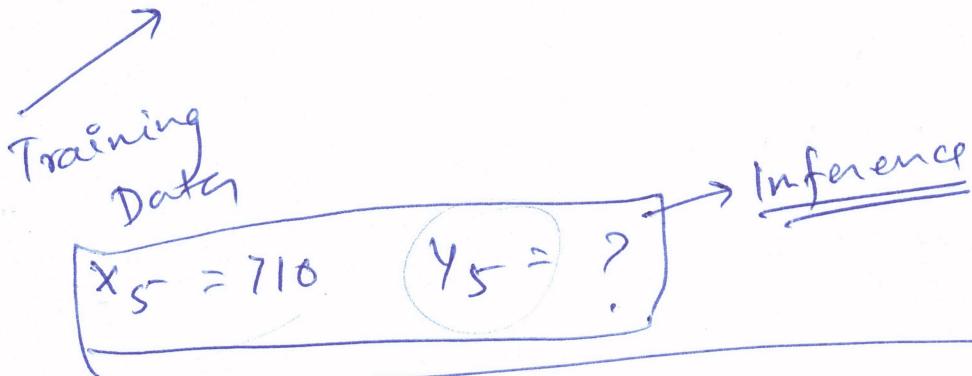
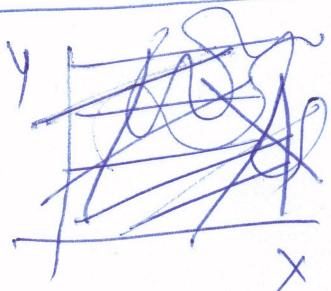


$$\begin{array}{ll} x_1 = 10 & y_1 = 7 \\ x_2 = 49 & y_2 = 41 \\ x_3 = 3 & y_3 = 1 \\ x_4 = 650 & y_4 = 304 \end{array}$$



