

ggplot2

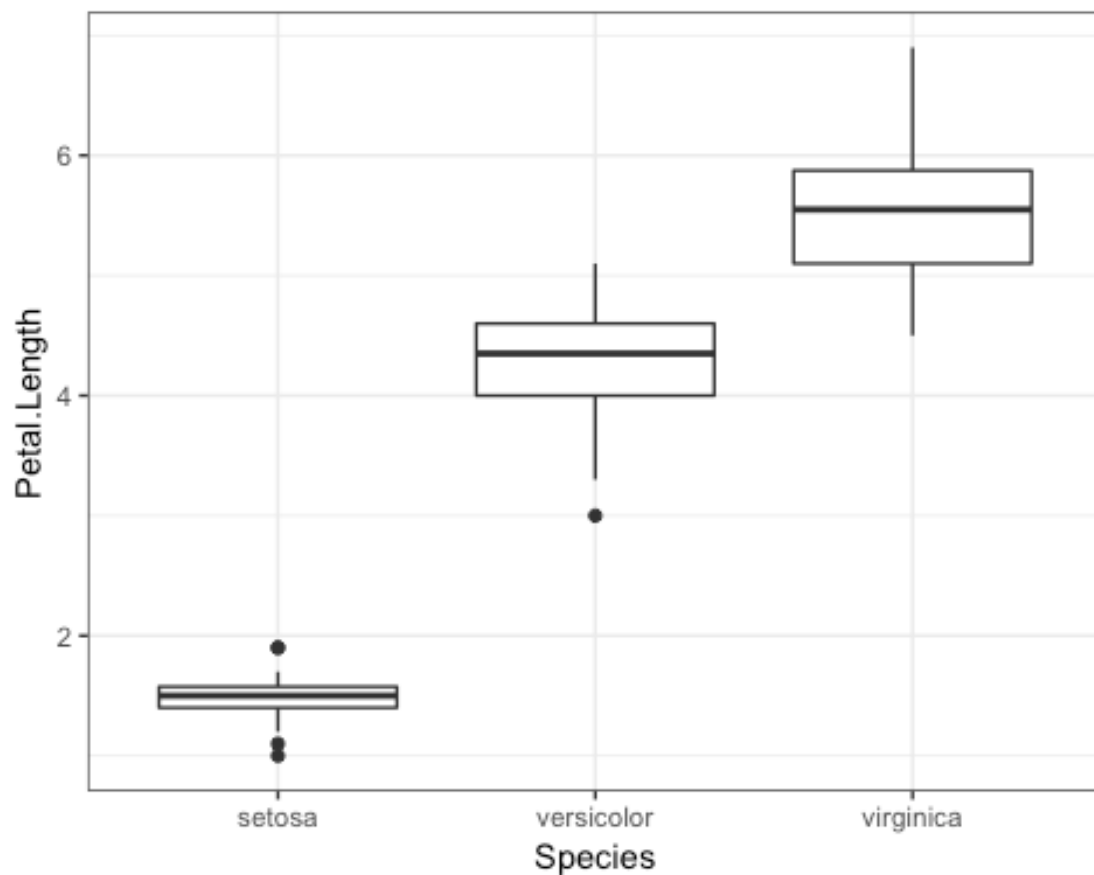
Fonti Kar

20/09/2018

Slide 6 - An example

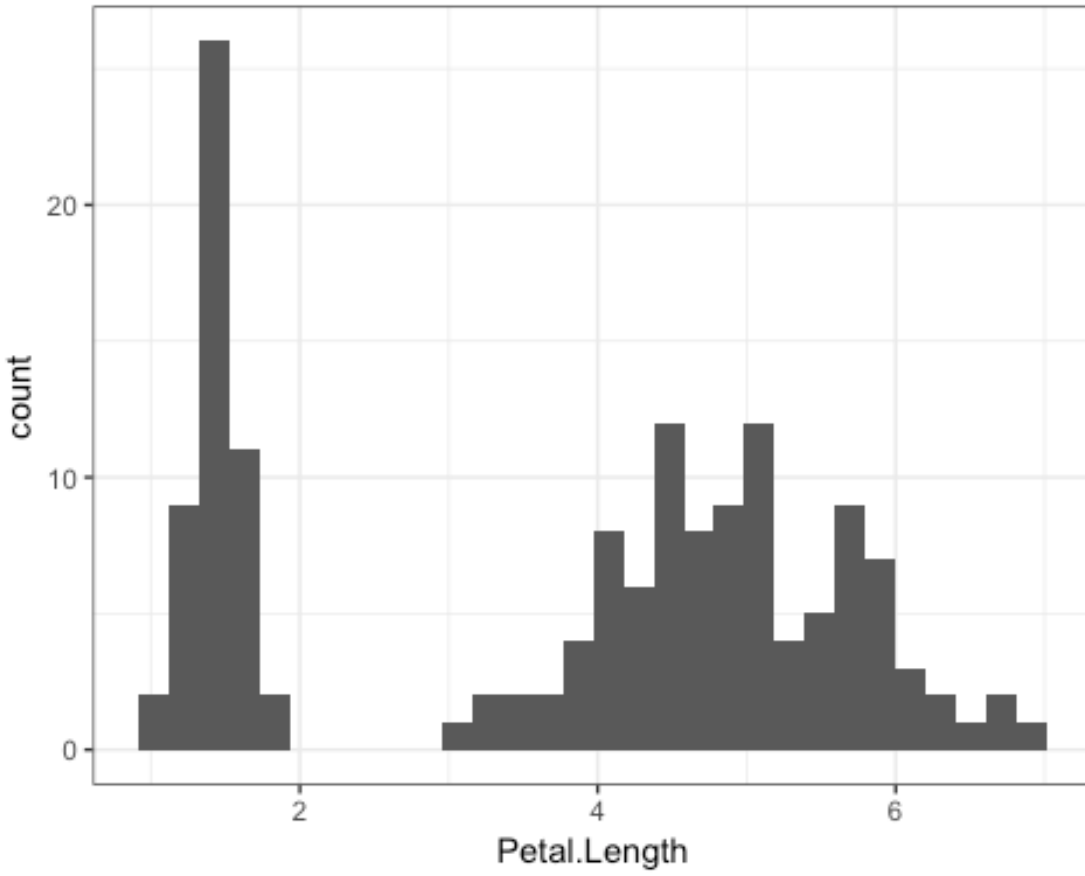
```
library(ggplot2)
```

```
ggplot(iris, aes(x = Species, y = Petal.Length)) + geom_boxplot() +  
theme_bw()
```

