ggplot Part I

Workshop on Data Visualization in R

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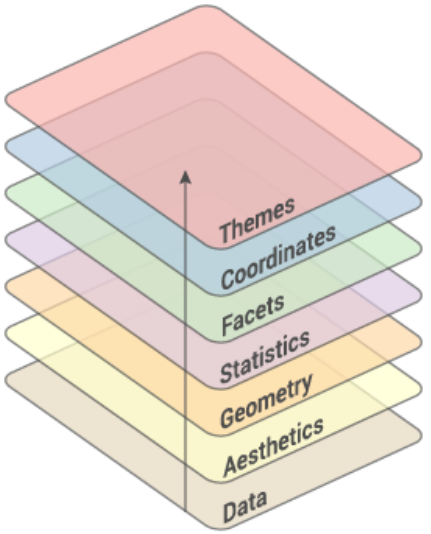
NBIS, SciLifeLab

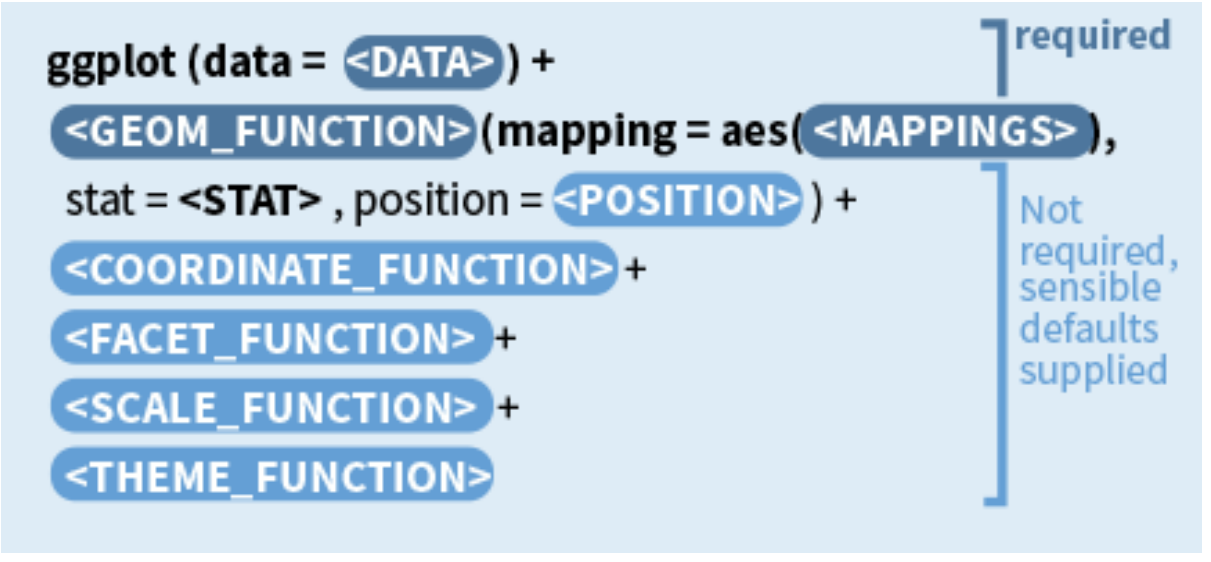
Contents

Grammar of Graphics



- **Data:** Input data
- **Geom:** A geometry representing data. Points, Lines etc
- **Aesthetics:** Visual characteristics of the geometry. Size, Color, Shape etc
- **Scale:** How visual characteristics are converted to display values
- **Statistics:** Statistical transformations. Counts, Means etc
- **Coordinates:** Numeric system to determine position of geometry. Cartesian, Polar etc
- **Facets:** Split data into subsets