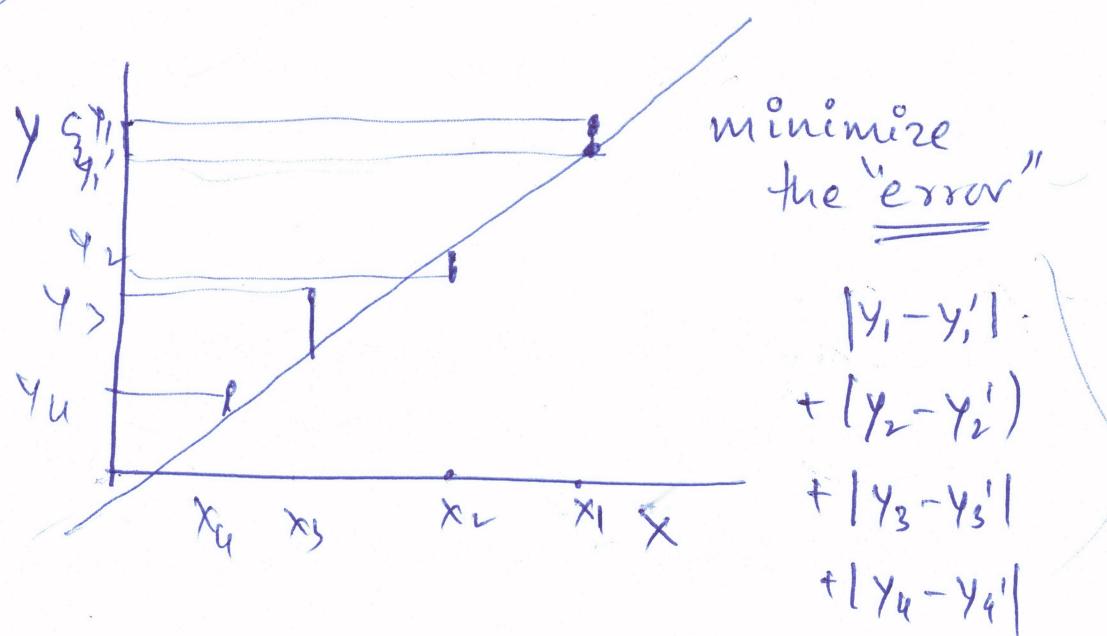
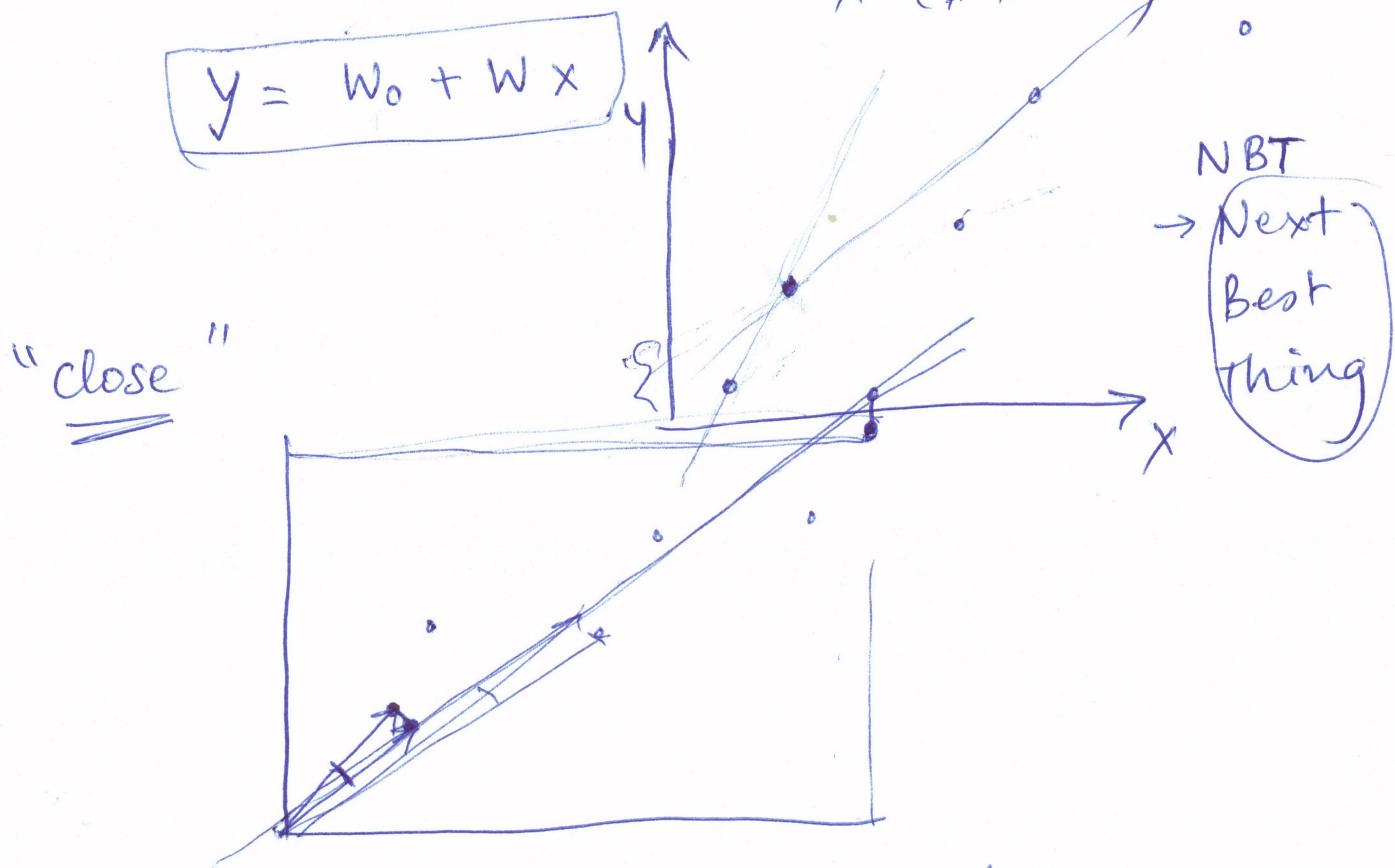
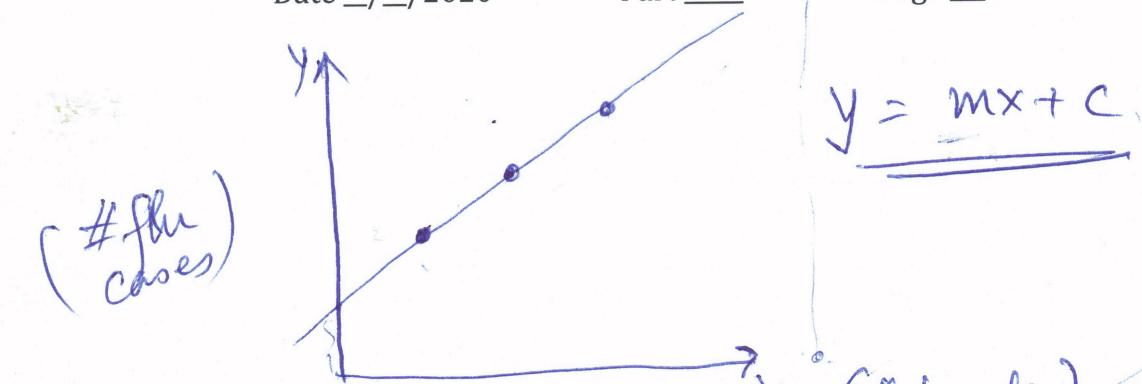
INDUCTIVE BIAS — Reduce the hypothesis space

