Optimizing Used Car Listing Quotations

Matt Ryan

01

INTRODUCTION

INTRODUCTION

Motivation

To overhaul used car listing/quotation process, seeking maximum efficiency and accuracy

Objectives

Leverage existing used car listing data to build an informed predictive model

Goals

Implement our predictive tool into production to begin stream-lining the quotation process

02

METHODOLOGY

FRAMEWORK

APPLY VARIETY OF
DIFFERENT REGRESSION
MODELS TO VIABLE
LISTINGS TO 'TRAIN' OUR
TOOL

LISTINGS

EACH LISTING
REPRESENTS ONE CAR
AND ITS FEATURES AND
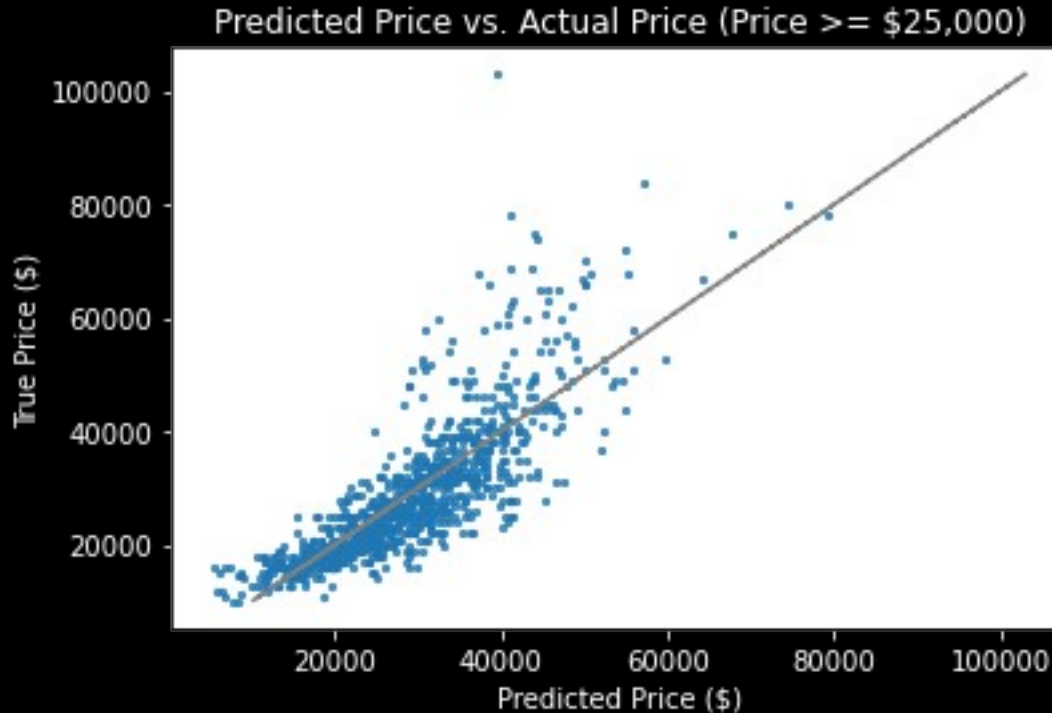SPECIFICATIONS

THE DATA

- Web-scraped from carmax.com
- Encompasses a wide range of models, makes, and classes
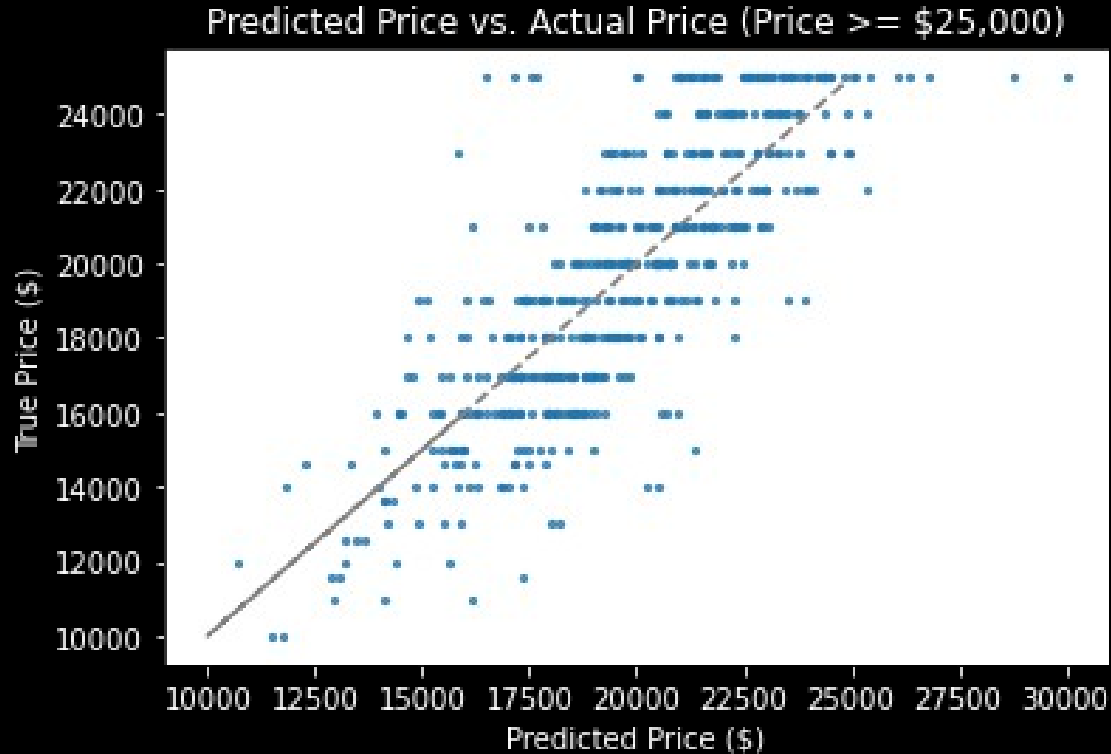- 1,293 car listings

