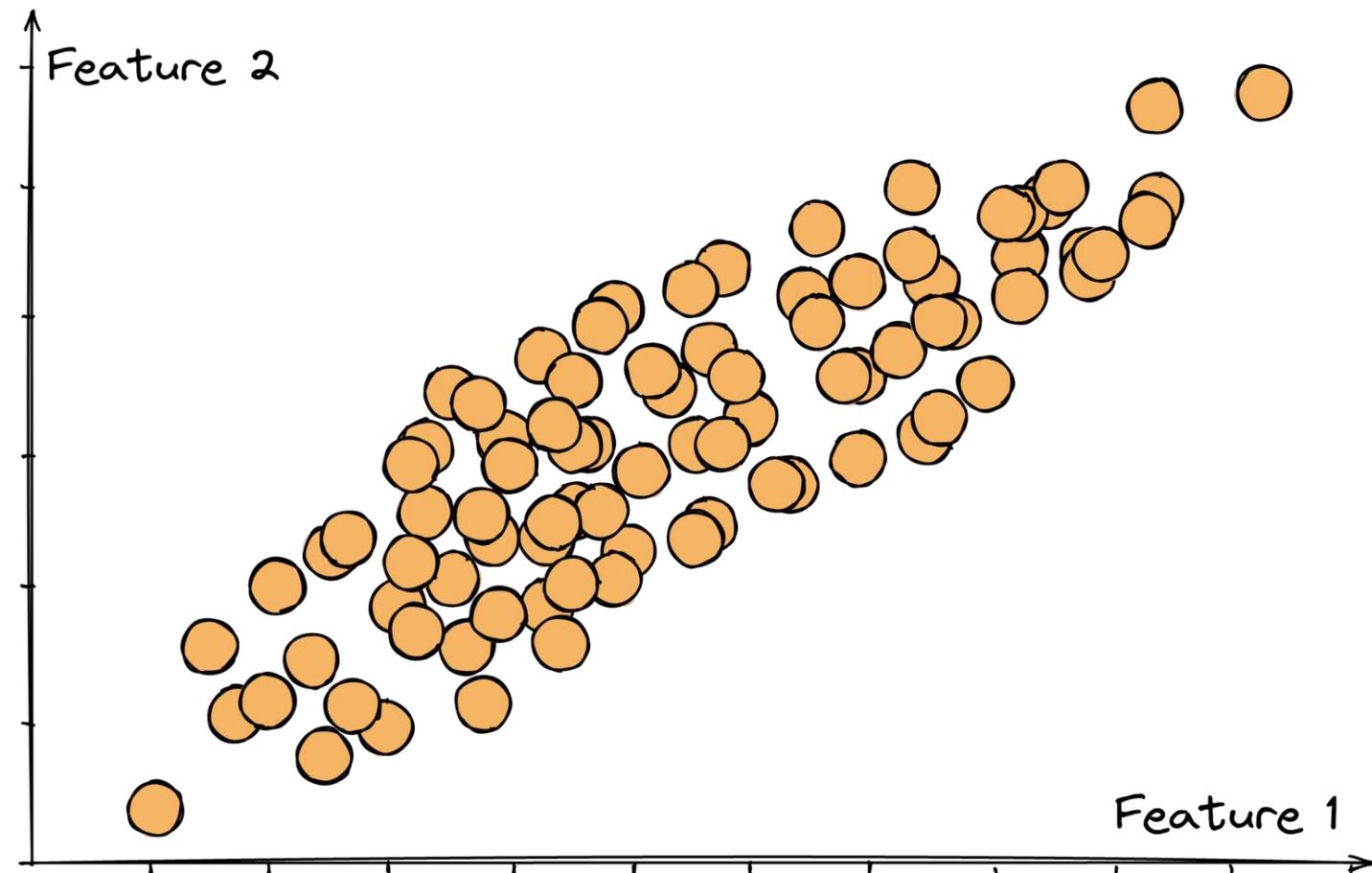


Linear Regression

Bias/Variance



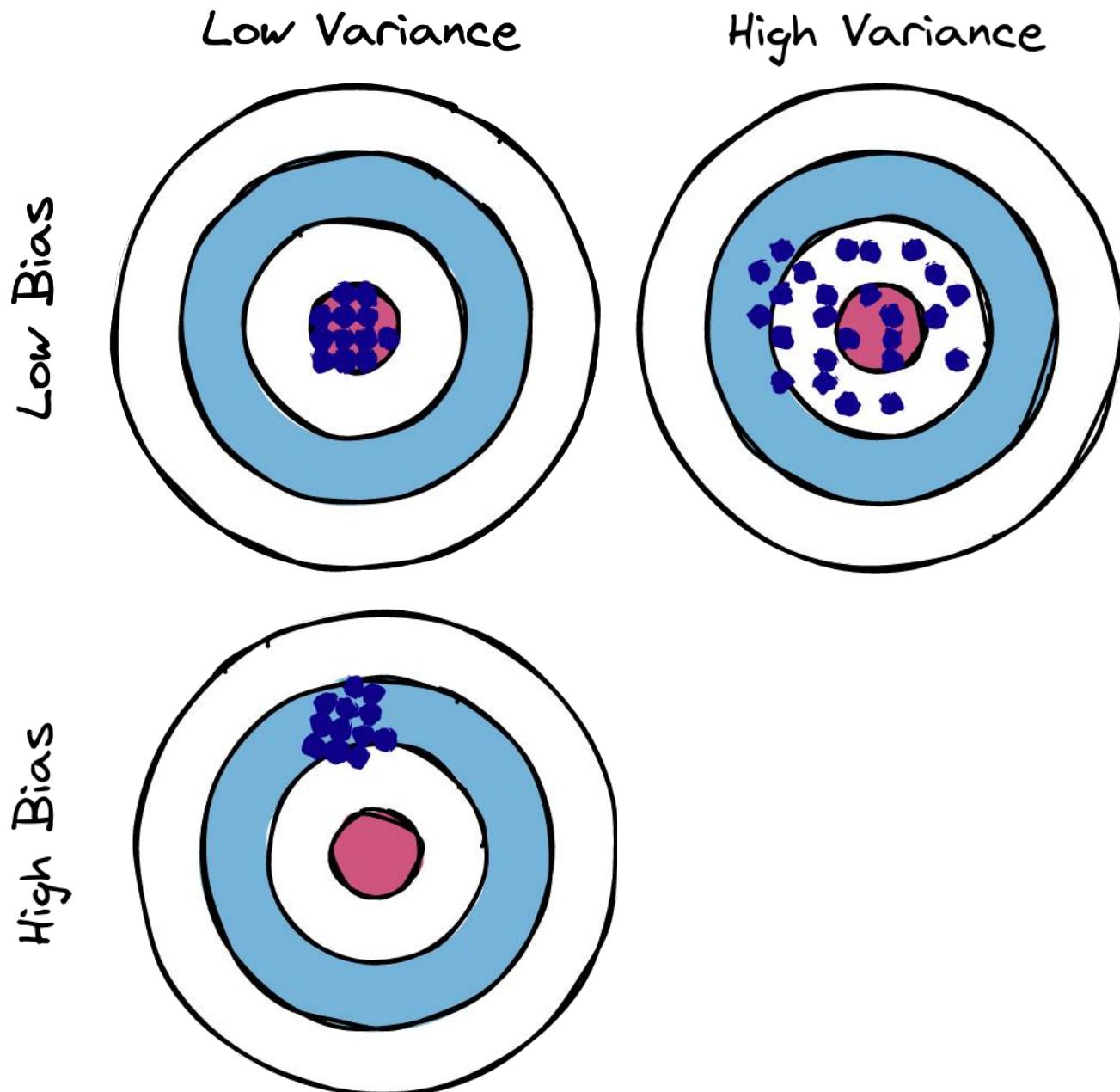
Week 8

Middlesex University Dubai; CST4050 Winter21;
Instructor: Dr. Ivan Reznikov

Bias/Variance

Bias is responsible for the quality of the model. It is how well you can describe your training data.

Variance is responsible for the reproducibility of your model on the test dataset.



