

Correlation

As one variable tends to increase or decrease, a second variable tends to increase or decrease in parallel




Correlation shows a relationship between two variables, whether positive or negative

Sales & Commission Analysis



Correlation Coefficient

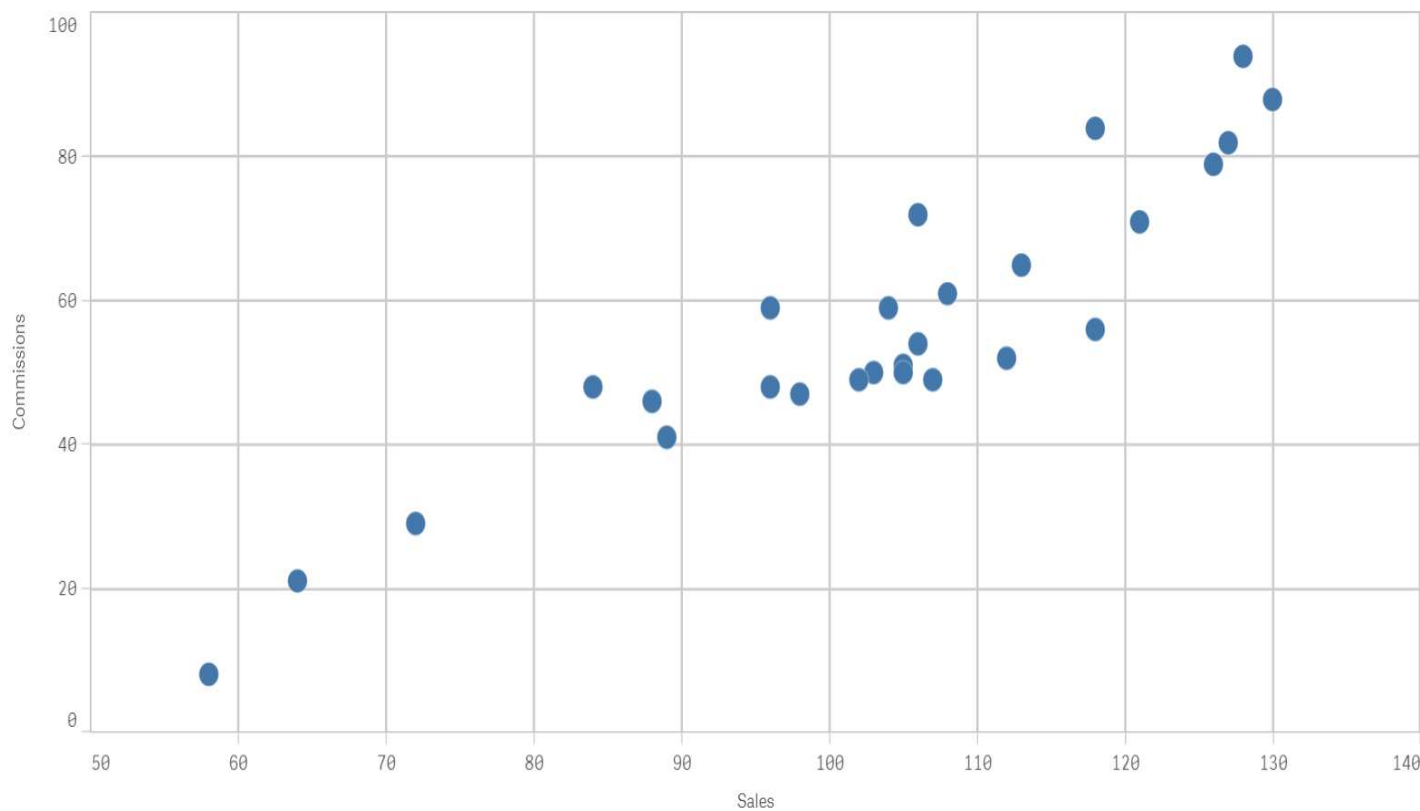
A single number representing correlation between two variables, denoted by the letter “r”; falling between 1.0 and -1.0

