ggplot2

Etienne Low-Décarie

September 12, 2015

Waiting around?

Let R impress you:

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- you will get a text file with all available demos

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- look at packages on `http://crantastic.org`

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- Who uses Rstudio as their IDE?

A few pet peeves

- Always work from a script

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object <- data.frame(argument1="value1",
                     argument2="value2",
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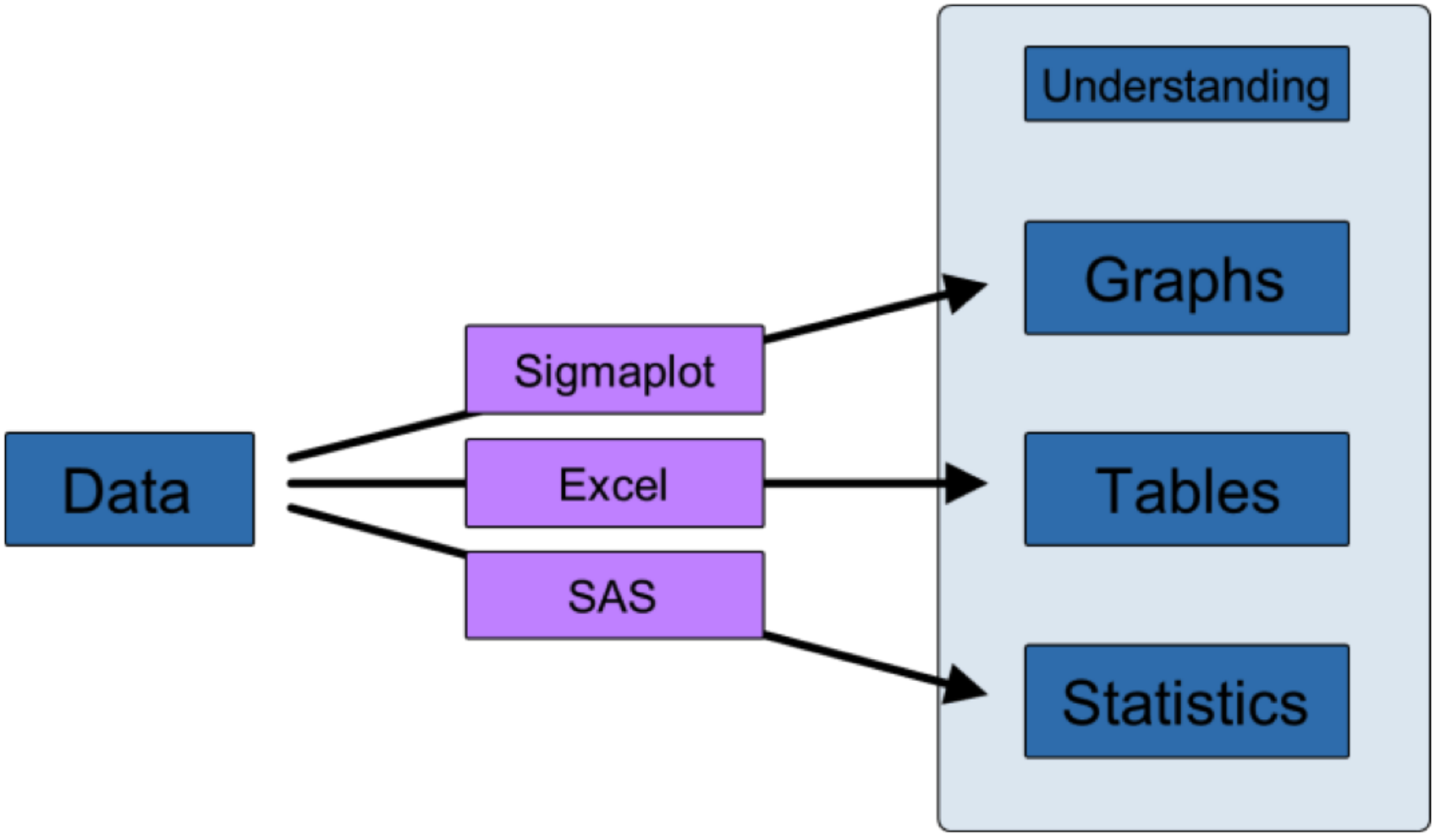
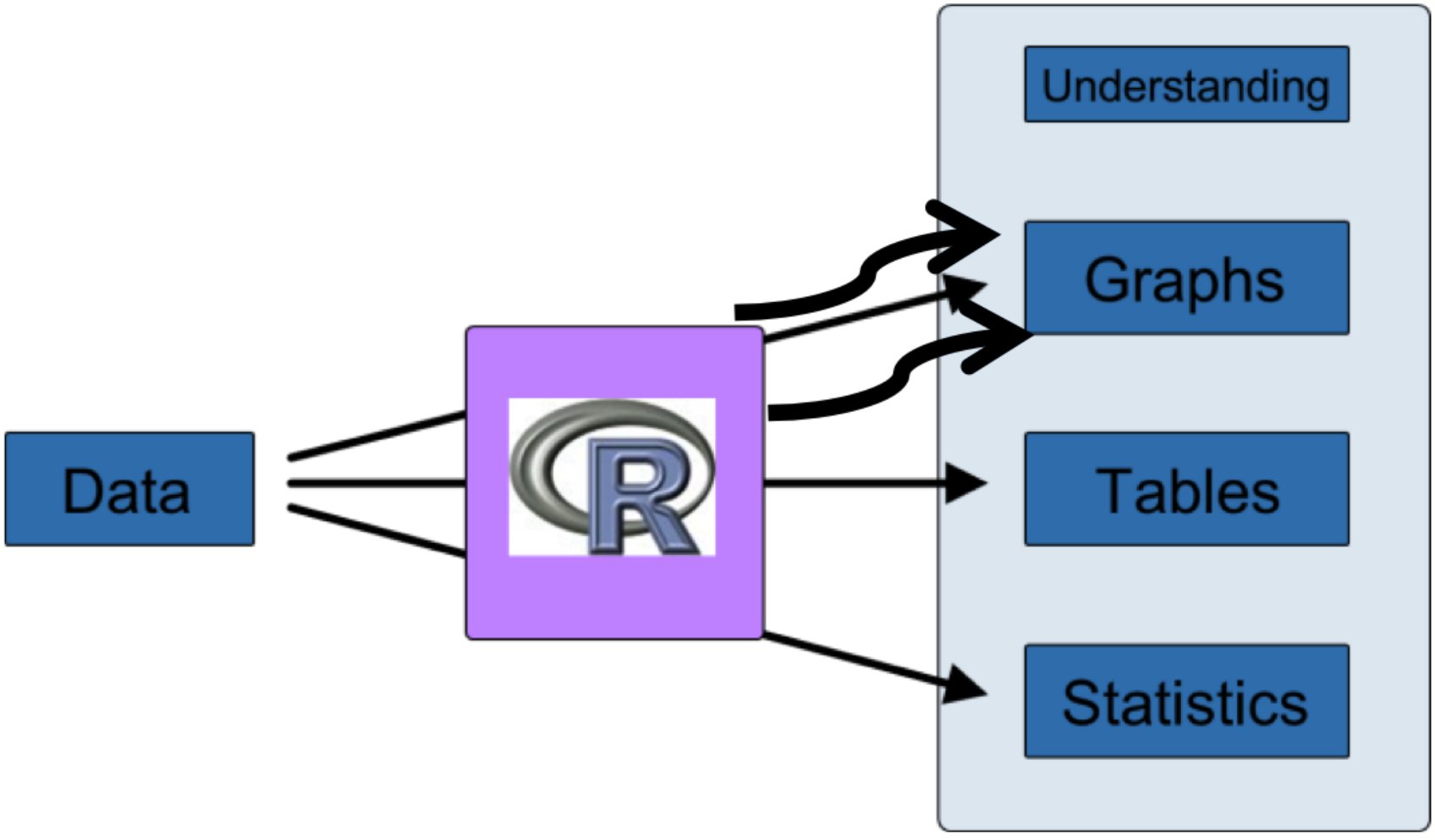
- Create your own new script
- refer to provided code only if needed
- don't use the one provided

