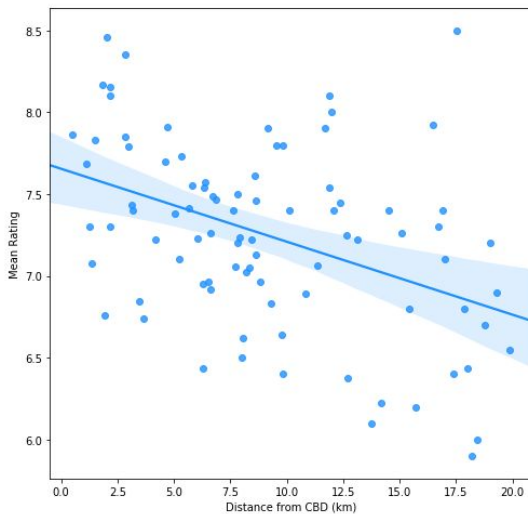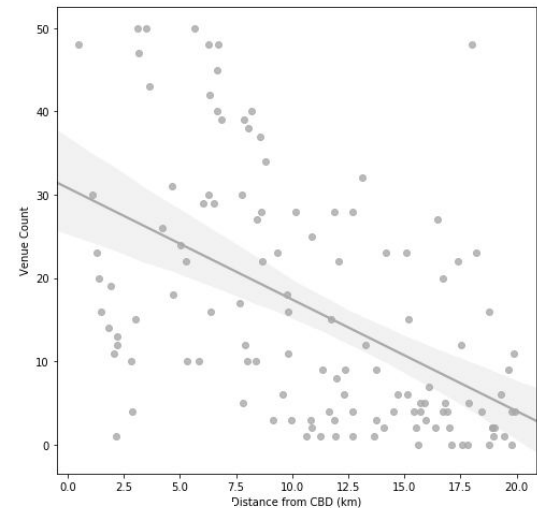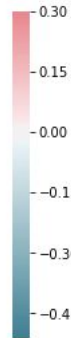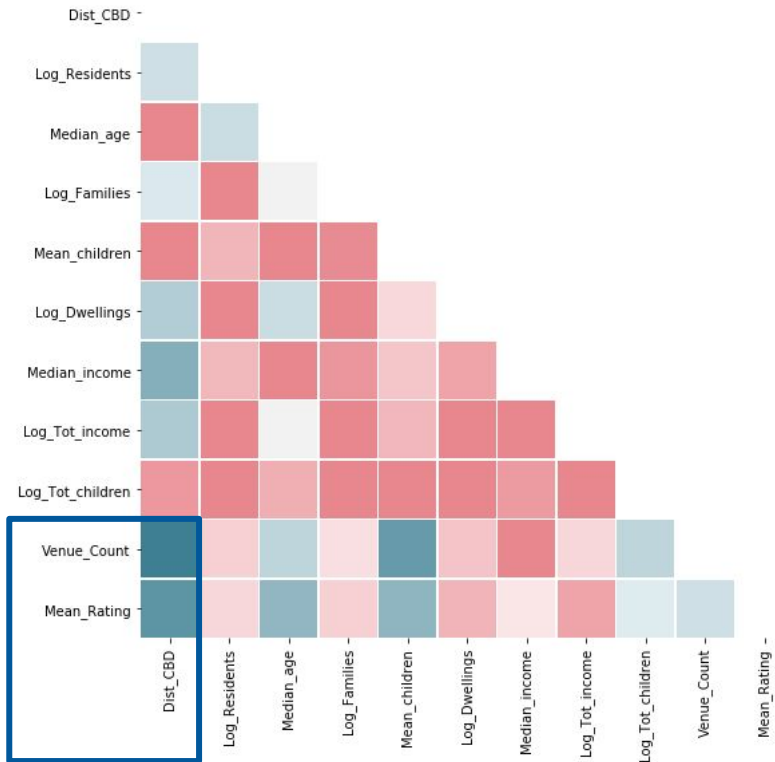Maximum = 50 (darkest red)

=> More venues in suburbs closer to the CBD

Feature Data

For each suburb:

- Population
- Median Age
- Number of Families
- Mean Number of Children per Family
- Number of Dwellings
- Median Weekly Household Income
- Distance from CBD

- Total Number of Children
- Total Weekly Income

Largest Single Correlations

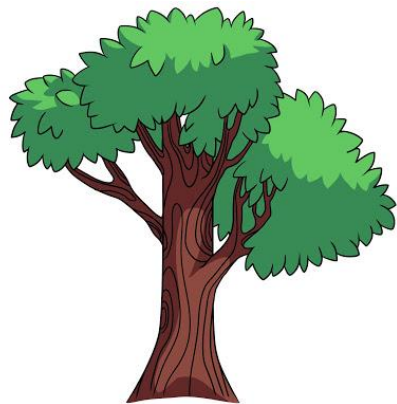Confirms weak to moderate correlations with distance from CBD

Machine Learning Models

Models for venue count and mean rating were developed using both:

- Multivariate Linear Regression
- Random Forest Regression

All feature variables were used. Leave one out crossvalidation performed to assess prediction accuracy.

Top 3 Under-Served Suburbs

Venue Count

Mean Prediction Error = 9.6

Under-served suburbs:

	Suburb	Actual - Predicted
1	Clifton Hill	-27
2	Brooklyn	-24
3	St. Kilda	-22

Mean Rating

Mean Prediction Error = 0.4

Under-served suburbs:

	Suburb	Actual - Predicted
1	Briar Hill	-1.4
2	Bentleigh East	-1.2
3	Chadstone	-1.2

Conclusion
Locate your new Coffee Venue in:
Clifton Hill or Briar Hill