02

RESULTS

PRICE RANGE AS A FACTOR

Predicted Price vs. Actual Price (Price >= $25,000)

Conical shape = BAD

What is an acceptable price range?

After filtering for strongly price-correlated features, we determined a regularized model is most effective for price <=$25,000
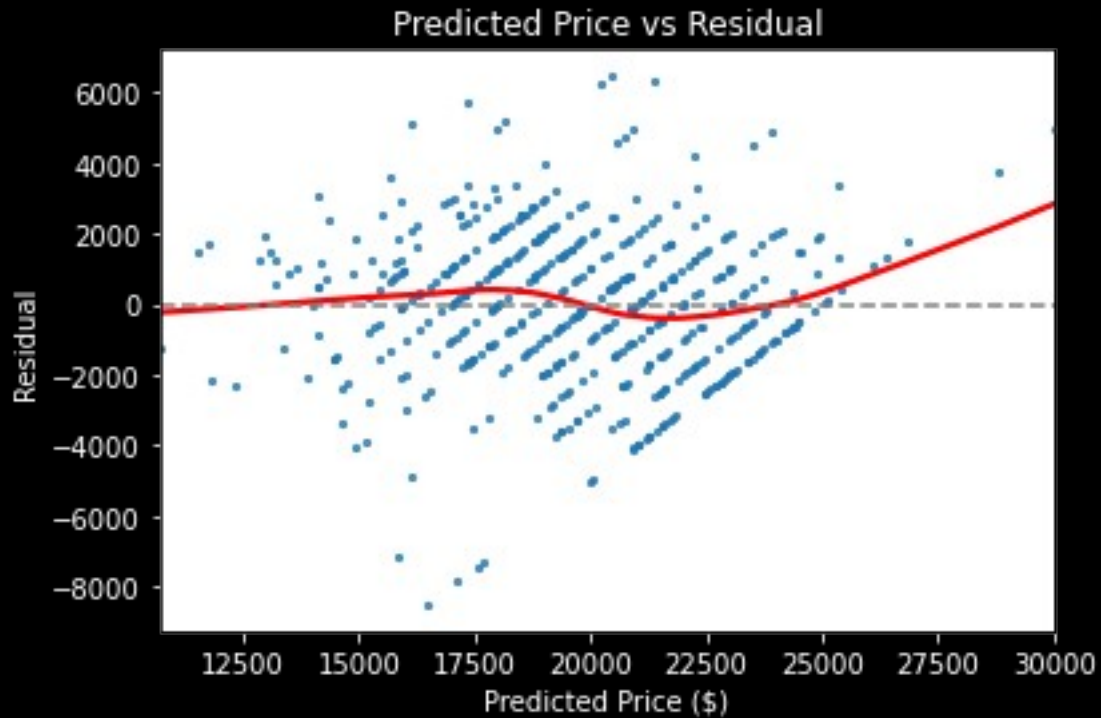
A REWORKED MODEL

Predicted Price vs. Actual Price (Price >= $25,000)

16
Features

$1,540.54
Mean Absolute Error

0.62
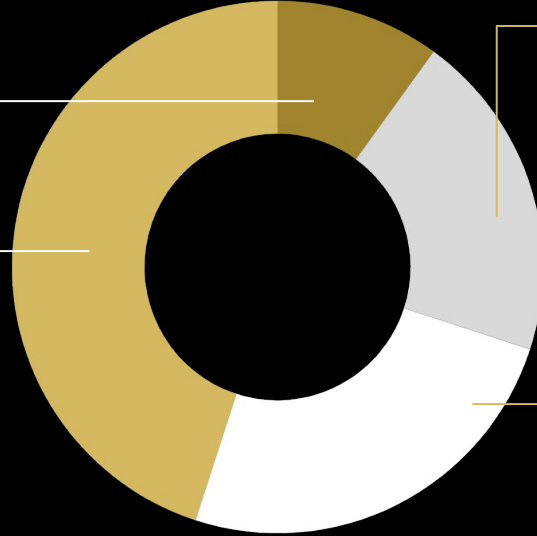R2

A REWORKED MODEL

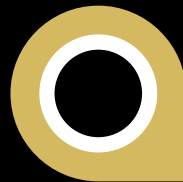Predicted Price vs Residual

KEY FEATURES

Mileage

Year

Horsepower

MPG

LOOKING FORWARD

- Investigate modeling techniques that can account for behavior above $25k
- Investigate our features, potentially bring in more features

Thank
You

THANKS!