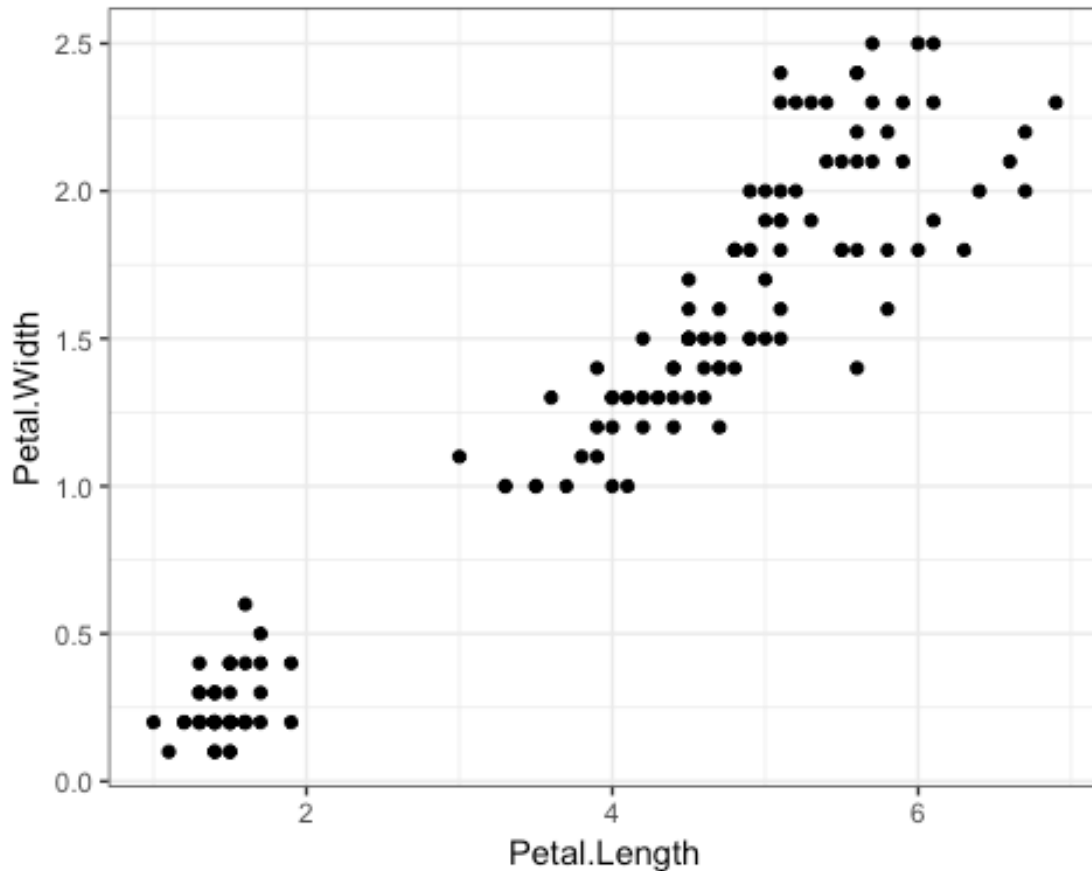


Slide 7, 8 - Some other key plots

```
ggplot(iris, aes(x = Petal.Length)) + geom_histogram() + theme_bw()
```



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



Slide 11 - 14 Data wrangling and barplots with base and ggplot2

library(dplyr)

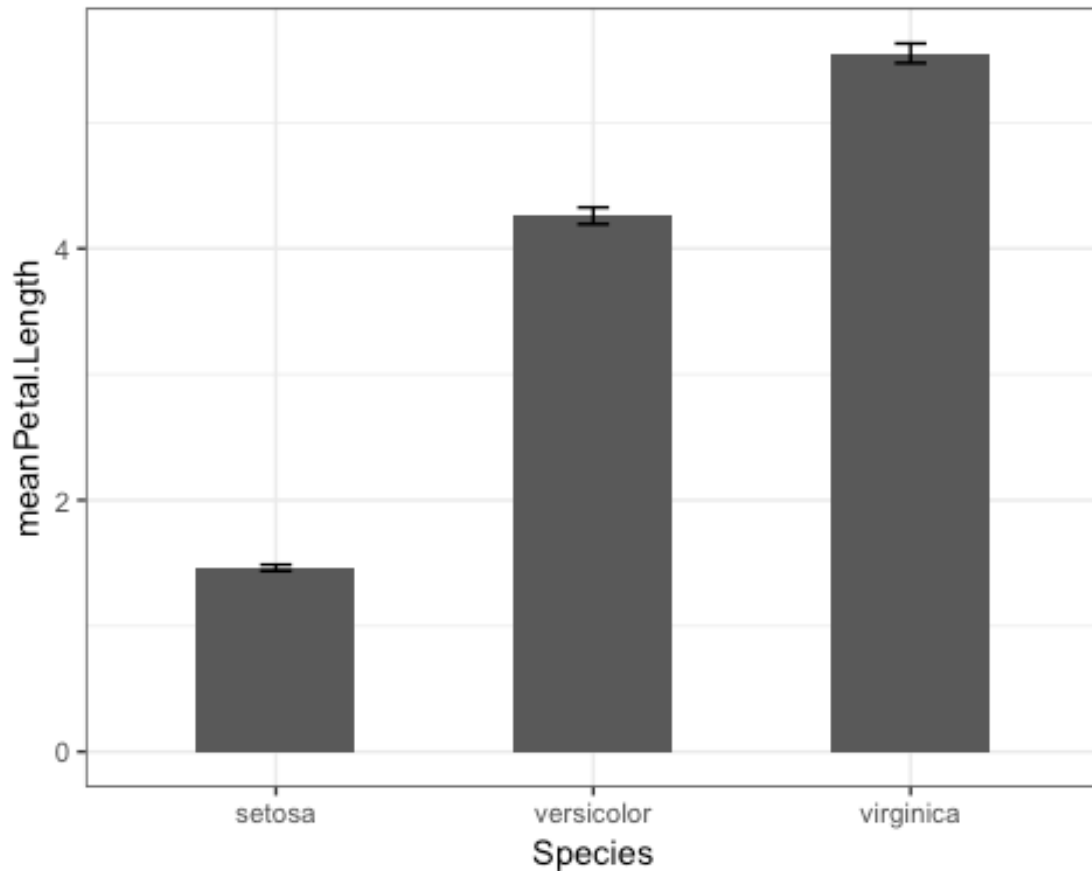
```
iris.barplot <- iris %>% group_by(Species) %>% summarise(meanPetal.Length =
mean(Petal.Length), stderPetal.Length =
sd(Petal.Length)/sqrt(length(Petal.Length)), lowerErr = (meanPetal.Length -
stderPetal.Length), upperErr = (meanPetal.Length + stderPetal.Length))
```

iris.barplot

```
## # A tibble: 3 x 5
```

```
##   Species    meanPetal.Length stderPetal.Length lowerErr upperErr
##   <fct>          <dbl>           <dbl>      <dbl>   <dbl>
## 1 setosa          1.46             0.0246     1.44     1.49
## 2 versicolor     4.26             0.0665     4.19     4.33
## 3 virginica      5.55             0.0780     5.47     5.63
```

```
ggplot(iris.barplot, aes(x = Species, y = meanPetal.Length)) + geom_col(width
= 0.5) + geom_errorbar(aes(ymin = lowerErr, ymax = upperErr), width = 0.1) +
theme_bw()
```



#Base R

```
meanPetal.length <- tapply(iris$Petal.Length, iris$Species, mean)
```

```
nPetal.length <- tapply(iris$Petal.Length, iris$Species, length)
```

```
sePetal.length <- tapply(iris$Petal.Length,  
iris$Species,sd)/sqrt(nPetal.length)
```

```
xx <-
```

```
barplot(meanPetal.length,ylim=c(0,max(meanPetal.length+sePetal.length)*1.1))
```

```
#we add error bars using the function arrows()
```

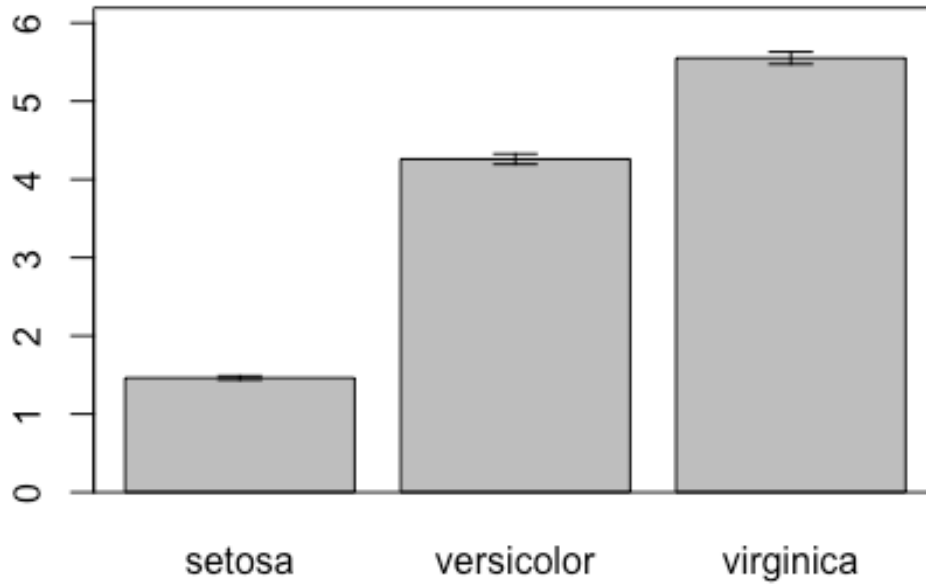
```
#by setting code=3, we get arrow heads on both ends
```

```
#by setting angle=90, the arrow heads become flat
```

```
arrows(xx,meanPetal.length-sePetal.length,xx,meanPetal.length+sePetal.length,  
angle=90,code=3, length = 0.1)
```

```
#adds box to outside of figure
```

