

How can I create a trend line in ggplot2?

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Creating a trend line in ggplot2 involves using the "geom_smooth()" function, which can be added to a ggplot object to generate a line of best fit for the data. This function uses a statistical model to estimate the trend and then plots it on the graph. The trend line can also be customized by specifying the type of model to use, such as linear or polynomial, and adjusting other parameters. Overall, using the "geom_smooth()" function in ggplot2 allows for the visualization and analysis of trends in a dataset.

Draw a Trend Line in ggplot2 (With Examples)

You can use the following basic syntax to draw a trend line on a plot in ggplot2:

```
ggplot(df, aes(x=xvar, y=yvar)) +  
geom_point() +  
geom_smooth(method=lm) #add linear trend line
```

The following examples show how to use this syntax in practice with the following data frame:

```
#create data frame  
df <- data.frame(x=c(1, 2, 3, 3, 5, 7, 9),  
y=c(8, 14, 18, 25, 29, 33, 25))
```

```
#view data frame
```

```
df
```

```
x y
```

```
1 1 8
```

2 2 14

3 3 18

4 3 25

5 5 29

6 7 33

7 9 25

Example 1: Add Linear Trend Line

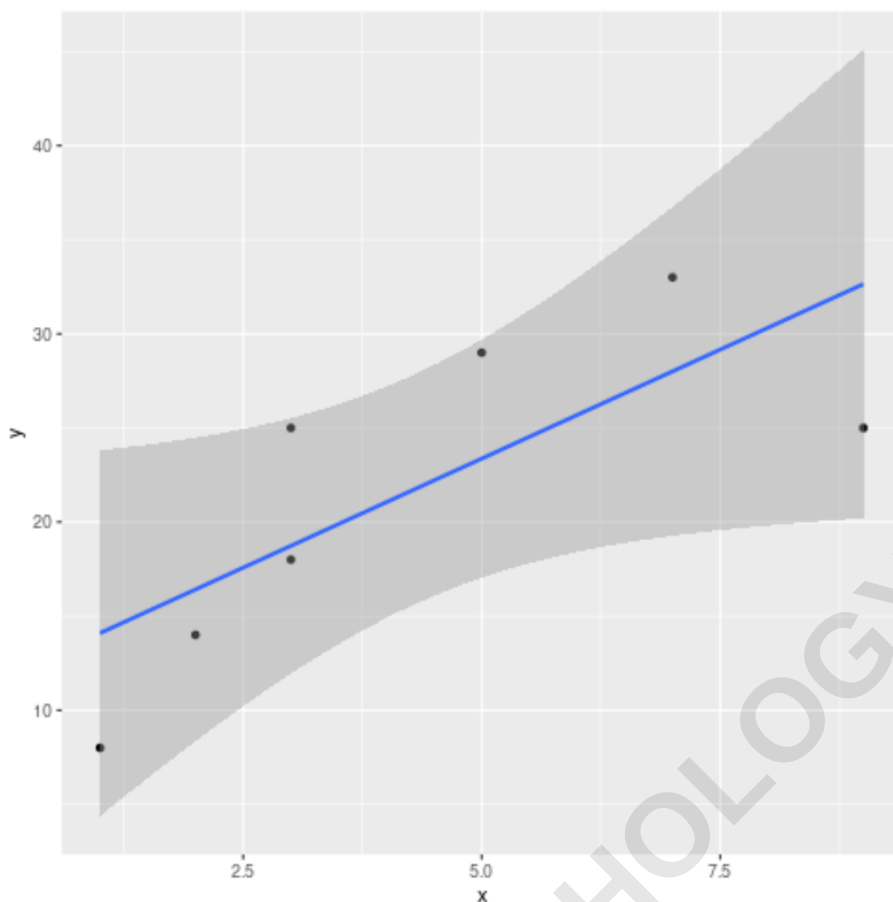
The following code shows how to add a linear trend line to a scatterplot in ggplot2:

```
library(ggplot2)
```

```
ggplot(df, aes(x=x, y=y)) +
```

```
geom_point() +
```

```
geom_smooth(method=lm) #add linear trend line
```

