Identify
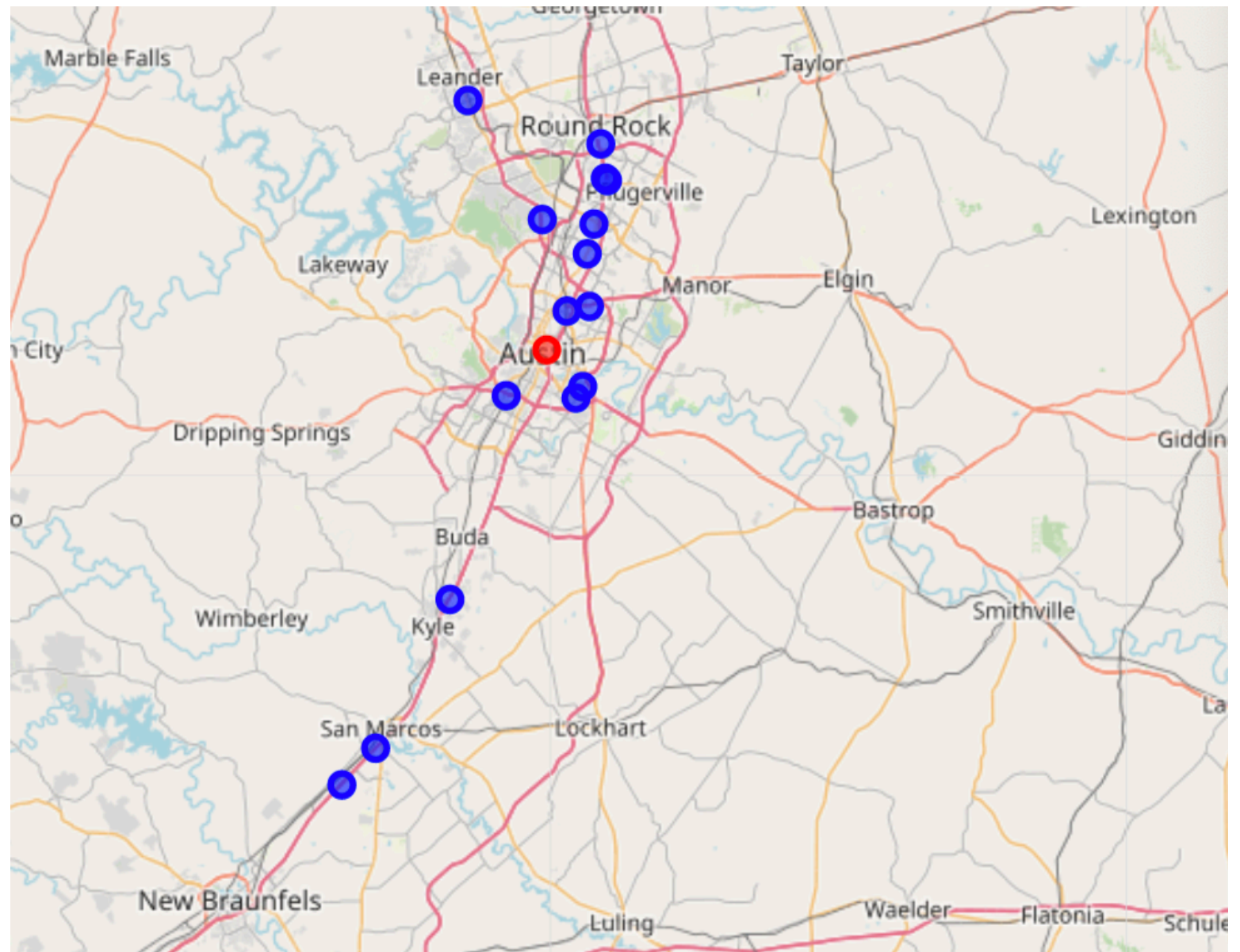 the most comment car model and predict used car price