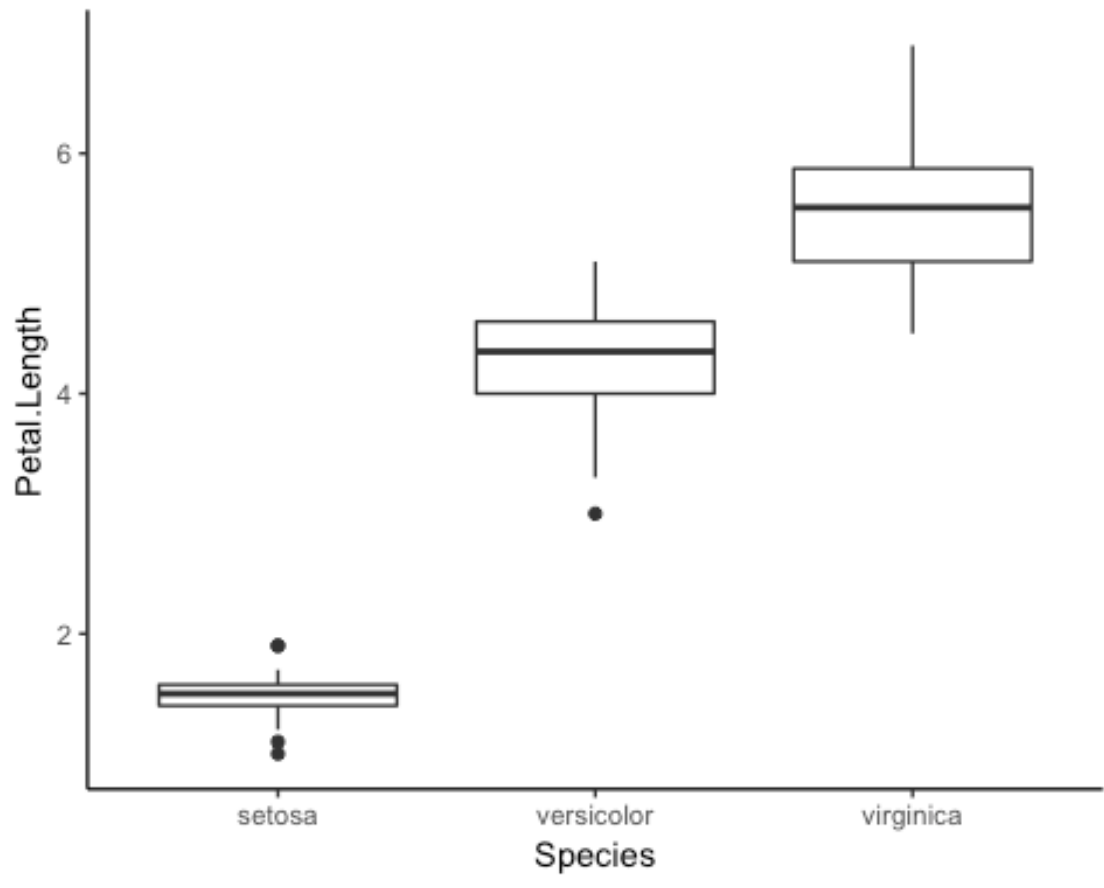
```
box()
```



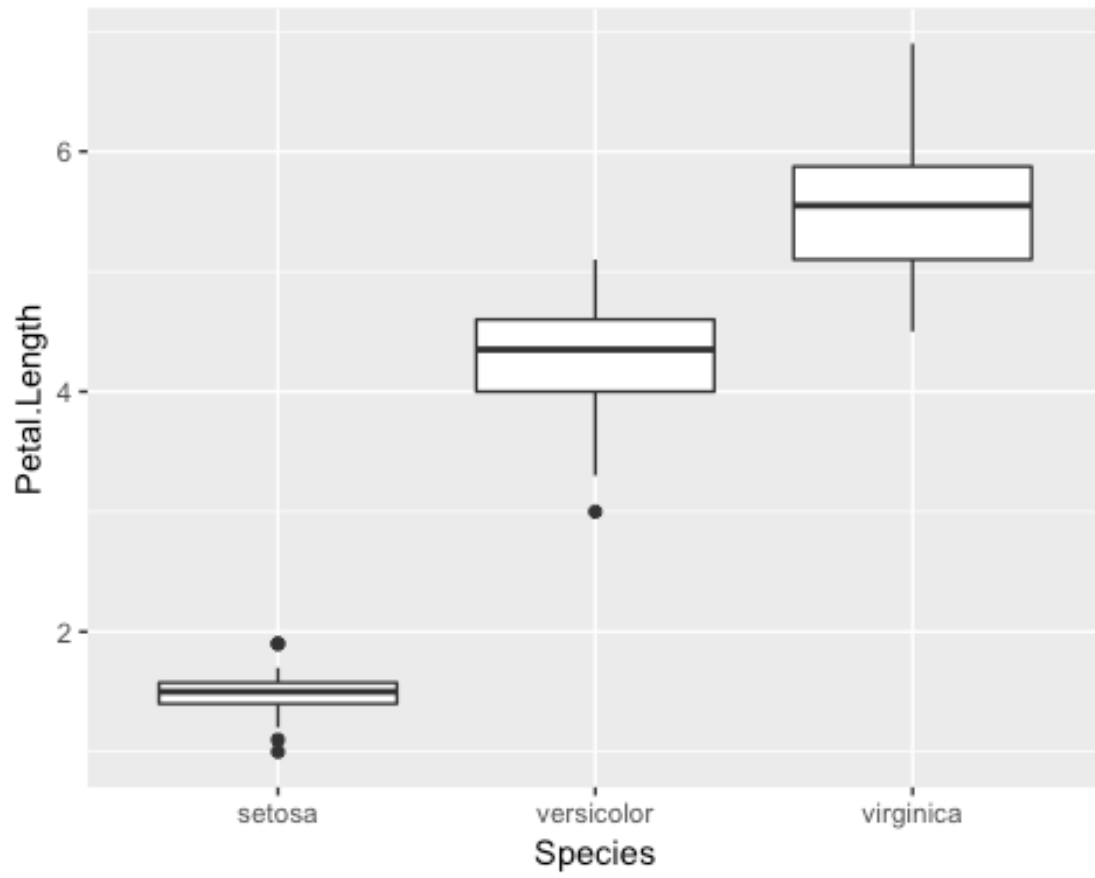
Slide 16 Themes

```
irisboxplot <- ggplot(iris, aes(x = Species, y = Petal.Length)) +  
  geom_boxplot()
```

