Dataset

85, 90, 92, 100, 95, 82, 87, 99, 93, 91, 96, 98

$n = 12$ scores

$$\text{Mean} = \frac{\text{Sum}}{\text{No of values}}$$

$$= \frac{85+90+92+100+95+82+87+99+93+91+96+98}{12}$$

$$= \frac{1108}{12} = 92.34$$

Median

n is even

Median = Average of $\frac{n}{2}^{th}$ & $\frac{n+1}{2}^{th}$ terms

Sorted Value = 82, 85, 87, 90, 91, 92, 93, 95, 96, 98, 99, 100

$$\text{Median} = \frac{92+93}{2} = \frac{185}{2} = 92.5$$

Variance

$$\sigma^2 = \frac{\sum (x_i - \mu)^2}{n}$$

Mean = 92.34

$(82-92.34)^2 = 106.91$

$(85-92.34)^2 = 53.87$

$(87-92.34)^2 = 28.51$

$(90-92.34)^2 = 5.47$

$(91-92.34)^2 = 1.79$

$(92-92.34)^2 = 0.11$

$(93-92.34)^2 = 0.43$

$(95-92.34)^2 = 7.07$

$(96-92.34)^2 = 13.39$

$(98-92.34)^2 = 32.03$

$(99-92.34)^2 = 44.35$

$(100-92.34)^2 = 58.67$

Sum = 352.6

Variance, $\sigma^2 = \frac{352.6}{12} = \underline{29.38}$

Standard Deviation

$$\sigma = \sqrt{\text{Variance}}$$

$$= \sqrt{29.38} = \underline{5.42}$$

Probability of Scores greater than 90

$$\text{No of scores} > 90 = \frac{8}{12} = 0.6666$$

$$= \underline{66.66\%}$$