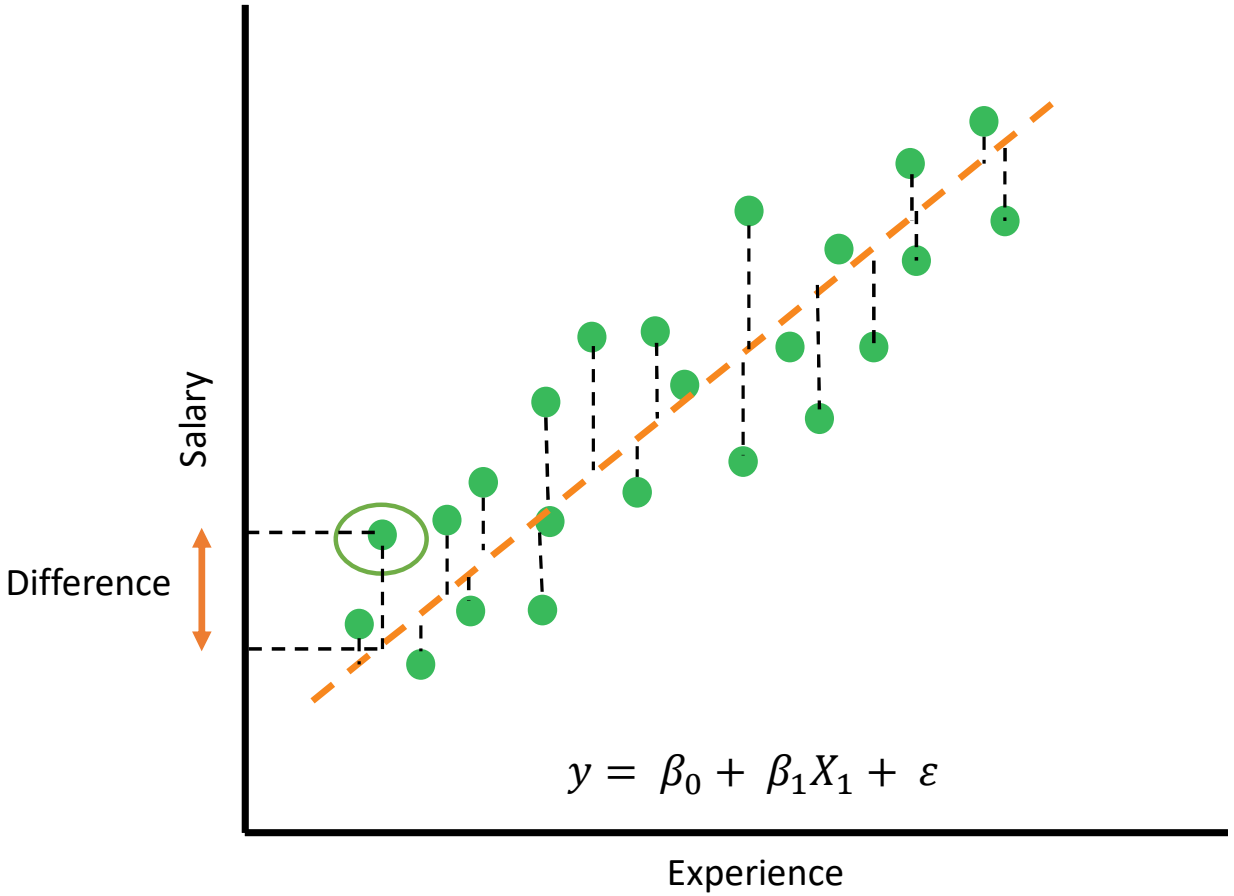
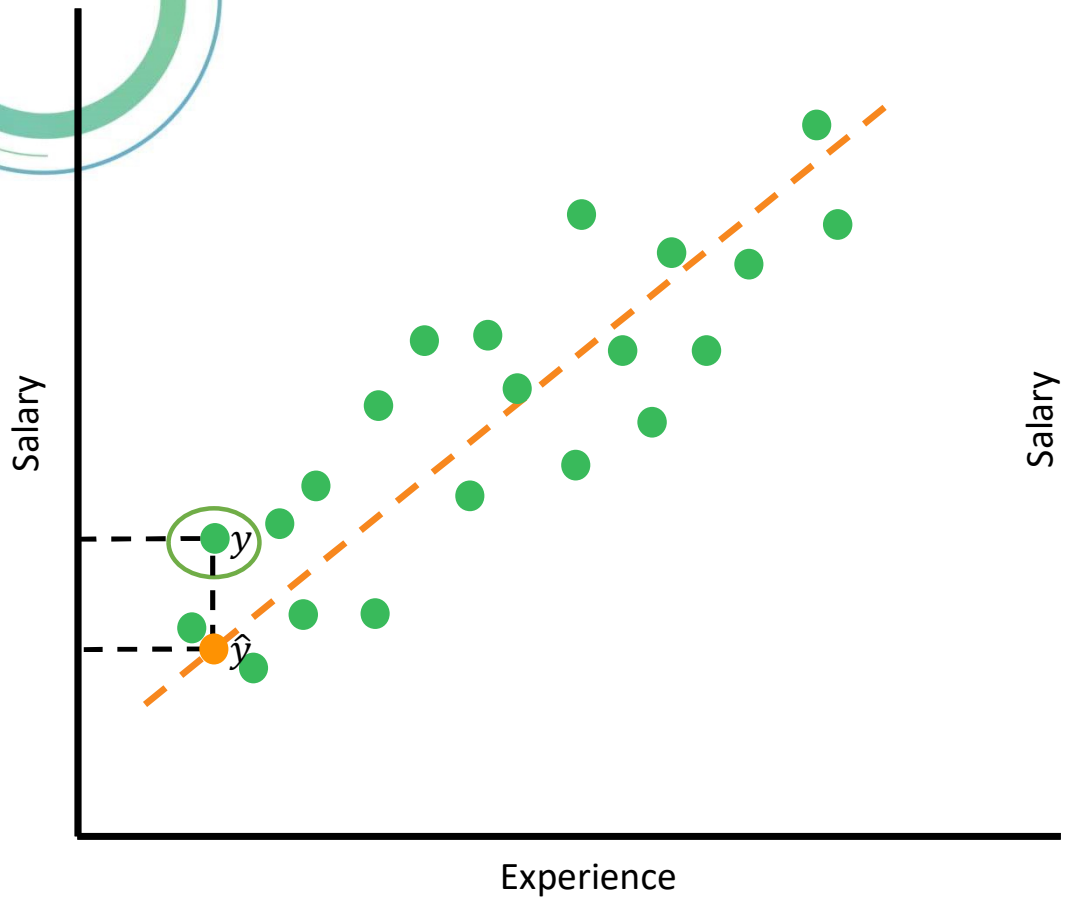
