ASSIGNMENT 3

3. If $\mu = 55$, $\sigma_{4a} = 4$, $\sigma_{4\beta} = 10$, $\sigma_4 = c$ 15, In this which is better

Standard Deviation

• Standard deviation measures the degree of dispersion around the mean value.

• The mean (μ) for all three datasets is 55.

• Because the averages are identical, comparison depends entirely on spread.

Dataset and Values

• Dataset A has a standard deviation equal to 4.

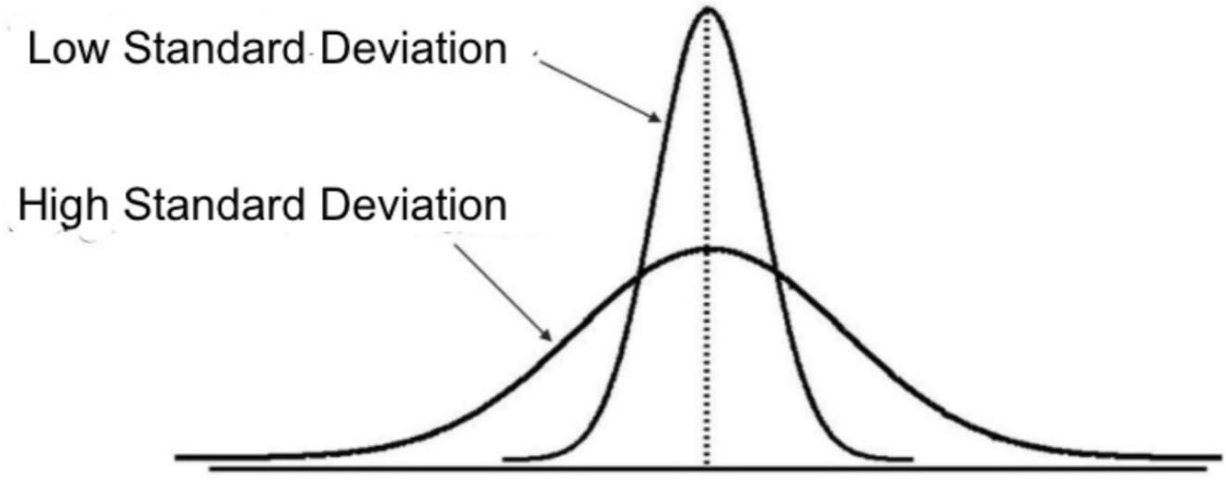
$\Sigma_a = 4$

• Dataset B has a standard deviation equal to 10.

$\Sigma_\beta = 10$

• Dataset C has a standard deviation equal to 15.

$\Sigma c = 15$



Smaller Standard Deviation :

• A smaller standard deviation means values cluster closely around the mean.

• It indicates minimal variation within the dataset.

• It reflects stronger consistency among observations.

• It represents higher stability and predictability in results.

Larger Standard Deviation :

• A larger standard deviation means values are widely scattered.

• It indicates substantial variation within the dataset.

• It reflects weaker consistency among observations.

• It represents lower stability and predictability in results.

Verdict :

• Since $\sigma_a = 4$ is the smallest standard deviation, Dataset A varies least.

• Therefore, Dataset A demonstrates the highest consistency and stability.

• Mathematically, Dataset A provides the most consistent performance among all three.