- *Perfectly positive coefficient; $r = 1.0$*
- $r > 0$  *A positive relationship*
- *Positive relationship = as one variable increases, the second variable also increases*
- *Perfectly negative coefficient; $r = -1.0$*
- $r < 0$  *A negative relationship*
- *Negative relationship = as one variable increases, the second variable will go in the opposite direction*
- $r = 0$  *No relationship*

Scatter Plot

A data visualization commonly used to show correlation

Correlation: Sales & Commission



Correlation Coefficient

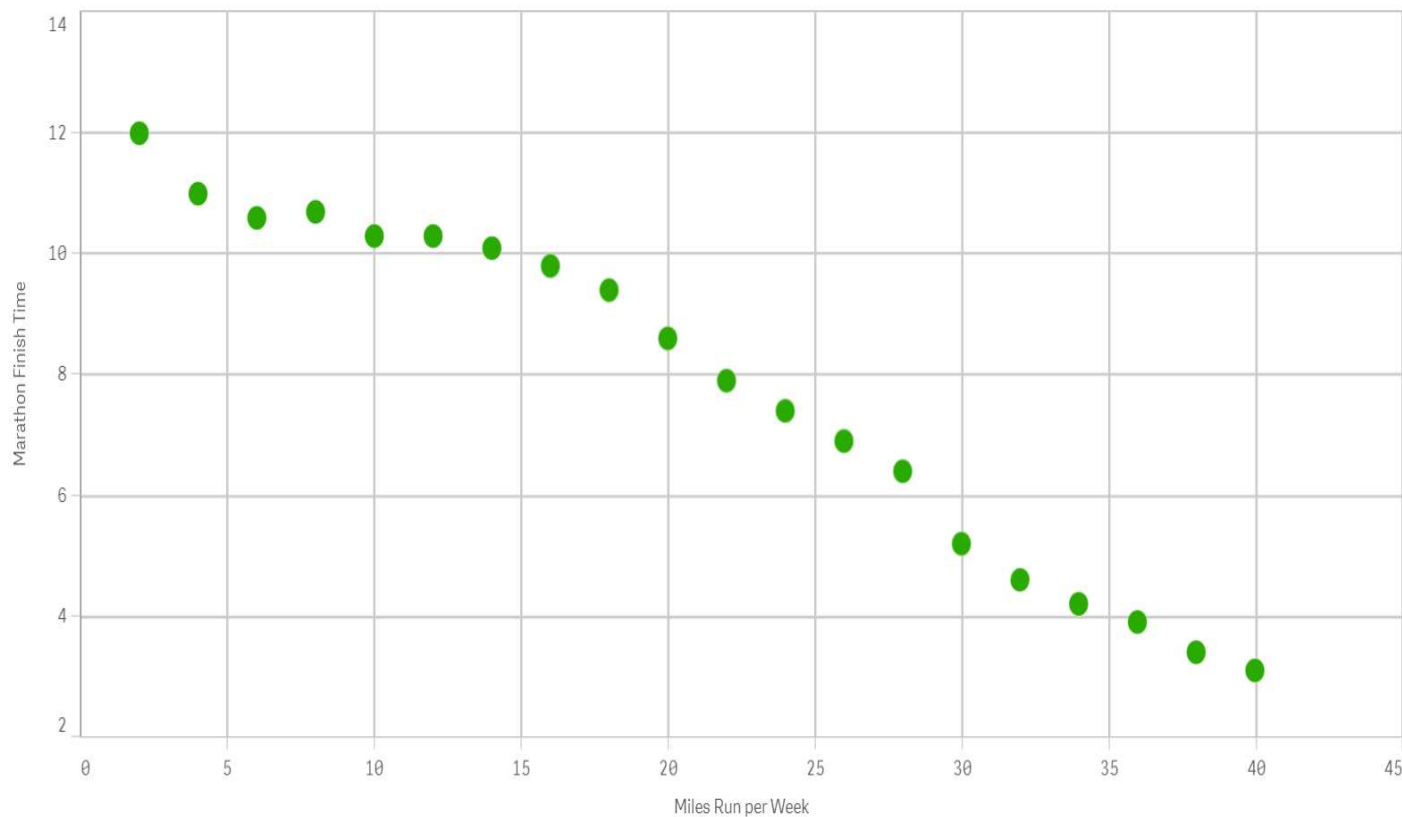
0.92

- *Positive relationship*

