Bias-Variance Trade-Off

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Regularization methods take a number of forms, but all have the same goal, to prevent overfitting of machine learning models. Regularization is required to help machine learning models generalize when placed in production. Selection of regularization strength involves consideration of the bias-variance trade-off.

In this lab you will explore the basics of regularization, namely the l2 and l1 regularization.

L2 and l1 regularization constrain model coefficients to prevent overfitting. L2 regularization constrains model coefficients using a Euclidian norm. L2 regularization can drive some coefficients toward zero, usually not to zero. On the other hand, l1 regularization can drive model coefficients to zero.

Lab Steps

1. Make sure that you have completed the setup requirements as described in the Lab Overview section.
2. Now, run jupyter notebook and open the “Bias-Variance-Trade-Off.ipynb” notebook under Module 5 folder.
3. Examine the notebook and answer the questions along the way.

Question 1

1/1 point (graded)

What is the RMSE for the l2 regularized model?

- 0.1299
- 0.1347 ✔
- 0.1370
- 0.1640

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✔ Correct (1/1 point)

Question 2

1/1 point (graded)

What is the RMSE for the l1 regularized model?

- 0.1299
- 0.1347
- 0.1370 ✔
- 0.1640

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