Observing effects of L2 penalty in polynomial regression

7 questions

1. We first fit a 15th order polynomial model using the 'sqft_living' column of the 'sales' data frame, with a tiny L2 penalty applied.

Which of the following ranges contains the learned value for the coefficient of feature power_1?

- Between 0 and 70
- Between 70 and 150
- Between 150 and 300
- Greater than 300

2. Next, we split the sales data frame into four subsets (set_1, set_2, set_3, set_4) and fit a 15th order polynomial model using each of the subsets.

For the models learned in each of these training sets, what are the smallest value you learned for the coefficient of feature power_1? Choose the range that contains this value.

- Between -10000 and -1000
- Between -1000 and -100

- Between -100 and 0
- Between 0 and 100
- Between 100 and 1000
- Between 1000 and 10000

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3. This question refer to the same models as the previous question.

For the models learned in each of these training sets, what are the largest value you learned for the coefficient of feature power_1? Choose the range that contains this value.

- Between -10000 and -1000
- Between -1000 and -100
- Between -100 and 0
- Between 0 and 100
- Between 100 and 1000
- Between 1000 and 10000

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4. Using the same 4 subsets (set_1, set_2, set_3, set_4), we train 15th order polynomial models again, but this time we apply a large L2 penalty.

For the models learned with the high level of regularization in each of these training sets, what are the smallest value you learned for the coefficient of

feature power_1? Choose the range that contains this value.

- Between 1.5 and 1.8
- Between 1.8 and 2.1
- Between 2.1 and 2.4
- Between 2.4 and 2.8

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5. This question refer to the same models as the previous question.

For the models learned with the high level of regularization in each of these training sets, what are the largest value you learned for the coefficient of feature power_1? Choose the range that contains this value.

- Between 1.5 and 1.8
- Between 1.8 and 2.1
- Between 2.1 and 2.3
- Between 2.3 and 2.8

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6. This question refers to the section "selecting an L2 penalty via cross-validation".

What is the best value for the L2 penalty according to 10-fold validation?

- 100

- 10^2.5 = 316.227766017
- 1000
- 10^3.5 = 3162.277660168

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7. ***Using the best L2 penalty found above, train a model using all training data. Which of the following ranges contains the RSS on the TEST data of the model you learn with this L2 penalty?***

- Between 8e13 and 4e14
- Between 4e14 and 6e14
- Between 6e14 and 8e14
- Between 8e14 and 1e15
- Between 1e15 and 3e15

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7 questions unanswered

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