

Data Visualization with R & ggplot2

Karthik Ram

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Base graphics ggplot2

Based on Grammar of Graphics.
Map aesthetics on to your data.

Some terminology

geoms - short for geometric objects

aes - short for aesthetics

Progressively build your plots

geoms - short for geometric objects

examples: `geom_point`, `geom_bar`, `geom_area`, `geom_density`. `aes` - short for aesthetics

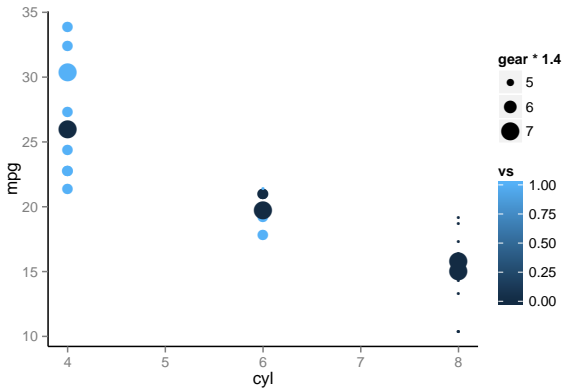
Why ggplot2?

geoms - Very intuitive

aes - progressively build more complex plots

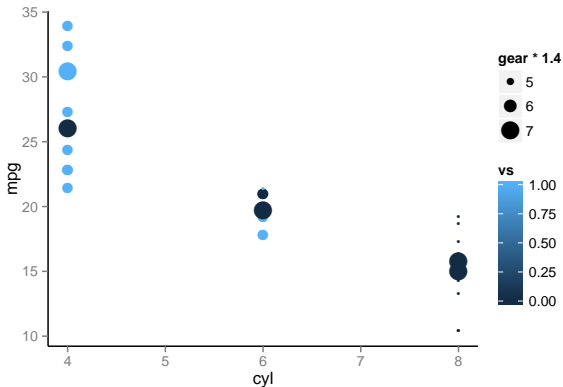
This is a demo of **ggplot2**:

```
ggplot(mtcars, aes(cyl, mpg, color = vs)) +  
  geom_point(aes(size = gear*1.4))  
x <- 1:100
```



Now we can vary the gear size.

```
ggplot(mtcars, aes(cyl, mpg, color = vs)) +  
  geom_point(aes(size = gear * 1.4))
```

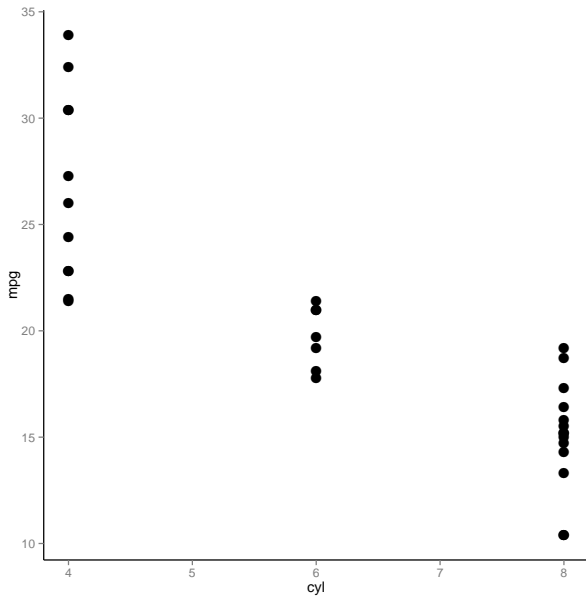


The first element of `x` is 1. Boring boxplots and histograms recorded by the PDF device:

```
ggplot(data, aes(x, y)) + geom_point(size = 4)
```

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ggplot(data, aes(x, y)) + geom_point(size = 4)
```

```
ggplot(data, aes(x, y)) + geom_point(size = 4)
```

Making publication quality figures with ggplot2

If the plot is on your screen

```
ggsave("~/path/to/figure/filename.png")
```

If your plot is assigned to an object

```
ggsave(plot1, "~/path/to/figure/filename.png")
```

Specify a size

```
ggsave("~/path/to/figure/filename.png", width = 6, height = 4)
```

or any format (pdf, png, eps, jpg)

```
ggsave("~/path/to/figure/filename.eps")  
ggsave("~/path/to/figure/filename.jpg")  
ggsave("~/path/to/figure/filename.pdf")
```

Line plots

If the plot is on your screen

```
ggsave(file = "/path/to/plot/file_name.extension")
```

Useful ggplot2 reference books

Practical Recipes for Visualizing Data



R Graphics Cookbook

O'REILLY®

Winston Chang