## Name

TheDebugger

## Question 1)

MSE: 0.8214836108632233

R^2: 0.41250268307820426

## Neural Network:

Used an MLP (Multi-layer perceptron) neural network model. It has 1 hidden layer with 100 neurons. It uses a logistic sigmoid function for activation for more complex predictions as described in class.

It has 5 input features and 100 nodes/neurons in the hidden layer, so 5x100=500 weights, and 100 weights connecting to the single output of overall rating. There is also a bias for each node in the hidden layer and output layer, so a total bias of 101. Thus, a total of 600 weights and 101 biases, giving us a total number of inner parameters of 701.

The 5 features used were: character length of cons, character length of pros, sentiment score of cons, sentiment score of pros, and sentiment score of headline. Everything else was disregarded.

## Question 2)

## Feature Distribution Graphs in Test/Train:

A screenshot of a graph

Description automatically generated

## Prediction/Value Distribution in Test/Train:

A graph of a number of bars

Description automatically generated with medium confidence

## Heat Map:

A diagram of heat map

Description automatically generated

## Question 3)

Interactions with ChatGPT allowed me to create one well documented and working piece of code to train the neural network as required. It also allowed me to fix a bunch of bugs, understand how to calculate the parameters in the model and more.

Question:

A screenshot of a computer

Description automatically generated

Answer:

A screenshot of a computer

Description automatically generatedA screenshot of a cell phone

Description automatically generated

After several modifications and changes requested, ChatGPT gave the following code which required very few modifications and I used.

A screenshot of a computer program

Description automatically generated A screen shot of a computer program

Description automatically generated

A screenshot of a computer program

Description automatically generated

## Code Section Starts Here