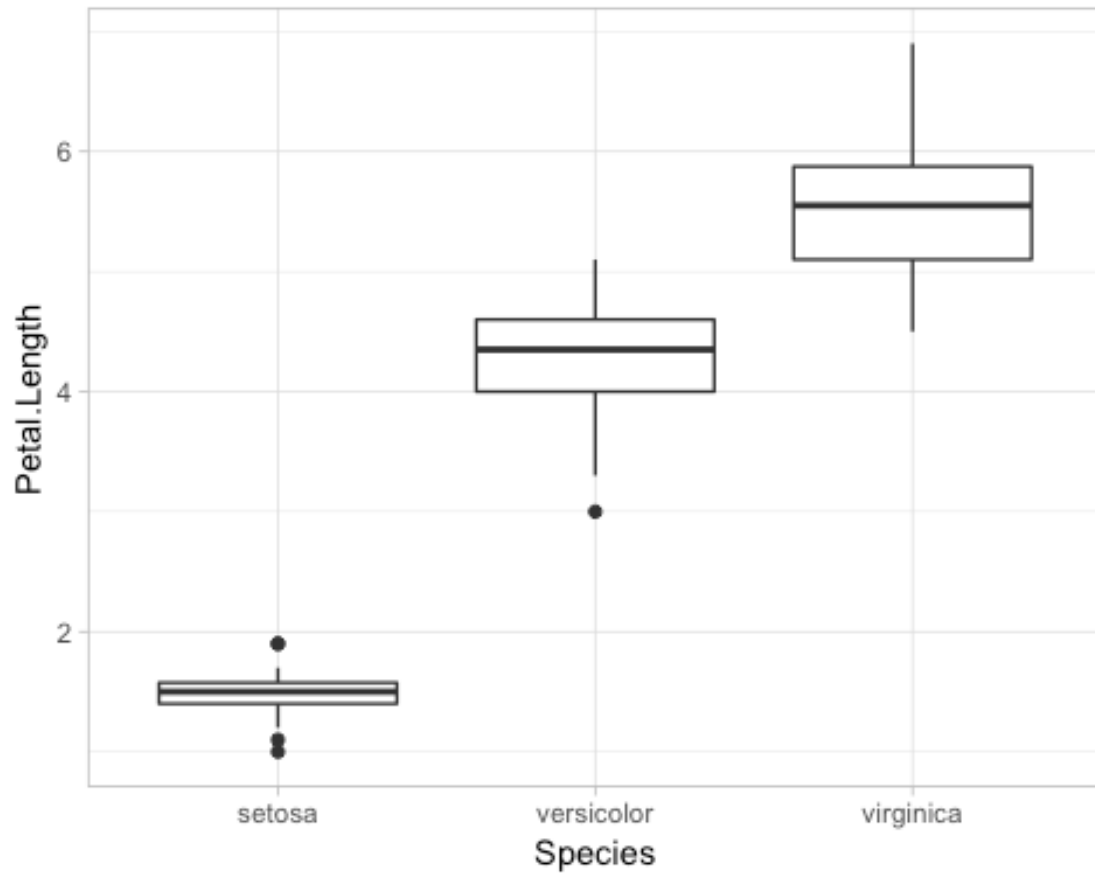
```
irisboxplot + theme_classic()
```



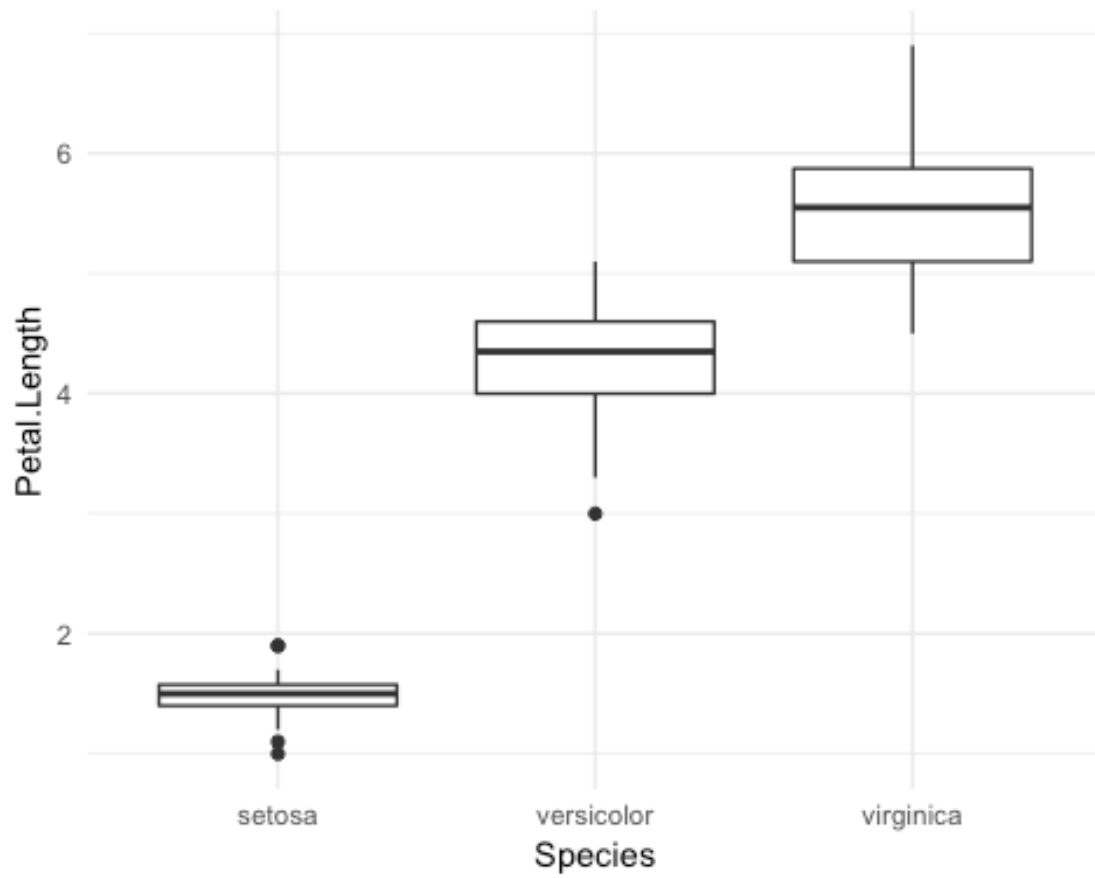
```
irisboxplot + theme_gray()
```



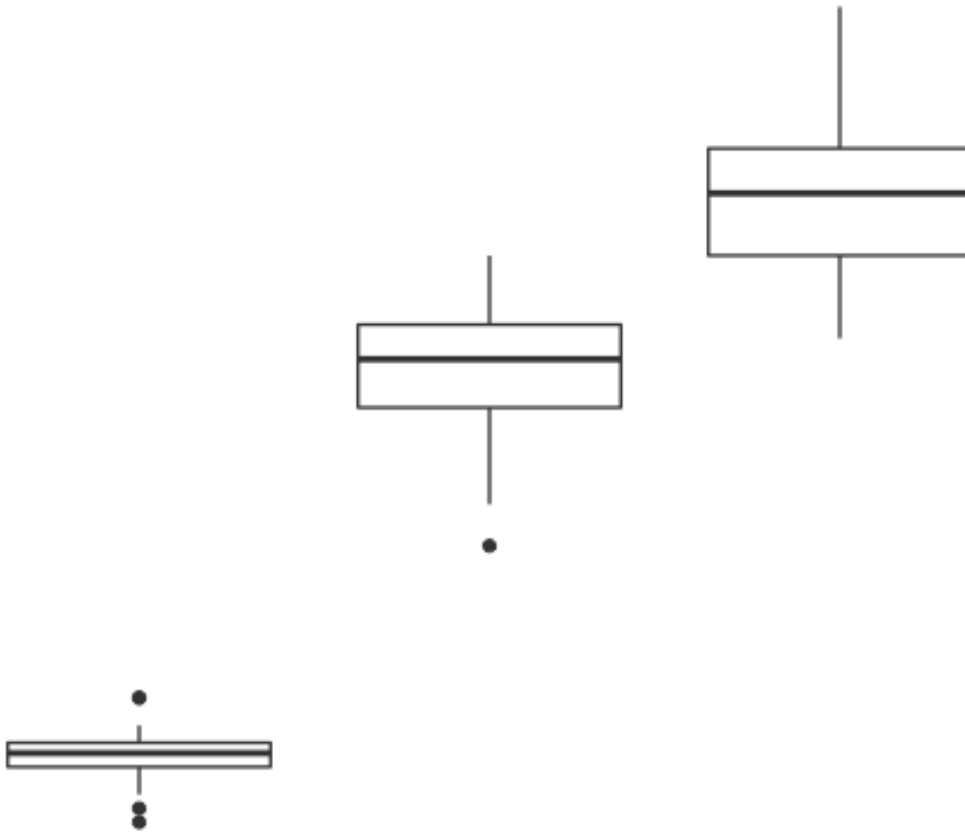
```
irisboxplot + theme_light()
```



```
irisboxplot + theme_minimal()
```