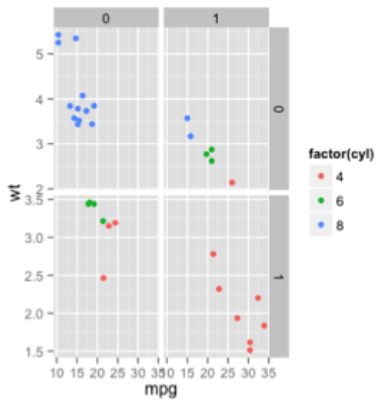
Without R

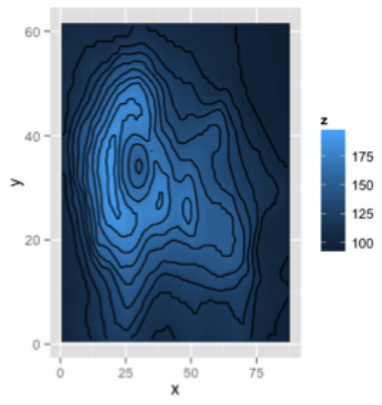

Data
Sigmaplot
Excel
SAS
Understanding
Graphs
Tables
Statistics

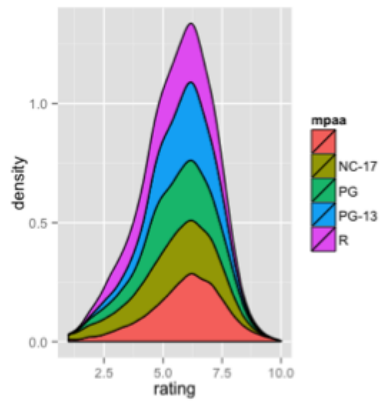
With R

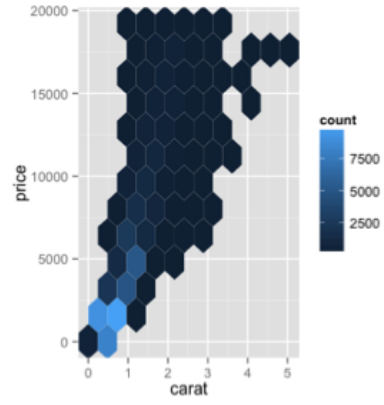


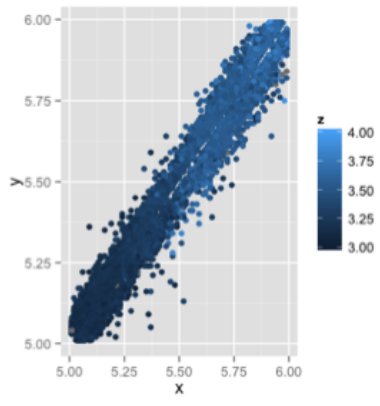
Beautiful and flexible!

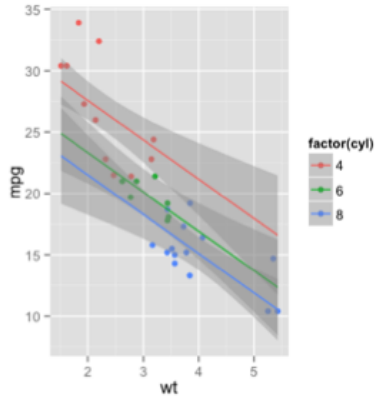


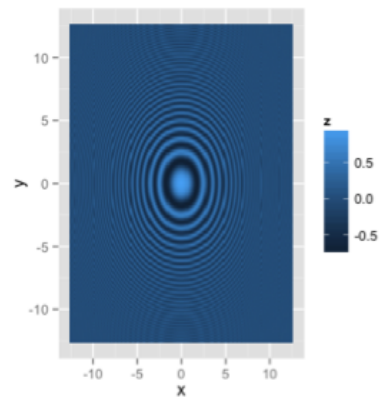


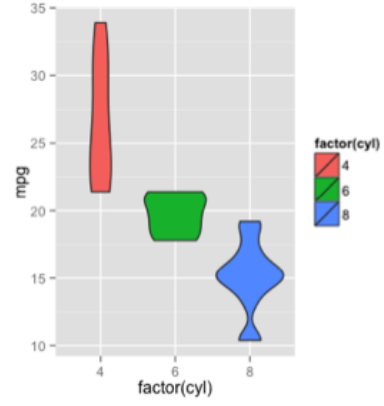












Install/load ggplot2

```
if(!require(ggplot2)){install.packages("ggplot2")}
```

```
## Loading required package: ggplot2
```

```
require(ggplot2)
```

Outline

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1. Your first ggplot plot
    - basic scatter plot

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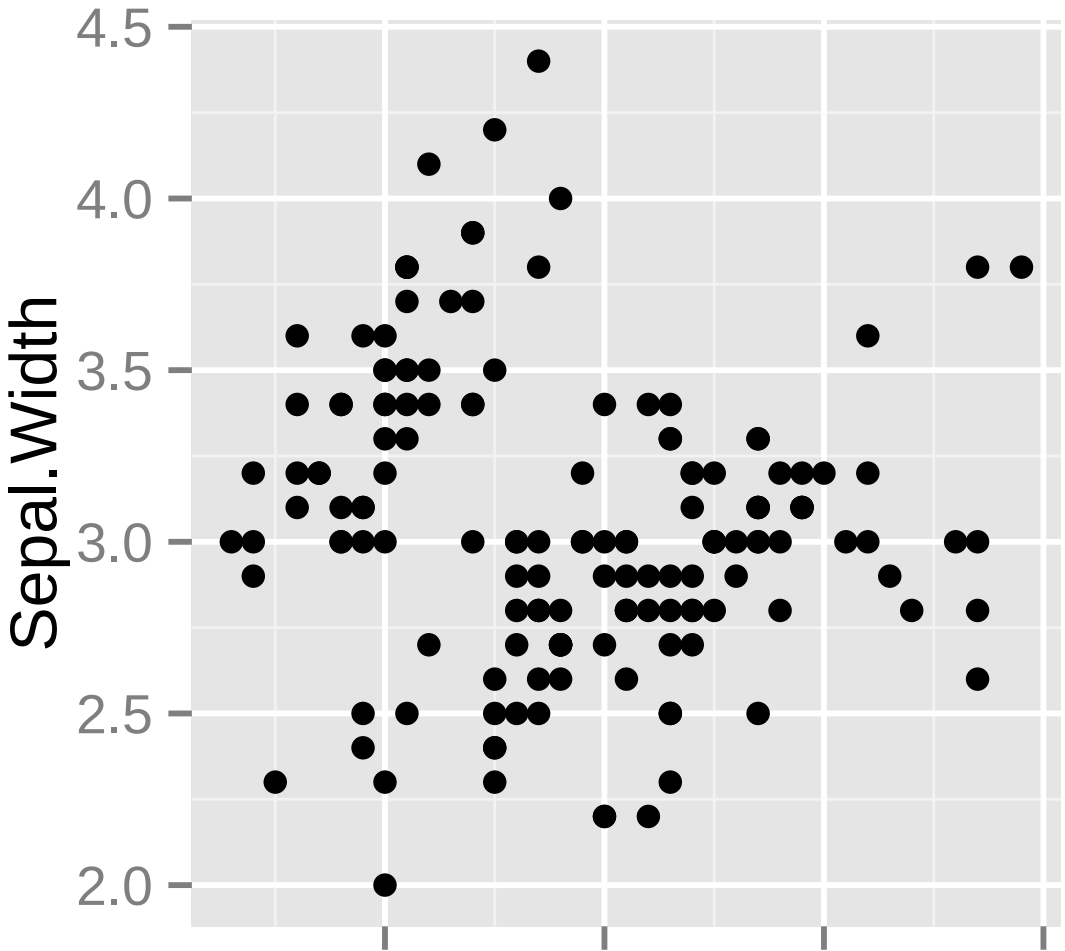
4. Miscellaneous cool stuff