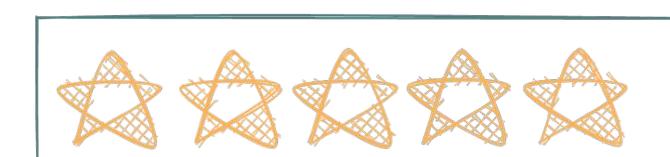
Bias/Variance



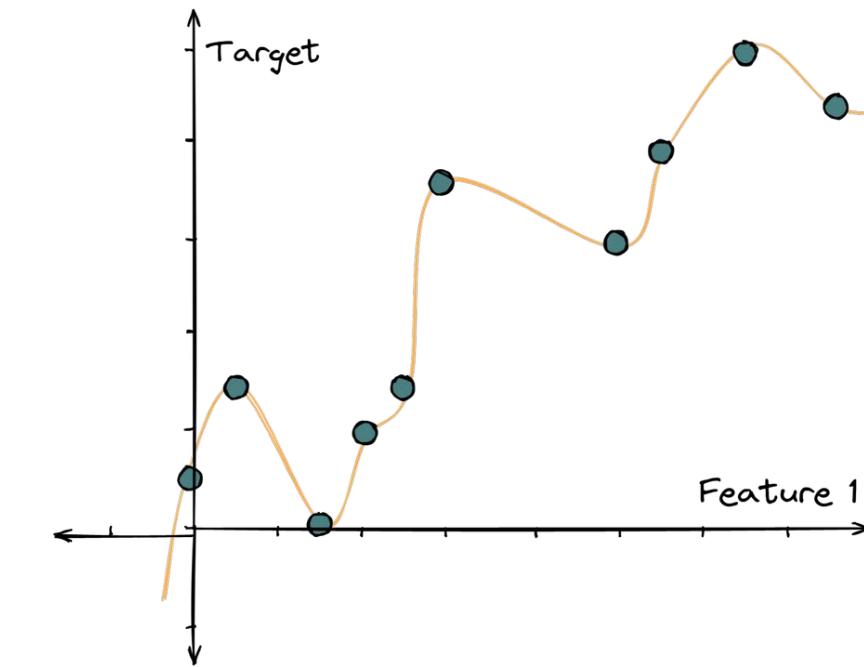
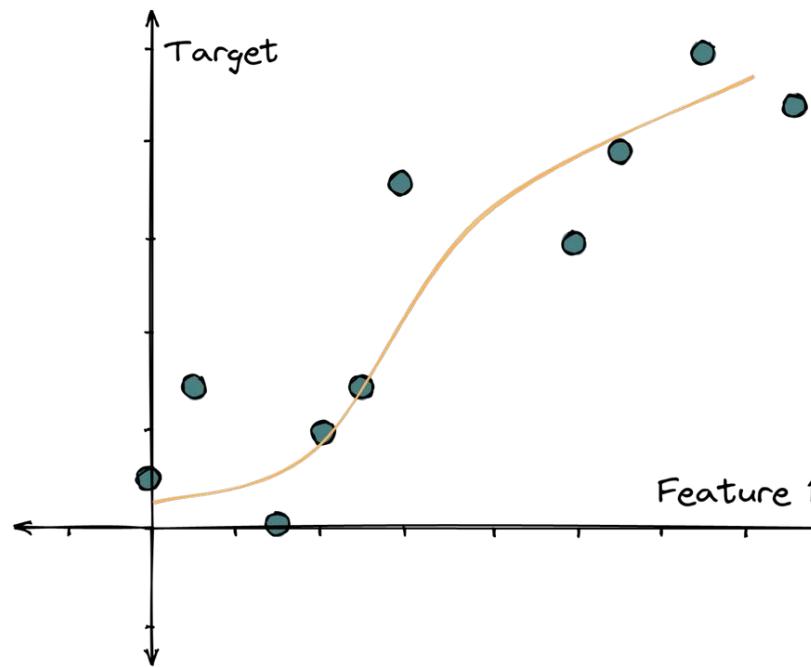