Building a graph

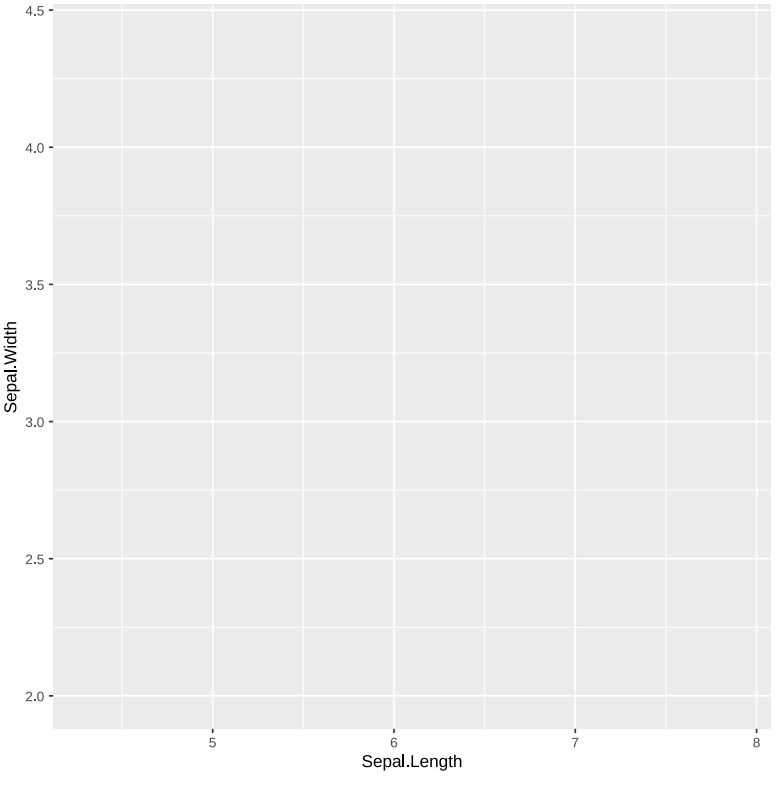


Build-Demo

```
ggplot(iris)
```

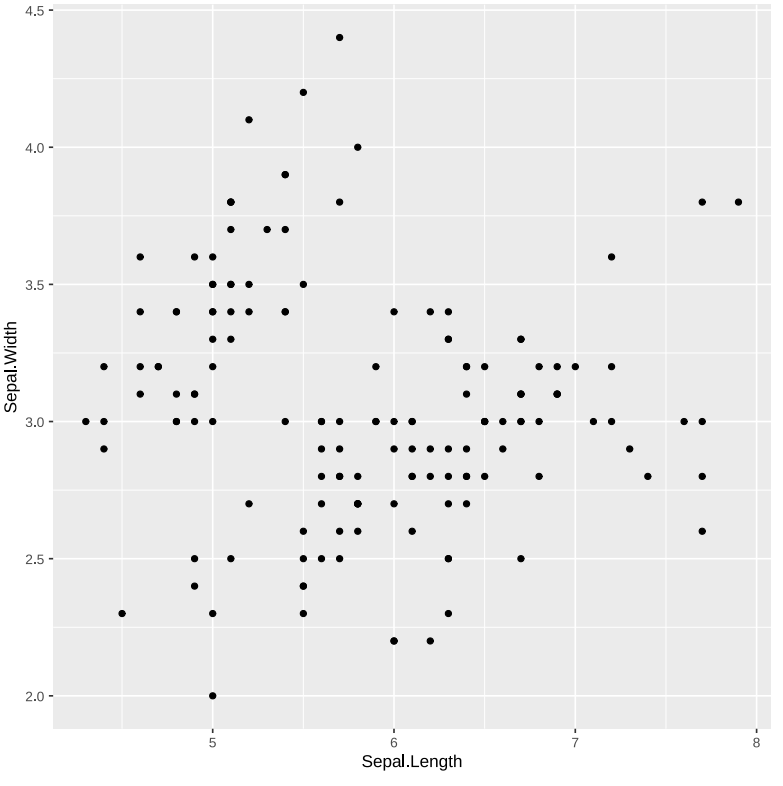
Build-Demo

```
ggplot(iris,aes(x=Sepal.Length,
                y=Sepal.Width))
```



