Chapter2: A Gentle Start

This chapter is talking about a general model of machine learning and commin error.

2.1 Formal model.

The learner's input

- **Domain set:** An arbitrary set, χ. This is the set of objects that we may wish to label.
- **Label set:** The Answer of the Domain set, usually $\{0, 1\}$ or $\{-1, +1\}$
- **Training data:** $S = ((x_1, y_1), \cdots, (x_m, y_m))$ is a sequence of labeled domain points.

The learner's output

- $h : \chi \to y$, a prediction function, also called a predictor, hypothesis, classifier.

Other assumption for ML

- **A data-generation model:** We now explain how the training data is generated by som probability distribution. Let us denote that probability distribution over χ by D.
- **Measure of Success:** To know is the output is good or not, we define the loss function to check it
  (a) **True error:**