



Day 1: Quartiles ★

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Quartiles & Interquartile Range



Terms you'll find helpful in completing today's challenge are outlined below.

Quartile

The quartiles of an ordered data set are the **3** points that split the data set into **4** equal groups. The **3** quartiles are defined as follows:

1. Q_1 : The first quartile is the middle number between the smallest number in a data set and its median.
2. Q_2 : The second quartile is the median (**50th** percentile) of the data set.
3. Q_3 : The third quartile is the middle number between a data set's median and its largest number.

Computing the First and Third Quartile

We will use the [first method described in the Wikipedia](#):

We will split the data into two halves, lower half and upper half:

- If there are an odd number of data points in the original ordered data set, do not include the median (the central value in the ordered list) in either half.
- If there are an even number of data points in the original ordered data set, split this data set exactly in half.

The value of the first quartile (Q_1) is the median of the lower half and the value of the third quartile (Q_3) is the median of the upper half.

Example 1

We will consider the following ordered dataset for this example:

6, 7, 15, 36, 39, 40, 41, 42, 43, 47, 49

The median of the dataset is **40**. As there are an odd number of data points, we do not include the median (the central value in the ordered list) in either half.



Lower half: 6, 7, 15, 36, 39

Upper half: 41, 42, 43, 47, 49

The median of the lower half is **15**, so the value of the first quartile is **15**, and the median of the upper half is **43**, so the value of the third quartile is **43**.

Example 2

We will consider the following ordered dataset for this example:

7, 15, 36, 39, 40, 41

As there are an even number of data points in the original ordered data set, we will split this data set exactly in half:

Lower half: 7, 15, 36

Upper half: 39, 40, 41

The median of the lower half is **15**, so the value of the first quartile is **15**, and the median of the upper half is **40**, so the value of the third quartile is **40**.