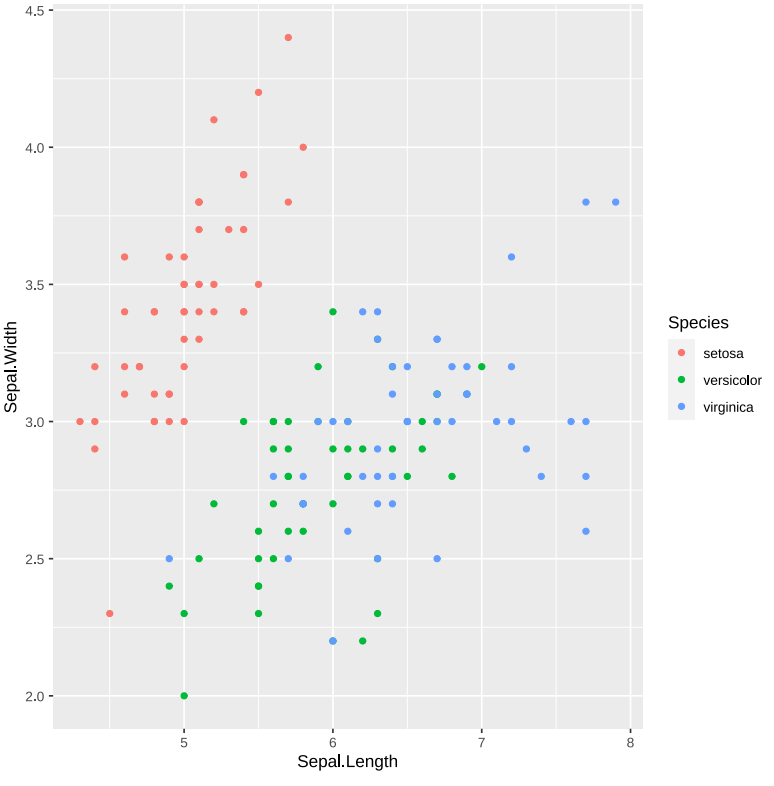
Build-Demo

```
ggplot(iris,aes(x=Sepal.Length,
                y=Sepal.Width))+
  geom_point()
```

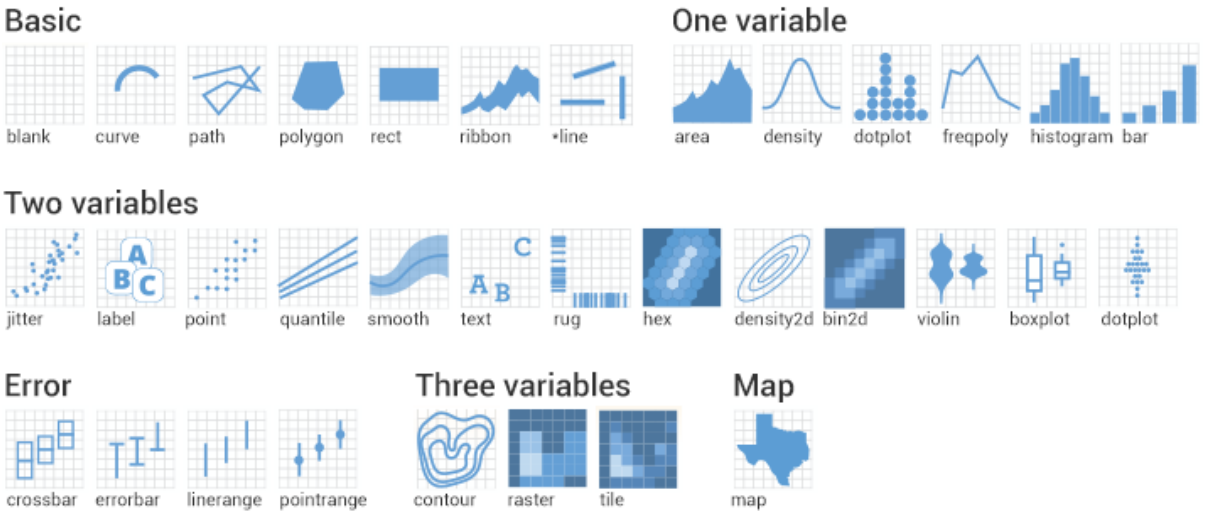


Build-Demo

```
ggplot(iris,aes(x=Sepal.Length,
                y=Sepal.Width,
                colour=Species))+
  geom_point()
```



