



Paired T tests

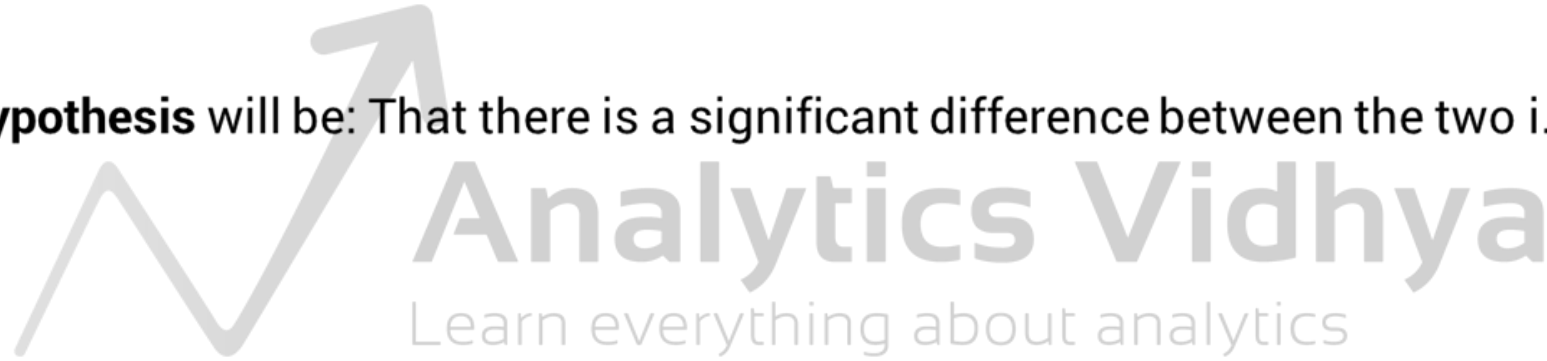
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Paired T tests

- A paired t-test is used to compare two population means where you have two samples in which observations in one sample can be paired with observations in the other sample.
- We check if the same sample has changed its behavior after an intervention, or behaves significantly different in two conditions.

Null and Alternate Hypothesis

- **Null Hypothesis** would be: That the difference between two sample means is 0 i.e. $\bar{X}_1 - \bar{X}_2 = 0$
- **Alternate Hypothesis** will be: That there is a significant difference between the two i.e. $\bar{X}_1 - \bar{X}_2 \neq 0$



Formula for Paired T test

- $t = \frac{\bar{d}}{S_d/\sqrt{n}}$

- where, \bar{d} = mean of the case wise difference between before and after, S_d is the standard deviation of the difference and n is the sample size

