

## Assignment - 2

Q:- Why ~~say~~ In Sample Variance  $\sum_{i=1}^n (x - \bar{x})^2$  is divided by  $(n-1)$ ?

$\Rightarrow$  When we collect some random sample from the population. Then there may be the chances where we get a very very far/lower value of sample mean i.e.,  $(\bar{x})$  as compare to the population mean i.e.,  $(\mu)$  which <sup>also</sup> leads to the chances of getting a huge variance difference between  $\sigma^2$  and  $s^2$ . So, in order correct the consequences of underestimates the true variance of the population we divide  $\sum_{i=1}^n (x - \bar{x})^2$  by  $(n-1)$  because as compare to dividing

it by  $(n)$ , we are getting more  
closer value to the  $(\sigma^2)$  value and  
make the variance of one-element  
sample undefined rather than zero.