Geoms

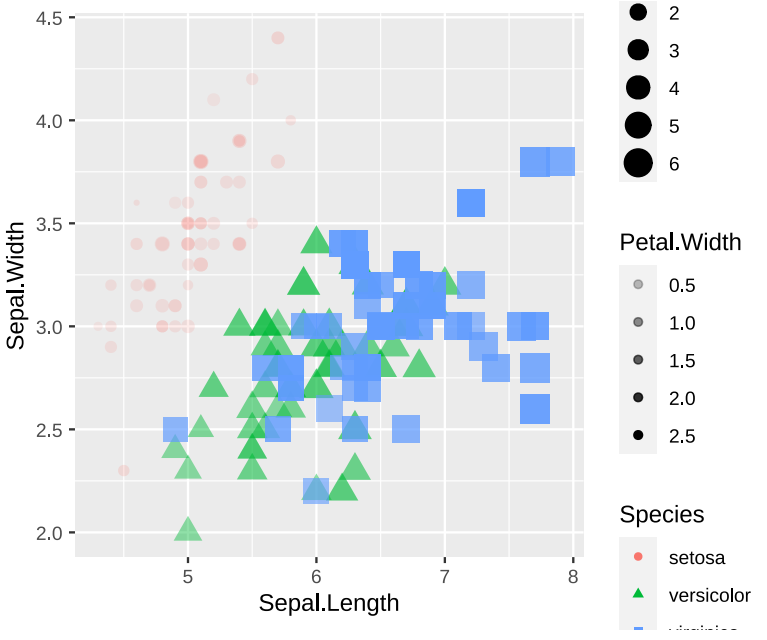



```
p <- ggplot(iris)
# scatterplot
p+geom_point(aes(x=Sepal.Length,y=Sepal.Width))
# barplot
p+geom_bar(aes(x=Sepal.Length))
# boxplot
p+geom_boxplot(aes(x=Species,y=Sepal.Width))
# search
help.search("^geom_",package="ggplot2")
```

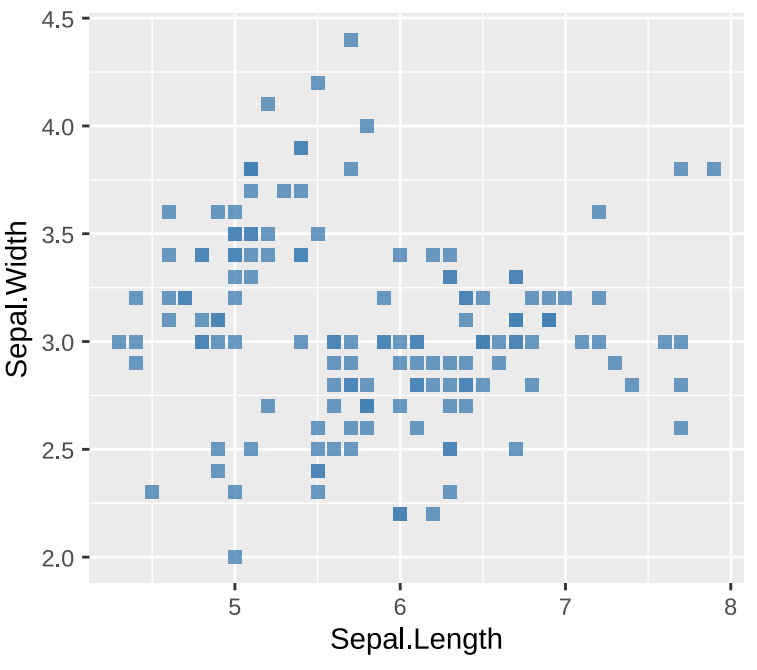
Aesthetics

- Aesthetic mapping vs aesthetic parameter

```
ggplot(iris)+
  geom_point(aes(x=Sepal.Length,
                 y=Sepal.Width,
                 size=Petal.Length,
                 alpha=Petal.Width,
                 shape=Species,
                 color=Species))
```




```
ggplot(iris)+
  geom_point(aes(x=Sepal.Length,
                 y=Sepal.Width),
                 size=2,
                 alpha=0.8,
                 shape=15,
                 color="steelblue")
```



Thank you. Questions?

R version 4.1.3 (2022-03-10)

Platform: x86_64-pc-linux-gnu (64-bit)

OS: Ubuntu 18.04.6 LTS

Built on : 14-Apr-2022 at 11:53:51

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