"The simple graph
has brought more information
to the data analyst's mind than any other device."

– John Tukey –

GGPLOT2

GG = Grammar of Graphics

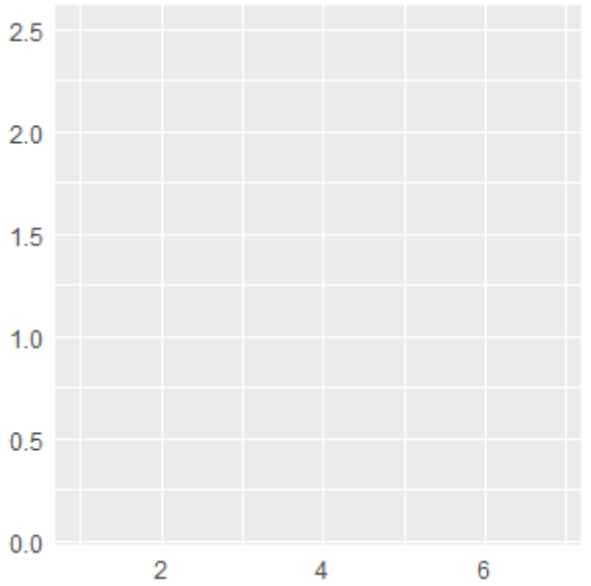
Let’s begin!

Part1 Basic

install.packages(“ggplot2”)

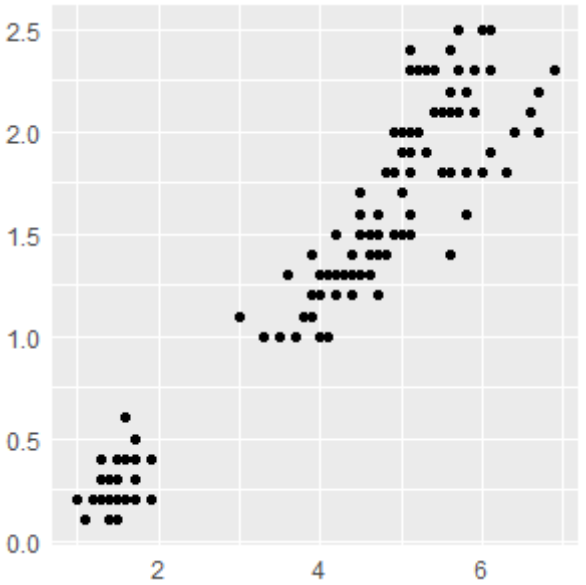
```
library(“ggplot2”)
```

ggplot( )



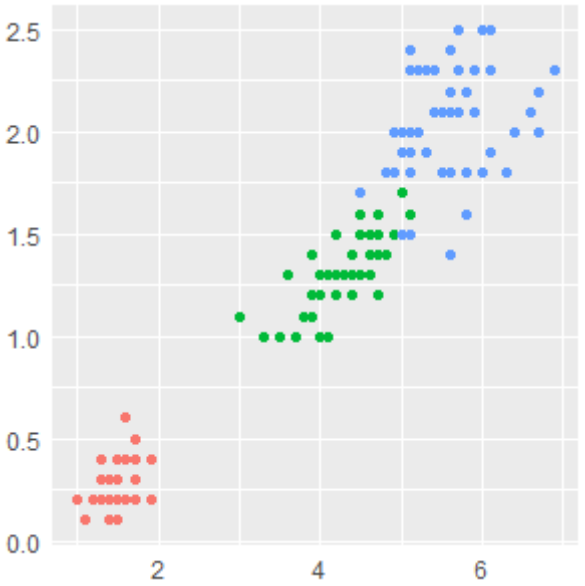

```
p <- ggplot(iris, aes(Petal.Length, Petal.Width))
p
```

+ geom_function( )



