

# Submission for Machine Learning Assignment 3

Team: 47

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## 1 Bias-Variance Trade-off

1. The plotted data suggest a prediction model as a polynomial of degree 4, since there are 3 turning points in the function, as shown in blue crosses in the figure below. The prediction model in red does not either over- or under-fit the data, since it follows the trend of both test and training sets, but it does not capture noise.

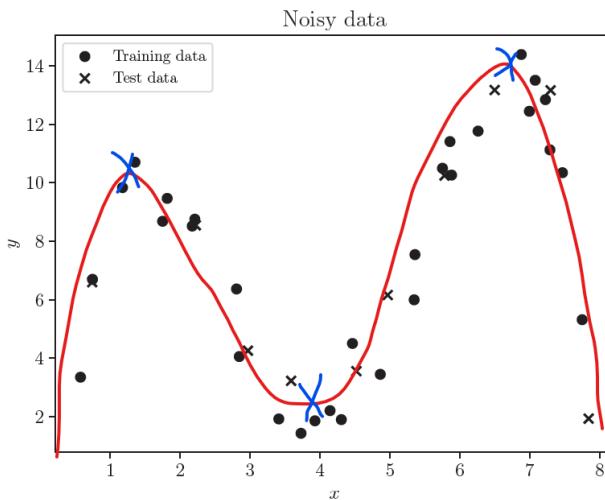


Figure 1: Guessed prediction model

2. The prediction for each model can be found in Table 1. Generally, the higher the complexity, the lower the Bias, and therefore, the higher the Variance. Moreover, when we increase the complexity, the risk of overfitting also increases.

Model	Bias	Variance	Over-/Underfitting
Constant model	High	Low	Underfitting
Linear model	High	Low	Underfitting
Degree 10 Polynomial	Low	High	Overfitting

Table 1: Bias-Variance Prediction