carmax.com

Regression on used car prices

The drives

Market Research

Consumer Sentiment

Profit Opportunities

carmax®

Your Store
COLMA, CA | 📞 **(415) 840-9327**

🚗 **MyCarMax**
Sign In | Register
Make A Payment
♥ Saved Cars (0)

CARS FOR SALE   SELL YOUR CAR   FINANCING   RESEARCH

2015 Land Rover Range Rover Sport HSE

1 of 22
LOOK INSIDE

No-Haggle Price
N/A*

Mileage
32K

New Tires
Replaced 4 tires to meet our standards

Manufacturer Warranty
Balance of 4 Years or 50,000 Miles may apply. See store for details.

Advanced Features
Blind Spot Monitor, Parking Sensors

SORRY, THIS CAR CAN'T BE RESERVED

We apologize for any inconvenience.
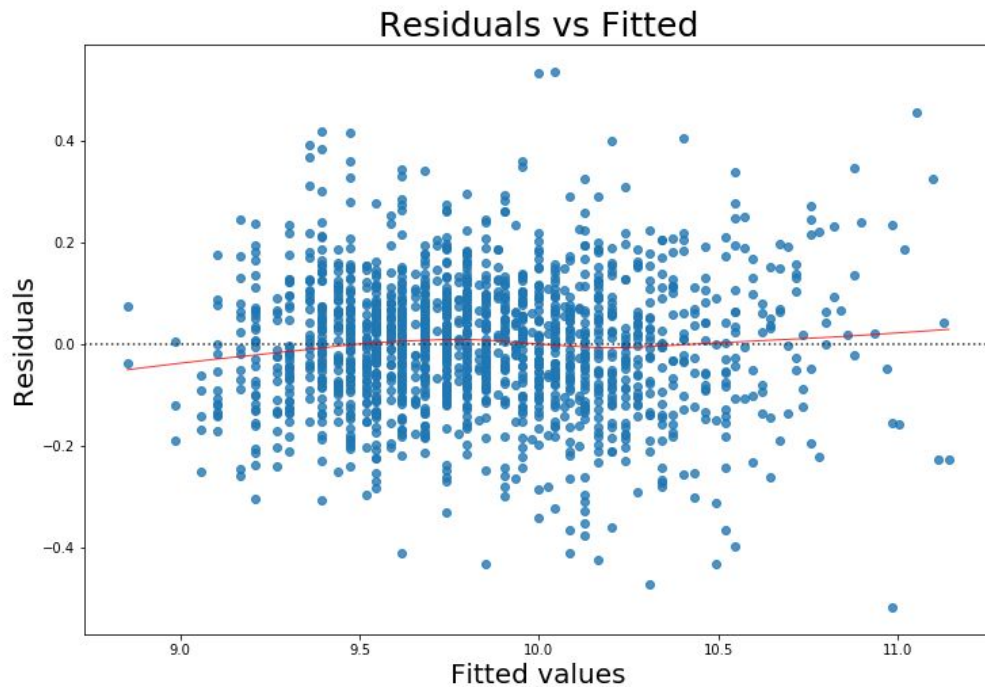
♥ Save to Favorites (3)

FEEDBACK

2150
cars

16+3+2
variables

11
stores

34
makes

The baseline model

0.144
CV RMSE

Residuals vs Fitted

The final model

0.14
CV RMSE
0.137
Test RMSE

49
variables

Category: Porsche
Category: Land
Binary: Luxury cars
Category: Dodge
Binary: Budget cars
Binary: Manual cars