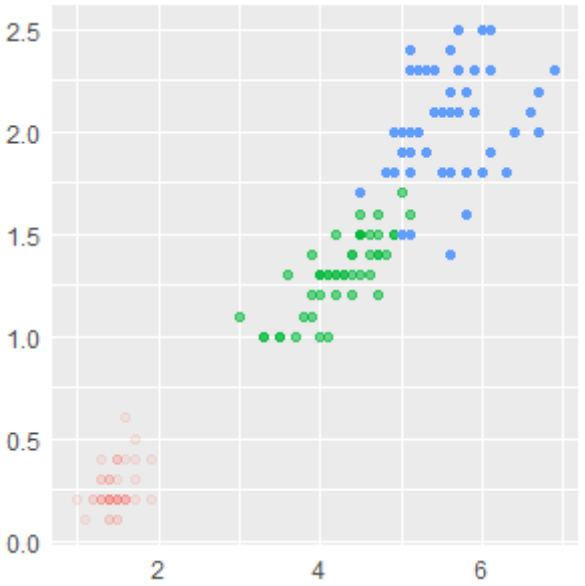

```
p <- ggplot(iris, aes(Petal.Length, Petal.Width))
p + geom_point()
```

group



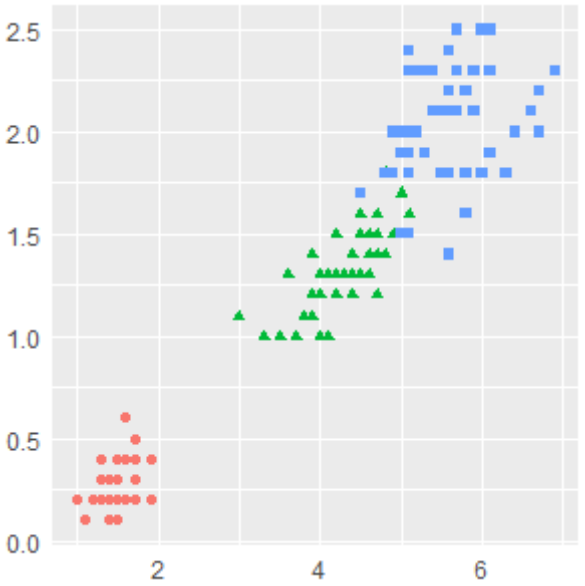

```
p <- ggplot(iris, aes(Petal.Length, Petal.Width))
p + geom_point(aes(color=Species))
```

alpha



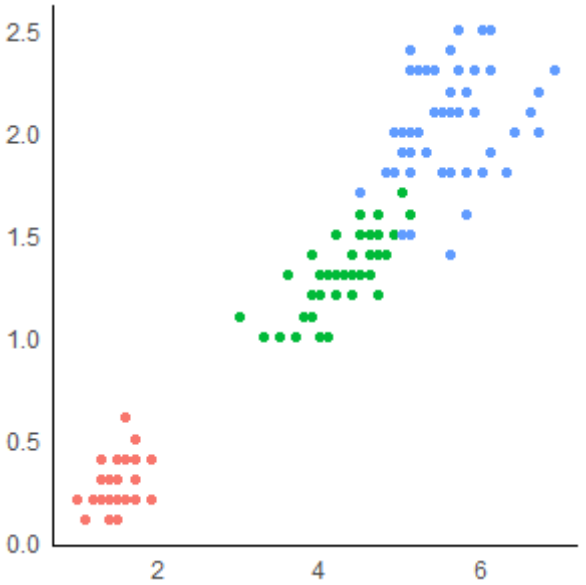

```
p <- ggplot(iris, aes(Petal.Length, Petal.Width))
p + geom_point(aes(color=Species, alpha=Species))
```

shape




```
p <- ggplot(iris, aes(Petal.Length, Petal.Width))
p + geom_point(aes(color=Species, shape=Species))
```

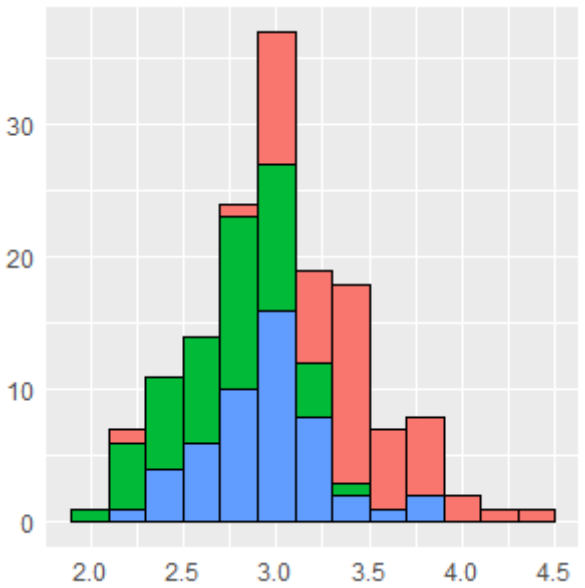
+ theme( )




```
p <- ggplot(iris, aes(Petal.Length, Petal.Width))
p <- p + geom_point(aes(color=Species))
p + theme_classic()
```

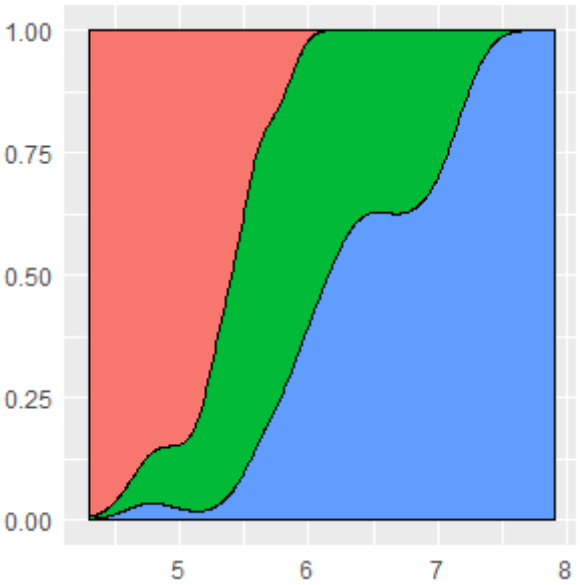
Part2 Geom_function

histogram



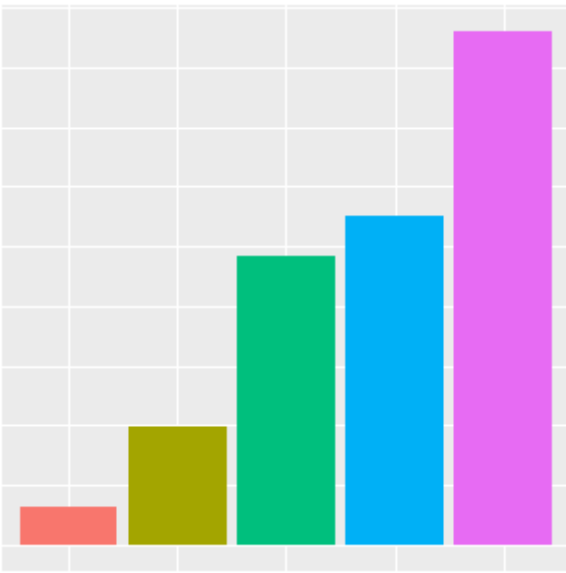

```
p <- ggplot(iris, aes(Sepal.Length))
p + geom_point(aes(fill=Species), binwidth = 0.2, color = 'black')
```

density



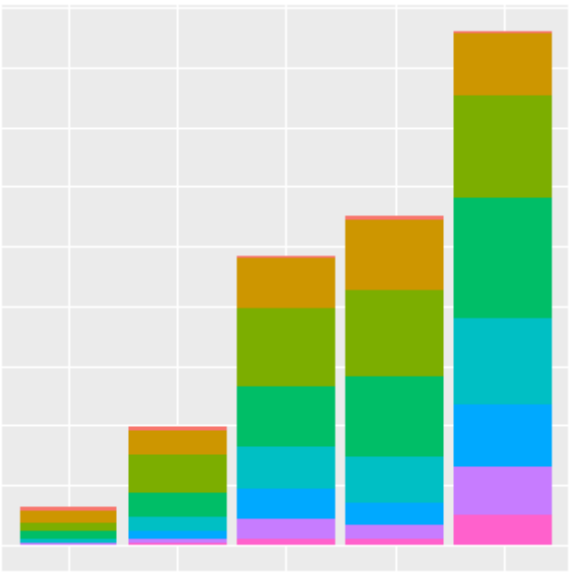

```
p <- ggplot(iris, aes(Sepal.Length))
p + geom_density(aes(fill=Species), position = position_fill())
```

