Interquartile range and box plots

Study Development Quick Guide

## Method

1. Place all the values in order from smallest to largest.
2. Find the median. For $n $of data points, find the value in position $\frac{n}{2}+0.5$ (for example, for 5 data points, find the 3rd data point. This is the median). If $n$ is even, we find the values in positions $\frac{n}{2}$ and $\frac{n}{2}+1$ and find the point between them by adding them together and dividing by 2 (for example, for 10 data points, add together the 5th and 6th values and divide that by 2).
The median is called $Q\_{2}$ (2nd quartile).
3. We are now left with two sets of numbers: those above the median, and those below. We find the median of each of these sets (make sure not to put $Q\_{2}$ in either set before finding the median).
4. The median of the numbers lower than $Q\_{2}$ is called $Q\_{1}$ (1st quartile) and the median of the numbers higher than $Q\_{2}$ is called $Q\_{3}$ (3rd quartile).
5. The interquartile range (IQR) is given by $Q\_{3}-Q\_{1}$.

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## Drawing a box plot

We can use the values for $Q\_{0 }(the minimum value),Q\_{1},Q\_{2},Q\_{3} $and $Q\_{4}$ (the maximum value) to draw a box plot (also called a box and whisker plot). These are useful for quickly seeing if data is skewed.

A box plot is drawn as follows:

 

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