Your first ggplot

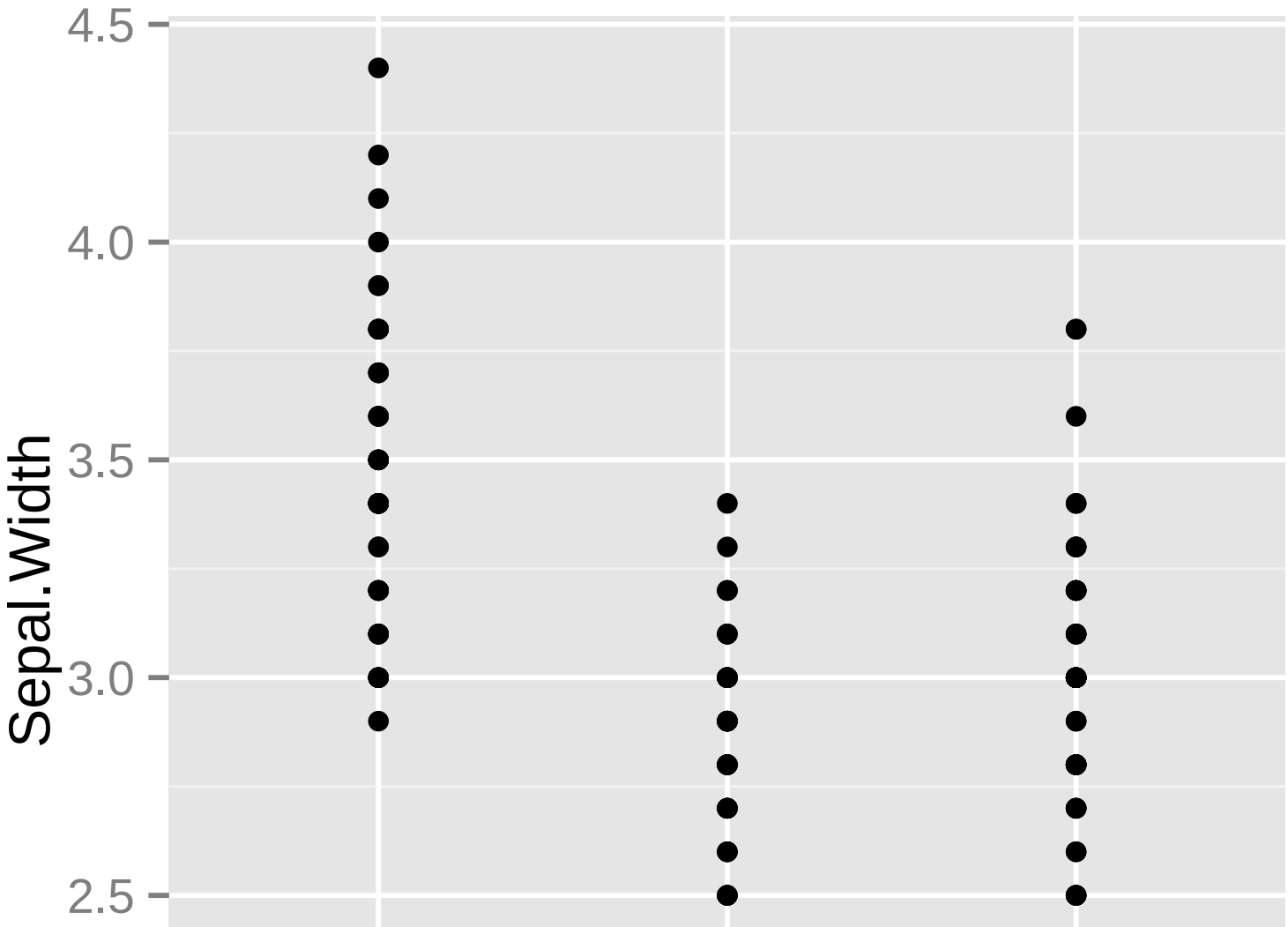
A basic scatter plot

```
qplot(data=iris,
      x=Sepal.Length,
      y=Sepal.Width)
```



Categorical x-axis

```
qplot(data=iris,
      x=Species,
      y=Sepal.Width)
```



Less basic scatter plot

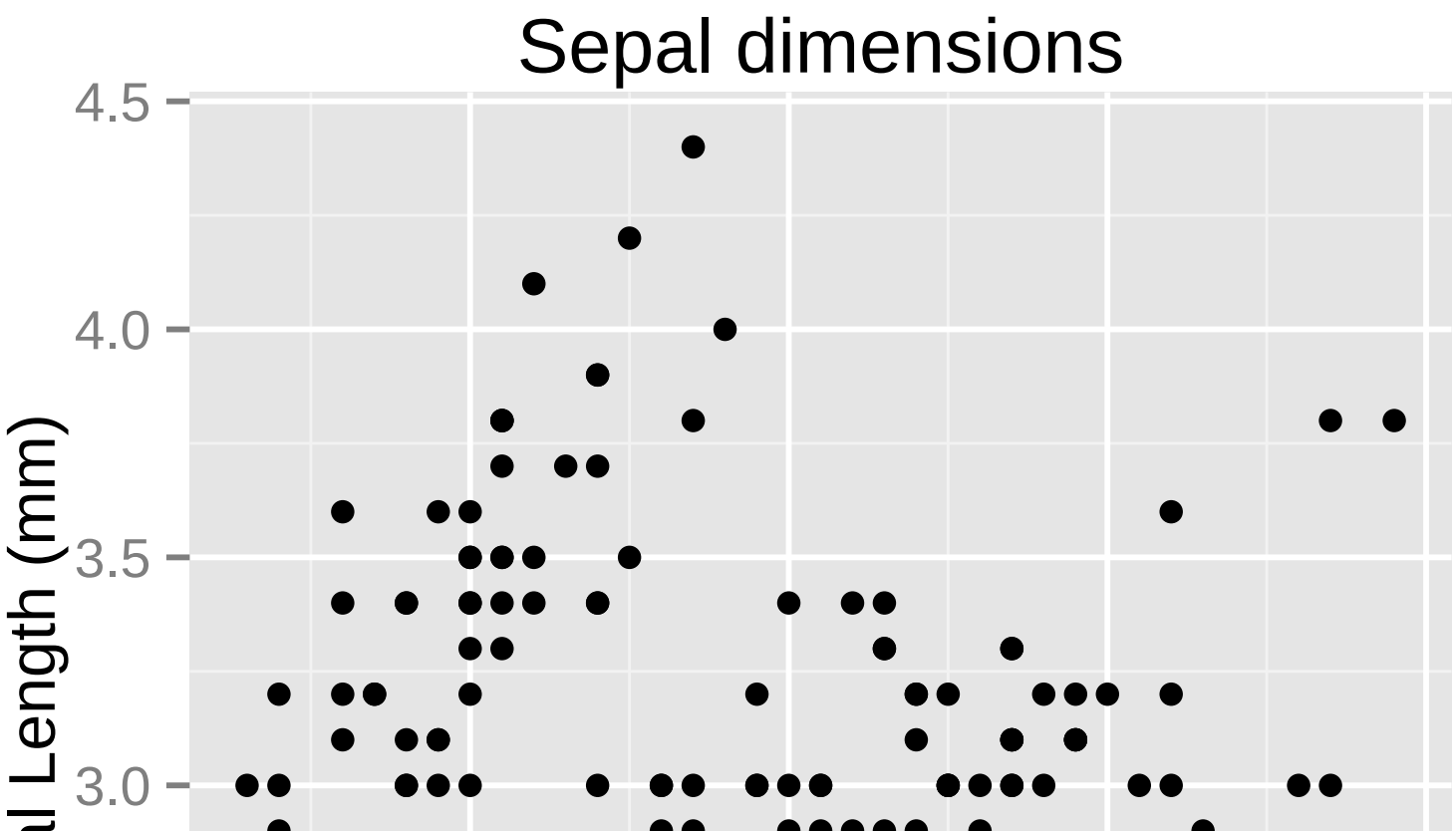
```
?qplot
```

Arguments

`x`
`y`
`...`
`data`
`xlab`
`ylab`
`main`

Less basic scatter plot

```
qplot(data=iris,
      x=Sepal.Length,
      xlab="Sepal Width (mm)",
      y=Sepal.Width,
      ylab="Sepal Length (mm)",
      main="Sepal dimensions")
```



