

## Day 2

### Assignment : →

Sample Variance : →

$$s^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1} \rightarrow \text{why } n-1$$

Q.1 Why use  $(n-1)$  in sample variance formulae?

Ans Taking the entire population and calculating its parameters like population mean, Population Standard deviation is accurate. But when the population is large enough, then doing the study on the entire population is very tough.

So we take the sample size (of size)  $n < N$  (Size of population) and calculating the sample mean and sample variance but in sample variance formulae instead of  $n$  we divide by  $(n-1)$  which is called Bessel's correction.

Q.2 What is Bessel's Correction?

Ans Bessel's correction refers to the " $n-1$ " found in several formulas, including the sample variance and sample standard deviation formulas.

Q.3 Why is Bessel's correction used?

Ans This correction is made to correct for the fact that these sample statistics tend to underestimate the actual parameters found in the population.

Q4. What is Degree of Freedom?

Ans. The Degrees of freedom in a statistical calculation represent how many values involved in a calculation have the freedom to vary.