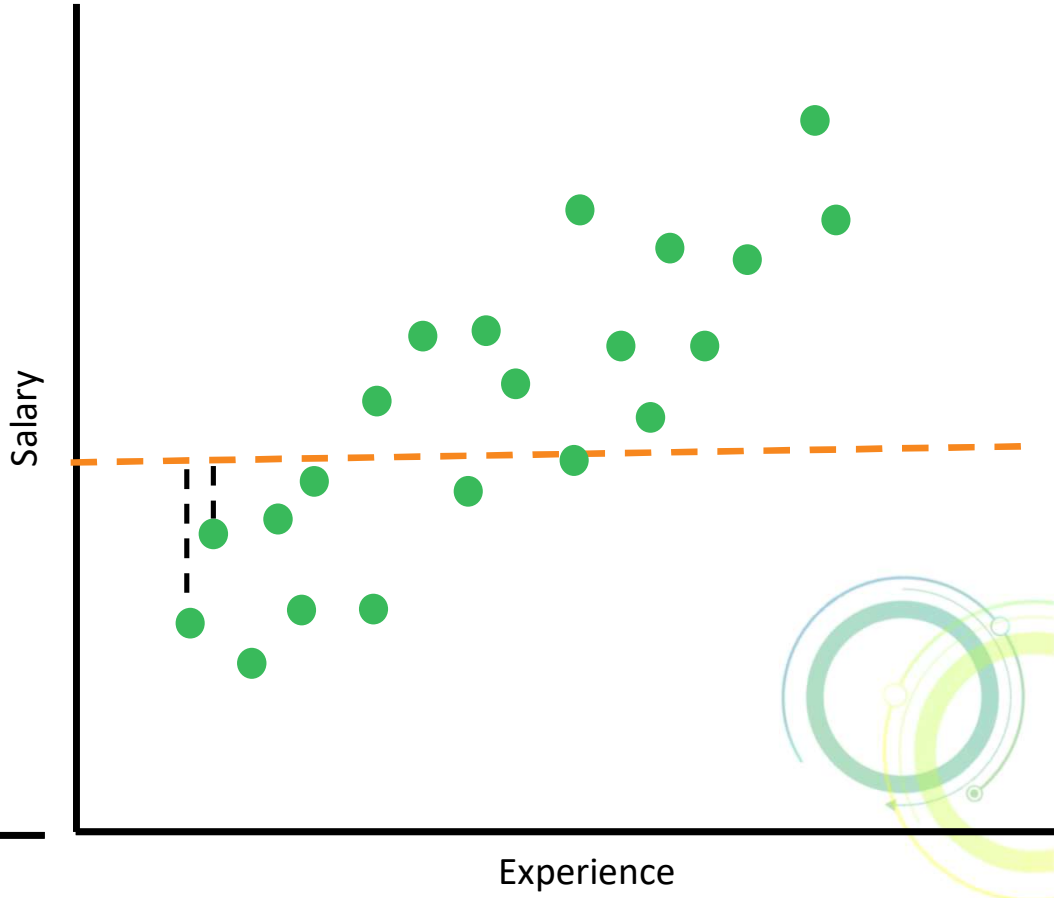
Seminar on Introduction to Regression

