Mean, Median, Mode, and Range Definitions

Mean :

The "Mean" is computed by adding all of the numbers in the data together and dividing by the number elements contained in the data set.

Example :

Data Set = 2, 5, 9, 3, 5, 4, 7

Number of Elements in Data Set = 7

Mean = (2 + 5 + 9 + 7 + 5 + 4 + 3) / 7 = 5

Median :

The "Median" of a data set is dependant on whether the number of elements in the data set is odd or even. First reorder the data set from the smallest to the largest then if the number of elements are odd, then the Median is the element in the middle of the data set. If the number of elements are even, then the Median is the average of the two middle terms.

Examples : Odd Number of Elements

Data Set = 2, 5, 9, 3, 5, 4, 7

Reordered = 2, 3, 4, 5, 5, 7, 9
(5 is the middle element)

Median = 5

Examples : Even Number of Elements

Data Set = 2, 5, 9, 3, 5, 4

Reordered = 2, 3, 4, 5, 5, 9
(4 and 5 are the middle elements)

Median = (4 + 5) / 2 = 4.5

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Mode :

The "Mode" for a data set is the element that occurs the most often. It is not uncommon for a data set to have more than one mode. This happens when two or more elements accur with equal frequency in the data set. A data set with two modes is called bimodal. A data set with three modes is called trimodal.

Examples : Single Mode

Data Set = 2, 5, 9, 3, 5, 4, 7

Mode = 5

Examples : Bimodal

Data Set = 2, 5, 2, 3, 5, 4, 7

Modes = 2 and 5

Examples : Trimodal

Data Set = 2, 5, 2, 7, 5, 4, 7

Modes = 2, 5, and 7

Range :

The "Range" for a data set is the difference between the largest value and smallest value contained in the data set. First reorder the data set from smallest to largest then subtract the first element from the last element.

Examples :

Data Set = 2, 5, 9, 3, 5, 4, 7

Reordered = 2, 3, 4, 5, 5, 7, 9

Range = (9 - 2) = 7

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