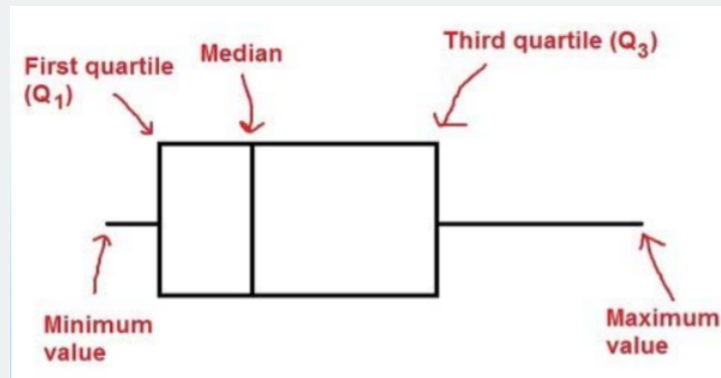


3.4: Box Plots (Box and Whisker Plot)

The box plot was created to represent the 3 quartiles (Q1, median and Q3) along with the minimum and maximum values of the data. These values are also called the **Five Point Summary** of the data. Let's start with a box plot of data with no outliers.

Steps for making a box plot (no outliers)

1. Draw the box between Q1 and Q3
2. Accurately plot the median
3. Draw whiskers to minimum and maximum values



Each section of the box plot represents 25% of the data. Box plots can be drawn horizontally or vertically.

Example: Students browsing the web

Let's again return to the example of daily minutes spent on the internet by 30 students. Find the five point summary, create a box plot and interpret the graph.

67	71	78	82	85	86	87	87	92	95	97	99	99	100	101
102	103	103	104	105	105	107	108	109	112	116	118	122	124	125

Solution

Five point Summary:

Minimum = 67

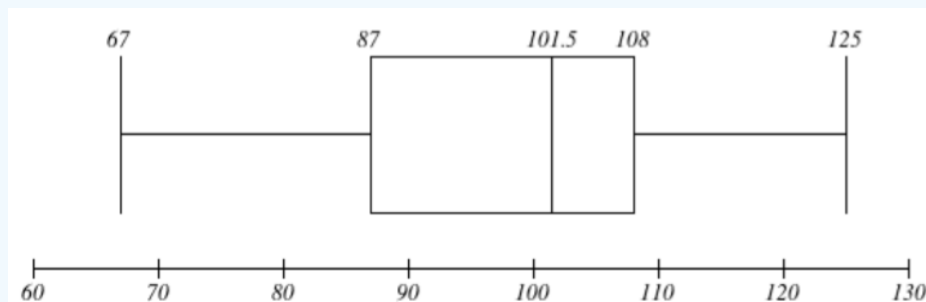
Q1=87

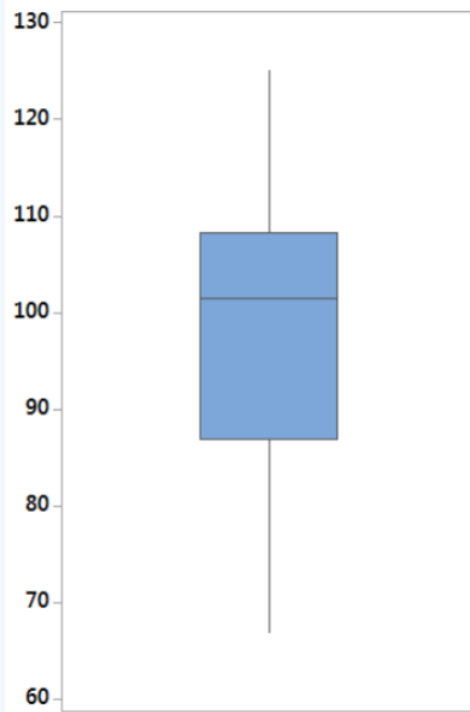
Median = 101.5

Q3=108

Maximum = 125

Here are box plots representing these data values horizontally and vertically.





You can chose either method to make a box plot.

The center as represented by the median is 101.5 minutes.

The spread as measured by the range is 58 minutes.

The spread as measured by the IQR is 21 minutes (the middle 50% of the data).

The data values are negatively skewed from the median.

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