Regression – An Intuition

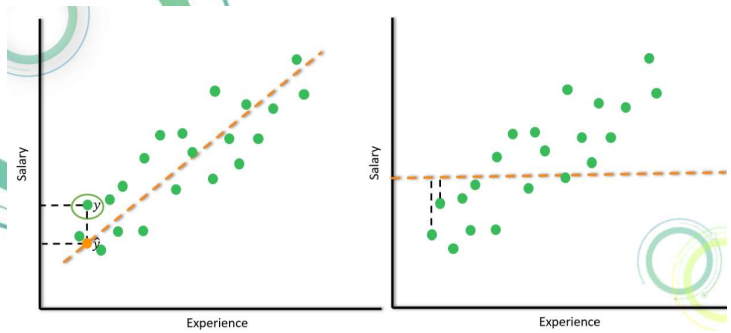


Regression – An Intuition





Regression – An Intuition

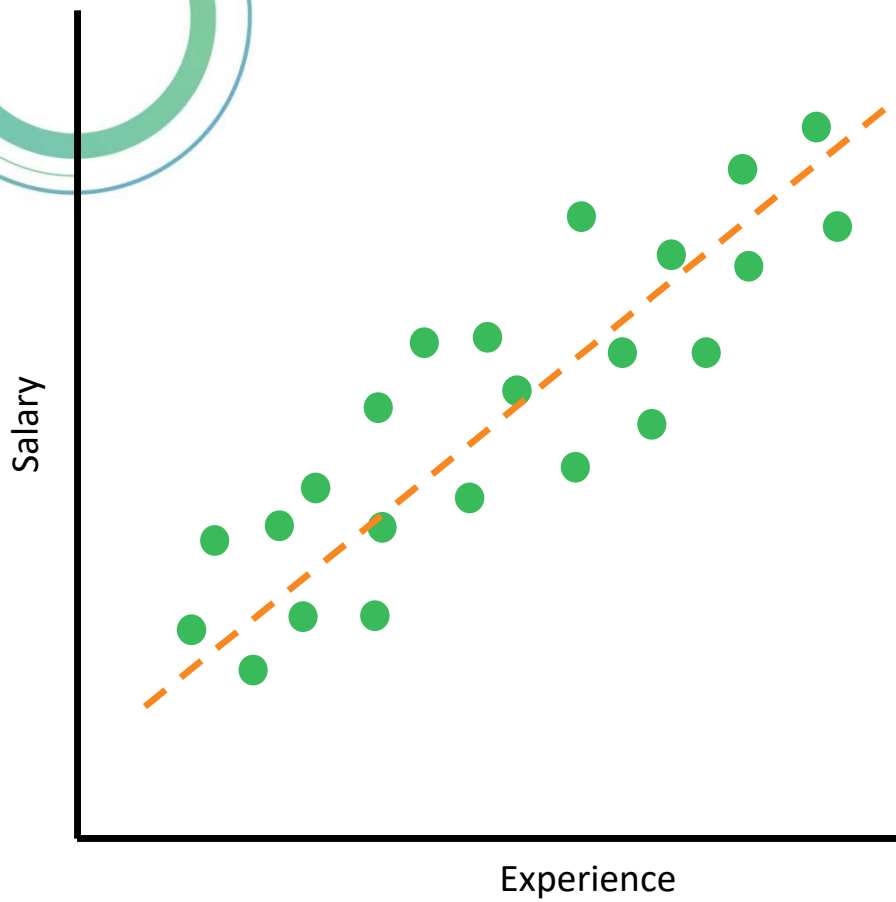


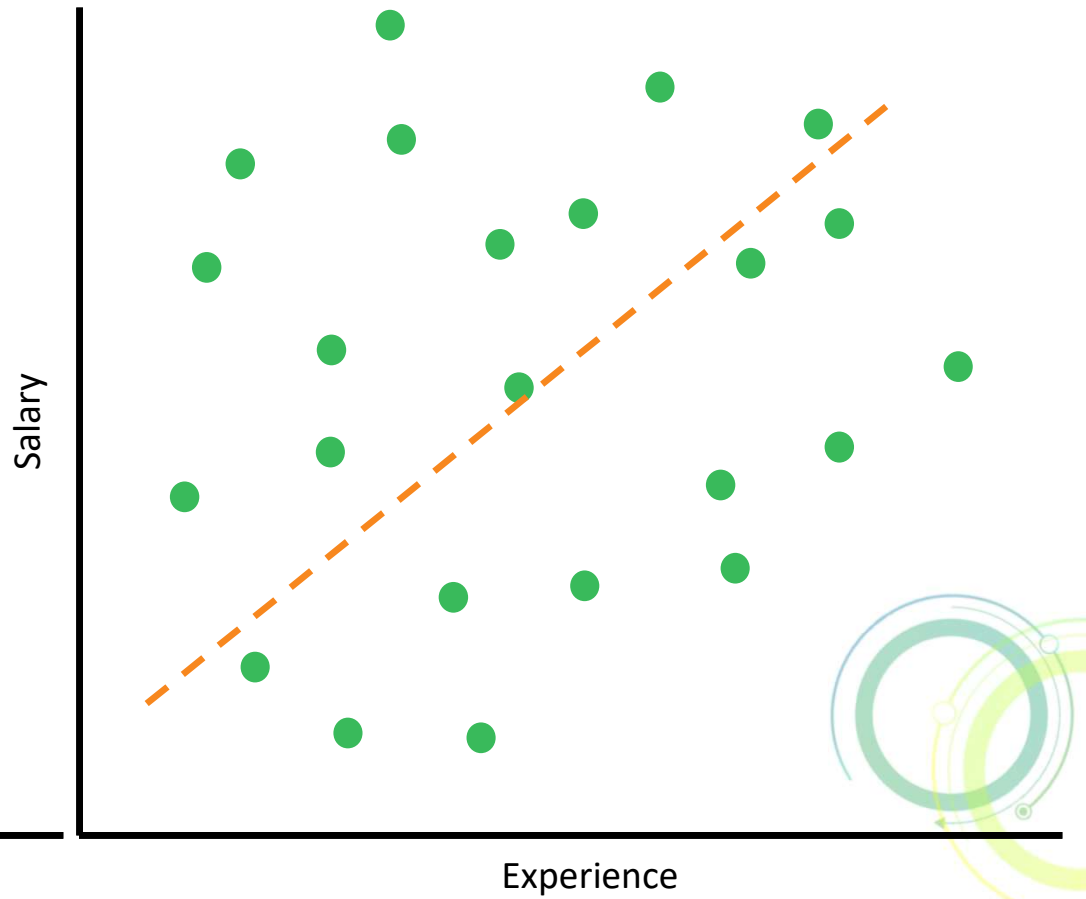
$$R^2 = 1 - \frac{SSE}{SST}$$

$Experience$	$Salary\ (y)$	$Avg\ Salary$	$S - SAvg$	$(S - SAvg)^2$ SST – Sum Squared Total	$\hat{y} = 2250 * Experience + 5750$	$y - \hat{y}$	$(y - \hat{y})^2$ SSE - Sum Squared errors
2	10000	12500	-2500	6250000	10250	-250	62500
3	13000	12500	500	250000	12500	500	250000
4	14500	12500	2000	4000000	14750	250	62500
				1,05,00,000			**3,75,000**

