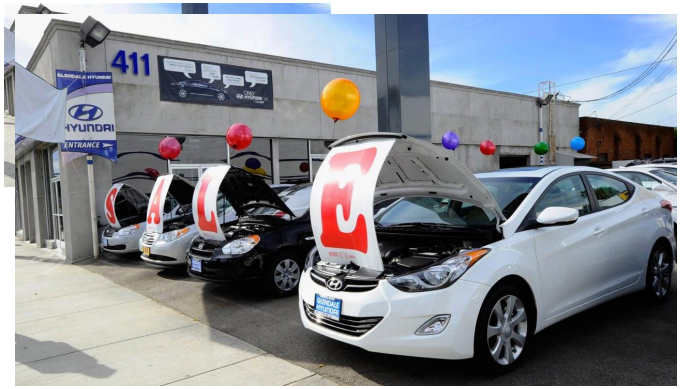
CSCI 4050 Project: Predicting Car Prices

Davis Zhao - 100878926

Motivation:

Buying cars can be difficult

- Requires extensive knowledge about cars, particularly when buying used cars
- Many factors to consider, when deciding on a price
- Buying cars are big investments, requiring caution



Dataset

- Dataset obtained from https://www.kaggle.com/datasets/lepchenkov/usedcarscatalog
- This dataset was chosen because it had a sizeable amount of data (~38000), and also descriptive information categories that couldn't be found in other datasets (has_warranty, drivetrain)

Neural Network Design:

- There are 37 input features, and 1 target feature (Price in USD)
- Initially selected 12 features, but grew to 37 features after One-Hot encoding to fit data into the model
- 3 hidden layers
- Outputs 1 value, the predicted price

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mean absolute error: 1034.063280998557
mean car price: 6642.83154296875
rows processed: 35000
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Performance

- Uses Adam optimizer with lr=0.004
  - Uses L1 absolute loss
- After training, obtains a mean absolute error of $1034.06 with a mean car price of $6642.83
- ~16% error