Introduction

- 280 million vehicles in operation in the United

- It is advantageous for a company or person who may want to buy or sell a used car to predict the price of the used car and explore the car dealerships within certain distance.
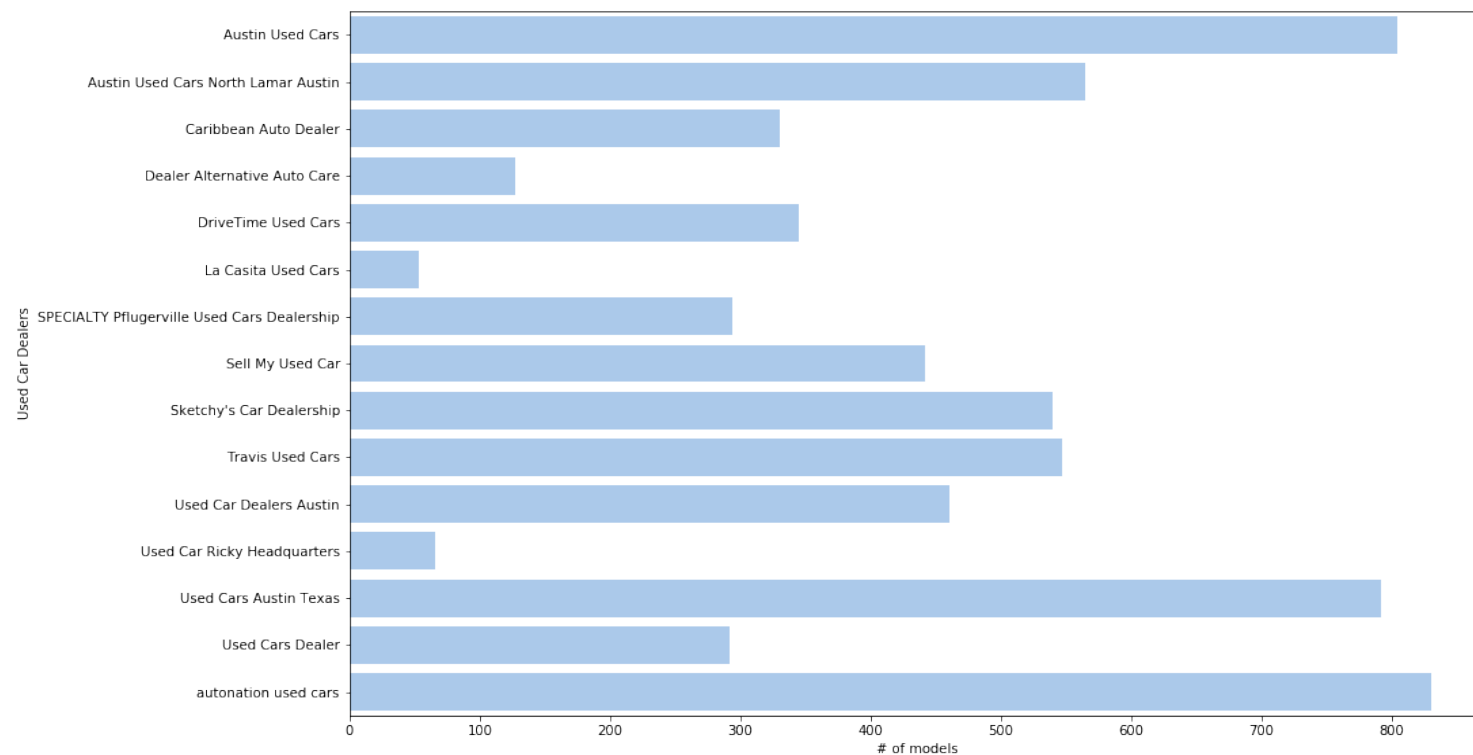
Data Description

- Craigslist used car dataset (Published in <u>Kaggle</u>)

  - 458213 records from Craigslist covers 51 states
  - 26 attributes including build year, manufacturer, mode, condition, etc.
  - Remove missing observations with missing attributes
  - Remove observations built before 1930 and after 2020
  - Remove observations with price below 1000 or over 60000