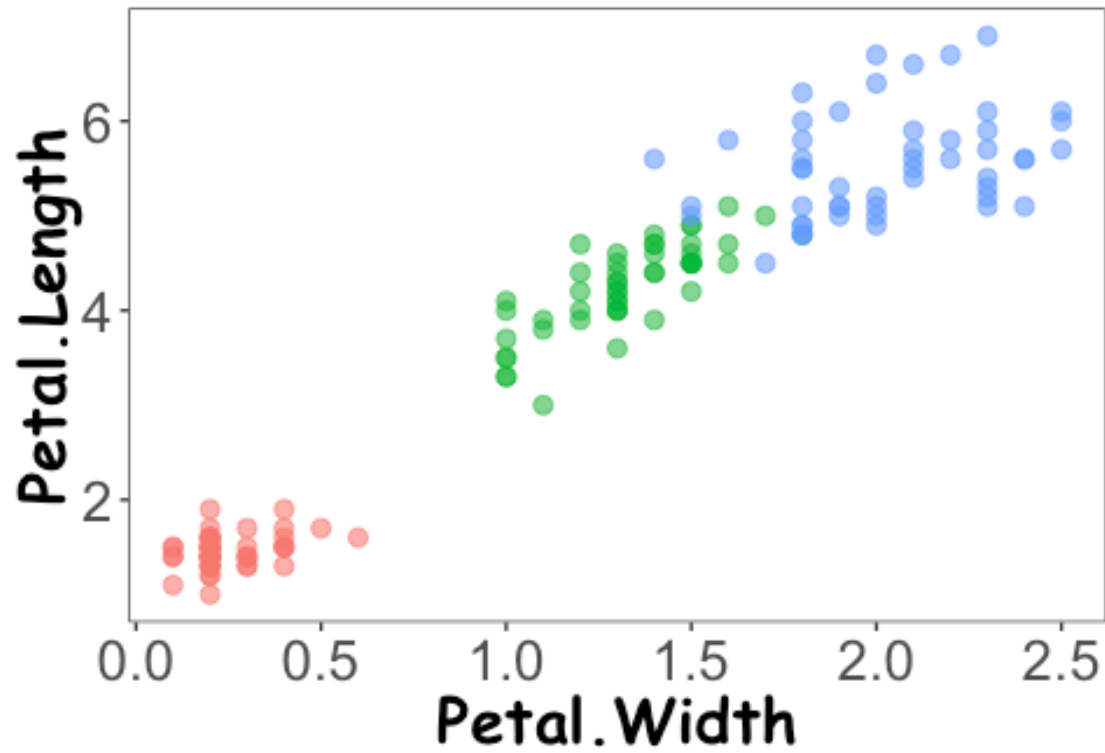



```
irisboxplot + theme_void()
```



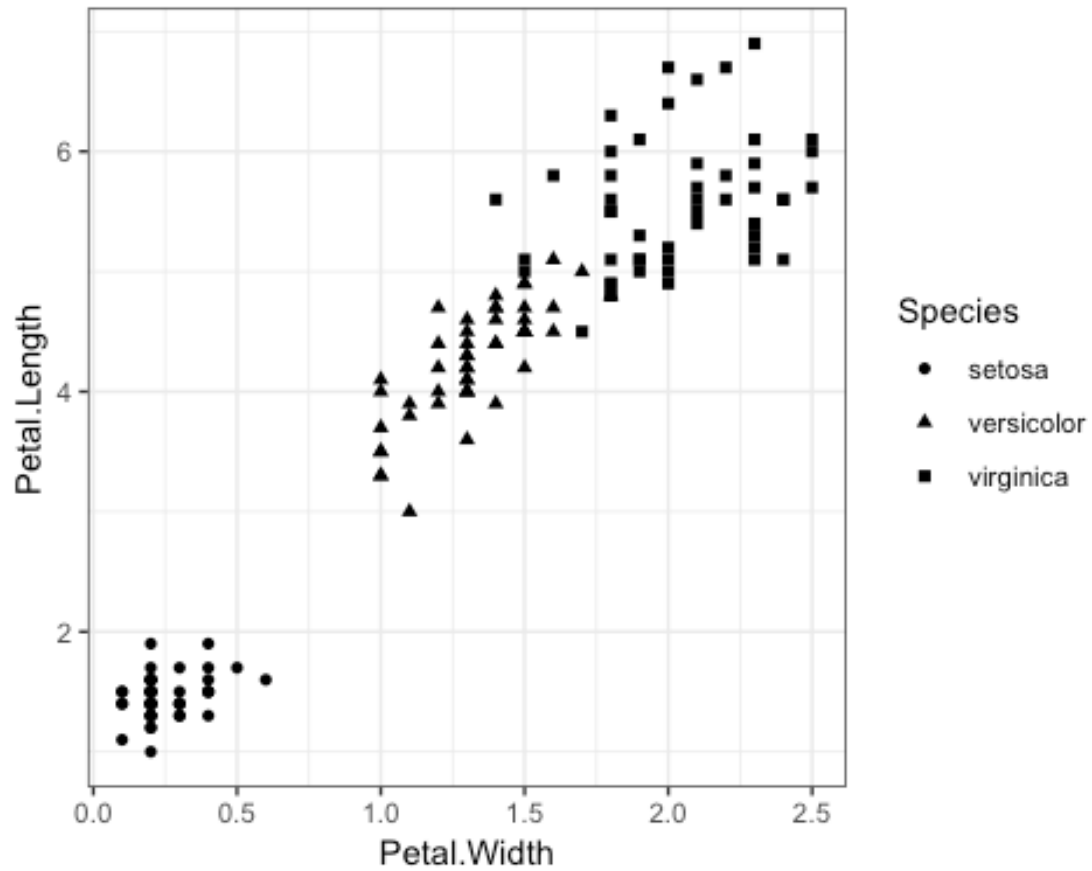
Slide 17 - 19 Customising your plot but less is more!

```
ggplot(data = iris, aes(x = Petal.Width, y = Petal.Length, color = Species))
+ geom_point(size = 2.5, alpha = 0.6) +
  theme_bw() + theme(legend.position = "bottom",
                    legend.text = element_text(size = 12, family="Comic
Sans MS"),
                    legend.title = element_text(size = 12, face = "bold" ,
family= "Comic Sans MS"), panel.grid.major = element_blank(),
                    panel.grid.minor = element_blank(),axis.text=
element_text(size = 18),
                    axis.title= element_text(size = 20,face = "bold",
family="Comic Sans MS"))
```



Species ● setosa ● versicolor ● virginica

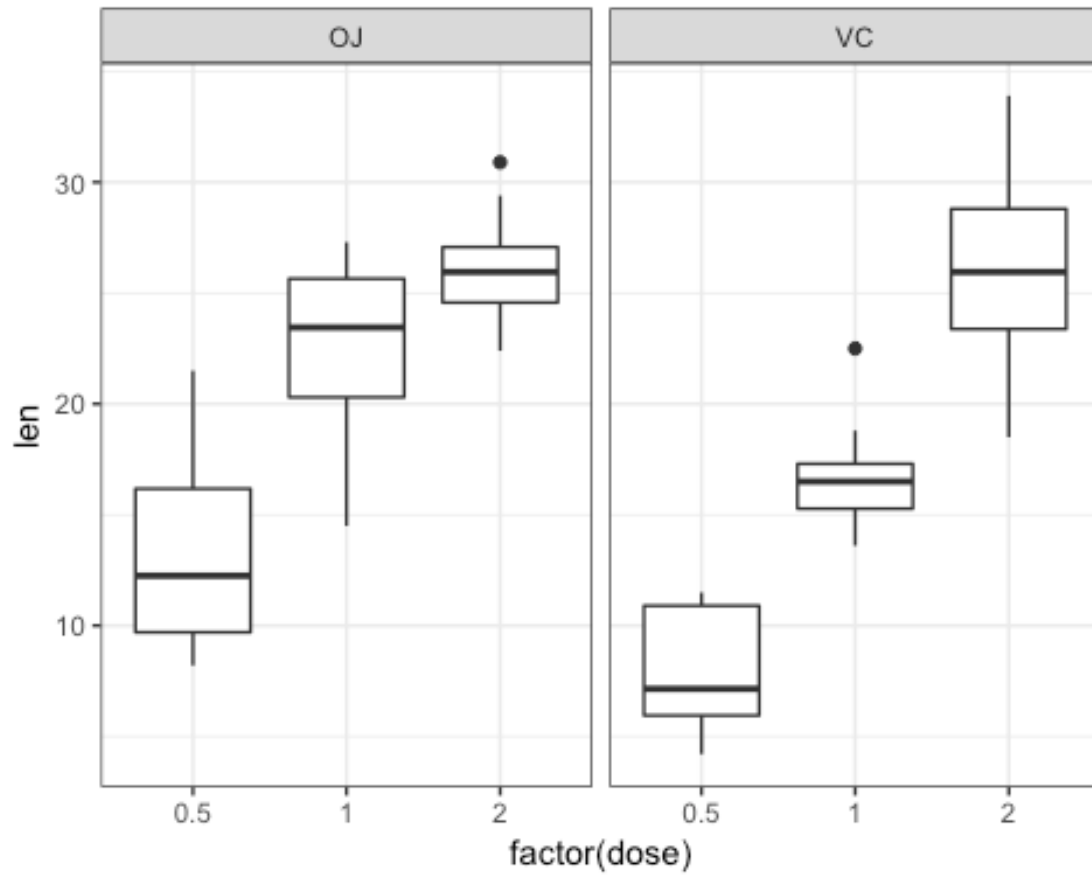
```
ggplot(data = iris, aes(x = Petal.Width, y = Petal.Length, shape = Species))  
+ geom_point() +  
  theme_bw()
```



