

4. Data Science – Machine Learning – Learning Function

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1. Learning a Function

- ✓ Machine learning algorithms are described as,
 - Learning a target function (f) which maps input variables (X) to output variable (Y)

$$\text{Output} = f(\text{Input})$$

$$Y = f(X)$$

- ✓ This function also having some error.
- ✓ This error is independent to the input data

$$Y = f(X) + \text{error}$$

2. Purpose of learning-function

- ✓ The purpose of this learning-function is to make predictions.
- ✓ The function which is having less error, that function will make the accurate predictions.
- ✓ This is called predictive modeling.

3. Machine learning algorithms

- ✓ Machine learning algorithms are techniques for estimating the target function (f).
- ✓ This function helps to predict the **output variable (Y)** for the given **input variables (X)**.
- ✓ Different machine learning algorithms having different assumptions about the form of the function, such as whether it is linear or nonlinear.