How Reorder Boxplots in R (With Examples)

Authored by

stats writer

November 29, 2025

Reordering boxplots in R is a useful technique for visualizing the distribution of data. It involves rearranging the order of the data categories along the x-axis so that the boxplots are ordered from lowest to highest values. This can help identify trends in the data, as well as draw attention to any outliers. To reorder boxplots in R, you can use the reorder() function, which takes a vector of values and a corresponding vector of labels as input. Examples of how to reorder boxplots in R are provided in the following tutorial.

Often you may want to reorder boxplots in R.

The following examples show how to do so using two different methods:

Method 1: Reorder Based on Specific Order
Method 2: Reorder Based on Median Value of Boxplot

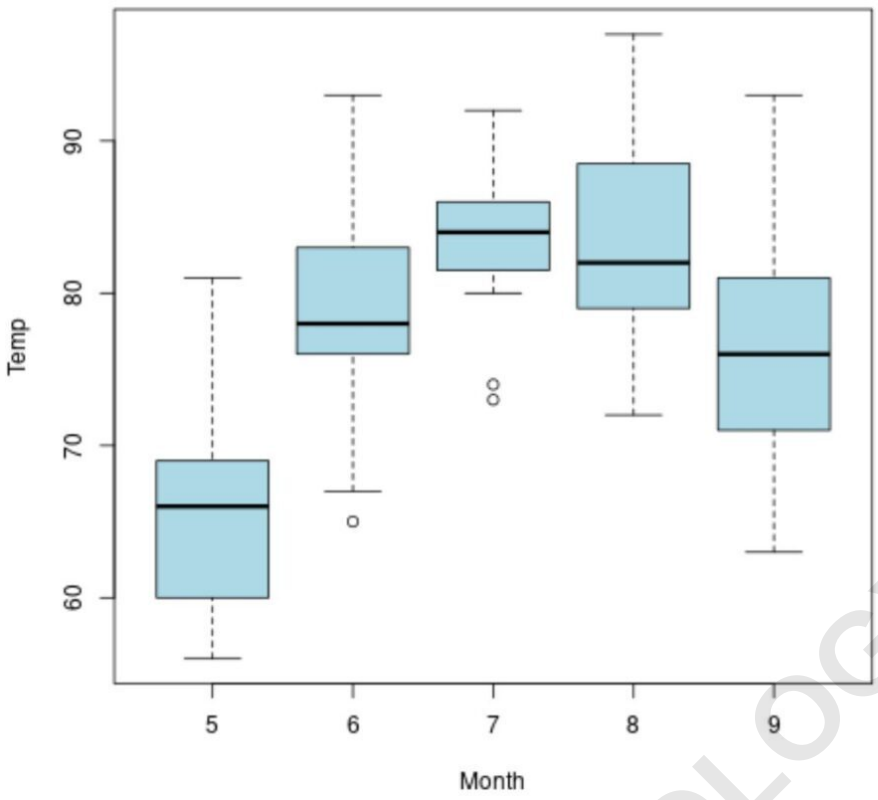
Each example will use the built-in **airquality** dataset in R:

#view first six lines of *airquality* data
head(airquality)

Ozone Solar.R Wind Temp Month Day
1 41 190 7.4 67 5 1
2 36 118 8.0 72 5 2
3 12 149 12.6 74 5 3
4 18 313 11.5 62 5 4
5 NA NA 14.3 56 5 5
6 28 NA 14.9 66 5 6

Here's what a plot of multiple boxplots will look like for this dataset without specifying an order:

#create boxplot that shows distribution of temperature by month
boxplot(Temp~Month, data=airquality, col="lightblue", border="black")

