

$$\text{Pearson } r = \frac{SS_{xy}}{\sqrt{SS_x SS_y}}$$

Table for correlation

X	Y	$\frac{X - M_x}{Y - M_y}$	$\frac{(X - M_x)(Y - M_y)}{(X - M_x)^2 (Y - M_y)^2}$
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$M_x M_y$

SS_{xy}

SS_x

SS_y

Pearson's Spearman rank correlation rho
 Point Biserial Correlation Coefficient
 Phi Correlation Coefficient

Simple linear regression

$$\begin{matrix} X & Y & (X-M_x) & (Y-M_y) & (X-M_x)(Y-M_y) & (X-M_x)^2 \end{matrix}$$

$M_x M_y$

SS_{xy} SS_x

$$b = \frac{SS_{xy}}{SS_x}$$

$$a = M_y - bM_x$$

$$Y = a + bX$$

Analysis of regression

$$\begin{matrix} X & Y & X-M_x & Y-M_y & (X-M_x)(Y-M_y) & (X-M_x)^2 & (Y-M_y)^2 \end{matrix}$$

$$\begin{matrix} SS_{xy} & SS_x & SS_y \end{matrix}$$

F Table for the analysis of regression

Source of variation	SS	df	MS	Fobt
Regression	$r^2 \cdot SS_Y$	1	$\frac{SS_{regression}}{df_{regression}}$	$\frac{MS_{regression}}{MS_{residual}}$
Residual	$(1 - r^2) \cdot SS_Y$	$n - 2$	$\frac{SS_{residual}}{df_{residual}}$	
Total	$SS_{regression} + SS_{residual}$	$n - 1$		

