LINEAR REGRESSION BY PEARSON CORRELATION APPROACH

$$\mathbf{r} = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{\sum(x-\bar{x})^2 \sum(y-\bar{y})^2}}$$

- x is the independent variable
- y is the dependent variable
- $\bar{Y}$ is the mean of the dependent variable
- $\bar{x}$ is the mean of the independent variable.

$$\textbf{Slope(m)} = r \times \frac{S_y}{S_x}$$

- S_x is the standard deviation of the independent variable
- S_y is the standard deviation of the dependent variable

Y intercept(c) = $\bar{Y}$ – r $\bar{x}$

Y prediction = mx + c