

Scatter Plots Guided Notes

Scatter Plots

A **Scatter Plot** has points that show the relationship between two sets of data. In other words a scatter plot is a graph that relates two groups of data.

Scatter plots are used to plot data points on a horizontal axis (x-axis) and a vertical axis (y-axis) in the effort to explain to what extent one variable is affected by another variable. The relationship between two variables is called their **Correlation**.

Correlation

Positive Correlation - When an increase in value of one variable increases the value of other variable.

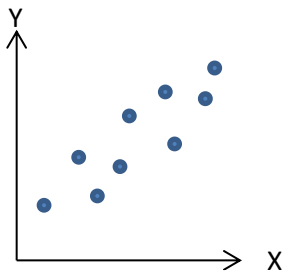
Negative Correlation - When an increase in value of one variable decreases the value of other variable.

No Correlation - When there is no linear dependency between the variables.

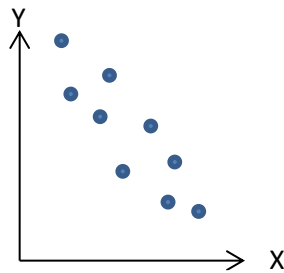
Perfect Correlation - When variables are functionally dependent. In this case all the points are in a straight line.

Strong Correlation - When points are located closer in relation to one another on the line.

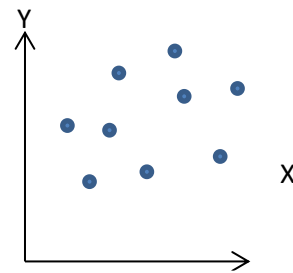
Weak Correlation - When points are located farther apart in relation to one another on the line.



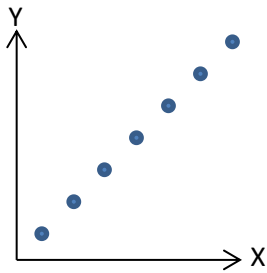
Positive Correlation



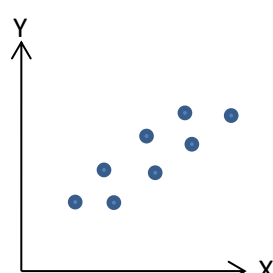
Negative Correlation



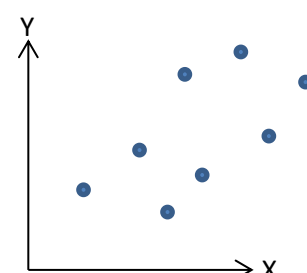
No Correlation



Perfect Correlation



Strong Correlation



Weak Correlation

Line of best fit

A line of best fit is a straight line that represents the data on a scatter plot in the best way. This line may pass through all of the points, some of the points or none of the points. Line of best fit is also known as **Trend line**.

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How to draw a line of best fit

- Plot all the data on coordinate axis.
- Draw a dotted line that divides the data in two sets (even numbers of points on either side of the line).

Exercise

Height (feet's)	1	2	3	4
Weight (kg)	10	20	30	40

1. Use the data to make a scatter plot. Title, Label and scale it.
2. Is there positive, negative or no correlation.
3. Is the data linear? If it is, draw a line of best fit and determines its equation.