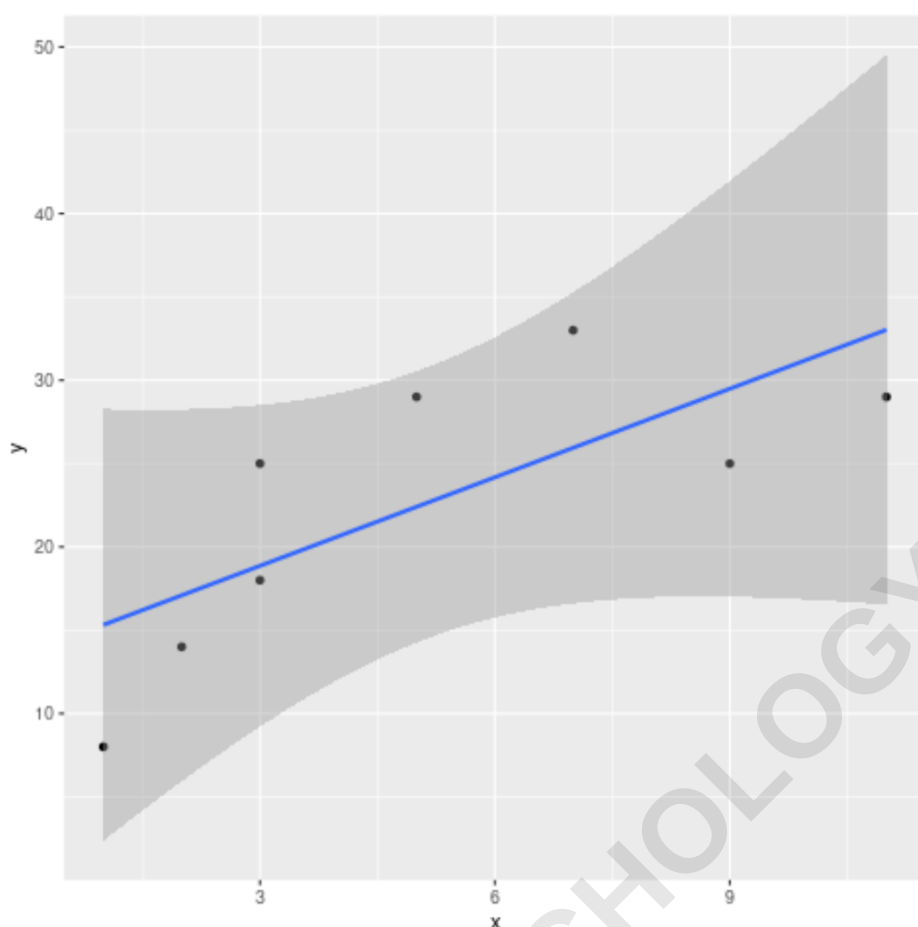


Example 2: Add Linear Trend Line & Specify Confidence Region

We can use the `level` argument to specify the confidence level to use for the shaded confidence region in the plot:

```
library(ggplot2)
```

```
ggplot(df, aes(x=x, y=y)) +  
  geom_point() +  
  geom_smooth(method=lm, level=0.99)
```



Note that the default confidence level is 0.95. By specifying a confidence level of 0.99, our shaded confidence region on the plot became even wider.

