BOX-AND-WHISKER PLOT

A box-and-whisker plot can be useful for handling many data values.

They allow people to explore data and to draw informal conclusions when two or more variables are present. It shows only certain statistics rather than all the data.

Five-number summary is another name for the visual representations of the box-and-whisker plot. The five-number summary consists of the median, the quartiles, and the smallest and greatest values in the distribution.

The first step in constructing a box-and-whisker plot is to first find the median, the lower quartile and the upper quartile of a given set of data


example
the way forward ...

The following set of numbers are the amount of marbles fifteen different boys own (they are arranged from least to greatest).

18 27 34 52 54 59 61 68 78 82 85 87 91 93 100


Median

First find the median. The median is the value exactly in the middle of an ordered set of numbers. *

68 is the median


Lower
and
upper
quartile

Next, we consider only the values to the left of the median: 18 27 34 52 54 59 61. We now find the median of this set of numbers.

Remember, the median is the value exactly in the middle of an ordered set of numbers. Thus 52 is the median of the scores less than the median of all scores, and therefore is the lower quartile.

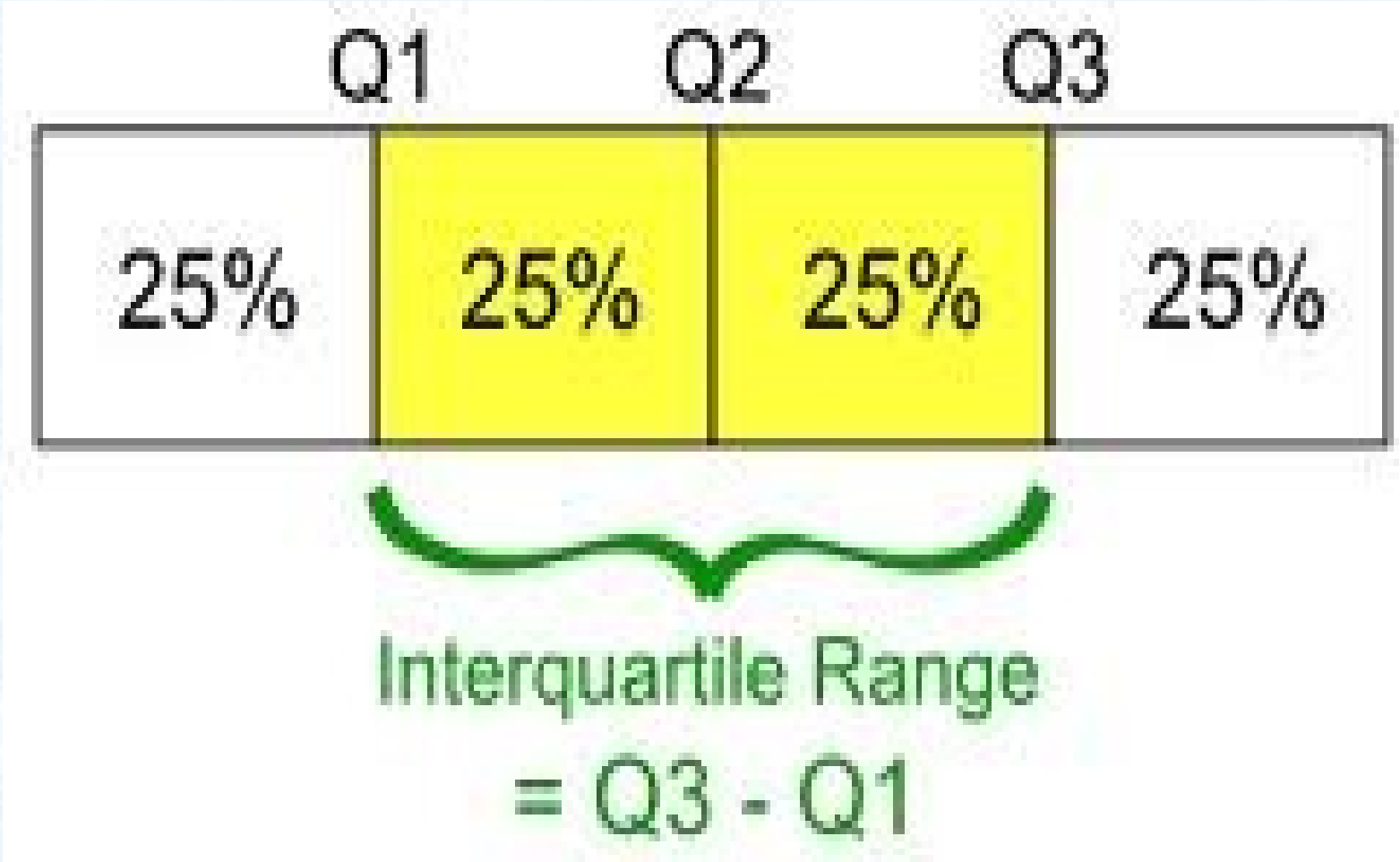
Now consider only the values to the right of the median: 78 82 85 87 91 93 100. We now find the median of this set of numbers. The median 87 is therefore called the upper quartile.

*If you're finding the median in an ordered set with an even number of values, you must take the average of the two middle numbers.

Example: 3, 5, 7, and 10. Add the two middle numbers. 5 + 7 = 12. Divided 12 by 2 to get the average. 12 / 2 = 6. Therefore 6 is the median for the ordered set of 3, 5, 7, and 10

You are now ready to find the interquartile range (IQR). The interquartile range is the difference between the upper quartile and the lower quartile. In our case the IQR = 87 - 52 = 35.

The IQR is a very useful measurement. It is useful because it is less influenced by extreme values, it limits the range to the middle 50% of the values.


Q1
Q2
Q3
25%
25%
25%
25%
Interquartile Range
= Q3 - Q1


Happy learning