# Bessel’s correction

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Bessel correction refers to the **n-1** part used as the denominator in the formula of sample variance or sample distribution instead of **n**.

$$s^2 = \frac{\sum_{i=1}^{n} \left(x_i - \bar{X}\right)^2}{n-1}$$

Subtracting sample-mean in Sample distribution formula makes the sum in numerator as small as it possibly could be, roughly the sample mean must fall *near the center of the observations* whereas population-mean could be *any value.*

So when divide n with the sum in numerator then population variance is more than the sample variance.

To compensate for that, dividing by n-1 makes the sample variance a little bigger than it would be if divide by n.