Slide 20 -21 Facets

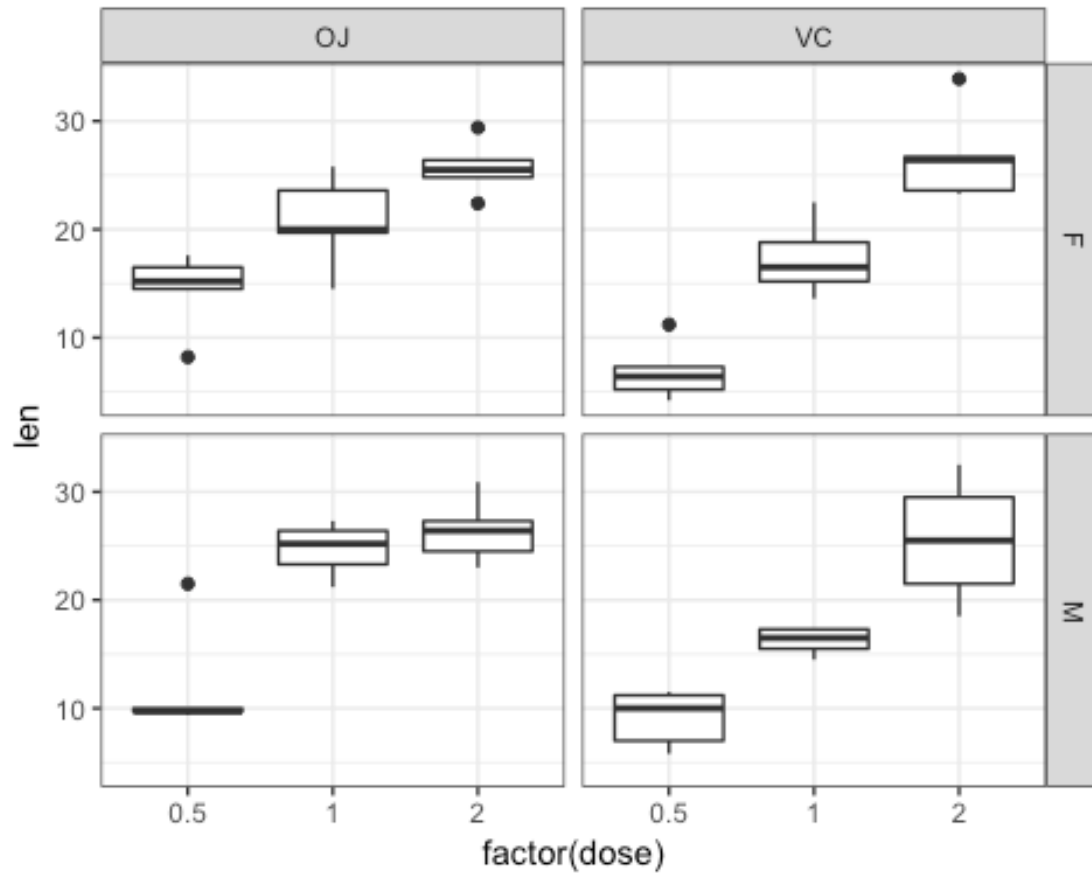
```
Toothplot <- ggplot(data = ToothGrowth, aes(x = factor(dose), y = len)) +
  geom_boxplot() +
  theme_bw()
```

```
Toothplot + facet_wrap(~supp)
```



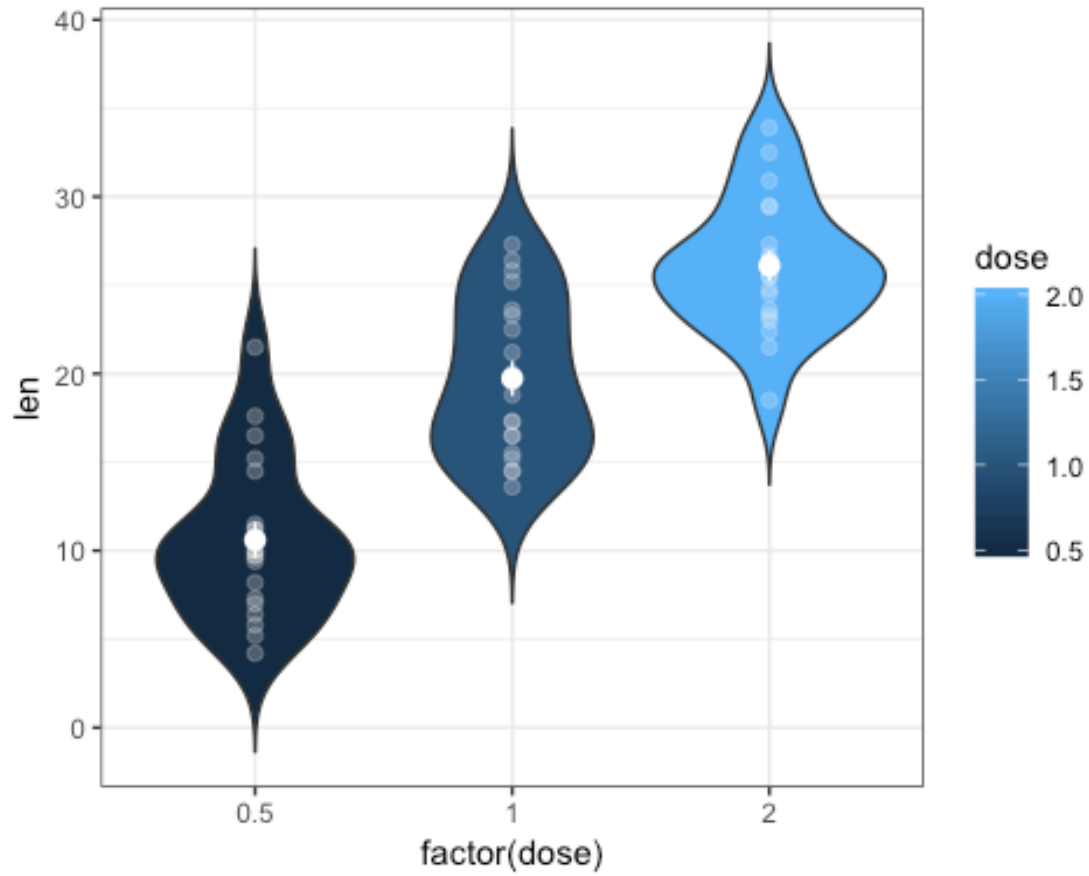
```
ToothGrowth$Sex <- rep(c("F", "M"), 2, 30) #Creating some fake sex data
```

```
ggplot(data = ToothGrowth, aes(x = factor(dose), y = len)) +
  geom_boxplot() +
  facet_grid(Sex ~supp) +
  theme_bw()
```