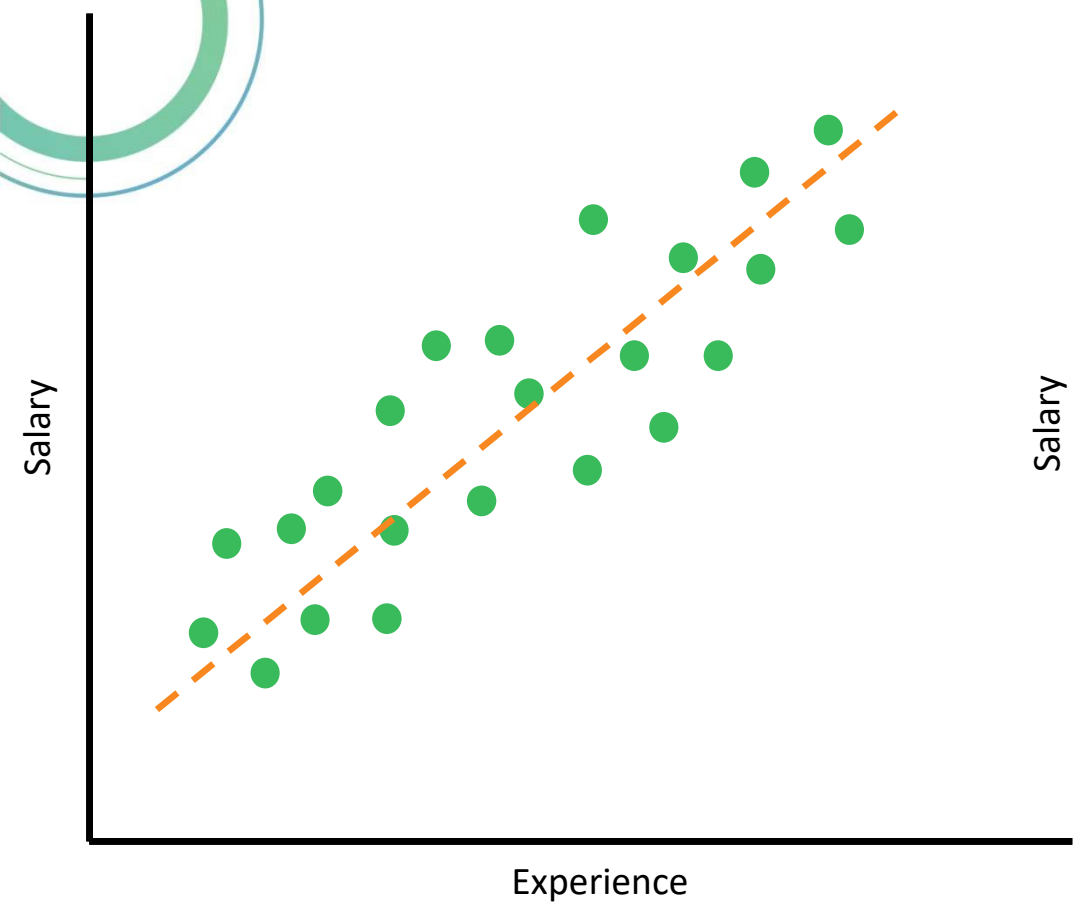
$$R^2 = 1 - \frac{375000}{10500000} = 96.42$$