bar



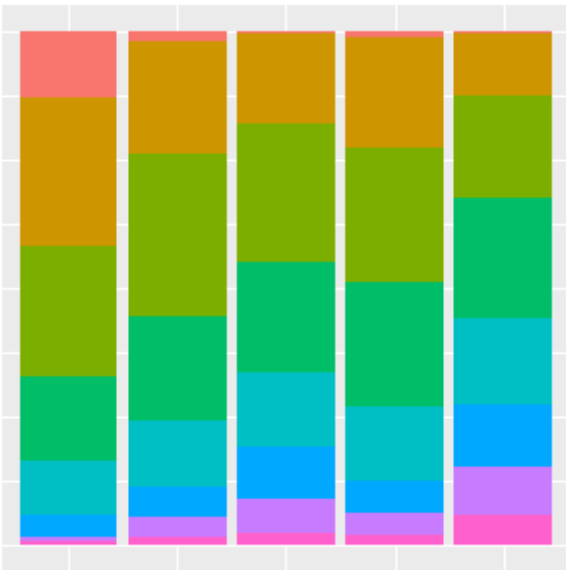
```
p <- ggplot(diamonds, aes(cut))
p + geom_bar(aes(fill = cut))
```

bar_stack



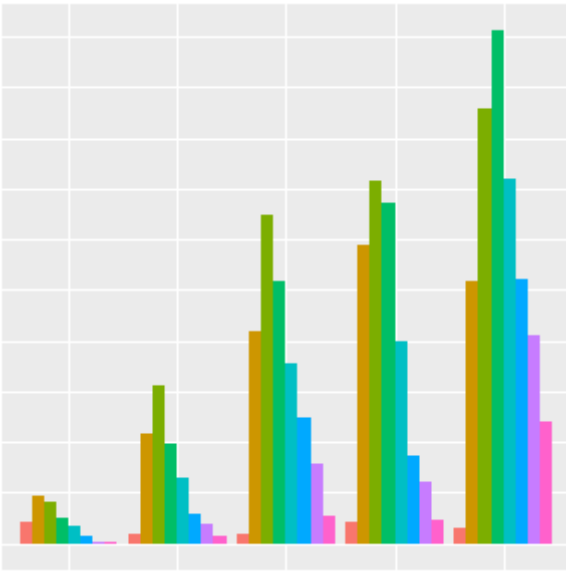
```
p <- ggplot(diamonds, aes(cut))
p + geom_bar(aes(fill = clarity), position = 'stack')
```

bar_fill



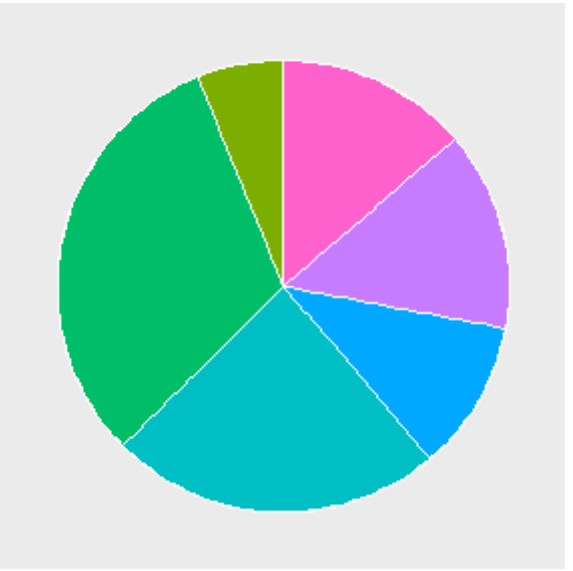
```
p <- ggplot(diamonds, aes(cut))
p + geom_bar(aes(fill = clarity), positon = 'fill')
```