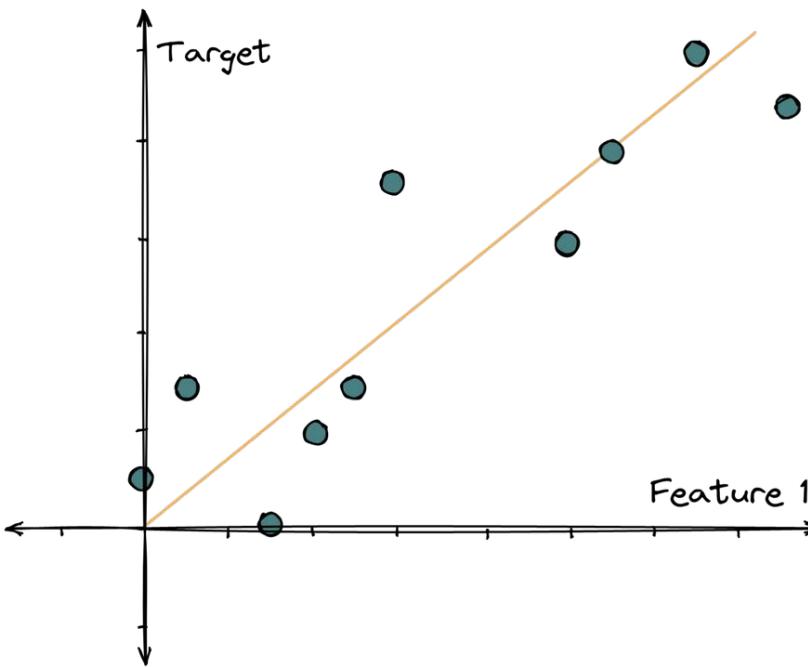
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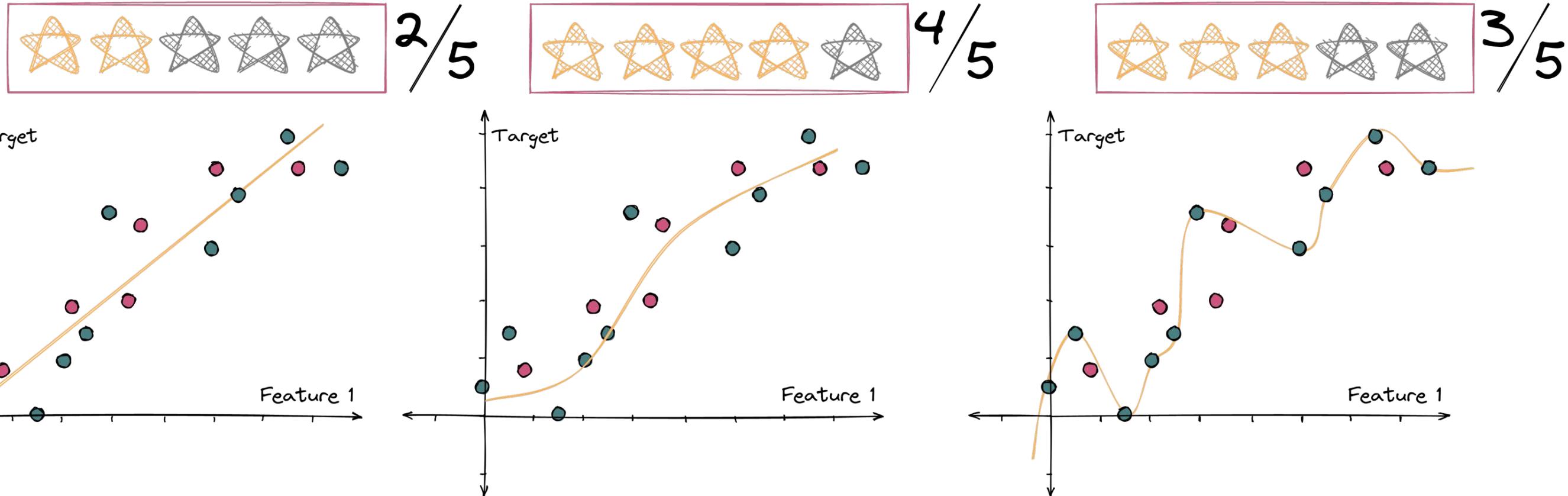