Exercise 1

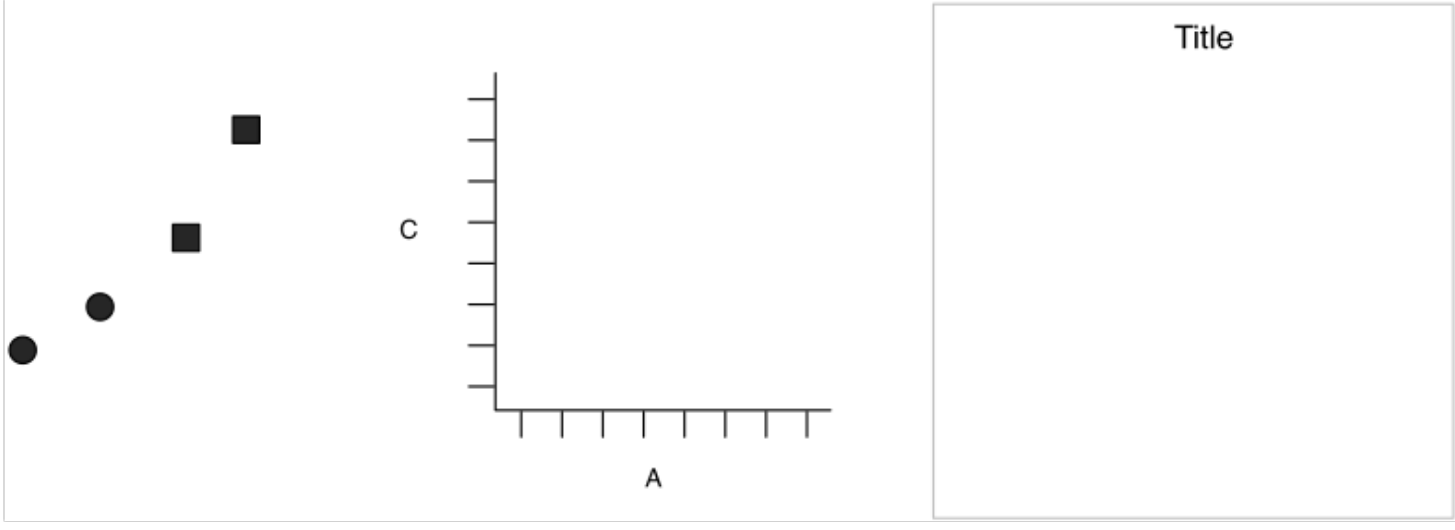
produce a basic plot with built in data

```
CO2
?CO2
BOD
data()
```

Grammar of graphics (gg)

A graphic is made of elements (layers)

- data



Aesthetics (aes) make data visible:

Grammar of graphics (gg)

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- data
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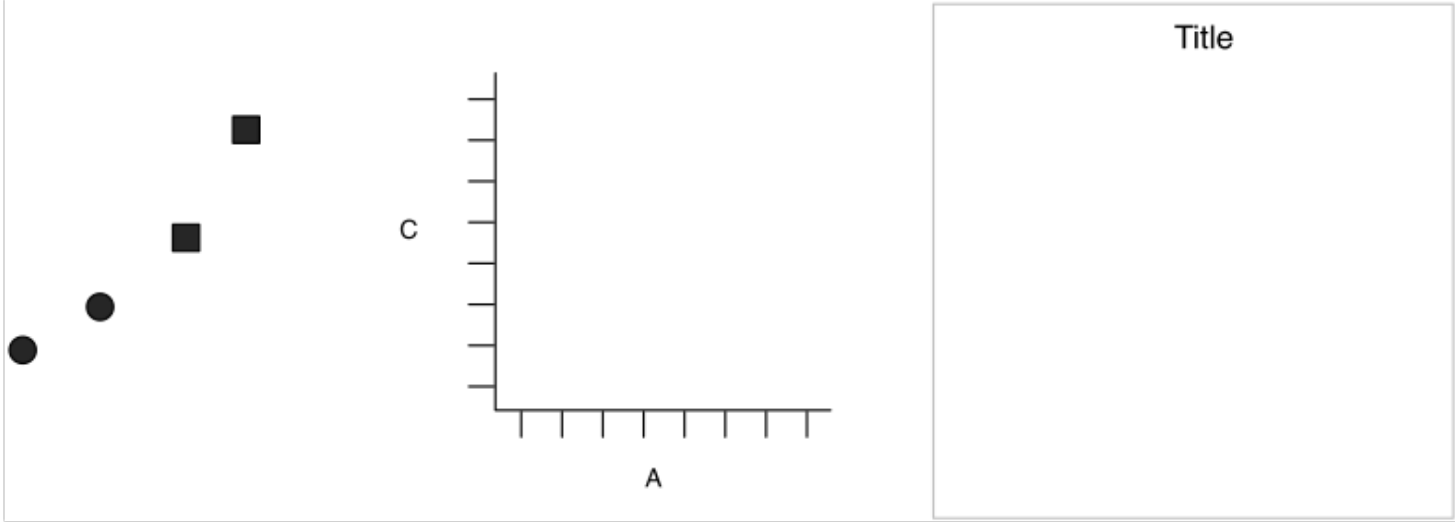

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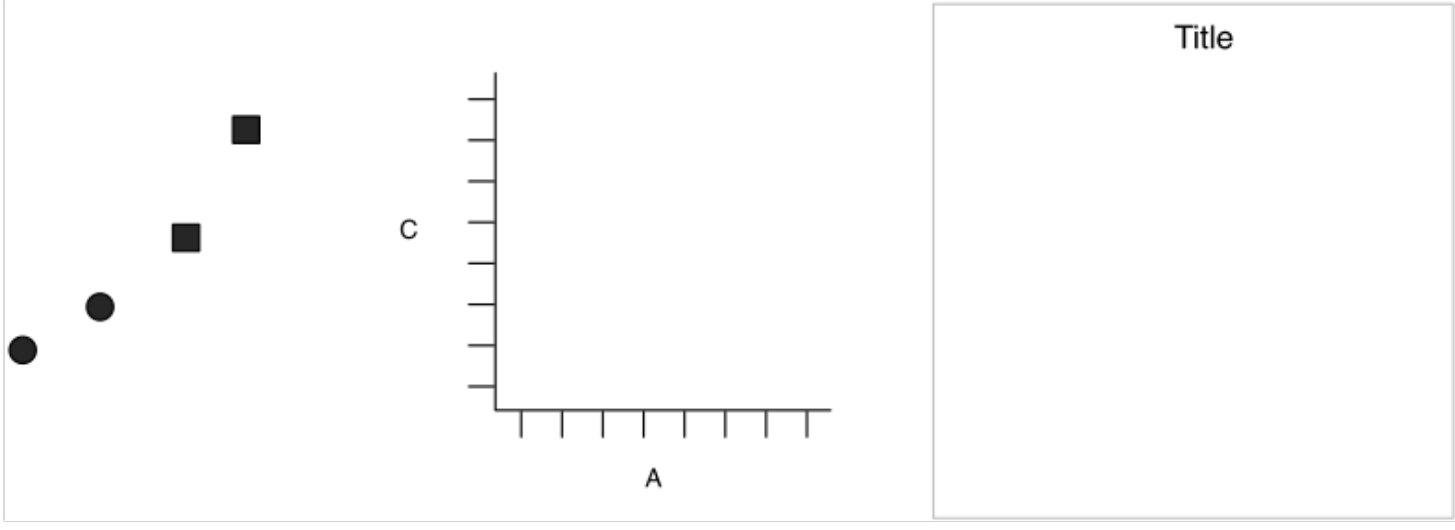

