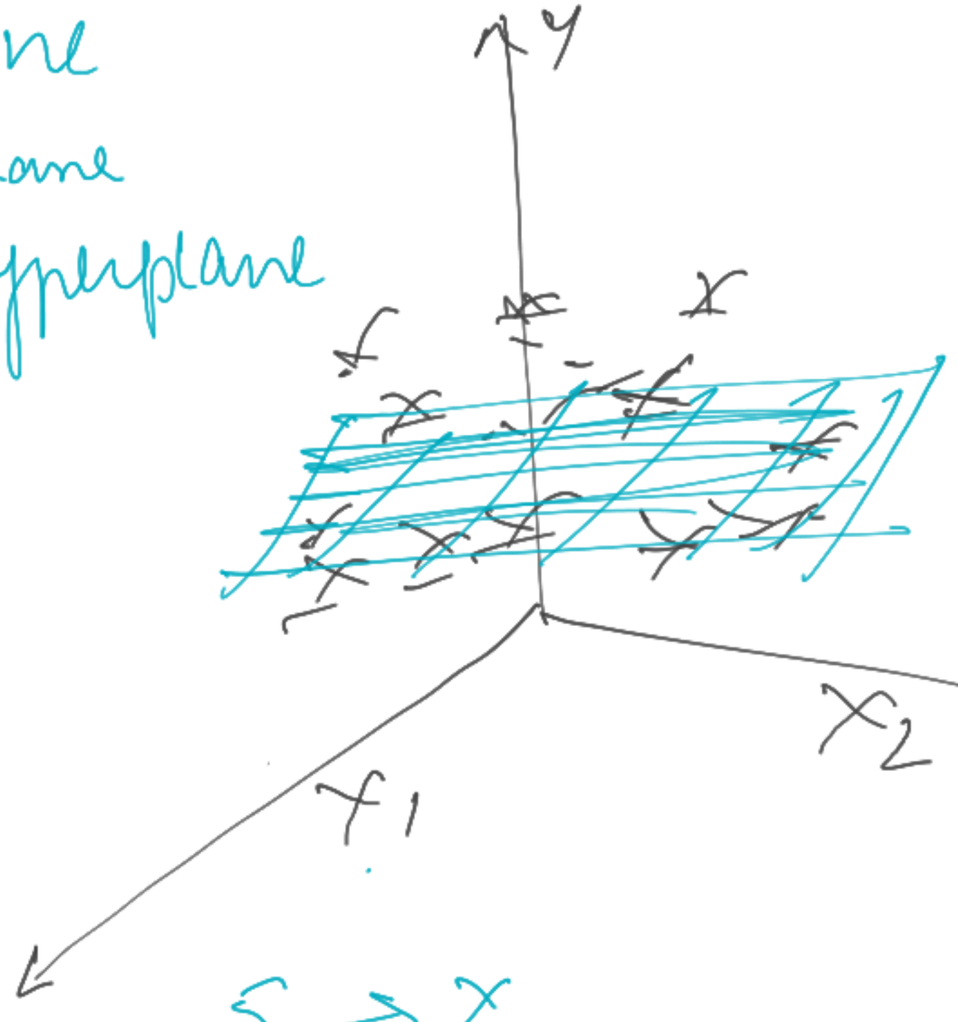
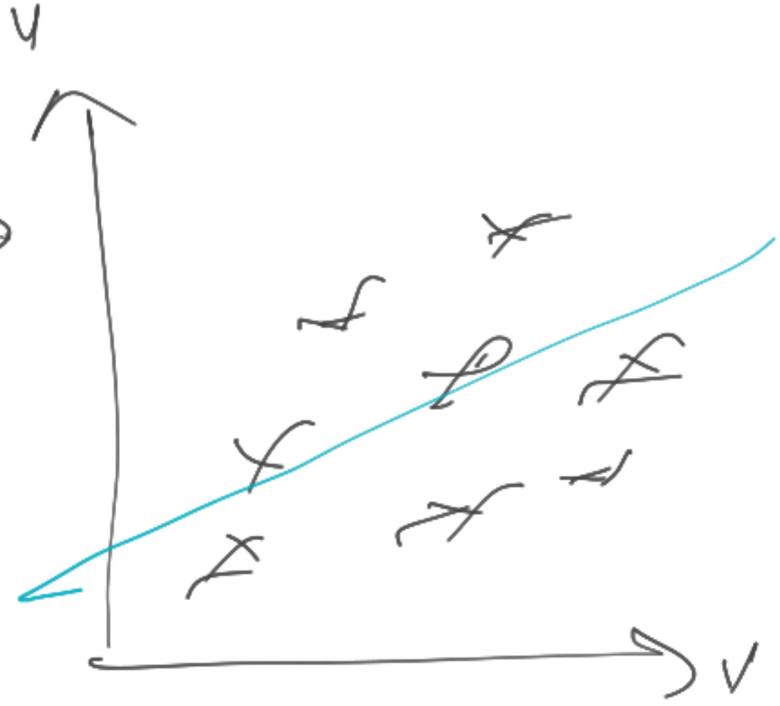
2 → line

3 → plane

3+ → hyperplane



S → X



m_1 m_2

C, slope (no. of i/p) 5 + 1 ⇒ 6 wts

8 + 1

n + 1

$y = mx + c$ x_1 x_2 x_3 $x_1, x_2, x_3, \ldots x_n$

$y = \beta_0 + \beta_1 x$

$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \ldots \beta_n x_n$

$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2$

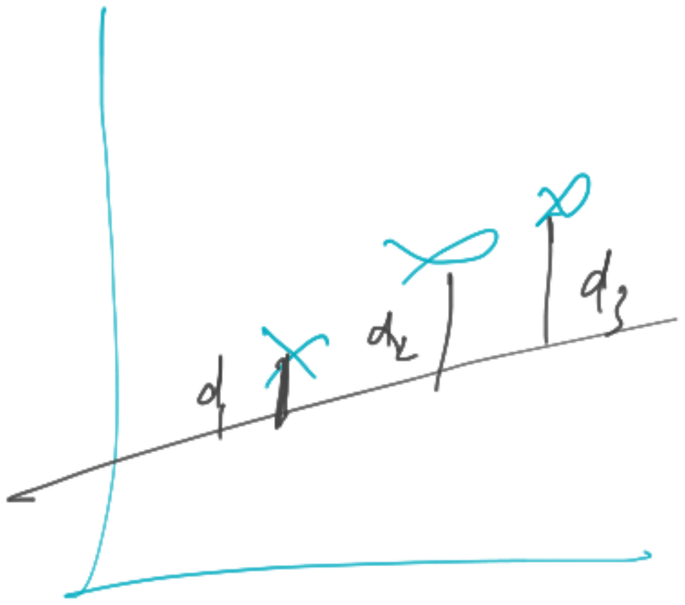
BFL

OLS — formula — $\frac{w}{c}$

GD — m, c

error: $\sum_{i=1}^{n} |y_i a - y_p|$ — $|ya - yp|$

$|d_1| + |d_2| + |d_3|$



error: $(d_1)^2 + (d_2)^2 + (d_3)^2$ — $ya - y_p$

Linear Regression

SGD Regressor

$$c : \bar{y} - m\bar{x}$$

$\bar{y} \rightarrow$ y-mean

$\bar{x} \rightarrow$ x-mean

$$m = \frac{\sum_{i=1}^{n} (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^{n} (x_i - \bar{x})^2}$$

$$y_p : mx(x) + c$$