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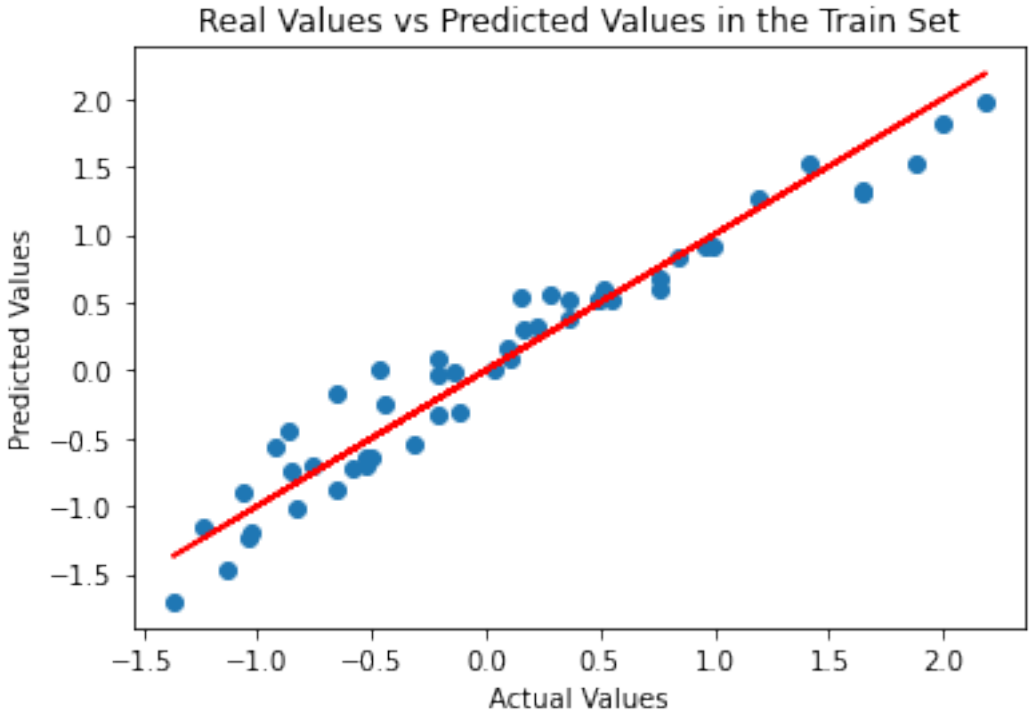
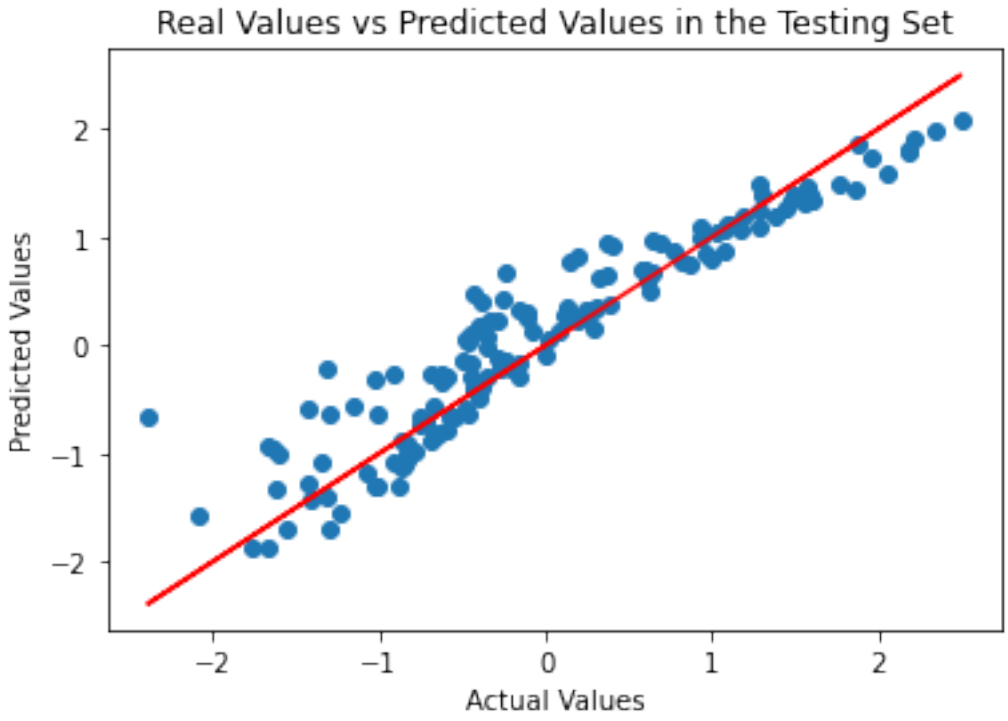
1. What are the optimal weights found by your implemented gradient descent?

hO(x) = 0.07739485 + 0.74353413*TV + 0.50377545*Radio + 0.01136577*Newspaper

2. Provide a scatter plot



Based on the scatter plot there is an uptrend.

3. What happens to the error, r2, and cost as the number of iterations increase? Show your data and proof. You can alternatively plot your result data for visualization and check until 50000 iterations or more (actually).

As the number of iterations are increased, the number of errors will most likely decrease. On the other hand, the R^2 increases as the number of iterations decreases.

4.Once you determine the optimal number of iterations, check the effect on the cost and error as you change the learning rate. The common learning rates in machine learning include 0.1, 0.01, 0.001, 0.0001, 0.2 but you have the option to include others. Visualize the cost function (vs the optimal number of iterations) of each learning rate in ONLY ONE PLOT. Provide your analysis.

5.Is there a relationship on the learning rate and the number of iterations?

If the learning rate will increase, the optimal iteration will decrease. At the same time, if the learning rate will decrease, the optimal iteration will increase.

6.Compare the results with the results of ordinary least squares function.