

# How can I create scatter plots by group in R using two examples?

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## RECOMMENDED CITATION

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In R, scatter plots can be created by grouping data points into different categories and displaying them on a single plot. This allows for easy comparison between the groups and identification of any patterns or relationships. To create scatter plots by group in R, the "ggplot2" package can be utilized. Two examples of creating scatter plots by group in R could be comparing the heights of males and females in a population, or examining the relationship between income and education level in different regions. By specifying the grouping variable in the code, the scatter plot can be divided into distinct groups and color-coded for better visualization. This method is useful in identifying any variations or trends within different groups and can aid in making data-driven decisions.

## Create Scatter Plots by Group in R (2 Examples)

You can use the following methods to create a scatter plot by group in R:

### Method 1: Use Base R

```
plot(df$x, df$y, col=as.factor(df$group))
```

### Method 2: Use ggplot2

```
library(ggplot2)
```

```
ggplot(df, aes(x, y)) +  
geom_point(aes(color=group))
```

The following examples show how to use each method in practice with the following data frame:

```
#create data frame
```

```
df <- data.frame(x=c(1, 2, 2, 3, 5, 6, 7),  
y=c(4, 8, 7, 9, 15, 14, 20),  
group=c('A', 'A', 'A', 'B', 'B', 'B', 'B'))
```

```
#view data frame
```

```
df
```

```
x y group
```

```
1 1 4 A
```

```
2 2 8 A
```

```
3 2 7 A
```

```
4 3 9 B
```

```
5 5 15 B
```

```
6 6 14 B
```

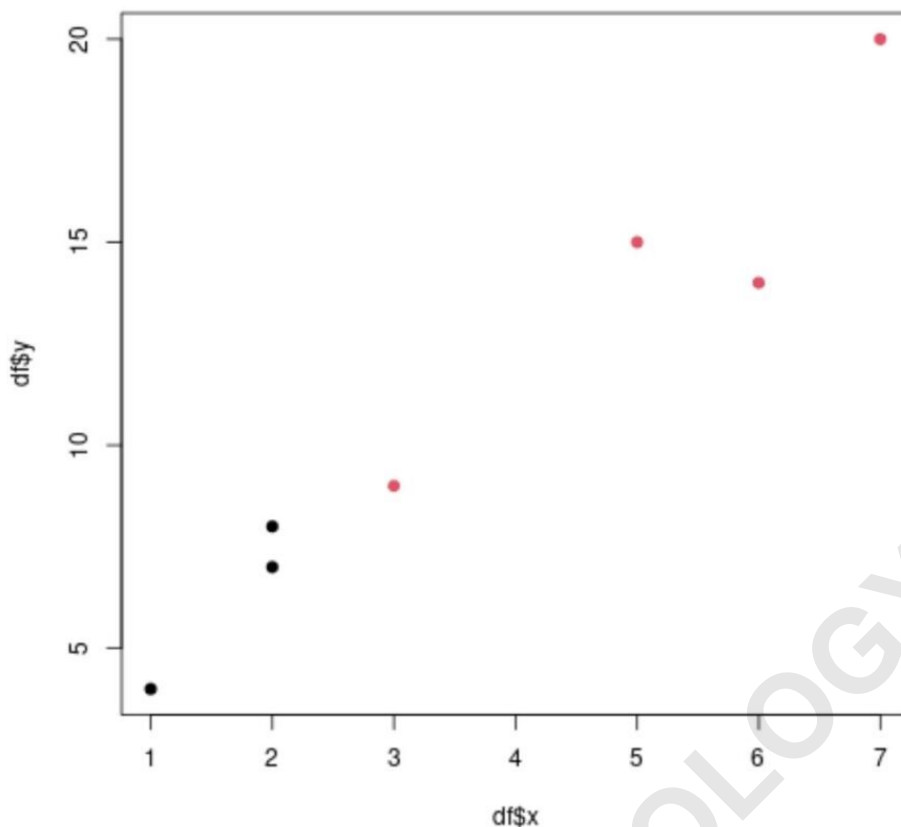
```
7 7 20 B
```

**Example 1: Scatter Plot by Group in Base R**

**The following code shows how to create a scatterplot in base R where the points are colored based on the value of the 'group' variable:**

```
#create scatterplot with points colored by group
```

```
plot(df$x, df$y, col=as.factor(df$group), pch=19)
```



The color of each point reflects the value of the 'group' variable in the data frame.

The points with a 'group' value of A are shown in black and the points with a 'group' value of B are shown in red.

Note that `pch=19` tells R to use solid circles for the points in the plot.