The residual plot

Residuals vs Fitted
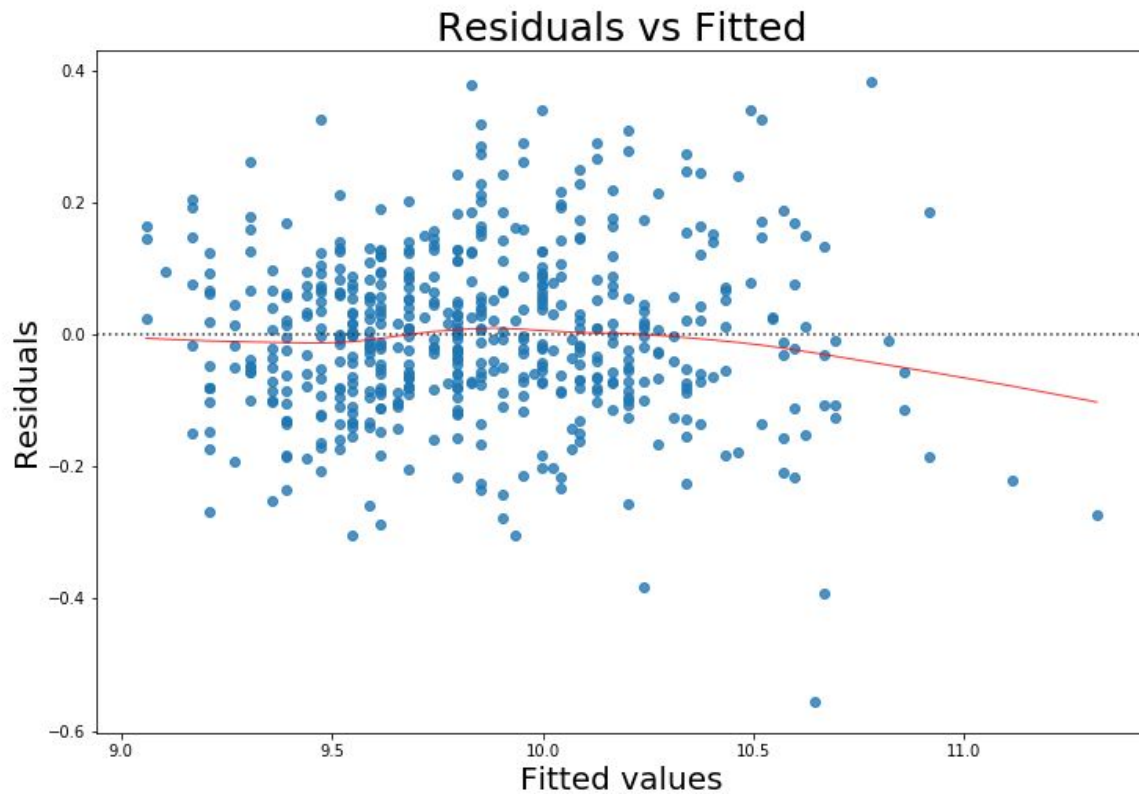
Brand correlation with price