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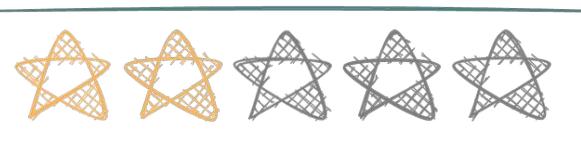
Question: For our training data, select the curve you find as best descriptive?
Assume the number of stars as a quality metric.

Bias/Variance

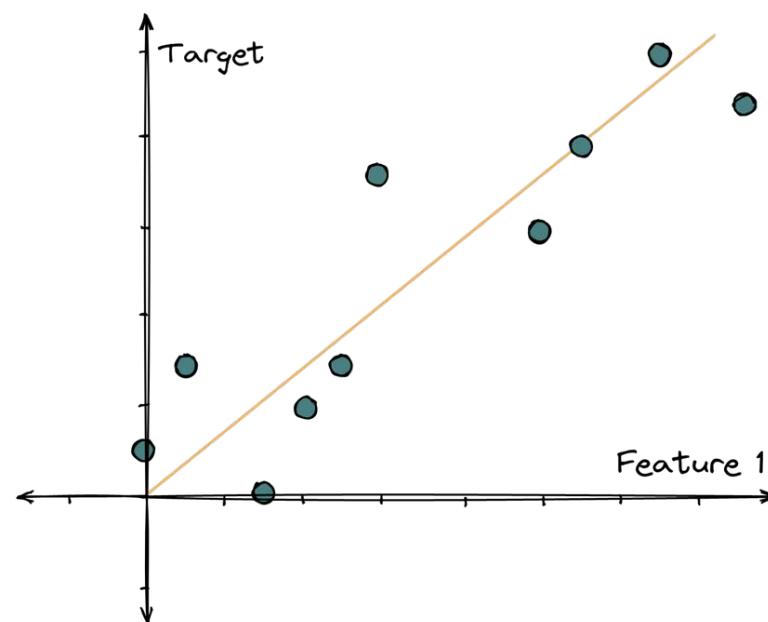


Now we add the test data.

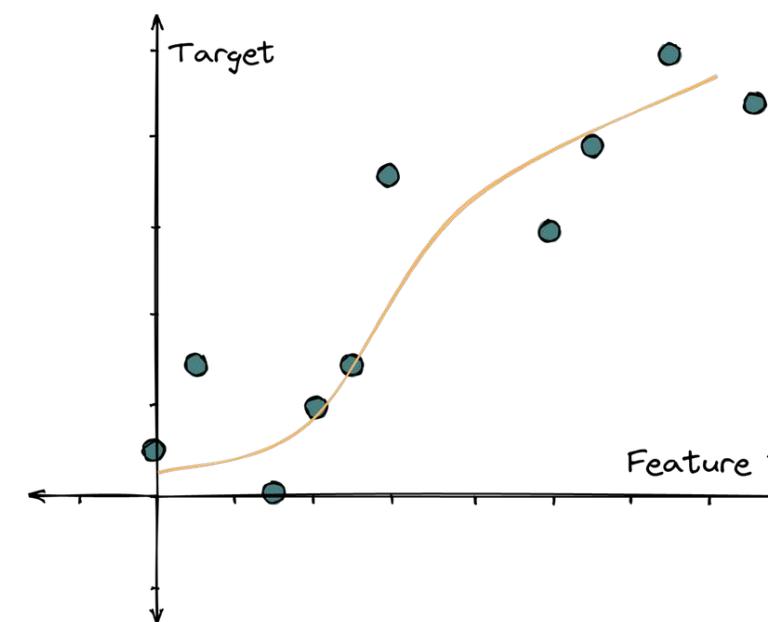
Question: How good is the selected model at describing test data?



