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Prob and Stat 341

Assignment 2

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Variance and standard deviation are both measures of the spread or dispersion of a set of data points. They provide insight into how much the values in a dataset deviate from the mean (average) value. However, they differ in how they express this variability. Variance (σ^2 for a population and s^2 for a sample) is the average of the squared differences between each data point and the mean of the dataset.

σ2 is the variance.

N is the number of data points.

xi​ is each individual data point.

μ is the mean of the data.

Standard deviation (σ for a population and ss for a sample) is the square root of the variance. It provides a measure of spread in the same units as the original data, making it easier to interpret.

Variance is expressed in squared units of the original data, which can make it less intuitive to understand. Standard deviation, being the square root of the variance, is expressed in the same units as the data, making it a more interpretable measure of spread. While variance gives us a sense of how data points are spread out in relation to the mean, standard deviation provides a direct and practical understanding of this spread.