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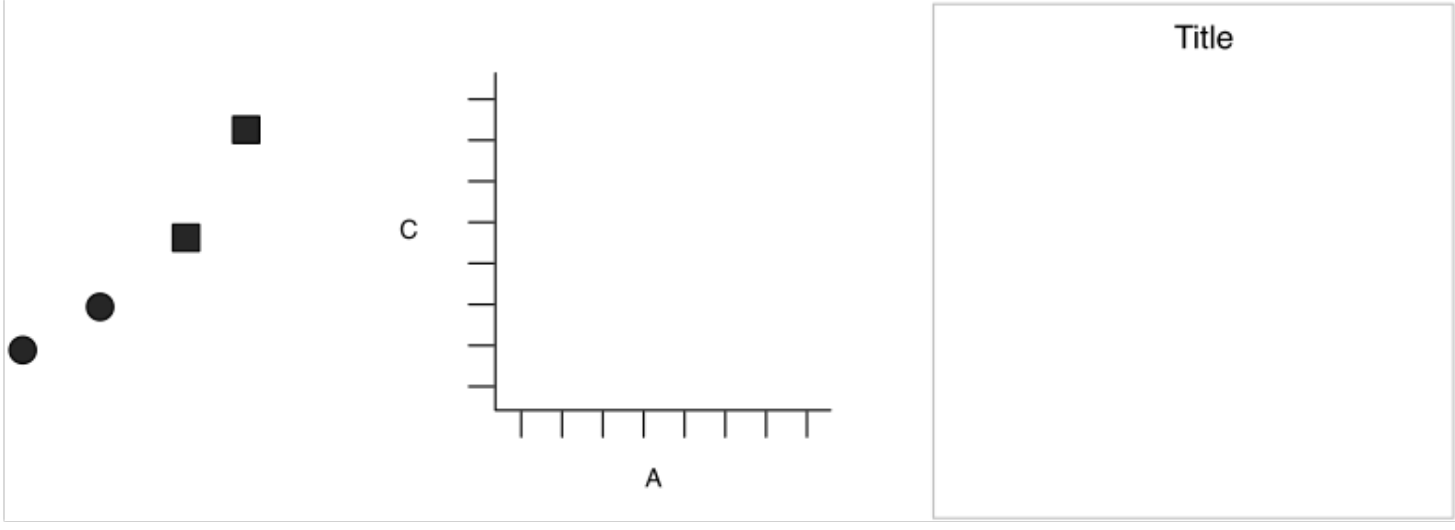

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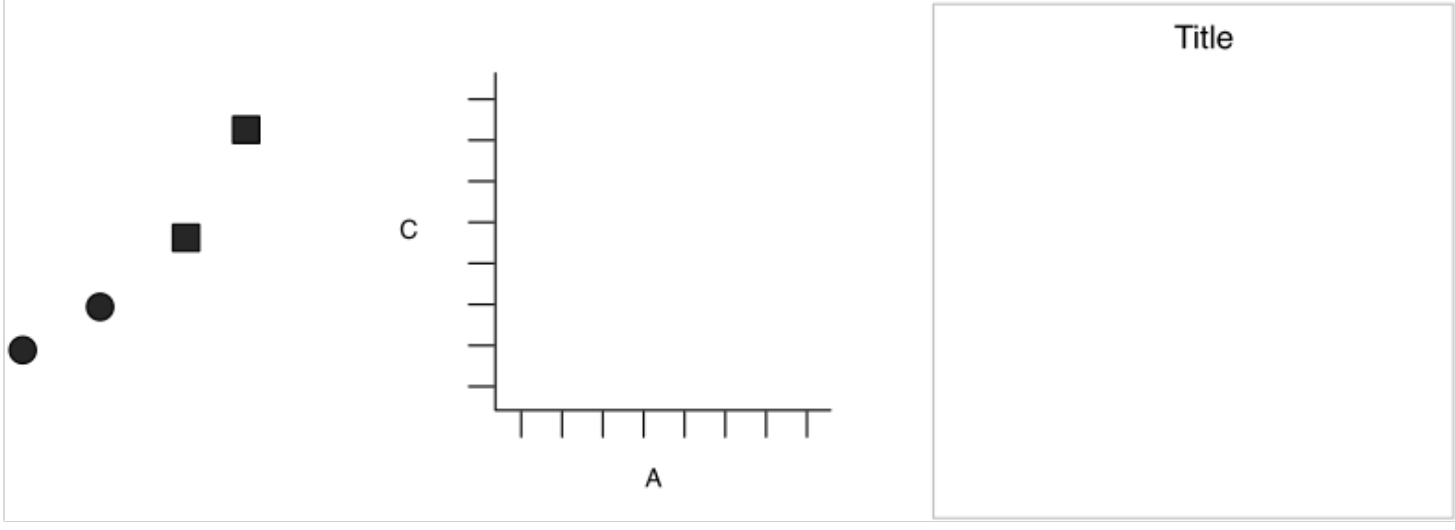

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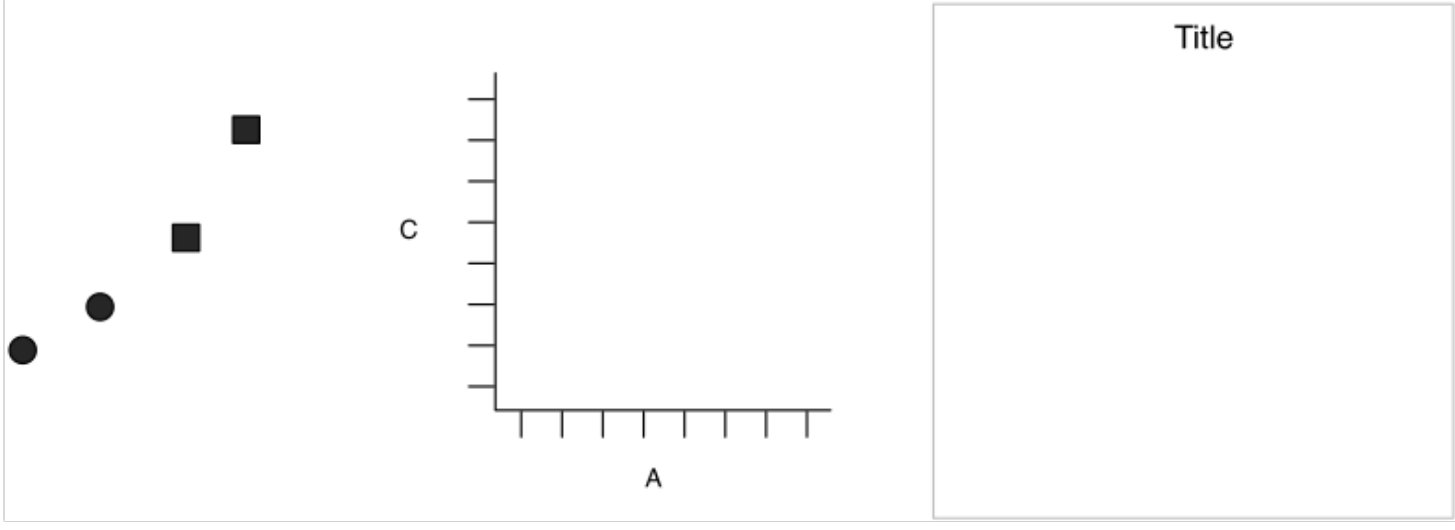