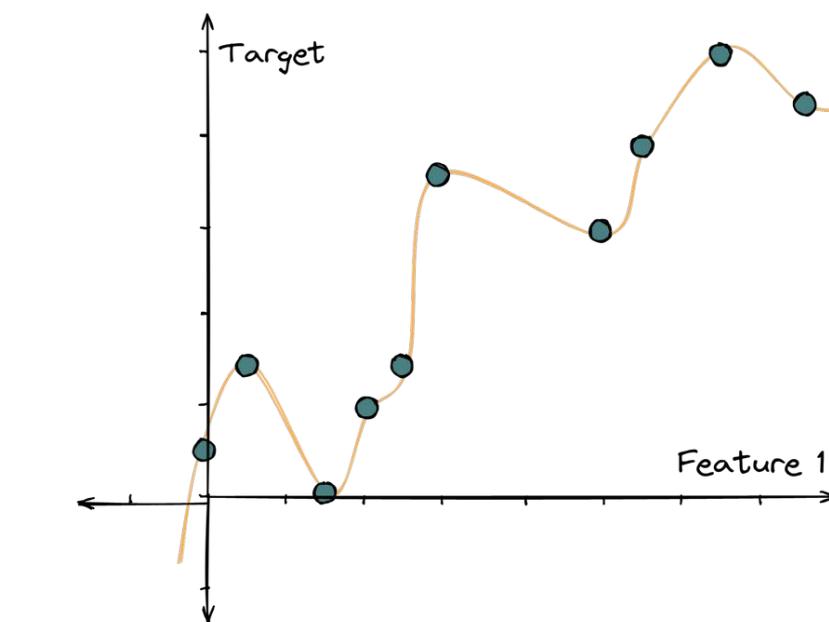
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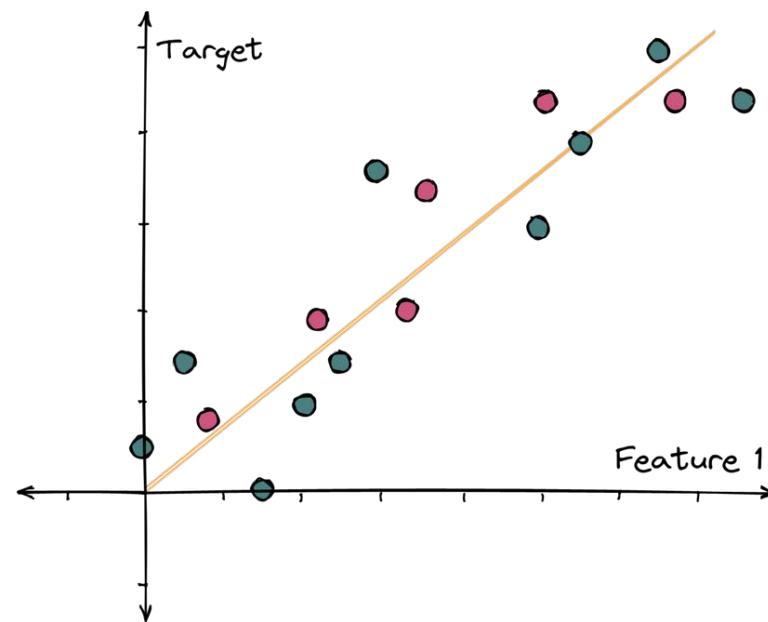
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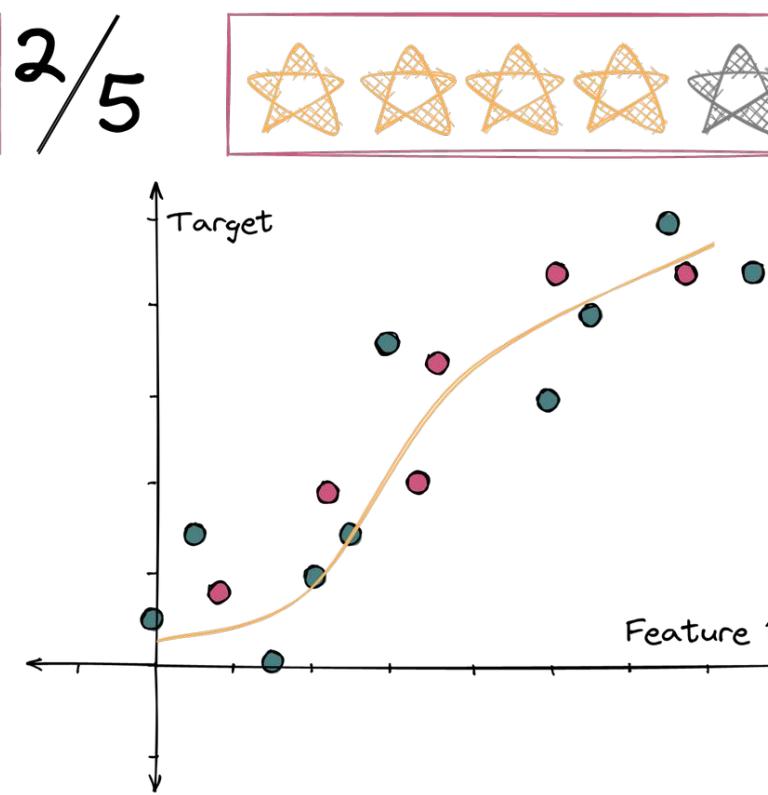
