**What is Bias?**

Bias is the difference between the predicted value and the expected/true value.

A high bias model makes more assumptions about the target function.

Zero bias may sounds good as the model perfectly fits the training data, but this means that the model has learned too much from the training data, it is called **overfitting**

## What is Variance?

* The Variance is when the model takes into account the fluctuations/noise in the data during training.
* Variance is the error due to sensitivity to small fluctuations in the dataset.
* A high variance model learns too much from the data as it still considers the noise as something to learn from, as a result, it becomes very sensitive to any small fluctuation, and it **overfits the training data**.

## ****Bias-variance Tradeoff****

* Increasing bias decreases variance, and increasing variance decreases bias.
* A model that exhibits**low variance and high bias will underfit** the target, while a model with **high variance and low bias will overfit** the target.
* Our goal is to reach a model with Low Bias and Low Variance.