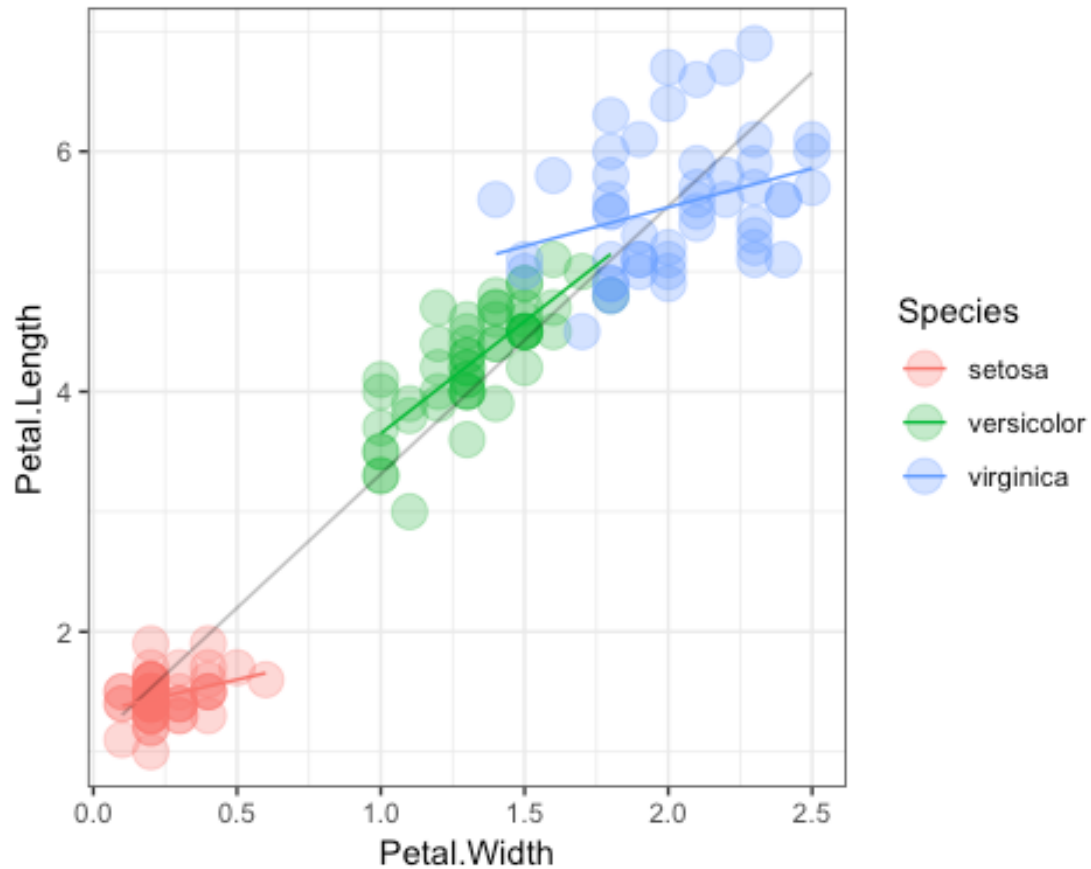


Slide 22 - 23 Built in functions

```
ggplot(data = ToothGrowth,
aes(x = factor(dose), y = len, fill = dose)) +
  geom_violin(trim = F) +
  geom_point(col = "white", size = 2, alpha = 0.2) +
  stat_summary(fun.data = "mean_se", col = "white") +
  theme_bw()
```



```
ggplot(data = iris, aes(x = Petal.Width, y = Petal.Length)) +
  geom_point(aes(color = Species), size = 5, alpha = 0.3) +
  geom_line(stat="smooth", method = "lm", alpha = 0.3) +
  geom_line(aes(group = Species, colour = Species), stat="smooth", method =
"lm", lwd = 0.5) +
  theme_bw()
```

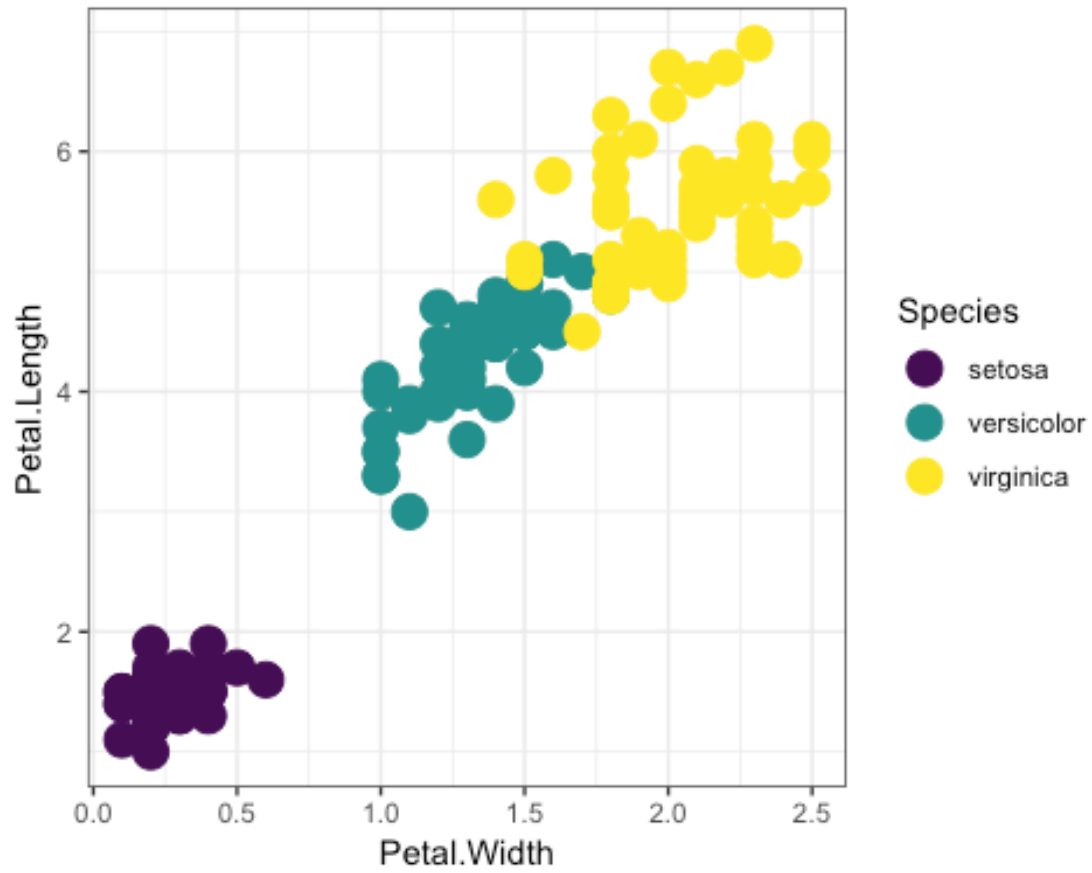


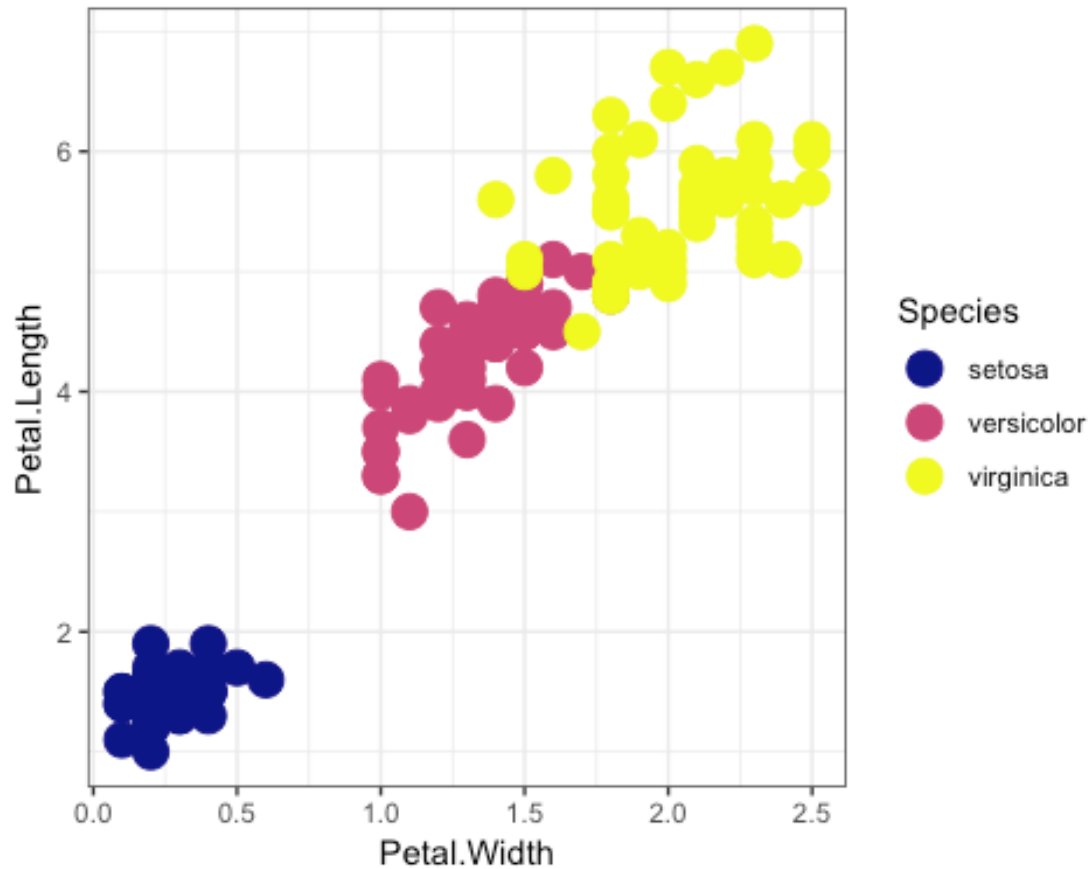
Slide 26 -27 Working with palettes

```
library(viridis)
```

```
irisplot <- ggplot(data = iris, aes(x = Petal.Width, y = Petal.Length, color  
= Species)) +  
  geom_point(size = 5) +  
  theme_bw()
```

```
irisplot + scale_color_viridis(discrete = T)
```