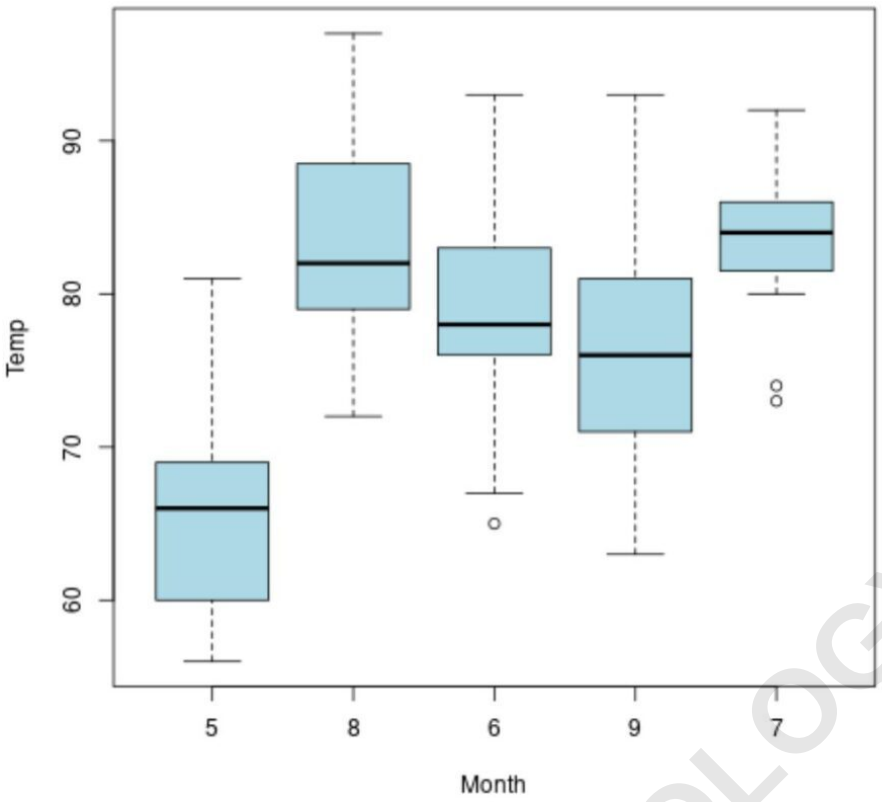


Example 1: Reorder Boxplots Based on Specific Order

The following code shows how to order the boxplots based on the following order for the **Month** variable: 5, 8, 6, 9, 7.

```
#reorder Month values
airquality$Month <- factor(airquality$Month , levels=c(5, 8, 6, 9, 7))

#create boxplot of temperatures by month using the order we specified
boxplot(Temp~Month, data=airquality, col="lightblue", border="black")
```



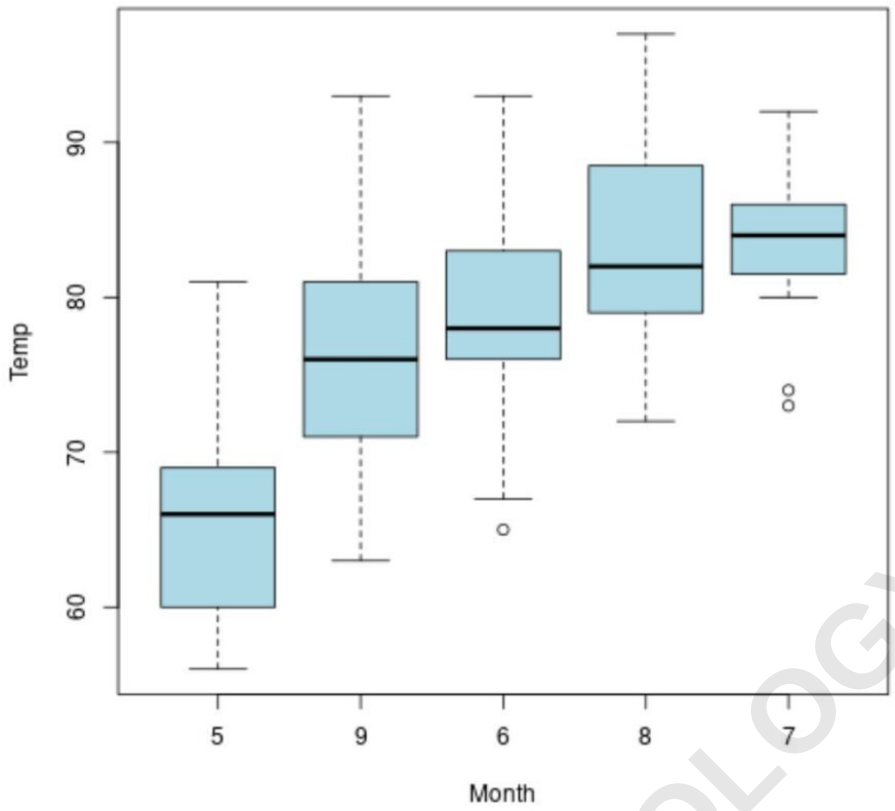
Notice that the boxplots now appear in the order that we specified using the **levels** argument.