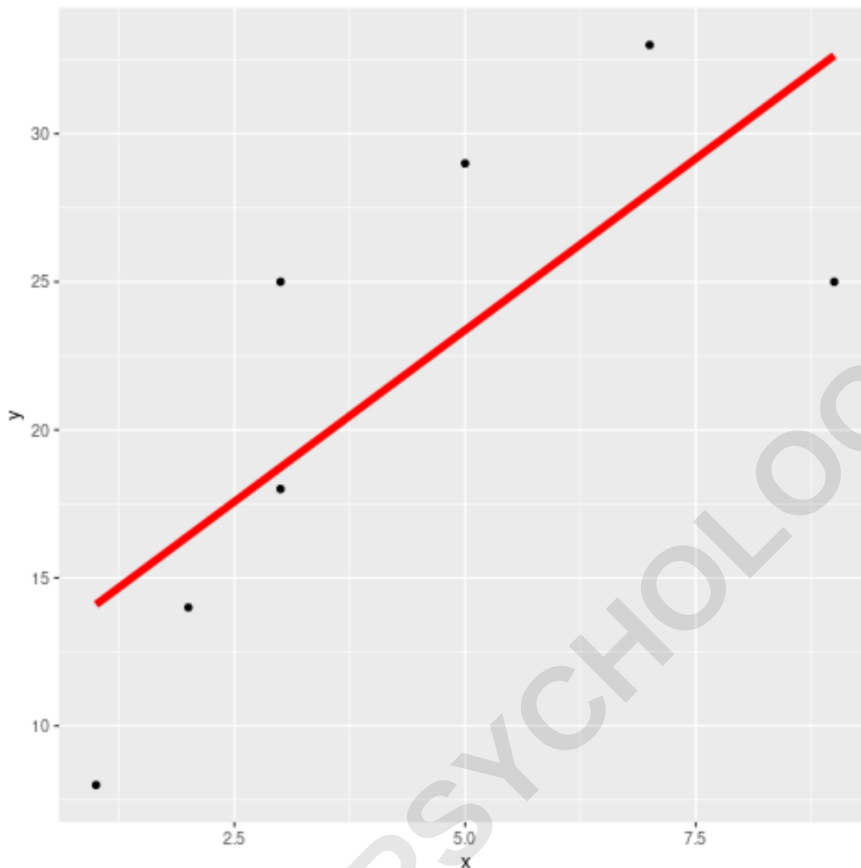
Example 3: Add Linear Trend Line & No Confidence Region

We can use the `se=FALSE` argument to hide the shaded confidence region around the trend line:

```
library(ggplot2)
```

```
ggplot(df, aes(x=x, y=y)) +
```

```
geom_point() +  
geom_smooth(method=lm, se=FALSE, col='red', size=2)
```



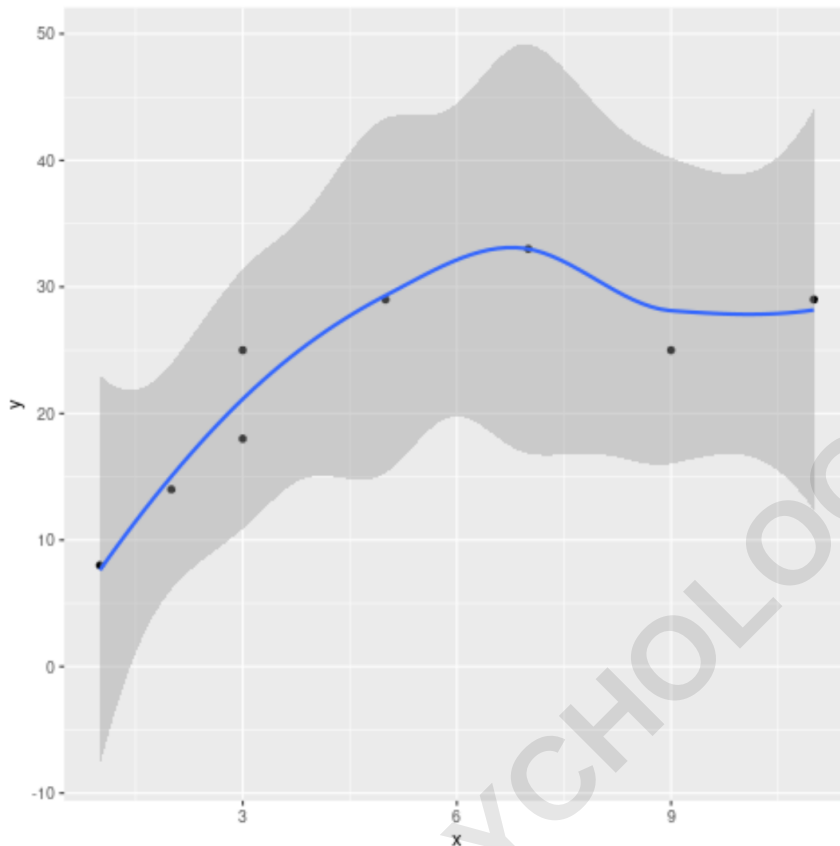
Example 4: Add Curved Trend Line

If we don't specify a method to use for `geom_smooth()`, a curved loess line will be used by default:

```
library(ggplot2)
```

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

geom_smooth()



You can find the complete online documentation for the `geom_smooth()` function .

The following tutorials explain how to perform other commonly used operations in ggplot2: