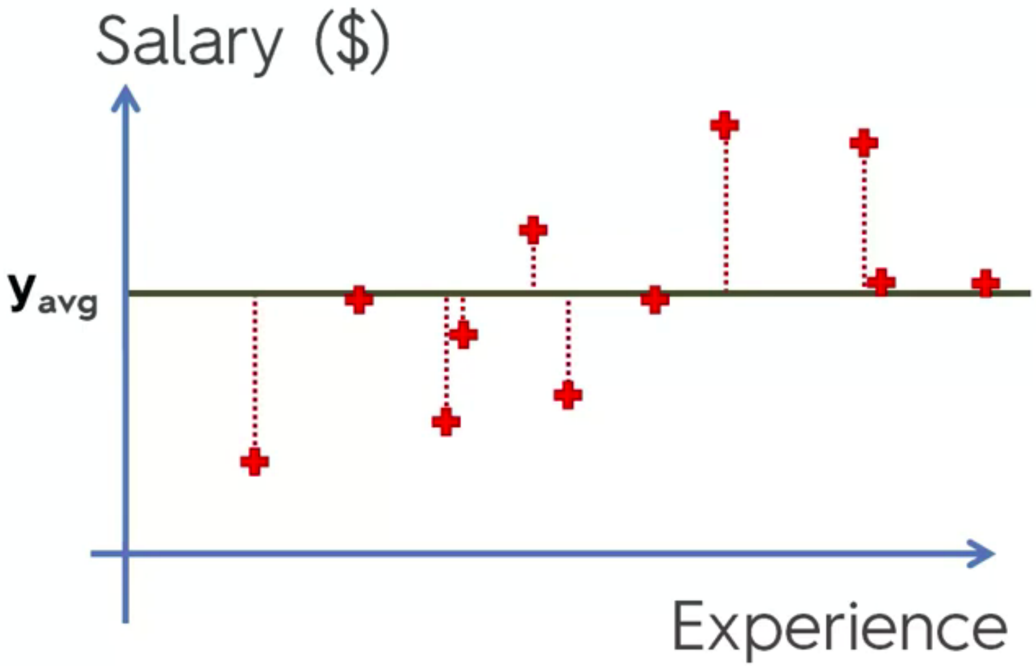
R Squared

Simple Linear Regression:



$$SS_{res} = SUM\ (y_i - \hat{y}_i)^2$$

$$SS_{tot} = SUM\ (y_i - y_{avg})^2$$

$$\boxed{R^2 = 1 - \frac{SS_{res}}{SS_{tot}}}$$

Adjusted R^2

$$R^2 = 1 - \frac{SS_{res}}{SS_{tot}}$$

R^2 – Goodness of fit
(greater is better)

$$y = b_0 + b_1{*}x_1$$

Problem:

$$y = b_0 + b_1{*}x_1 + b_2{*}x_2 \leftarrow \boxed{+\ b_3{*}x_3}$$

SS_{res} -> Min $\longrightarrow$ R^2 will never decrease

Adjusted R^2

$$R^2 = 1 - \frac{SS_{res}}{SS_{tot}}$$

$$\text{Adj } R^2 = 1 - (1 - R^2)\frac{n - 1}{n - p - 1}$$

p - number of regressors

n - sample size