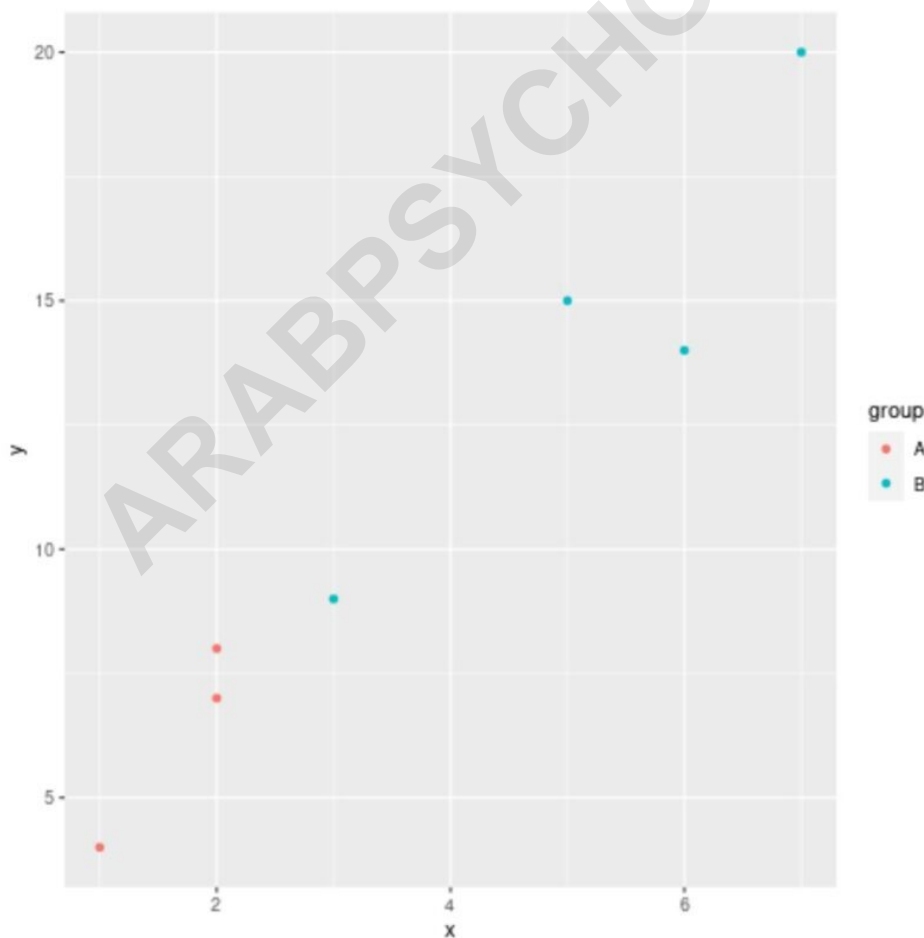
You can find a complete list of `pch` values and their corresponding shapes .

## Example 2: Scatter Plot by Group in ggplot2

The following code shows how to create a scatterplot in ggplot2 where the points are colored based on the value of the 'group' variable:

```
library(ggplot2)
```

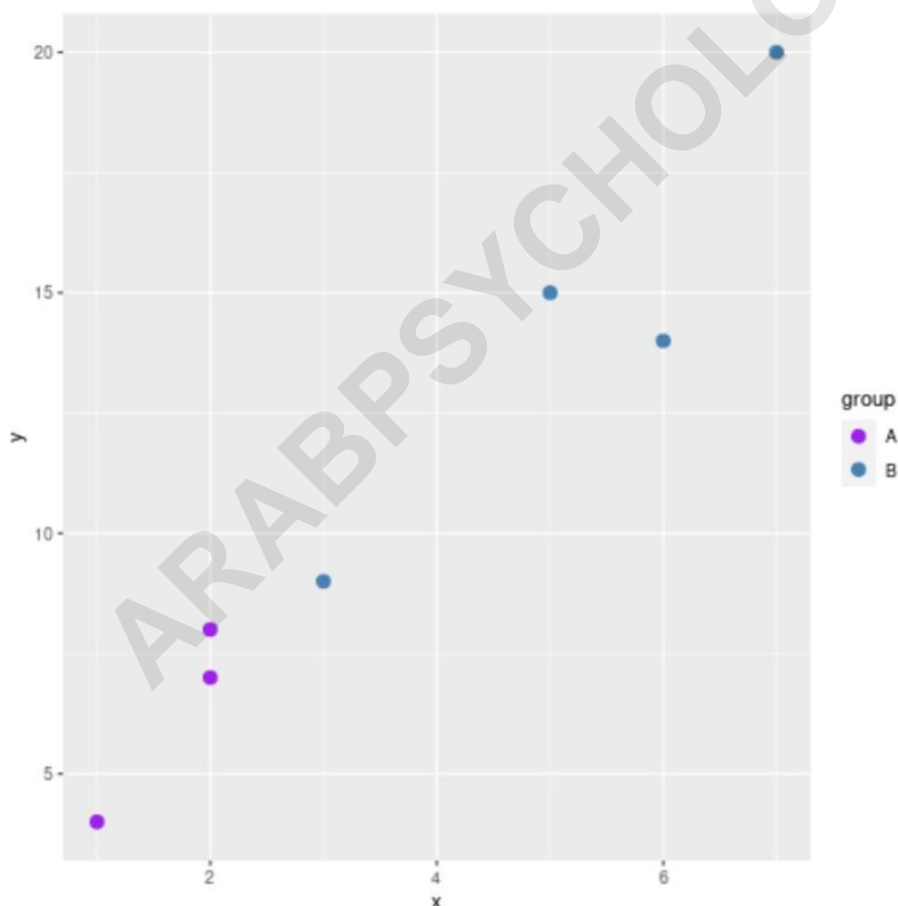
```
#create scatterplot with points colored by group  
ggplot(df, aes(x, y)) +  
geom_point(aes(color=group))
```



Note that you can also modify the colors and size of the points in the plot:

```
library(ggplot2)
```

```
#create scatterplot with points colored by group  
ggplot(df, aes(x, y)) +  
geom_point(aes(color=group), size=3) +  
scale_color_manual(values=c('purple', 'steelblue'))
```



Notice that we increased the point size using the size

**argument and the colors of the points match the colors that we specified in the `scale_color_manual()` argument.**

### **Additional Resources**

**The following tutorials explain how to perform other common tasks with scatterplots in R:**

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