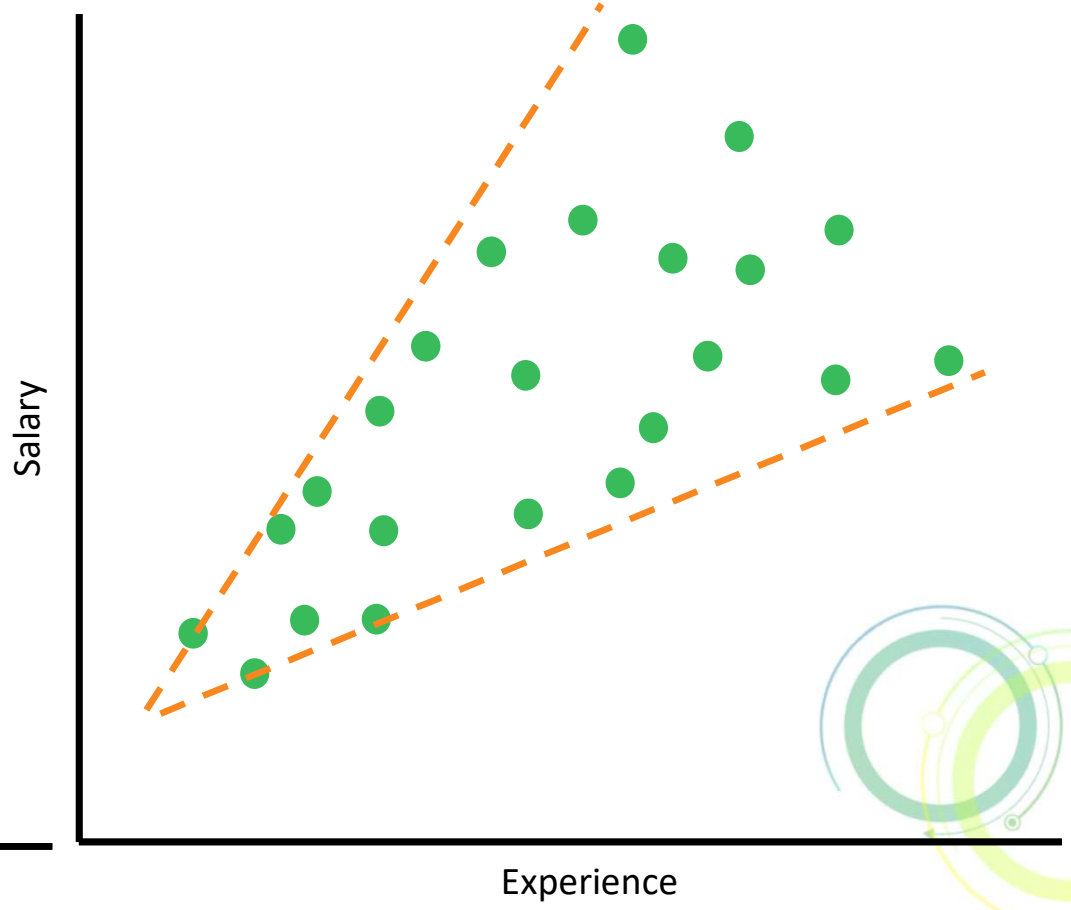
Assumptions – Linear





Assumptions – No Heteroscedasticity

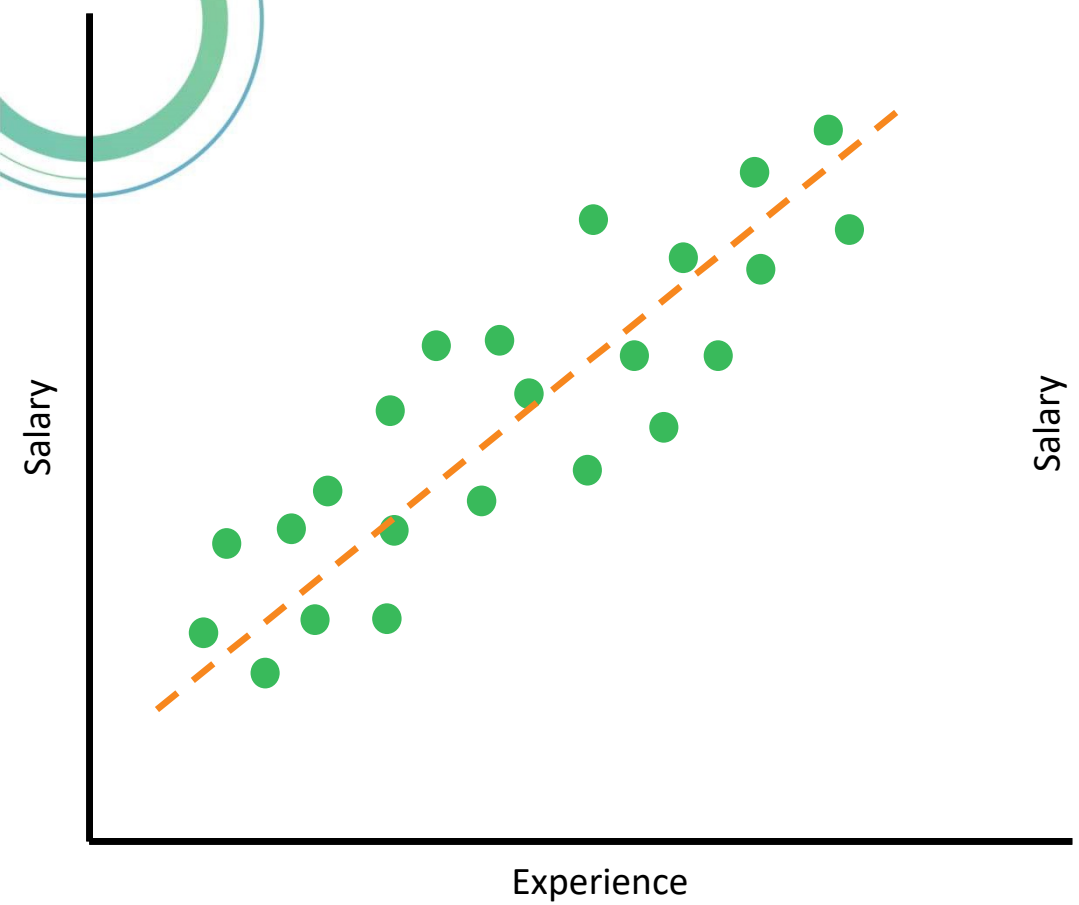


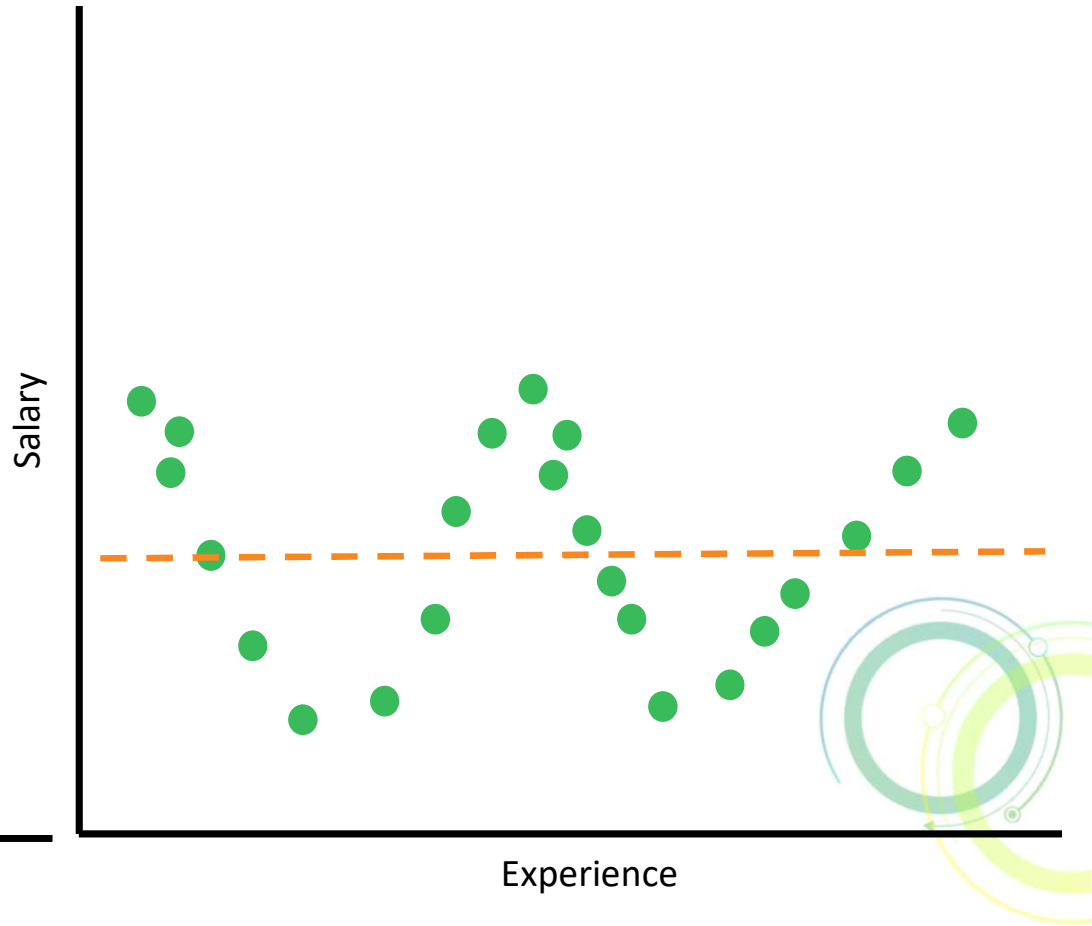


No Heteroscedasticity - Solution