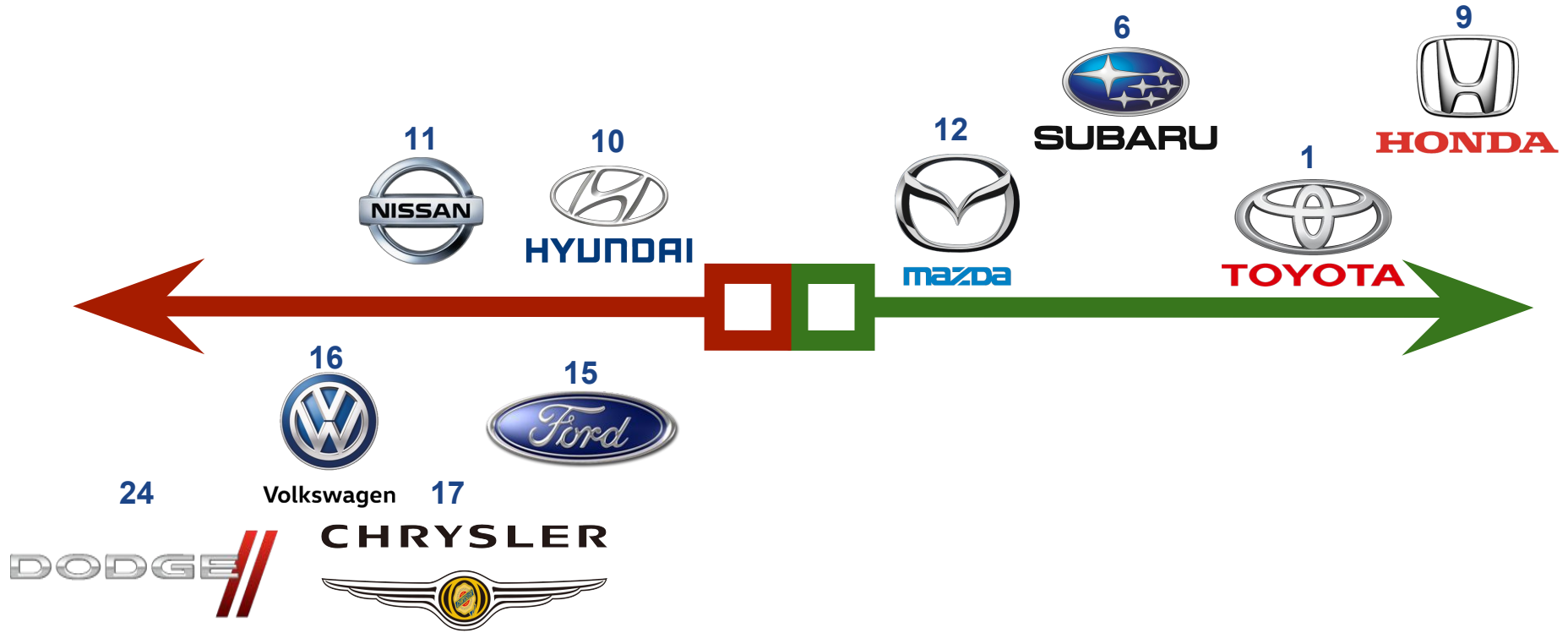
*Numbers indicate 2017 brand reliability ranking in consumer reports

