

Process of supervised learning:

1. Training Set -> Learning Algorithm -> Output a function to make predictions
2. Outputs Hypothesis (h)
3. h takes an input and produces a prediction

How to represent h?

$$h(x) = \theta_0 + \theta_1 x_1 + \theta_2 x_2 \quad x_1 = \text{size} \quad x_2 = \text{number of bedrooms}$$

In general,

$$h(x) = \sum_{j=0}^2 \theta_j x_j, \text{ where } x_0 = 1$$

θ = parameters

m = # training examples

x = inputs

y = output

(x, y) = training example

(x^i, y^i) = ith training example

Choose θ st. $h(x)$ is close to y

$$h_{\theta}(x) = h(x)$$

minimize

$$J(\theta) = \frac{1}{2} \sum_{i=1}^m (h_{\theta}(x^{(i)}) - y^{(i)})^2$$

Gradient Descent

$$\theta_j = \theta_j - \alpha \frac{\partial}{\partial \theta_j}$$

α = learning rate

df

aa

fdf