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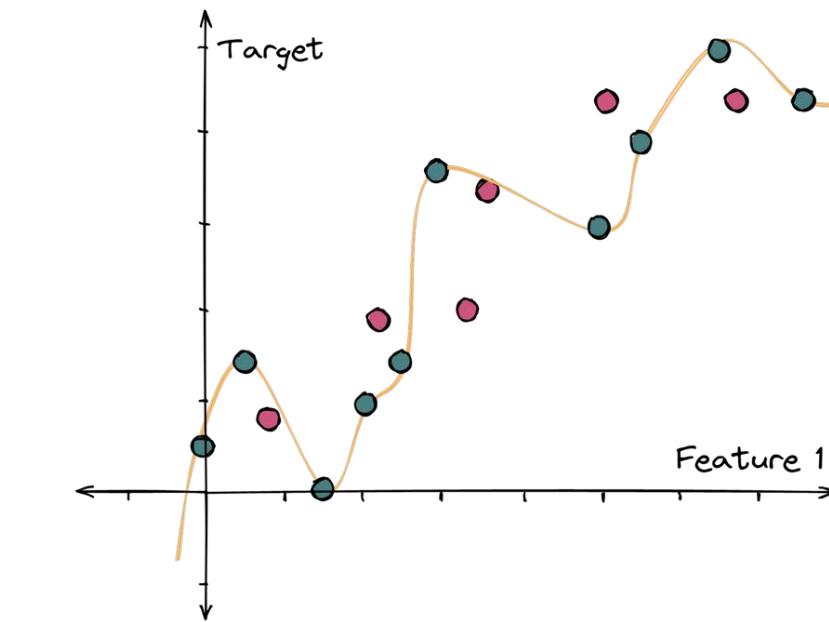
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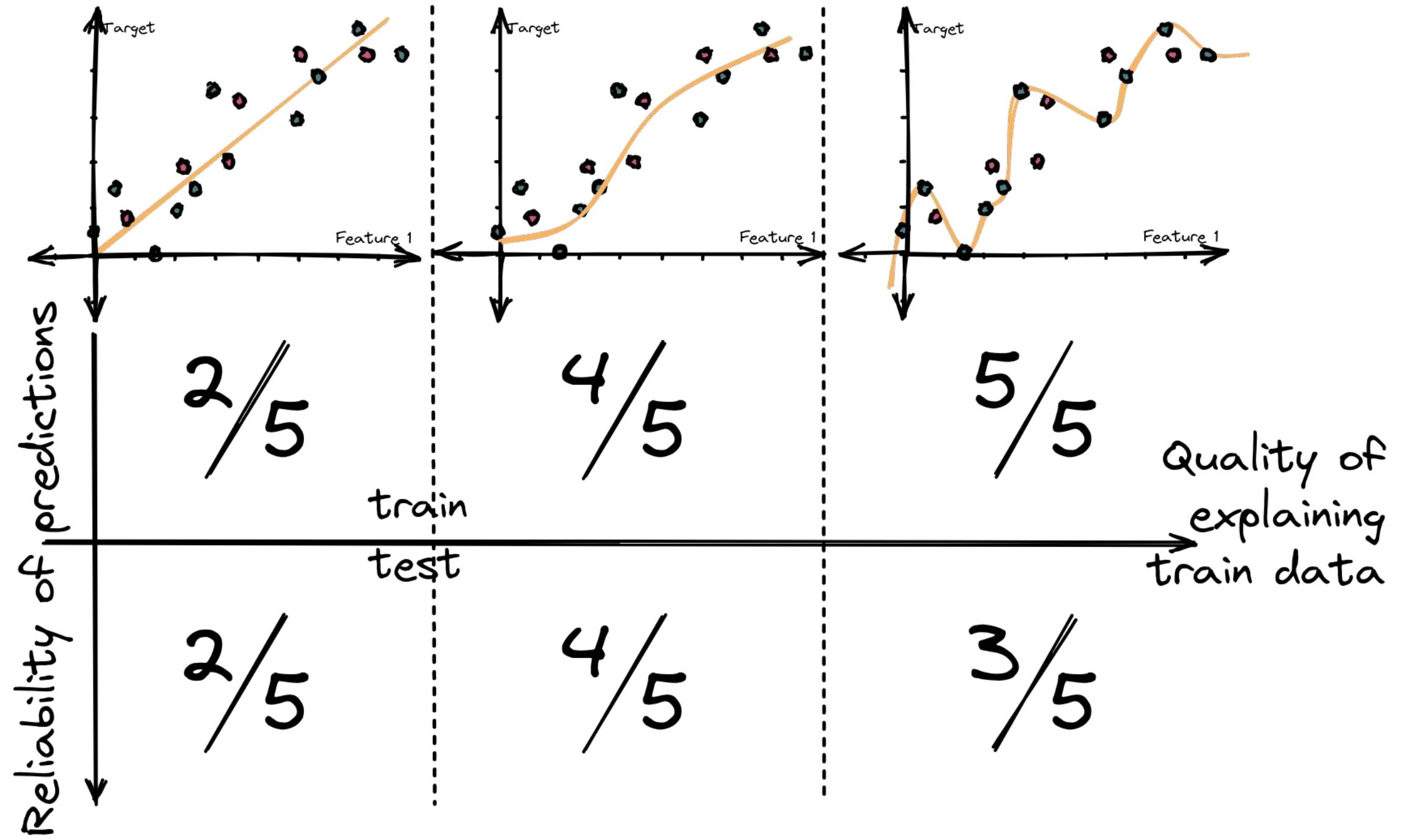