- Car dealers' information from Forsquare API

  - The address of Texas Capitol was used as the searching location
  - Forsquare API returned 15 car dealers
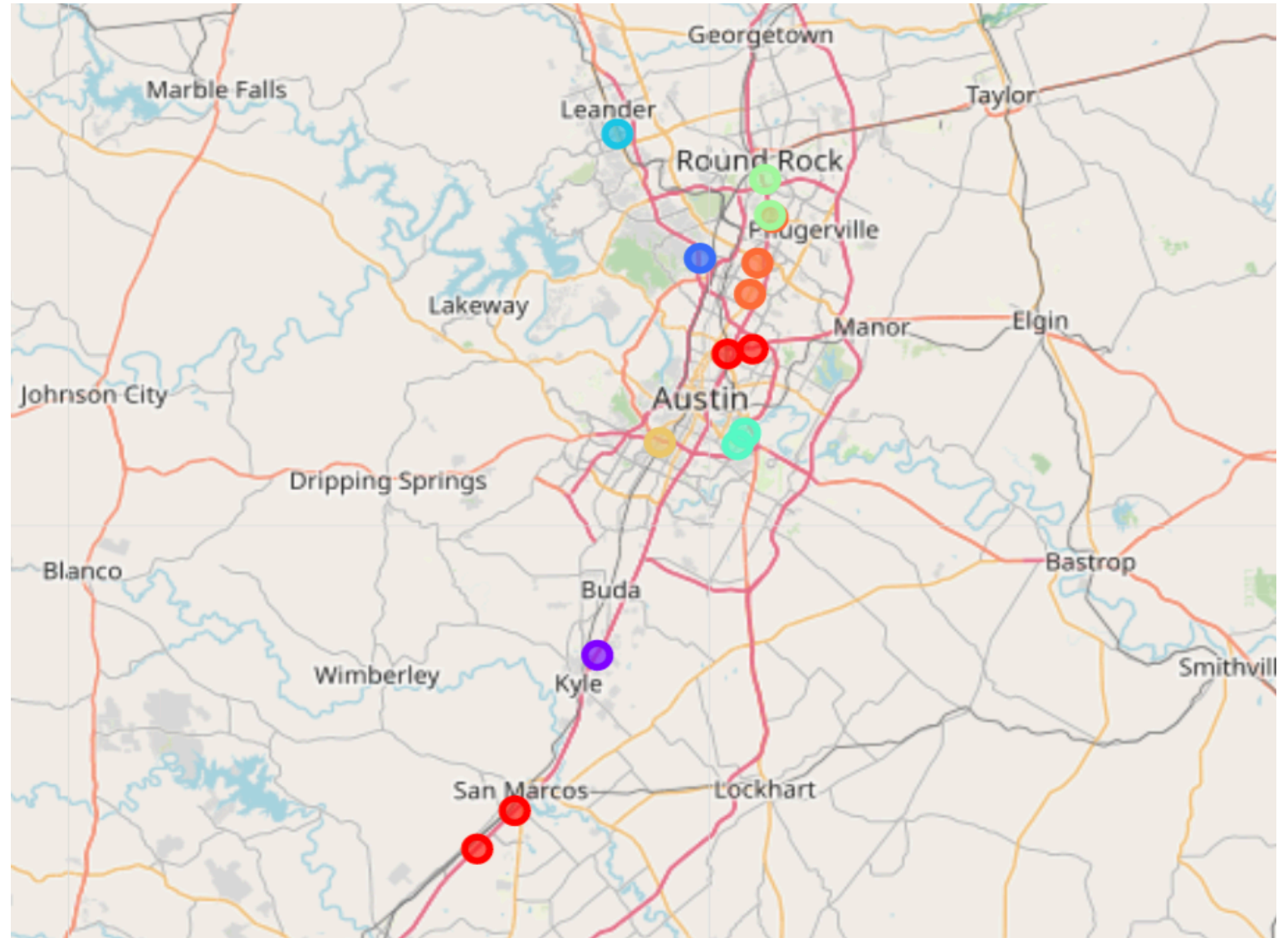
Used car dealers

Identify the most comment car model

- Craigslist used car data were merged into the dealer table based on given latitude and longitude information.

