

What is the center and spread of a dot plot?

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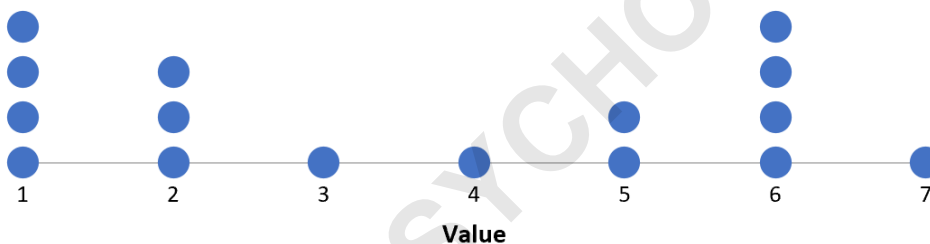
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A dot plot is a graphical representation of data that uses individual dots to represent values. The center of a dot plot refers to the point where the data is most concentrated, or the middle value of the data set. This can be determined by finding the median, or the value that divides the data set into two equal parts. The spread of a dot plot refers to the range of values that the data covers, or how spread out the data points are from each other. This can be determined by finding the minimum and maximum values in the data set and calculating the difference between them. In summary, the center and spread of a dot plot provide important information about the central tendency and variability of the data.

Find the Center and Spread of a Dot Plot

A dot plot is a type of plot that displays the frequencies of values in a dataset by using stacked dots.



Often when we create a dot plot, we're interested in quantifying the center and the spread:

Center: The center point of the dataset. We often use the median to measure this.
Spread: The spread of values in the dataset. We often use the range to measure this.

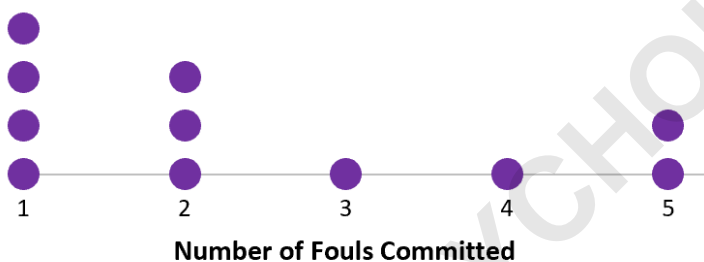
By knowing just these two values, we can get a good

idea of how the values are distributed in a given dataset.

The following examples show how to find the center and spread of a dot plot in practice.

Example 1: Dot Plot of Fouls Committed

The following dot plot shows the number of fouls committed in a certain game by basketball players:



Here's how to find the center and spread of values in this dataset:

Center: We can use the median to measure the "center" of the dataset. The median represents the middle value of the dataset. To find the median for this particular dataset, we can list out each value and identify the middle value:

Data values: 1, 1, 1, 1, 2, 2, 2, 3, 4, 5, 5

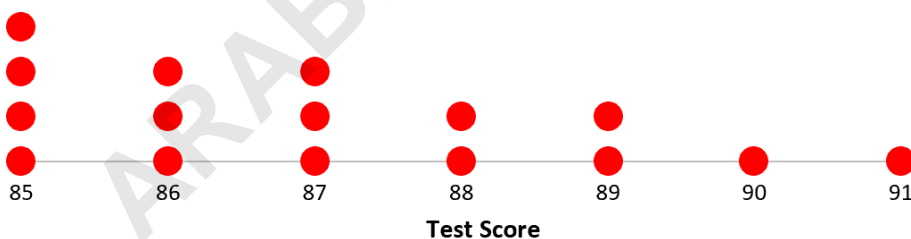
The median value in this dataset is 2.

Spread: We can use the range to measure the "spread" of values in the dataset. The range represents the difference between the largest and smallest value.

In this dataset, we can see that the largest value is 5 and the smallest value is 1 so the range can be calculated as $5 - 1 = 4$.

Example 2: Dot Plot of Test Scores

The following dot plot shows the test scores of students in a particular class:



Here's how to find the center and spread of values in this dataset:

Center: We can use the median to measure the "center"

of the dataset. To find the median for this particular dataset, we can list out each value and identify the middle value:

Data values: 85, 85, 85, 85, 86, 86, 86, 87, 87, 87, 88, 88, 89, 89, 90, 91

This dataset has an even number of values, so the median will be the average of the middle two values. The median turns out to be 87.

Spread: We can use the range to measure the "spread" of values in the dataset, which represents the difference between the largest and smallest value.

In this dataset, we can see that the largest value is 91 and the smallest value is 85 so the range can be calculated as $91 - 85 = 6$.

The following tutorials explain how to create dot plots in different statistical software: