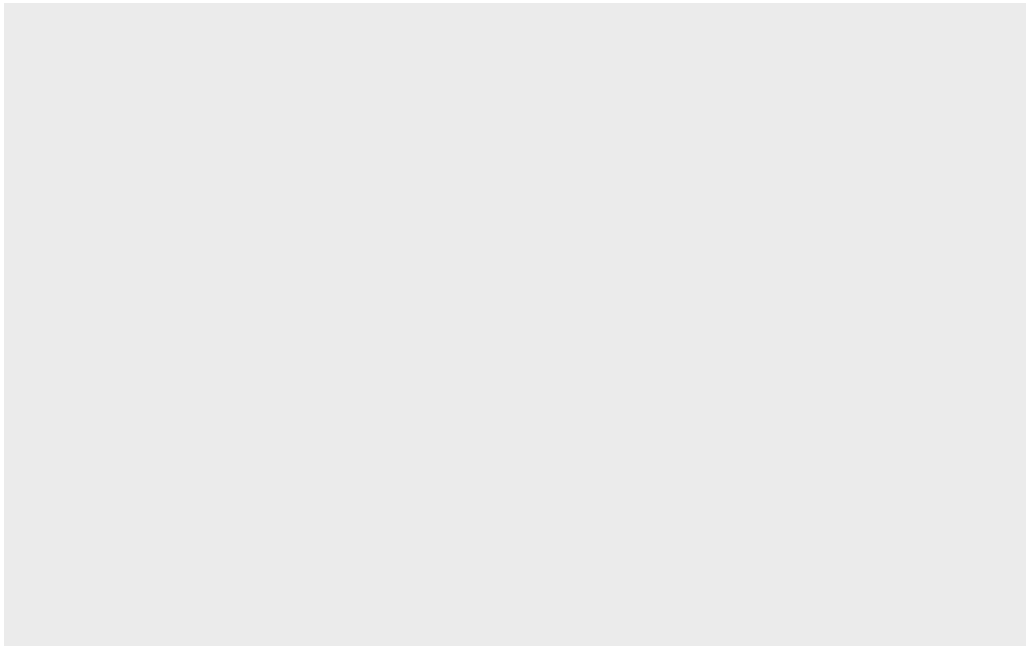


Class 5: Data Visualization

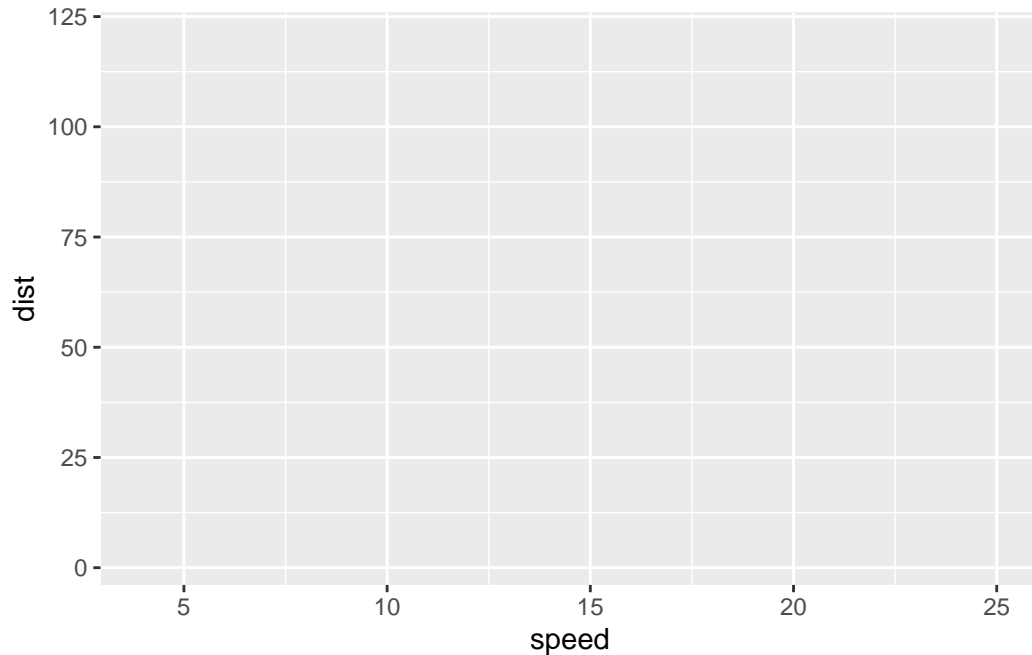
Jackie

```
##Using GGplot #if you don't have a library, download it by using 'install.packages('
```

```
library(ggplot2)  
ggplot(cars)
```



```
ggplot(cars) +  
  aes(x=speed, y=dist)
```