Feature importance findings

01 Mileage > Age

02 MPG in City > MPG on Highway

03 Indifferent: owner, open recalls

Future efforts

01   Better features
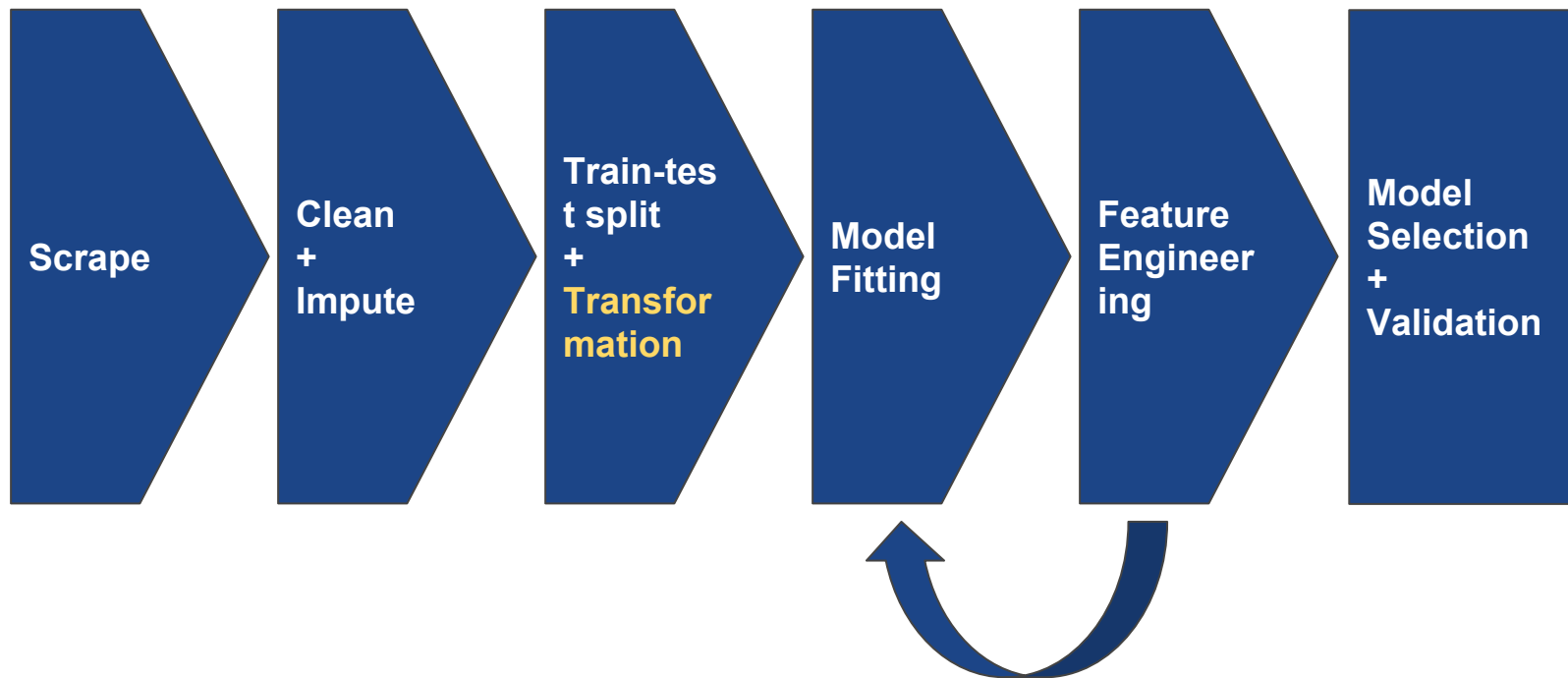
02   Granular missing data imputation
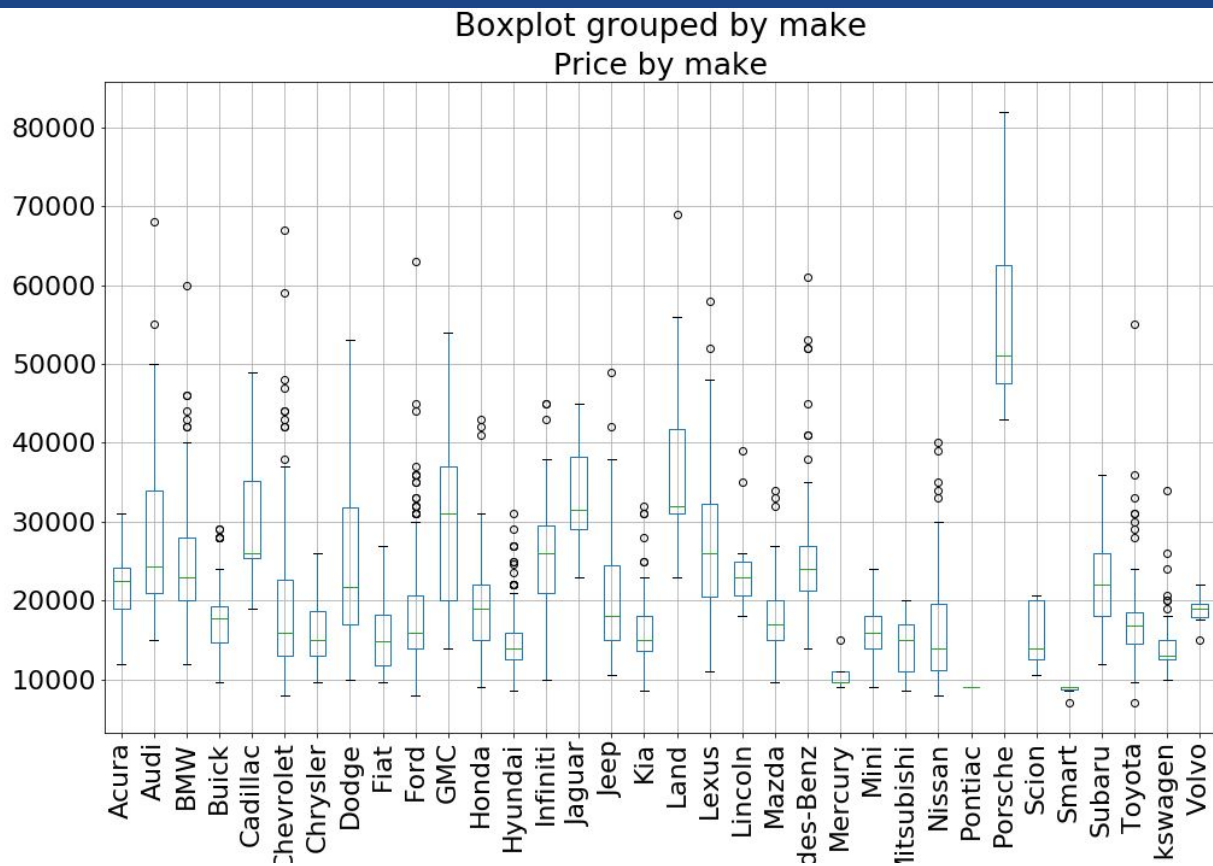
03   Solution for high condition number
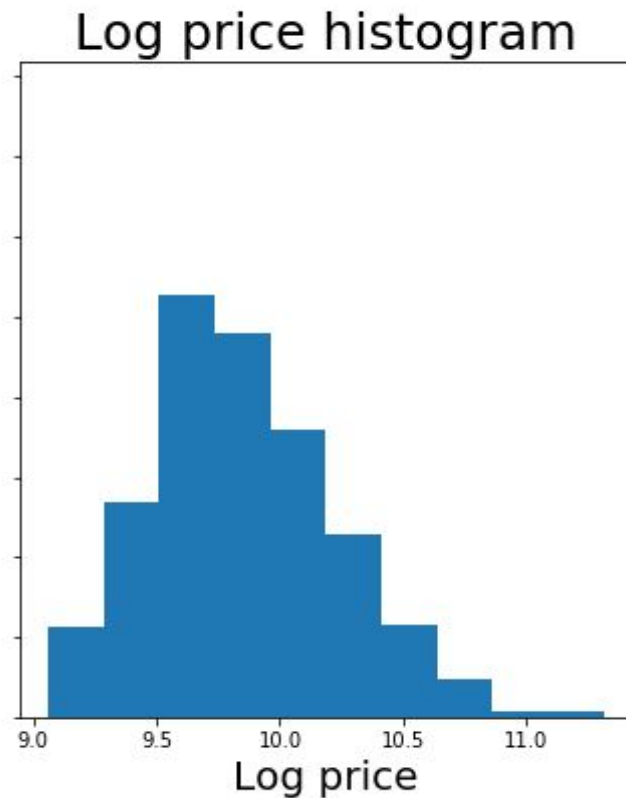
Thank you!
Questions?

Appendix

The pipeline

Scrape → Clean + Impute → Train-test split + Transformation → Model Fitting → Feature Engineering → Model Selection + Validation

Price by make

Boxplot grouped by make
Price by make

Model summary

OLS Regression Results

Dep. Variable:	price	**R-squared:**	0.882
Model:	OLS	**Adj. R-squared:**	0.878
Method:	Least Squares	**F-statistic:**	238.6
Date:	Thu, 19 Jul 2018	**Prob (F-statistic):**	0.00
Time:	14:58:39	**Log-Likelihood:**	964.34
No. Observations:	1614	**AIC:**	-1829.
Df Residuals:	1564	**BIC:**	-1559.
Df Model:	49		
Covariance Type:	nonrobust		

Omnibus:	45.173	**Durbin-Watson:**	1.928
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	100.818
Skew:	0.103	**Prob(JB):**	1.28e-22
Kurtosis:	4.207	**Cond. No.**	1.38e+16

Price transformation

The learning curve