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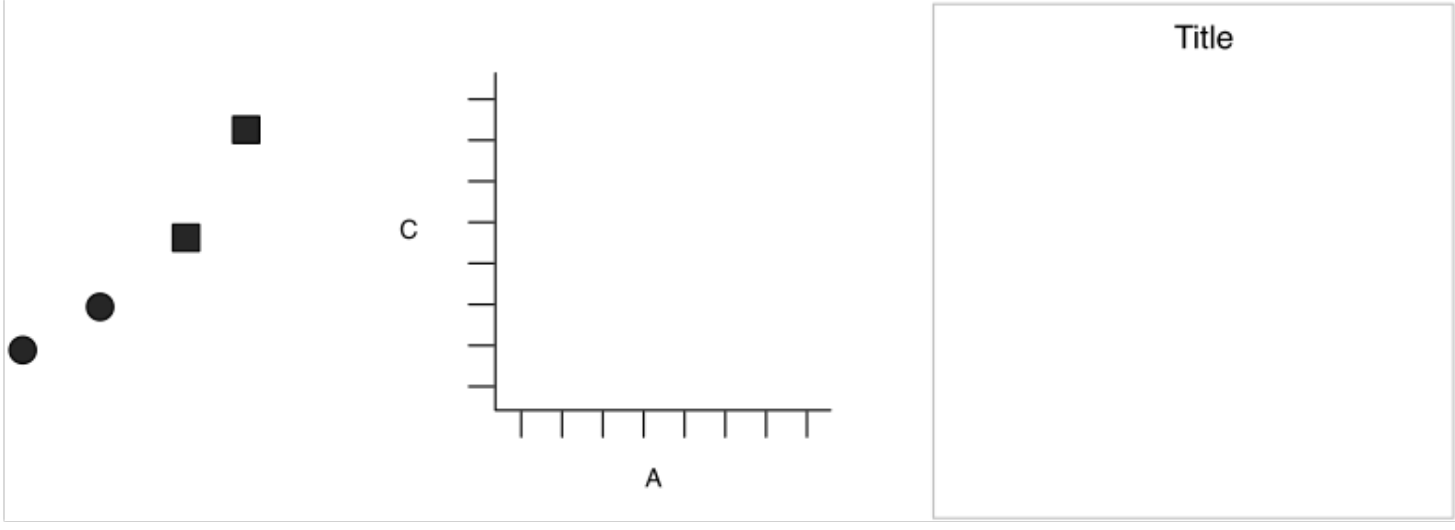

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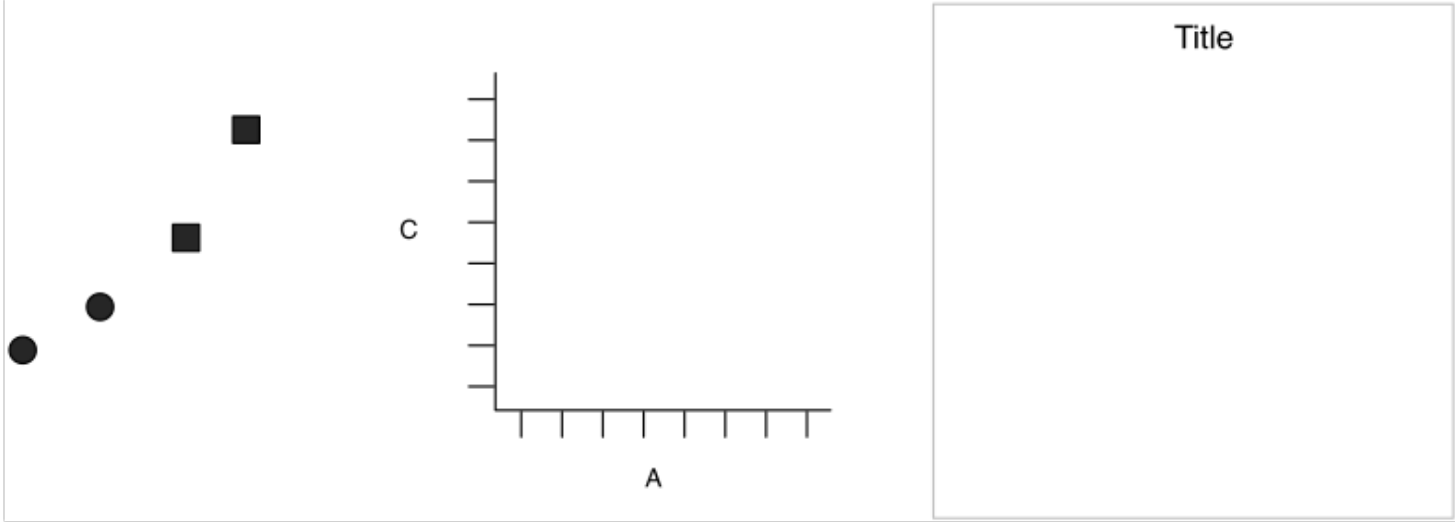

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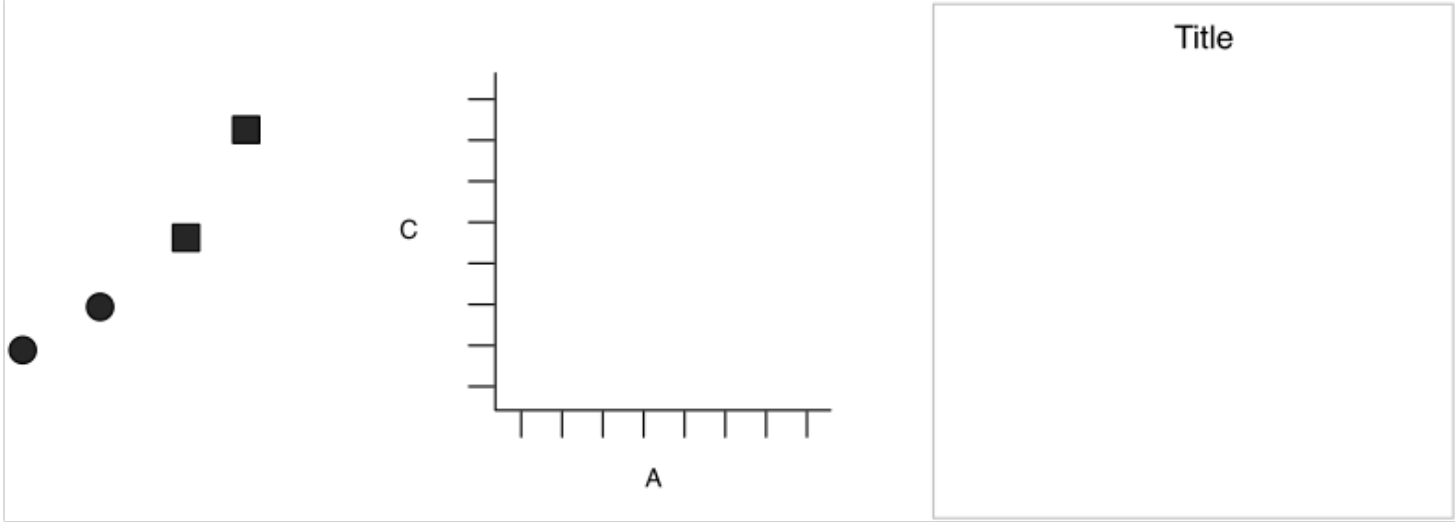