Example 2: Reorder Boxplots Based on Median Value

The following code shows how to order the boxplots in **ascending order** based on the median temperature value for each month:

```
#reorder Month values in ascending order based on median value of Temp
airquality$Month <- with(airquality, reorder(Month , Temp, median , na.rm=T))

#create boxplot of temperatures by month
boxplot(Temp~Month, data=airquality, col="lightblue", border="black")
```



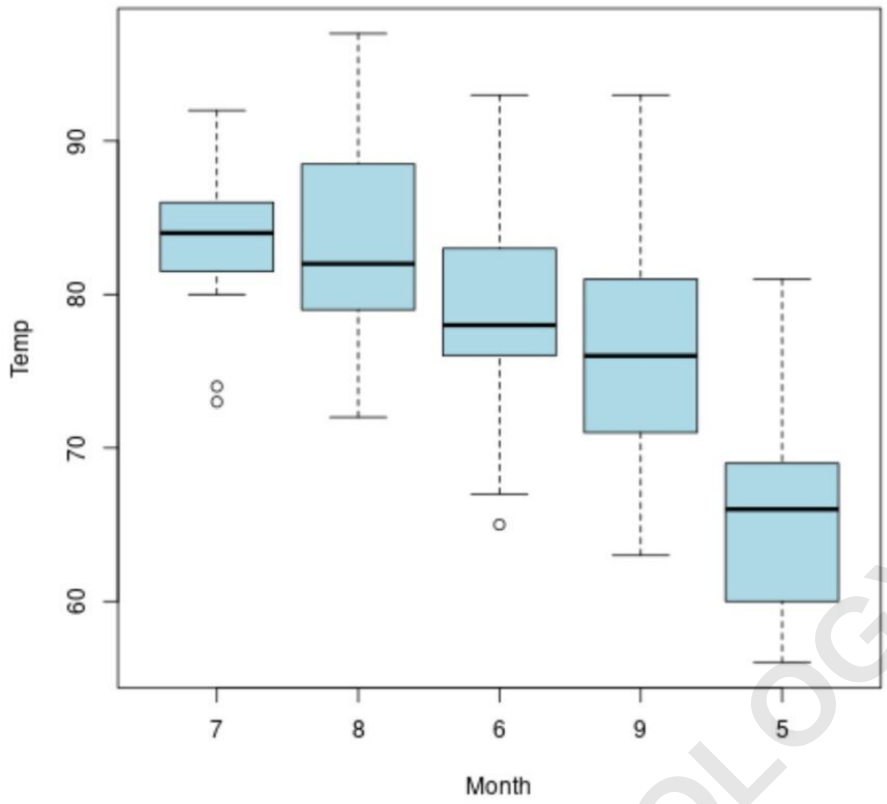
The boxplots now appear in ascending order based on the median value for each month.

Note: The median value for each boxplot is the horizontal black line that runs through the middle of each box.

We can also order the boxplots in **descending order** by using a negative sign in front of Temp in the **reorder** function:

#reorder Month values in descending order based on median value of Temp
airquality$Month <- with(airquality, reorder(Month , -Temp, median , na.rm=T))

#create boxplot of temperatures by month
boxplot(Temp~Month, data=airquality, col="lightblue", border="black")



The boxplots now appear in descending order based on the median value for each month.