

3. What is Pearson's R?

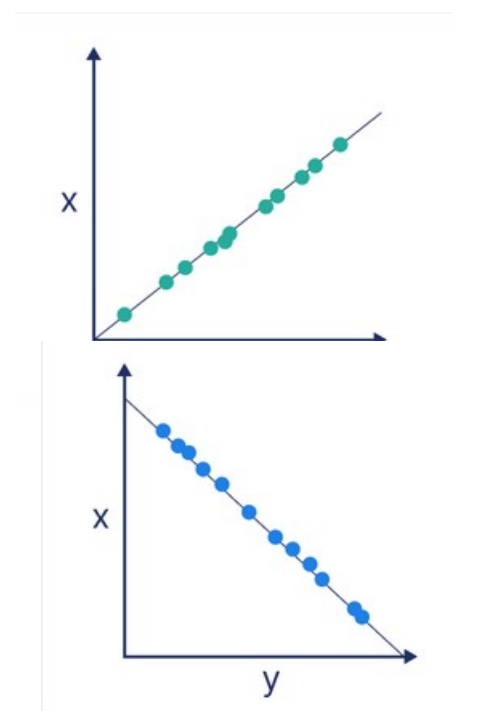
Answer-->

Pearson Correlation Coefficient determines linear relationship/correlation between two variables.

- It's values ranges from -1 to 1.
- 0 to 1, signifies positive correlation, means with one variable, other variable also increases.
 - **e.g.** population and resource requirements.
- -1 to 0, signifies negative correlation, means with increase in one variable, other variable decreases.
 - **e.g.** life and price of a non-remodifiable/resuable product.
- 0, signifies no correlation between variables.
 - **e.g.** new additional feature and supply chain of a product.
- -1 and 1, signifies perfect correlation, either negative or positive respectively.

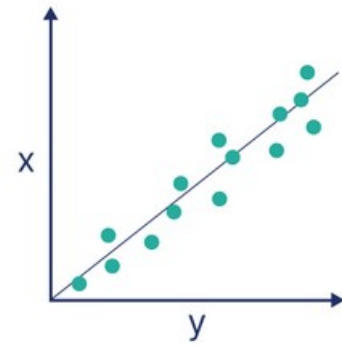
$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

Perfect positive correlation

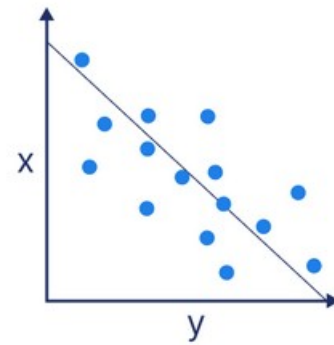


Perfect negative correlation

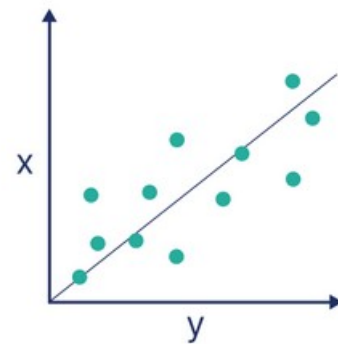
Strong positive correlation



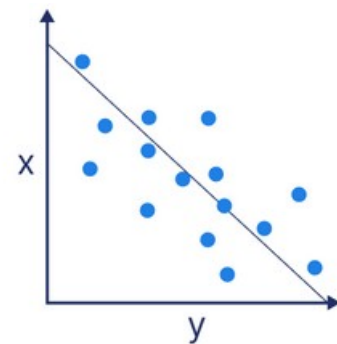
Strong negative correlation



Weak positive correlation



Weak negative correlation



No Correlation