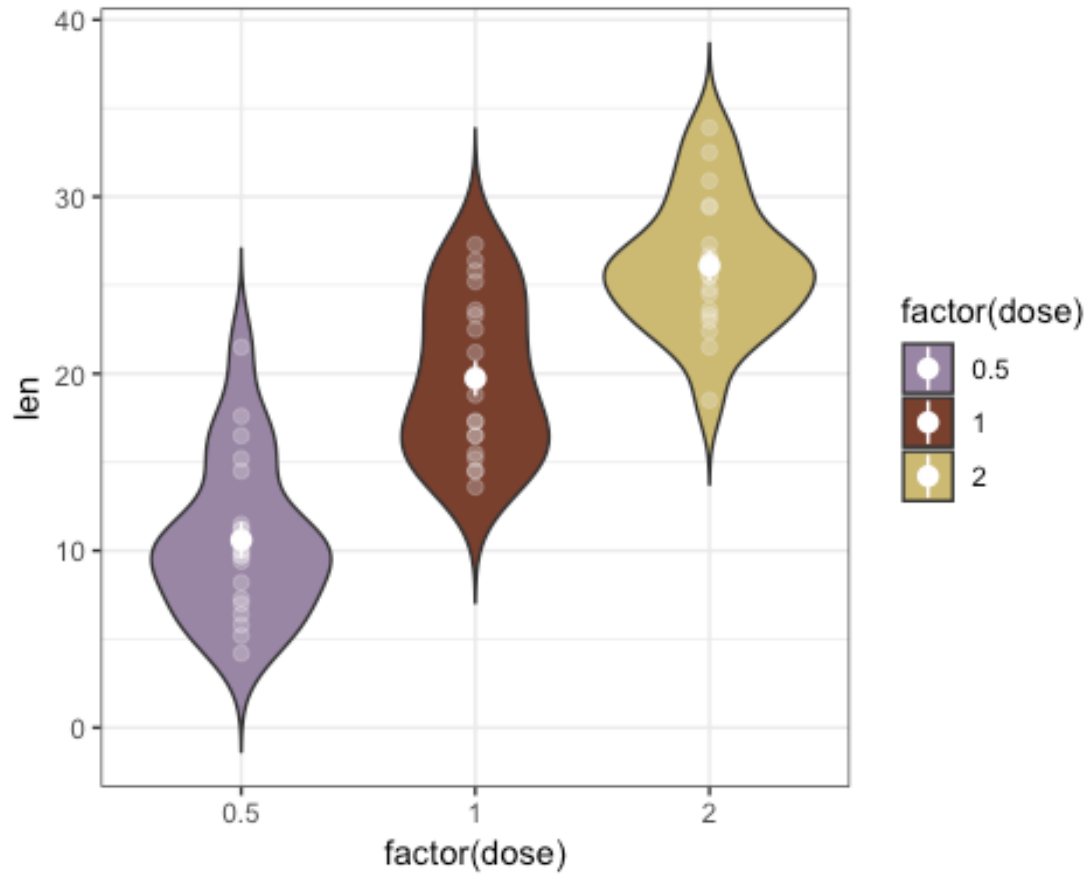
```

devtools::install_github("karthik/wesanderson")
library(wesanderson)

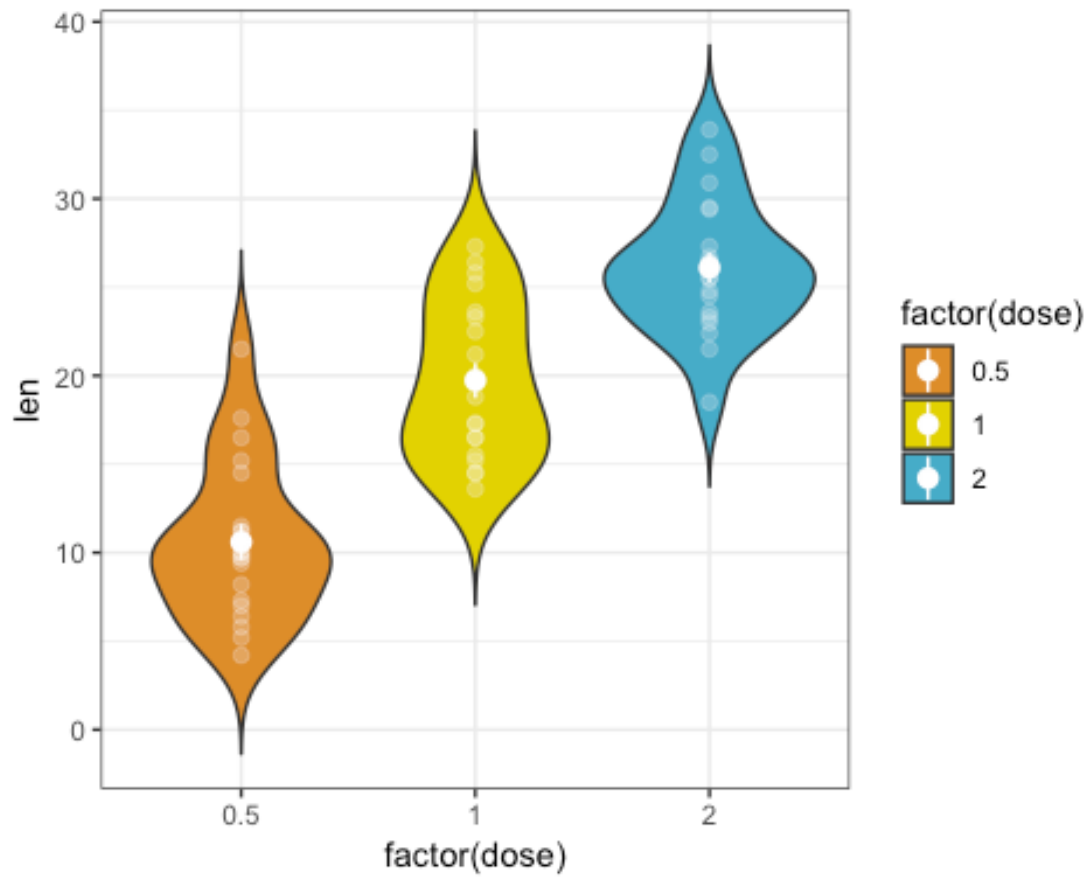
toothplot <- ggplot(data = ToothGrowth, aes(x = factor(dose), y = len, fill =
factor(dose))) +
  geom_violin(trim = F) +
  geom_point(col = "white", size = 2, alpha = 0.2) +
  stat_summary(fun.data = "mean_se", col = "white") +
  theme_bw()

toothplot + scale_fill_manual(values = wes_palette("IsleofDogs1"))

```



```
toothplot + scale_fill_manual(values = wes_palette("FantasticFox1"))
```



```
toothplot + scale_fill_manual(values = wes_palette("Cavalcanti"))
```

