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CS4375 Assignment 1
Log Report File

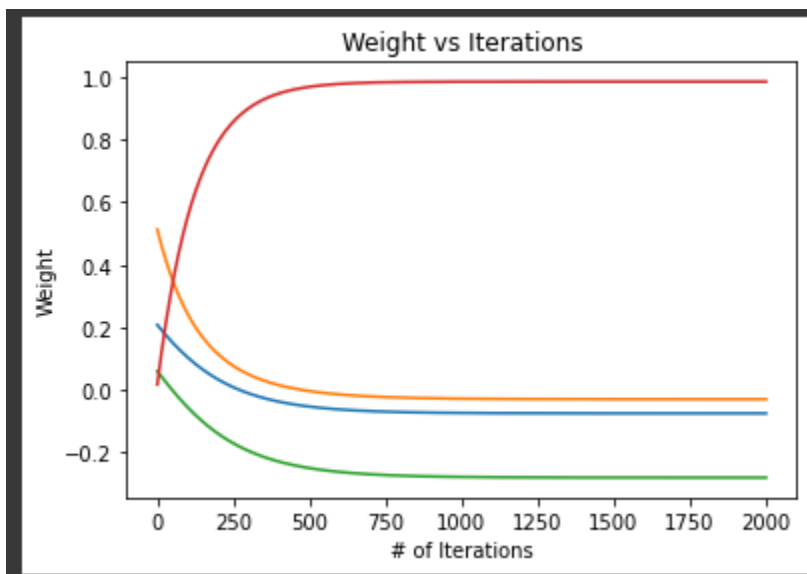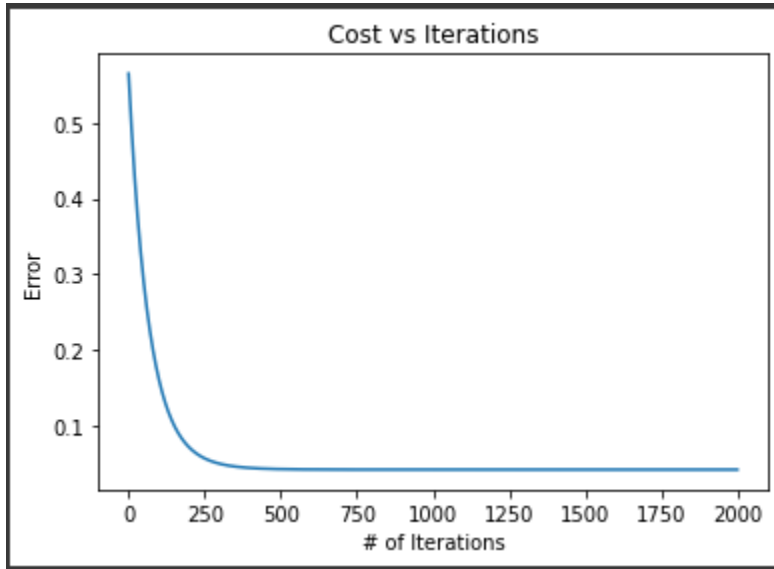| Learning Rate	Number of Iterations	MSE
0.01	2000	0.21376555022745578
1.0	2000	0.21376722595793748
1.9	2000	0.21376722595793746
2.0	2000	1.55
0.5	10	0.21145902522859203
0.5	50	0.21376721136172744
0.5	100	0.21376722595793418
0.5	500	0.21376722595793746
0.5	1000	0.21376722595793746
0.5	1500	0.21376722595793746
0.5	2000	0.21376722595793746

Q) Answer this question: Are you satisfied that you have found the best solution? Explain.

A) As far as linear regression goes, it feels that we have done what we could (and are satisfied) in applying a linear regression equation to this data. That being said, it does feel as if linear regression is not the best means to having a successful ML algorithm in this case because no matter the modifications to the parameters, the predictions are still off to a decent degree and the r-squared value remains high. This could indicate that the relationships in this dataset are not geared towards linear regression.

Conclusion:

Are we satisfied with the results given by the libraries and packages? - **Yes,** although there are some values that might differ a little, most of the results are pretty close with a small error value. The performance of the model is optimal based on the characteristics of our dataset and can potentially be beneficial in case such dataset must be expanded in the future for better results

Plots:

Cost vs Iterations

Weight vs Iterations

W0 = Red

W1 = Blue

W2 = Green

W3 = Orange