# Student t distribution

In z test stats when we perform any analysis using z-score

We require $\sigma$ (population standard deviation) → is already known

but :

How do we perform any analysis when we dont know the population standard deviation?

⇓ using the

Student's t distribution

$$z = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}}$$

new formula

t stats

$$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$$

s : Sample Standard deviation

z table

t table ⇒ t test

to calculate t-statistics value

## Degree of freedom

$$dof = n - 1 \quad = 3 - 1 = 2$$

3 people

note : In t-test ,each dof has corresponding t value which can be seen from t- table.