bar_dodge



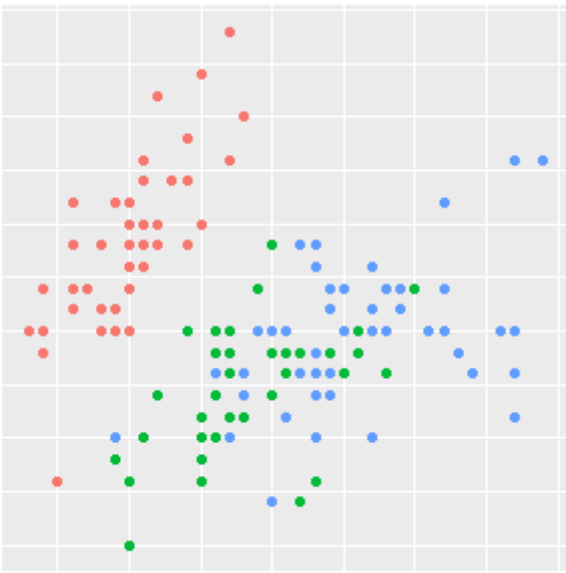
```
p <- ggplot(diamonds, aes(cut))
p + geom_bar(aes(fill = clarity), positon = 'dodge')
```

pie



```
p <- ggplot(diamonds, aes("", fill = clarity))
p + geom_bar(position = "identity", width = 1, color = 'white")
  + coord_polar("y", start = 0)
```

scatter

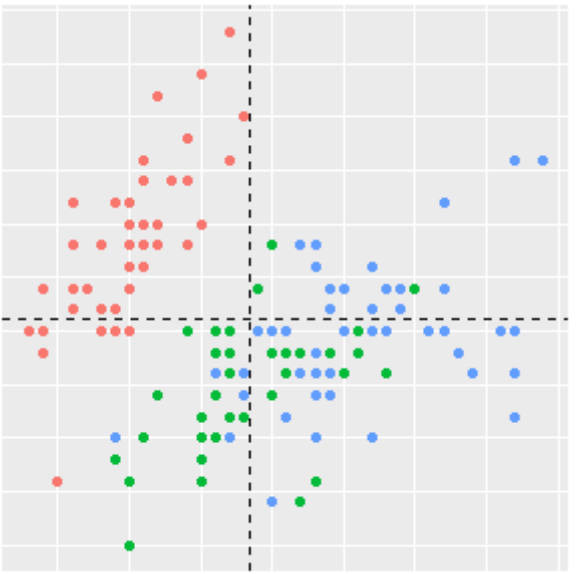


```
p <- ggplot(iris,aes(Sepal.Length, Sepal.Width))
p + geom_point(aes(color=Species))
```

jitter

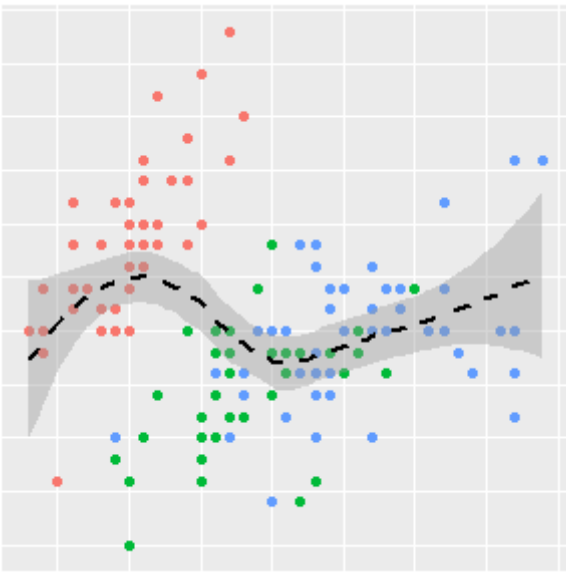
```
p <- ggplot(iris,aes(Sepal.Length, Sepal.Width))
p + geom_point(aes(color=Species), position = 'jitter')
```