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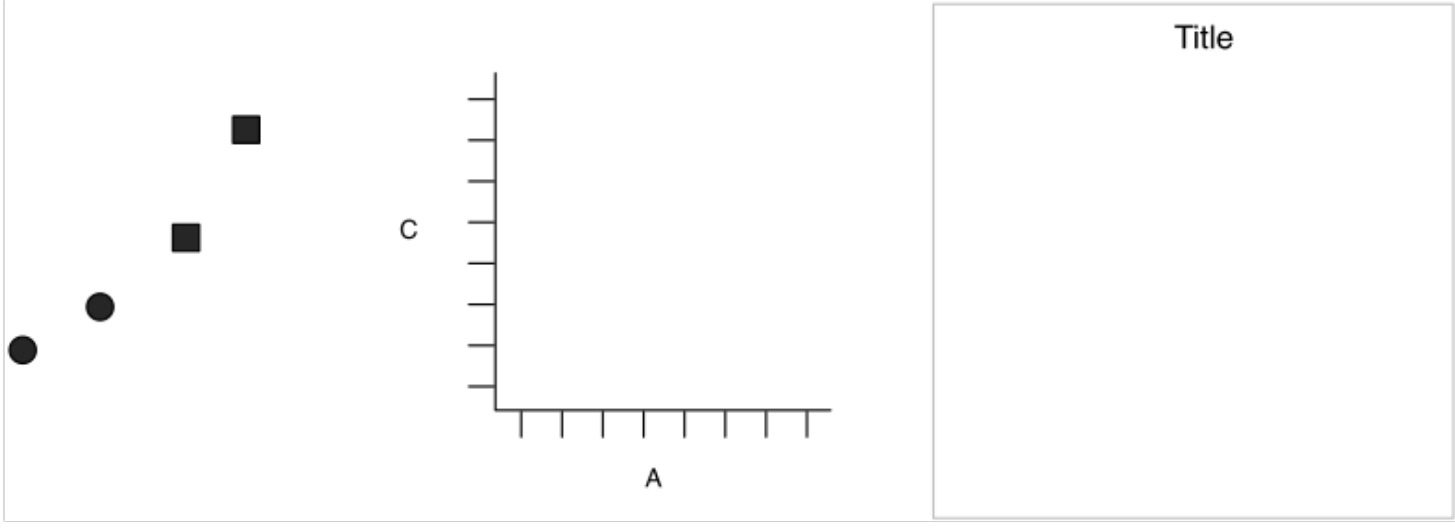

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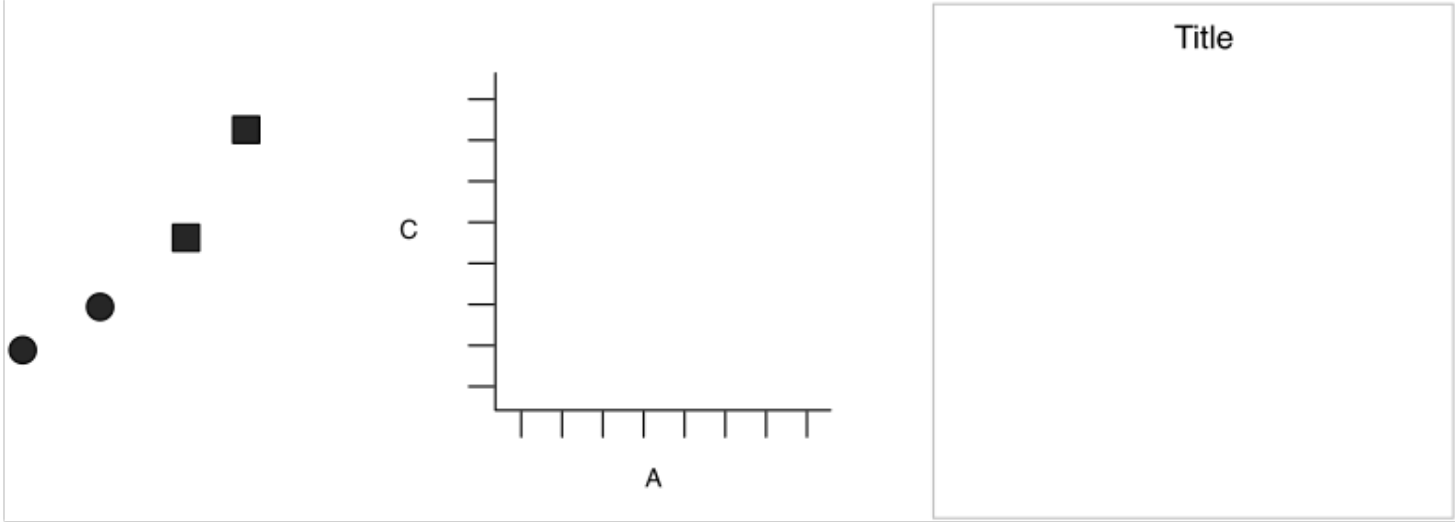

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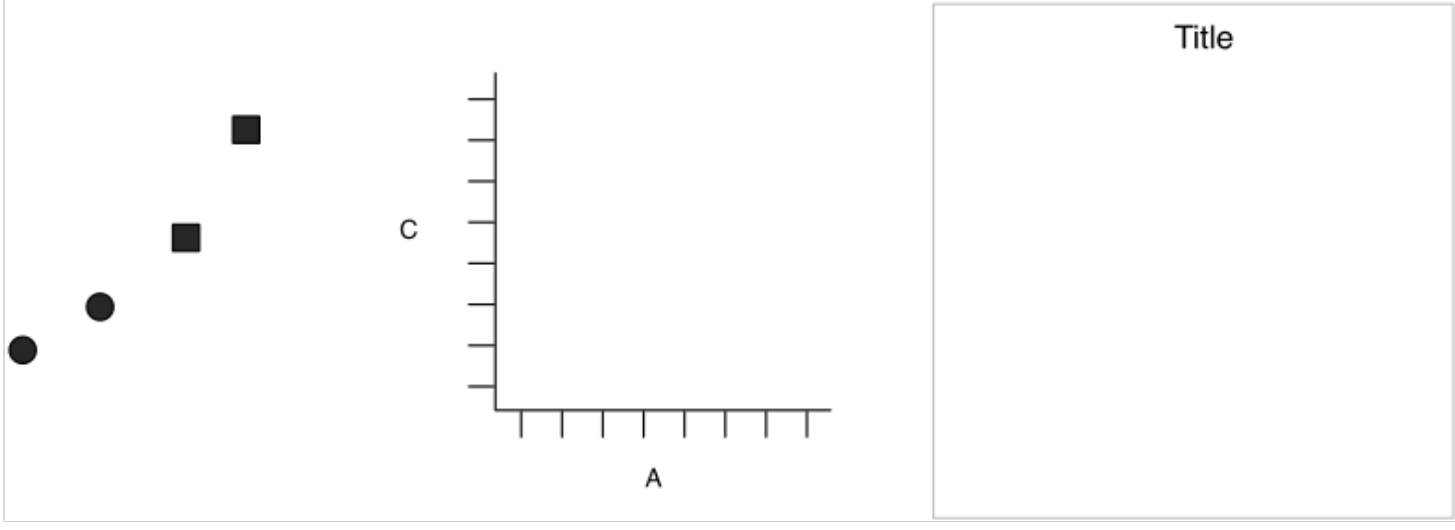

