

Ordinary Least Square (OLS) Method-

- Similar to linear Regression model & Multiple linear Regression model.
- It gives more detailed summary.

R-Squared-

$$R^2 = 1 - \frac{RSS}{TSS}$$

R^2 : Coeffⁿ of determination

RSS: sum of squares of residuals

TSS: total sum of squares.

works in only linear model

$$\bar{y} = \frac{1}{n} \sum_{i=1}^n y_i$$

(mean of observed / target value)

$$RSS = \sum_{i=1}^n (y_i - \hat{y})^2 = \sum e^2$$

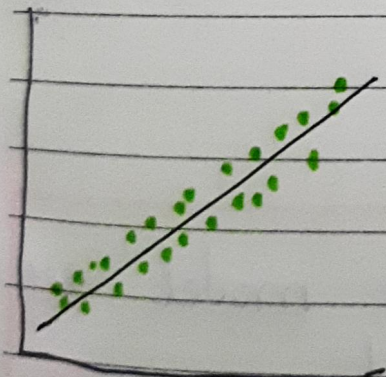
(Sum of Square of Residuals)

$$TSS = \sum (y_i - \bar{y})^2 = \text{Proportional to variance}$$

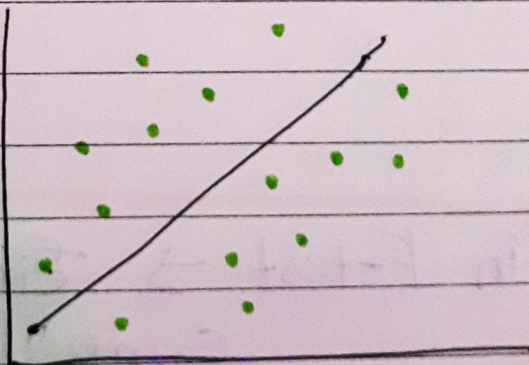
$$\Rightarrow R^2 = 1 - \frac{RSS}{TSS} \quad [0 \leq R^2 \leq 1]$$

if $R^2 = 1$ (best fit)

if $R^2 = 0$ (worst baseline)



$R^2 = 0.1$



$R^2 = 0.2$

in

F-Test

Null Hypothesis
 H_0 Alternate Hypothesis
 H_1

$$\hat{y} = w_0 x_0$$

$$\hat{y} = w_0 x_0 + w_1 x_1 + w_2 x_2 + w_3 x_3$$

 H_0

Equal

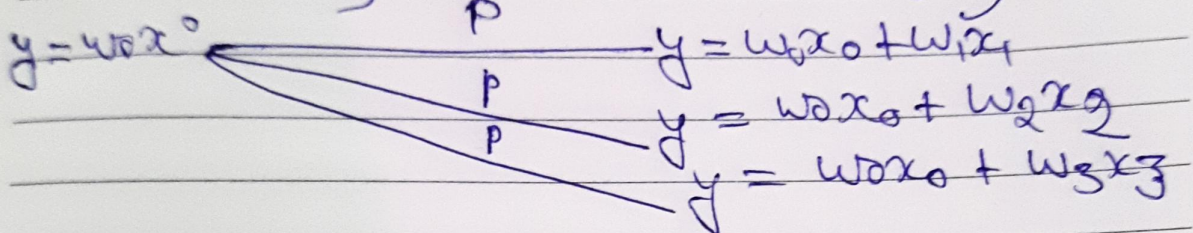
Not equal

$$p\text{-value} < 0.05$$

Reject Null Hypothesis

in F-test \rightarrow Either No model or complete model

T-Test

Null Hypothesis
(H_0)Alternate Hypothesis
(H_1)# in t-test \rightarrow

- Either no model or with first parameter
- Either no model or with 2nd para.
- Either no model or with 3rd para.

in

