library(readxl)

Car <- read\_excel("Documents/Accunique/4-Lasso／Ridge Regression／Random Decision Forest-Car Price-1850/Car.xlsx")

View(Car)

price <- Car$price

head(price)

highwaympg <- Car$highwayMpg

head(highwaympg)

citympg <- Car$cityMpg

head(citympg)

peakrpm <- Car$peakRpm

head(peakrpm)

horsepower <- Car$horsepower

head(horsepower)

compressionratio <- Car$compressionRatio

head(compressionratio)

stroke <- Car$stroke

head(stroke)

bore <- Car$bore

head(bore)

enginesize <- Car$engineSize

head(enginesize)

curbweight <- Car$curbWeight

head(curbweight)

height <- Car$height

head(height)

width <- Car$width

head(width)

length <- Car$length

head(length)

wheelbase <- Car$wheelBase

head(wheelbase)

make <- Car$make

fueltype <- Car$fuelType

aspiration <- Car$aspiration

numofdoors <- Car$numOfDoors

bodystyle <- Car$bodyStyle

drivewheel <- Car$driveWheels

enginelocation <- Car$engineLocation

enginetype <- Car$engineType

numbofcylinders <- Car$numOfCylinders

fuelSystem <- Car$fuelSystem

res\_make <- model.matrix(~make)

res\_fueltype <- model.matrix(~fueltype)

res\_aspiration <- model.matrix(~aspiration)

numofdoors <- model.matrix(~numofdoors)

res\_aspiration <- model.matrix(~aspiration)

res\_numofdoors <- model.matrix(~numofdoors)

res\_bodystyle <- model.matrix(~bodystyle)

res\_drivewheel <- model.matrix(~drivewheel)

res\_enginelocation <- model.matrix(~enginelocation)

res\_enginetype <- model.matrix(~enginetype)

res\_numofcylinders <- model.matrix(~numbofcylinders)

res\_fuelsystem <- model.matrix(~fuelSystem)

summary(model1)

> summary(model1)

Call:

lm(formula = price ~ ., data = Car)

Residuals:

Min 1Q Median 3Q Max

-3329.2 -922.2 0.0 731.4 8328.9

Coefficients: (3 not defined because of singularities)

Estimate Std. Error t value Pr(>|t|)

(Intercept) -7.023e+03 1.783e+04 -0.394 0.694361

...1 1.161e+02 5.440e+01 2.134 0.034630 \*

makeaudi -4.260e+02 2.244e+03 -0.190 0.849691

makebmw 3.402e+03 2.453e+03 1.387 0.167737

makechevrolet -9.340e+03 2.958e+03 -3.157 0.001963 \*\*

makedodge -1.005e+04 2.667e+03 -3.769 0.000243 \*\*\*

makehonda -8.575e+03 3.367e+03 -2.547 0.011990 \*

makeisuzu -1.008e+04 3.761e+03 -2.682 0.008234 \*\*

makejaguar -5.090e+03 3.192e+03 -1.595 0.113085

makemazda -1.067e+04 4.033e+03 -2.645 0.009132 \*\*

makemercedes-benz -5.767e+03 4.277e+03 -1.348 0.179802

makemercury -1.334e+04 5.118e+03 -2.606 0.010179 \*

makemitsubishi -1.715e+04 5.266e+03 -3.256 0.001426 \*\*

makenissan -1.578e+04 6.068e+03 -2.600 0.010349 \*

makepeugot -1.970e+04 6.920e+03 -2.847 0.005091 \*\*

makeplymouth -2.132e+04 7.378e+03 -2.890 0.004488 \*\*

makeporsche -1.218e+04 7.646e+03 -1.593 0.113498

makesaab -1.571e+04 7.886e+03 -1.993 0.048284 \*

makesubaru -1.992e+04 8.451e+03 -2.357 0.019873 \*

maketoyota -2.374e+04 9.444e+03 -2.514 0.013112 \*

makevolkswagen -2.544e+04 1.074e+04 -2.369 0.019253 \*

makevolvo -2.552e+04 1.106e+04 -2.307 0.022579 \*

fuelTypegas -1.450e+04 6.694e+03 -2.166 0.032038 \*

aspirationturbo 1.841e+03 8.100e+02 2.273 0.024602 \*

numOfDoorstwo -1.073e+01 4.916e+02 -0.022 0.982612

bodyStylehardtop -1.831e+03 1.190e+03 -1.539 0.126233

bodyStylehatchback -2.345e+03 1.131e+03 -2.074 0.039962 \*

bodyStylesedan -1.712e+03 1.216e+03 -1.408 0.161358

bodyStylewagon -1.983e+03 1.309e+03 -1.515 0.132204

driveWheelsfwd -3.928e+02 9.237e+02 -0.425 0.671313

driveWheelsrwd -3.871e+02 1.230e+03 -0.315 0.753538

engineLocationrear 1.040e+04 2.645e+03 3.932 0.000134 \*\*\*

wheelBase 2.277e+02 9.476e+01 2.403 0.017616 \*

length -1.419e+02 5.050e+01 -2.810 0.005678 \*\*

width 4.994e+02 2.319e+02 2.154 0.033036 \*

height -2.201e+02 1.511e+02 -1.457 0.147503

curbWeight 6.388e+00 1.680e+00 3.801 0.000217 \*\*\*

engineTypel 2.082e+03 4.175e+03 0.499 0.618769

engineTypeohc 1.687e+03 1.234e+03 1.366 0.174049

engineTypeohcf NA NA NA NA

engineTypeohcv -1.881e+03 1.255e+03 -1.499 0.136136

numOfCylindersfive -6.081e+03 2.843e+03 -2.139 0.034203 \*

numOfCylindersfour -3.752e+03 3.520e+03 -1.066 0.288307

numOfCylinderssix -3.863e+03 2.677e+03 -1.443 0.151231

numOfCylindersthree NA NA NA NA

numOfCylinderstwelve -5.481e+03 5.255e+03 -1.043 0.298774

engineSize 8.672e+01 2.488e+01 3.485 0.000662 \*\*\*

fuelSystem2bbl 2.528e+03 1.474e+03 1.716 0.088469 .

fuelSystemidi NA NA NA NA

fuelSystemmfi -4.711e+02 2.638e+03 -0.179 0.858533

fuelSystemmpfi 1.115e+03 1.559e+03 0.715 0.475652

fuelSystemspdi 5.056e+02 1.845e+03 0.274 0.784482

fuelSystemspfi 2.025e+03 3.030e+03 0.668 0.505021

bore -2.730e+03 1.865e+03 -1.463 0.145698

stroke -1.709e+03 1.020e+03 -1.675 0.096184 .

compressionRatio -9.929e+02 4.969e+02 -1.998 0.047711 \*

horsepower 5.068e+00 2.474e+01 0.205 0.837969

peakRpm 2.579e+00 6.603e-01 3.905 0.000148 \*\*\*

cityMpg 8.472e+00 1.341e+02 0.063 0.949703

highwayMpg 1.397e+02 1.142e+02 1.223 0.223458

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1731 on 136 degrees of freedom

Multiple R-squared: 0.9676, Adjusted R-squared: 0.9542

F-statistic: 72.42 on 56 and 136 DF, p-value: < 2.2e-16