Bias-Variance Tradeoff

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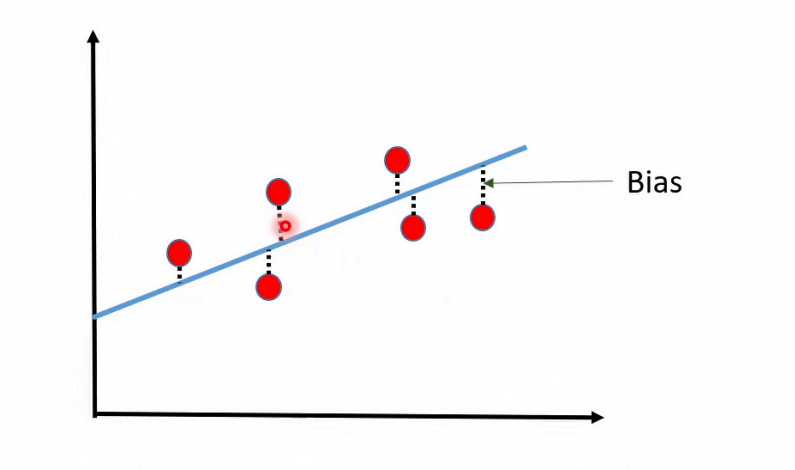
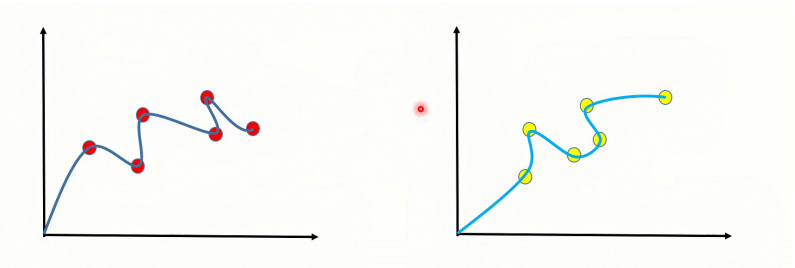
Bias:

It is the difference between the average prediction of the model and the correct value which we are trying to predict

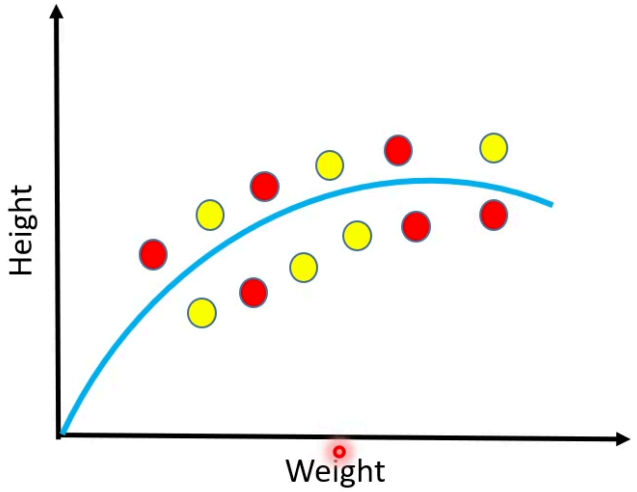


Variance:

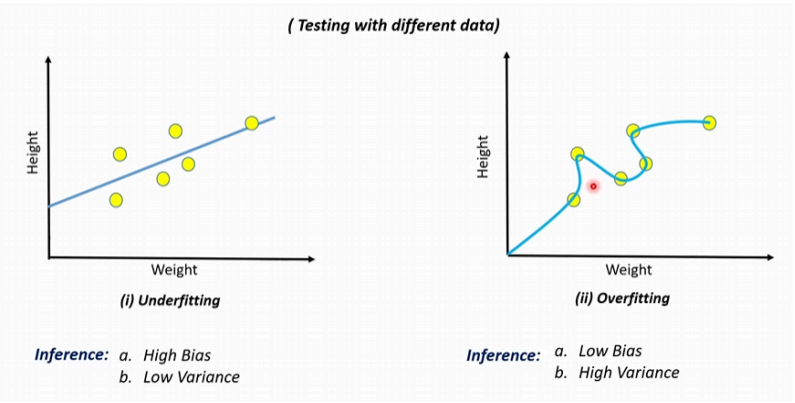
It is the amount that the estimate of the target function will change if different training data was used



Problem Statement: Identify the appropriate model to predict the height of a person when their height is given

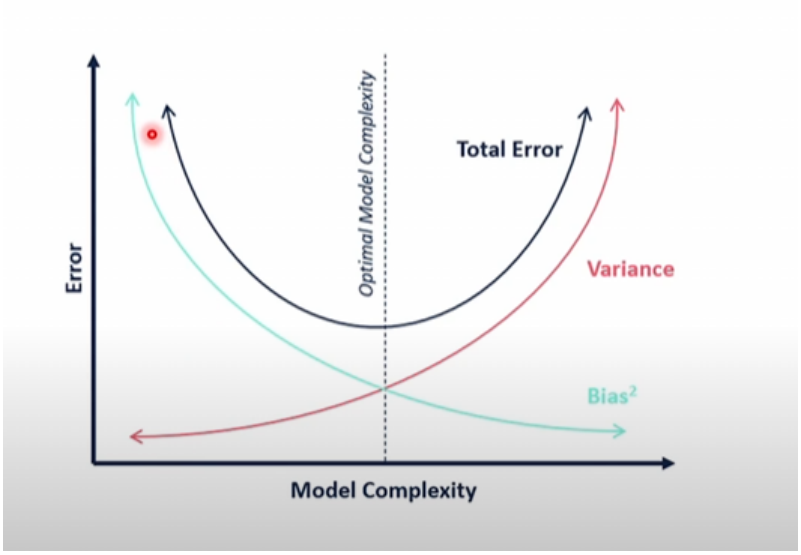


Plotting on Testing Data:



We should adjust the bias and variance to get an optimized model. which will have more accurate results.

Relation with Error and Model complexity with Bias and Variance:



Techniques to Have better Bias:

1. Good Model selection
2. Regularization {Tries to reduce the values of coefficients (say a Polynomial Function)}
3. Dimensionality Reduction (features in our data should be lesser)
4. Ensemble Methods (Multiple Models)