

Correlation is the relationship between quantitative / qualitative variables

Correlation coefficient (r) is the value is the relationship between two variable. It can also be said as the **Measure of correlation**.

Range of correlation: -1 to 1

Types of correlation:

1. Pearson correlation
2. Spearman correlation
3. Kendall rank correlation
4. Point-Biserial correlation

Types of correlation coefficient:

1. No correlation — when correlation coefficient (r)=0
2. Positive correlation — when correlation coefficient (r)>0
3. Negative correlation — when correlation coefficient (r)<0

Types of correlation based on Variable:

1. Simple correlation — between two variables
2. Partial correlation — partially among many variables

3. Multiple correlation — among three or more variables

Types of correlation based on change in ratio between the variables:

1. Linear

X: 10 ,20 ,30 ,40 ,50

Y:20 ,40 ,60 ,80 ,100

These two variables(X,Y) **bear a constant ratio**

2. Non Linear

X: 10 ,20 ,30 ,40 ,50

Y:5 ,18 ,23 ,31 ,44

These two variables(X,Y) **do not bear a constant ratio**

Interpretation of r value:

if r value

- **Exactly –1.** A perfect downhill (negative) linear relationship
- **–0.70.** A strong downhill (negative) linear relationship
- **–0.50.** A moderate downhill (negative) relationship
- **–0.30.** A weak downhill (negative) linear relationship

- **0.** No linear relationship
- **+0.30.** A weak uphill (positive) linear relationship
- **+0.50.** A moderate uphill (positive) relationship
- **+0.70.** A strong uphill (positive) linear relationship
- **Exactly +1.** A perfect uphill (positive) linear relationship