No INDUCTIVE BIAS



linear Models

We assume that f is a straight line



$$x_1 \quad y_1 \quad y'_1 = w_0 + w x_1$$

$y = w_0 + w X$

$$x_2 \quad y_2 \quad y'_2 = w_0 + w x_2$$

$$x_3 \quad y_3 \quad y'_3 = w_0 + w x_3$$

$$x_4 \quad y_4 \quad y'_4 = w_0 + w x_4$$

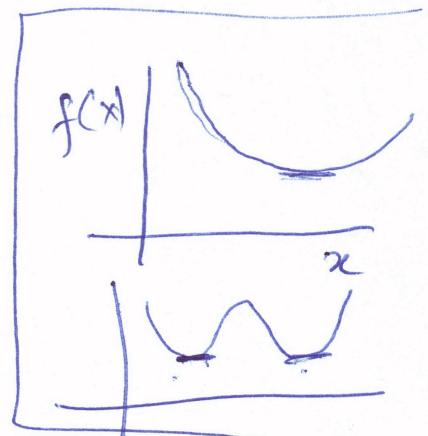
Parameters
of the model

$$|(w_0 + w x_i) - y_i| + |(w_0 + w x_2) - y_2|$$

$$J = \frac{1}{N} \sum_{i=1}^N |(w_0 + w x_i) - y_i|$$

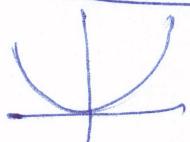
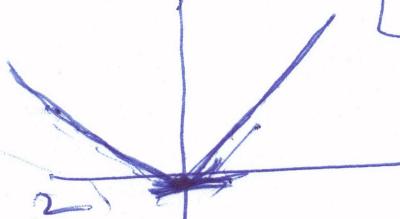
$$J(w_0, w)$$

Min.
Abs.
Dev.



Optimization Problem

$$f(x) = |x|$$



$$J = \frac{1}{N} \sum_{i=1}^N (w_0 + w x_i - y_i)^2$$

Squared Loss
(linear regression Model)