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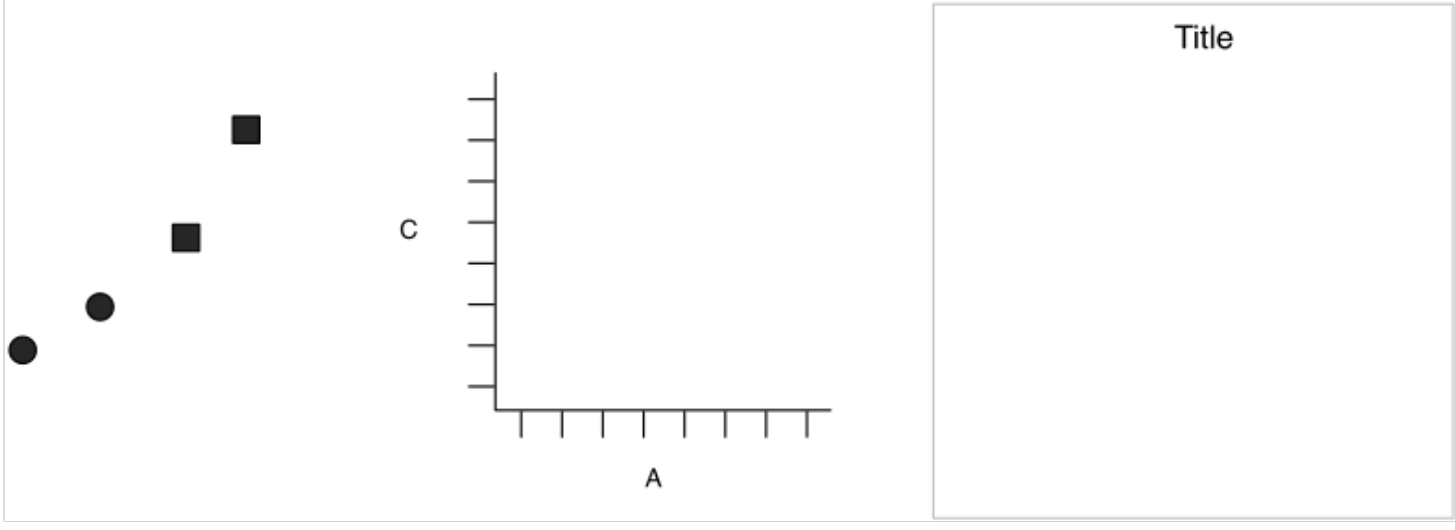

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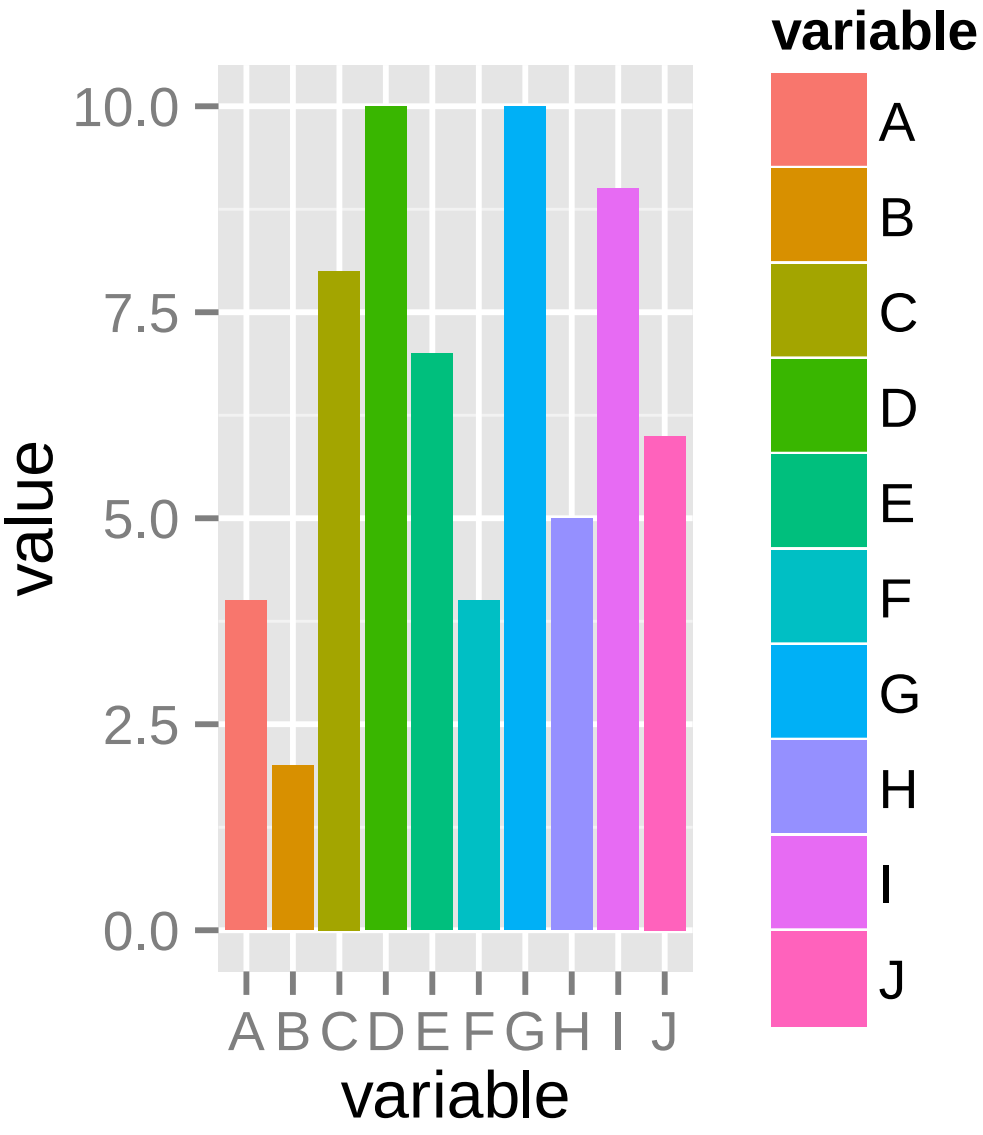
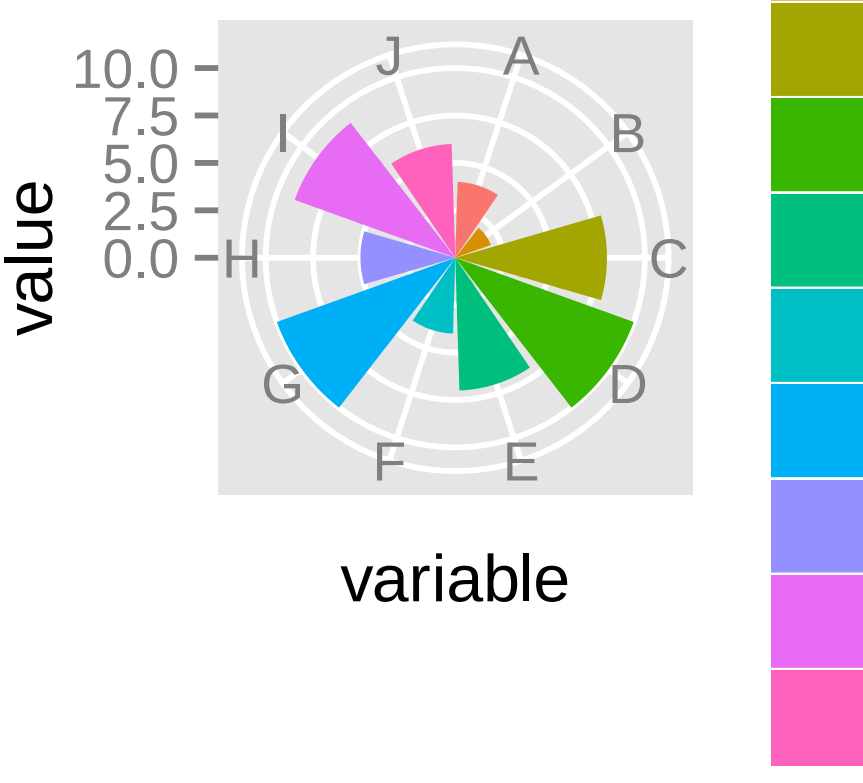
- bar: barplots
- histogram: histograms (for 1-dimensional data)

Editing an element produces a new graph e.g. just change the coordinate system





How it works

1 create a simple plot object

```
plot.object<-qplot()
```

2 add graphical layers/complexity

```
plot.object<-plot.object+layer()
```

3 repeat step 2 until satisfied
4 print your object to screen (or to graphical device)

```
print(plot.object)
```

Resources

cheatsheets:
`https://www.rstudio.com/resources/cheatsheets/`