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# Statistical Mode

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Statistical mode tells us about the data point that is most frequently repeated in the dataset.

For a symmetric data distribution, the statistical mode can be near the mean and median, but for highly skewed data, the mode can be quite distinct.



# Examples

For example, if the marks obtained by 15 students in a test are 81, 82, 85, 85, 89, 91, 91, 91, 91, 93, 93, 95, 96, 96 and 99, then the statistical mode for this data distribution is 91. This is because 4 students have obtained this score, which is the highest number of students with the same score.

It should be noted that unlike the mean and median, the mode doesn't need to be unique. This is because there can always be two or more data points with the same frequency.

Consider a revised example for the test scores of the 15 students to be 81, 81, 85, 85, 89, 91, 91, 92, 92, 93, 93, 95, 96, 96 and 99. In this case, we see that 2 students score the same marks 81, 85, 91, 92 and 96, which are all the modes for this data distribution.

Sometimes when the data is continuous, the usual definition of statistical mode [1] is inadequate. To see why, consider an experiment that measure the reaction times of different

subjects.

Suppose the raw data [2] gives time in milliseconds as 42.1, 48.3, 52.2, 52.6, 52.8, 52.9, 53.0, 53.1, 53.2, 53.7, 54.6, 55.8, 56.7, 58.0 and 60.9.

As can be seen, all the values are distinct, and therefore all the data points are the statistical modes. However, intuitively, we can see that the data is clustered about the values in the middle.

Therefore if we can define an interval of 1 millisecond, then the interval from 52.5-53.5 will form the mode. This is a much more practical measure of the mode. The problem arises because time is a continuous variable, and thus two measured times are not usually exactly equal in nature, but only slightly differ from each other.

# Advantage

A big advantage of statistical mode is that it is not restricted to numbers alone. For example, among all the letters of the English alphabet, the mode is the letter 'E', which is the most frequently encountered letter. However, we cannot define the median or mean letter, since these can only be defined for numbers. This makes the scope of the mode quite broad in nature.

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**Links**
[1] http://en.wikipedia.org/wiki/Mode_%28statistics%29
[2] https://explorable.com/raw-data-processing