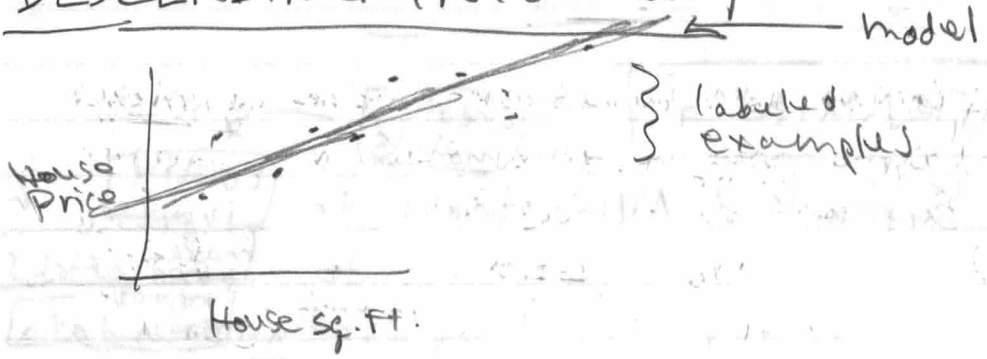
DESCENDING INTO ML



Can train a linear regression model

(prediction) $y' = w_1 x_1 + b$ (example)

w_1 = aim. weights

b = bias ($= w_0$)

x_1 = feature 1

w_1 = weight for feature 1

$$L_2 \text{ Loss} = (y - y')^2$$

(convenient for regression)

y ↑ the value

y' ↖ prediction

$$L_2 \text{ Loss} = \sum_{(x,y) \in D} (y - \text{prediction}(x))^2$$

↖ all labeled examples, i.e. (x, y) in D = dataset

In supervised learning, an ML algorithm builds a model by examining examples and finding a model (for linear regression, the feature weights) that minimizes loss.

= Empirical Risk Minimization

Another loss fn:

$$MSE = \frac{1}{N} \sum_{(x,y) \in D} (y - \text{prediction}(x))^2$$

where $N = |D|$