Scatter Plot

A data visualization commonly used to show correlation

Marathon Time



Correlation Coefficient

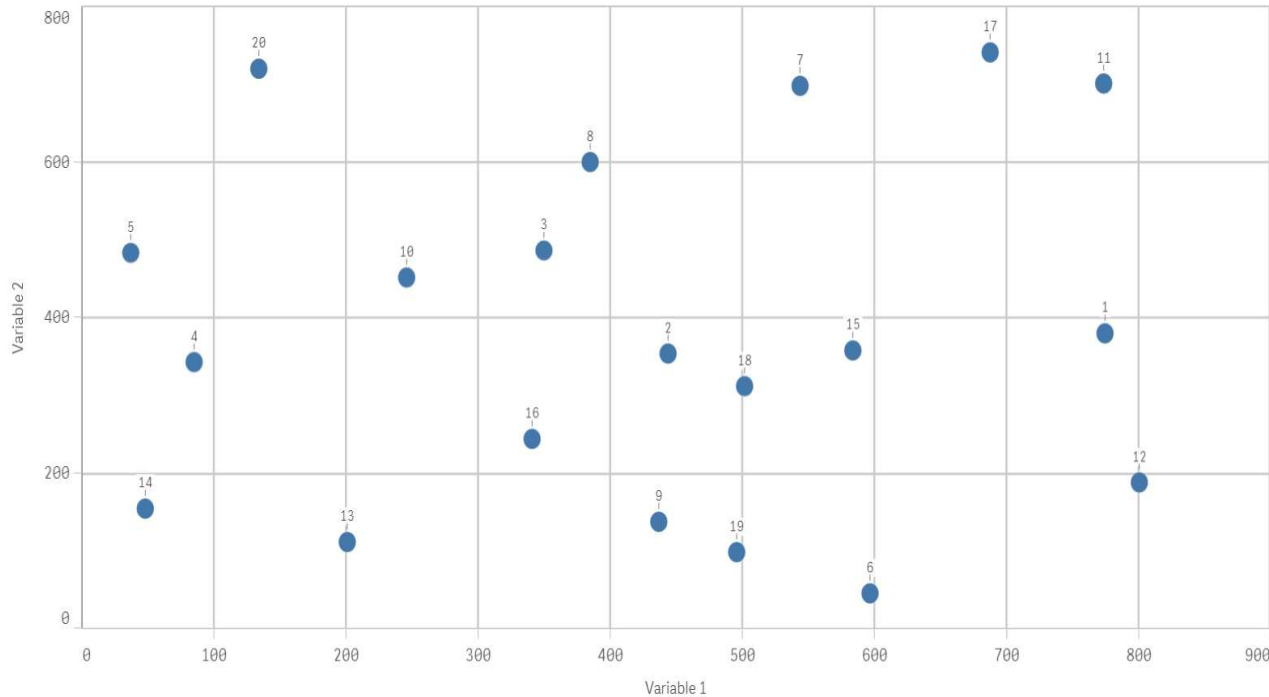
-0.98

- *Negative relationship*

Scatter Plot

A data visualization commonly used to show correlation

No Relationship



Correlation Coefficient

0.08

- *No distinguishable pattern*
- *No relationship*

Causation

A relationship does exist and is taken a step further: one variable causes an effect in another variable. To solve causation can take complex math and experimentation

Correlation DOES NOT mean Causation