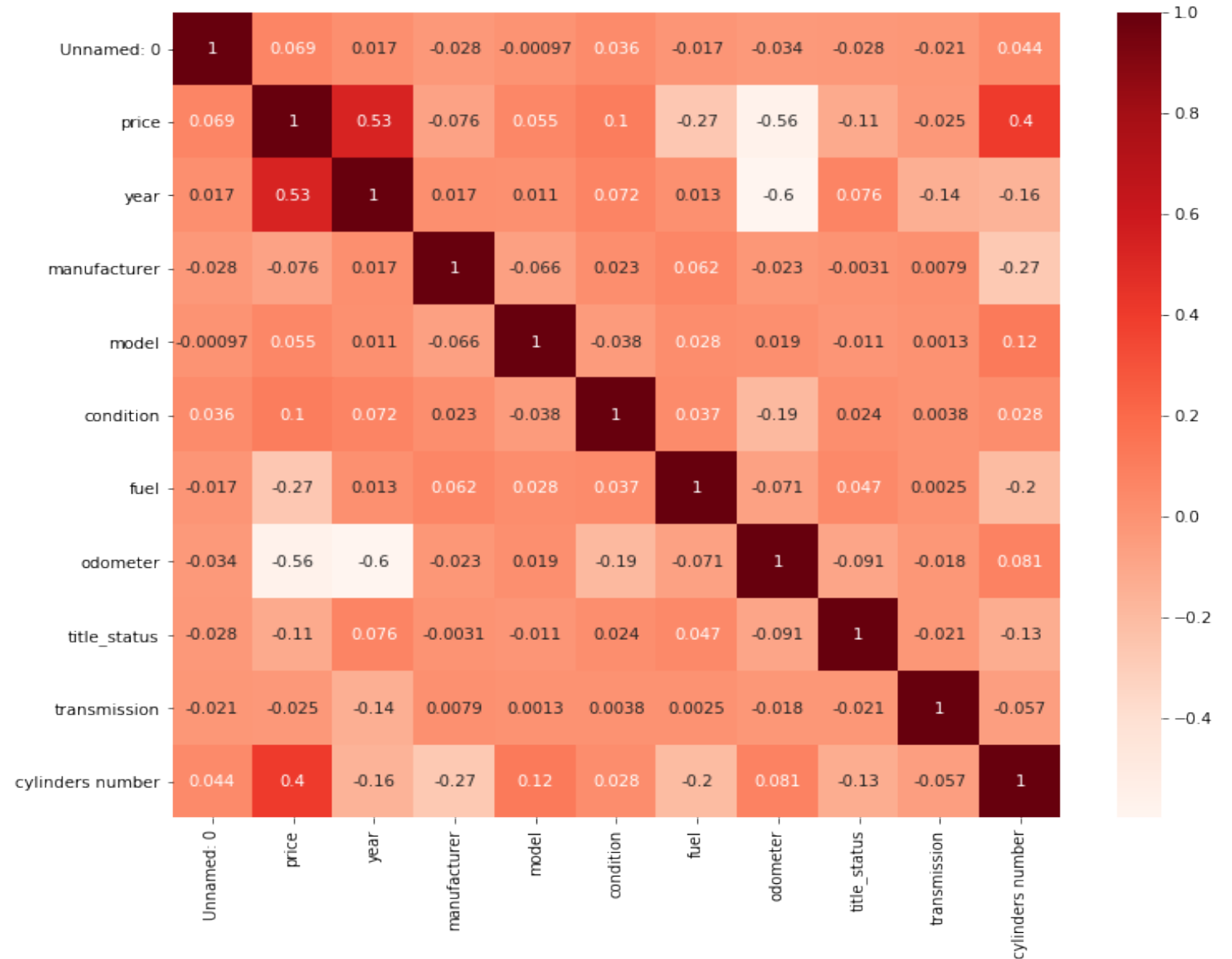- 6487 vehicles find near the dealers and 445 unique models were linked to the dealers.

Identify the most comment car model

Predict used car price

variable selection

Predict used car price

variable selection

- As shown in the correlation matrix, year, condition, cylinders, fuel, odometer and title_status have relatively high positive and negative relationship with price.

- The correlation between odometer and year is -0.60

- 20% of the data as test set and trained the model with 80% of the data

Predict used car price

Model Performance

Independent Variable	P-value
const	0.00E+00
year	0.00E+00
condition	2.99E-11
cylinders	0.00E+00
fuel	3.33E-9
title_status	2.02E-28

Mean Absolute Error	5682.12
Mean Squared Error	56566562.60
Root Mean Squared Error	7521.07
R2	0.58

Predict used car price

Intercept	**-2484668.99**
year	1236.82
condition	535.03
cylinders number	3163.44
fuel	-8209.31
title_status	-1254.56

Discussion & Conclusion

- The most comment car model posted is CHEVROLET SILVERADO, and 60% of dealers' most comment car model is truck.

- The relatively lower gas price and large number of farm owners the reasons for this preference. The map below shows the location of each dealer with the most comment car model.

- The factor that will increase the price including newer model, higher cylinder number, usage of diesel, clean title and good condition