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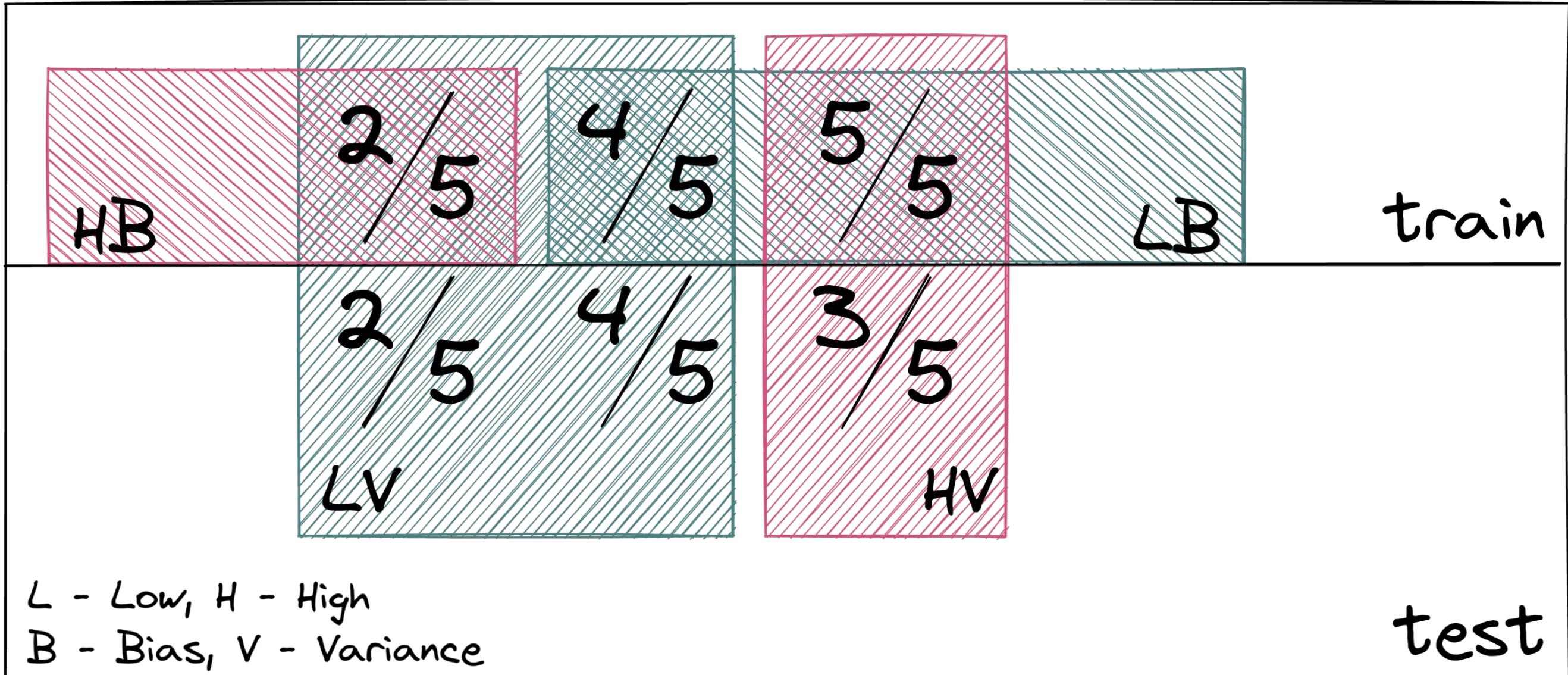
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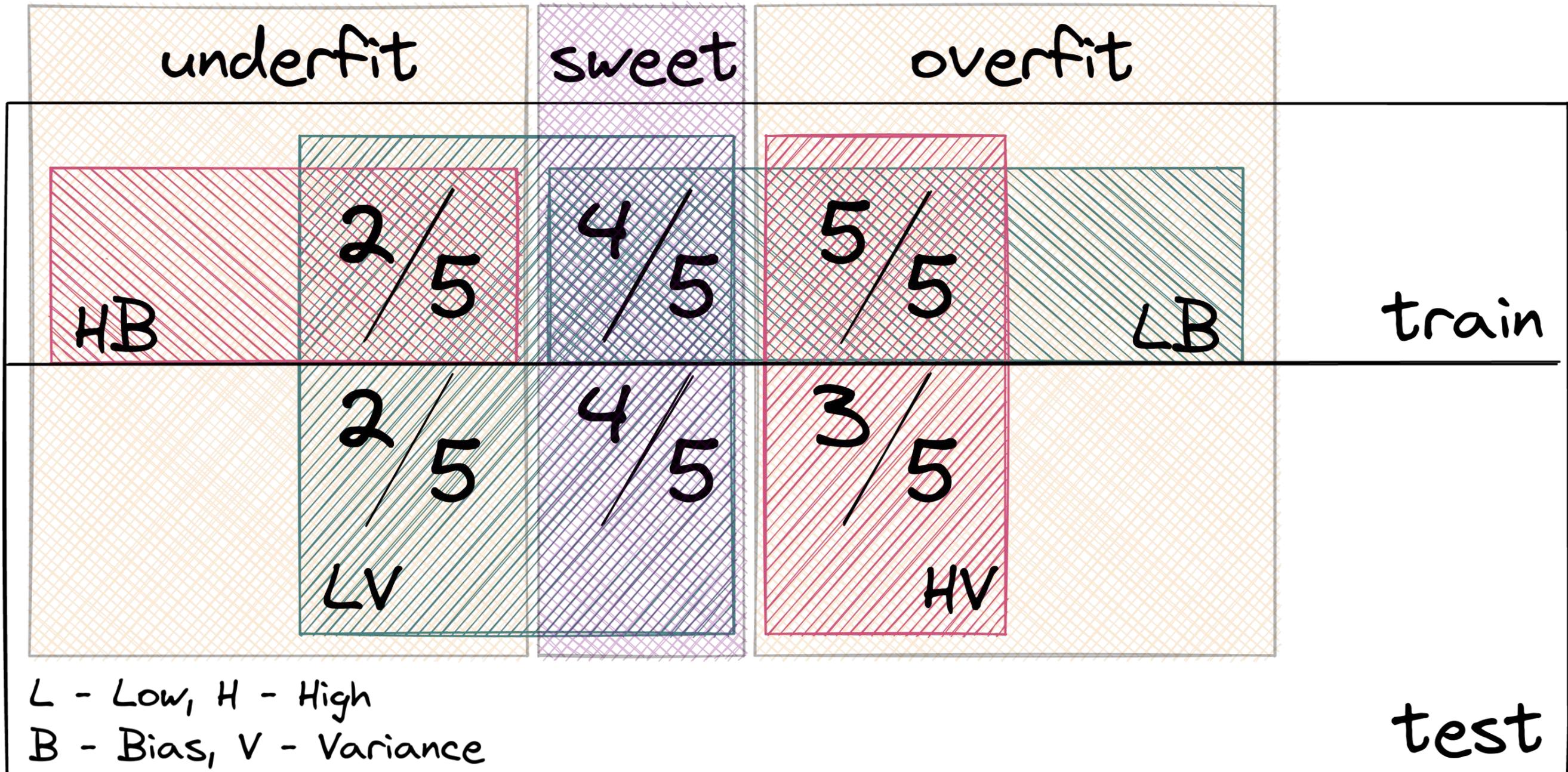
Bias/Variance



Bias/Variance



Bias/Variance



Bias/Variance

In supervised ML, real bias/variance terms can't be determined.

Yet, the trade-off helps analyze ML algorithms and control their predictive performance.

