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Quiz Related: Different outputs while splitting the data. Help me with reasoning.



Suyash Dewangan Week 3 · 4天前

So, this is the case for Iris data and we are supposed to find the mean of Sepal.Length for three species.

First attempt:

```
f <- levels(iris[,5])
```

```
sapply(split(iris[,1],f),mean)
```

```
setosa versicolor virginica
```

```
5.842 5.822 5.866
```

Second attempt:

```
sapply(split(iris$Sepal.Length,factor(iris$Species)),mean)
```

```
setosa versicolor virginica
```

```
5.006 5.936 6.588
```

Why is it different when I use factor levels from levels()?

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涂玉臻 Mentor · 17小時前



Hi Suyash,

This is a great finding and a good question which is worth being noted. I took a few moments to figure.

Let's jump to the conclusion first: **only the second result is correct**. You can be assured by calling

```
1 tapply(iris$Sepal.Length, iris$Species, mean)
2 #      setosa versicolor virginica
3 #      5.006      5.936      6.588
4 # iris$Species itself is a factor variable so factor
   (iris$Species) is unnecessary.
```

The problem in your first method is that the length of f is only 3, and that length is shorter than iris\$Sepal.Length. According to the help document of split function, "**f is recycled as necessary** and if the length of x is not a multiple of the length of f a warning is printed," which means when you split iris\$Sepal.Length with f, R regards it as:

```
1      Sepal.Length Species
2 1          5.1  setosa
3 2          4.9 versicolor
4 3          4.7 virginica
5 4          4.6  setosa
6 5          5.0 versicolor
7 6          5.4 virginica
```

In fact, however, these first six rows above are all setosa. Check it with:

```
1 head(iris)
2 # Also compare the difference of these two following lines:
3 split(iris$Sepal.Length, iris$Species)
4 split(iris$Sepal.Length, f)
```

Cheers,

Yu-Zhen

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SD

Suyash Dewangan · 12小時前



Thank you very much, Yu-Zhen!! Greatly appreciate your time and explanation. :)

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