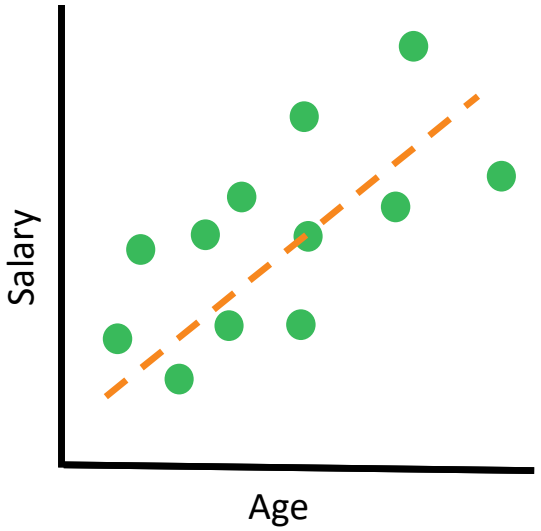
- Remove the outliers
- Transform the data
  - Square root transformation
  - Cube root transformation
  - Log transformation

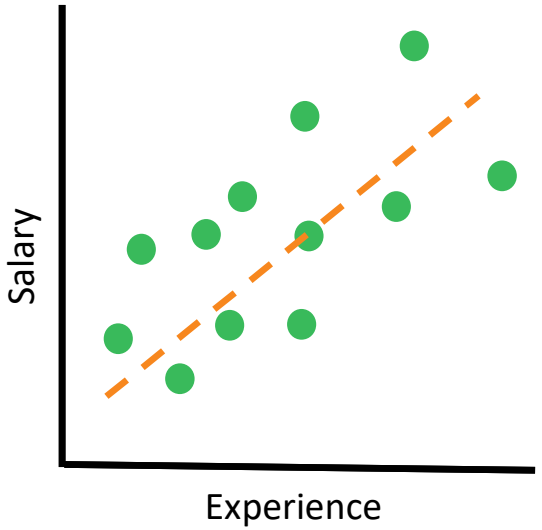
Assumptions – No Autocorrelation

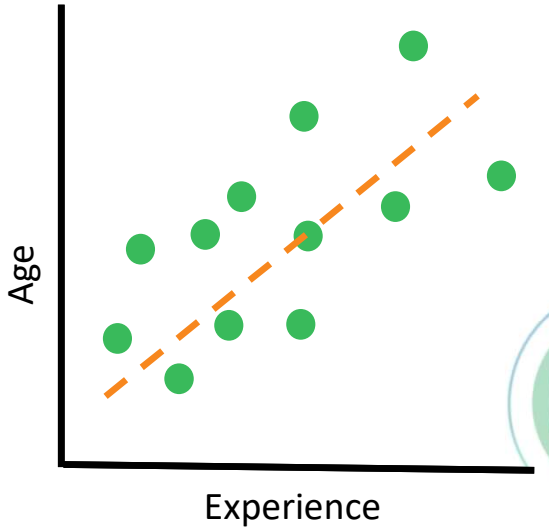




Assumptions – No Multicollinearity







No Multicollinearity - Solution

- Remove one of the correlated variable
  - Variance inflation factor
    - Any variable with VIF more than **5**