scatter_with_line



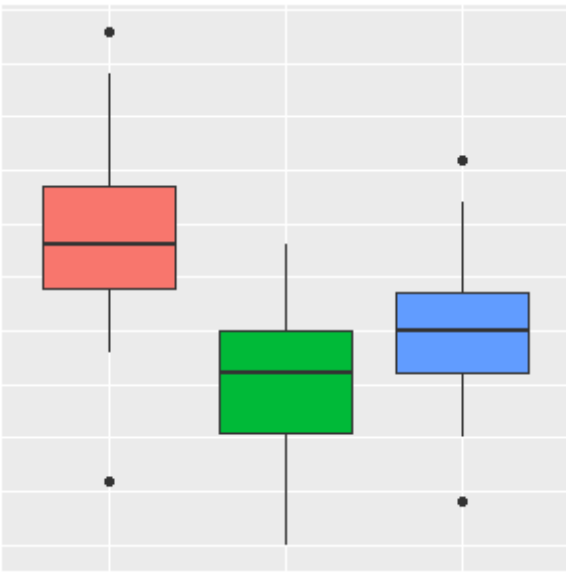
```
p <- ggplot(iris,aes(Sepal.Length, Sepal.Width))
p <- p + geom_point(aes(color=Species))
p + geom_vline(...) + geom_hline(...)
```

smooth



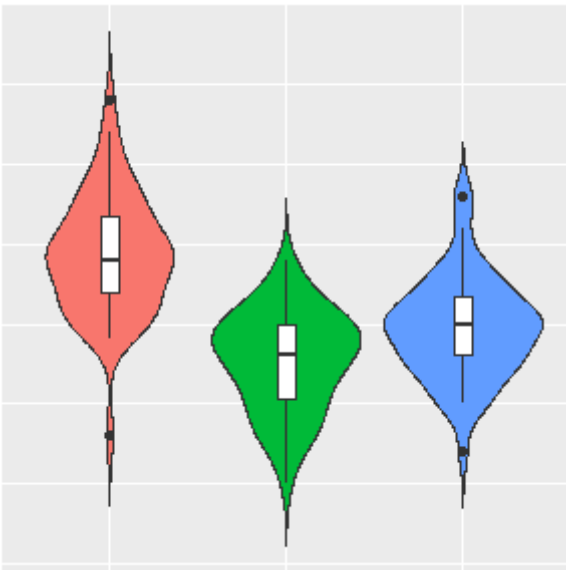
```
p <- ggplot(iris,aes(Sepal.Length, Sepal.Width))
p <- p + geom_point(aes(color=Species))
p + geom_smooth(color = 'black', linetype = 'dashed')
```

box



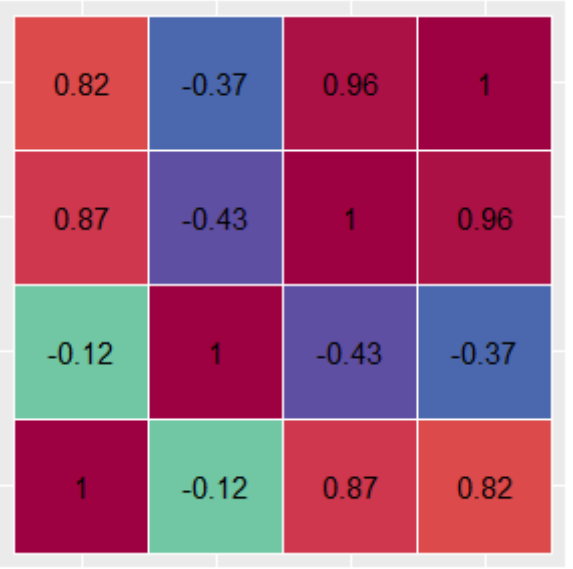
```
p <- ggplot(iris,aes(Species, Sepal.Width))
p + geom_boxplot(aes(fill=Species))
```

violin



```
p <- ggplot(iris,aes(Species, Sepal.Width))
p + geom_violin(aes(fill=Species), trim = FALSE)
   + geom_boxplot(width=0.1) + theme1
```

heatmap




```
p + geom_tile(color = 'white') +
geom_text(aes(label = round(value,2)), color =
"black")
```

Part3 Theme

I’m working on..