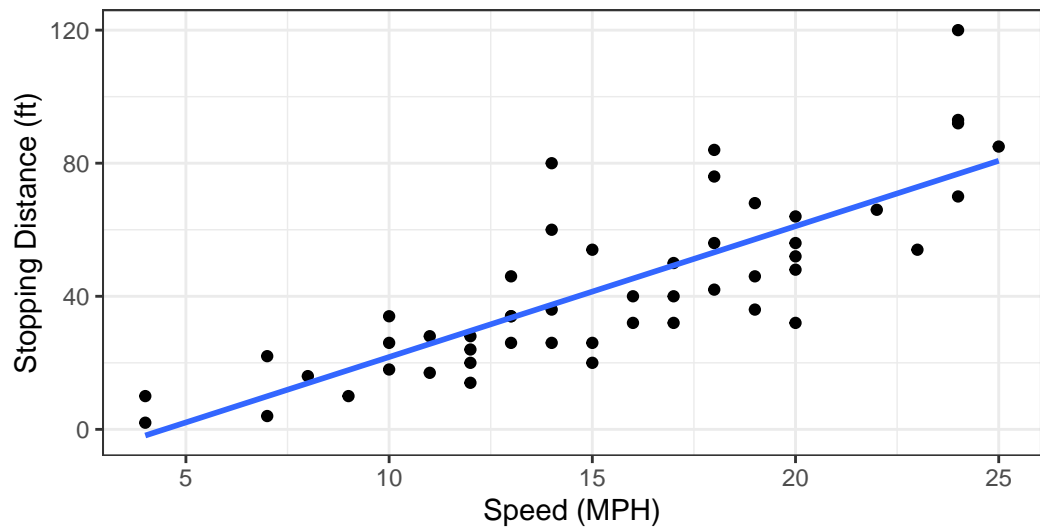
As we can see above we don't have any points in our plot yet. Adding them is the job of the `geom_point()` function discussed next.

```
ggplot(cars) +  
  aes(x=speed, y=dist) +  
  geom_point() +  
  geom_smooth(method="lm", se=FALSE) +  
  theme_bw() +  
  labs(title="Speed and Stopping Distances of Cars",  
        x="Speed (MPH)",  
        y="Stopping Distance (ft)",  
        subtitle = "Speed vs distance",  
        caption="Dataset: 'cars'")
```

``geom_smooth()`` using formula = 'y ~ x'

Speed and Stopping Distances of Cars

Speed vs distance



Dataset: 'cars'

```
#GENES DATASET
```

```
url <- "https://bioboot.github.io/bimm143_S20/class-material/up_down_expression.txt"
genes <- read.delim(url)
head(genes)
```

	Gene	Condition1	Condition2	State
1	A4GNT	-3.6808610	-3.4401355	unchanging
2	AAAS	4.5479580	4.3864126	unchanging
3	AASDH	3.7190695	3.4787276	unchanging
4	AATF	5.0784720	5.0151916	unchanging
5	AATK	0.4711421	0.5598642	unchanging
6	AB015752.4	-3.6808610	-3.5921390	unchanging

```
nrow(genes)
```

```
[1] 5196
```

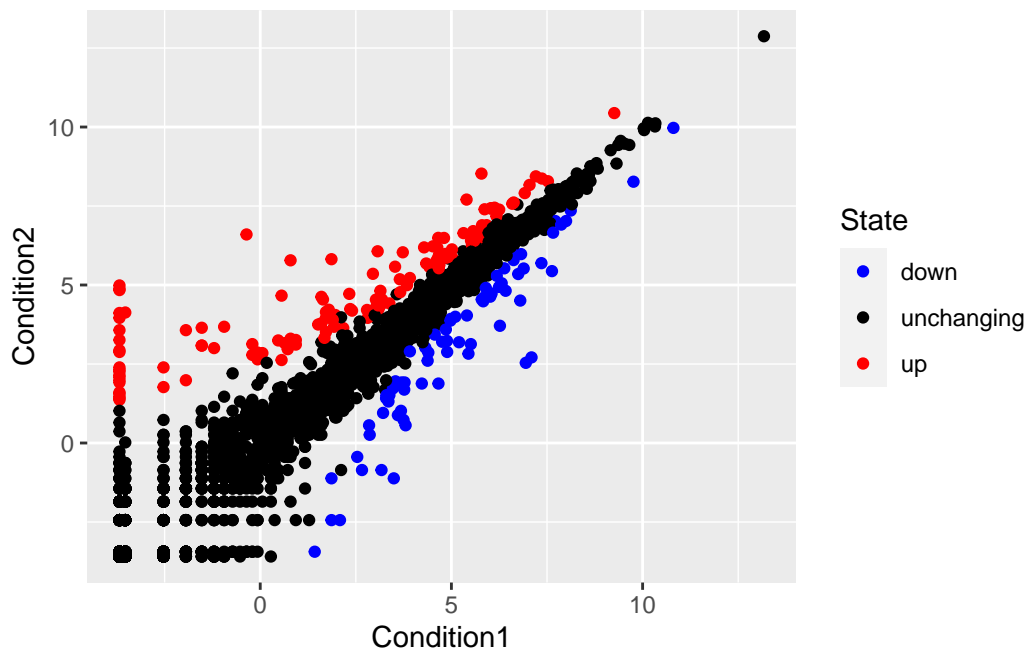
```
ncol(genes)
```

[1] 4

```
table(genes$State)
```

down	unchanging	up
72	4997	127

```
p<- ggplot(genes) +  
  aes(x=Condition1, y=Condition2,col=State) +  
  geom_point()  
  
p+ scale_colour_manual( values=c("blue","black","red") )
```



7 going further

File location online

```
url <- "https://raw.githubusercontent.com/jennybc/gapminder/master/inst/extdata/gapminder.
gapminder <- read.delim(url)

library(dplyr)
```

Attaching package: 'dplyr'

The following objects are masked from 'package:stats':

filter, lag

The following objects are masked from 'package:base':

intersect, setdiff, setequal, union

```
gapminder_2007 <- gapminder %>% filter(year==2007)

gapminder_2007_gg<-ggplot(gapminder_2007)+
  aes(x=gdpPercap,y=lifeExp,color=continent,size=pop)+
  geom_point(alpha=.5)+
  scale_size_area(max_size = 10)
```

#2007 vs 1957

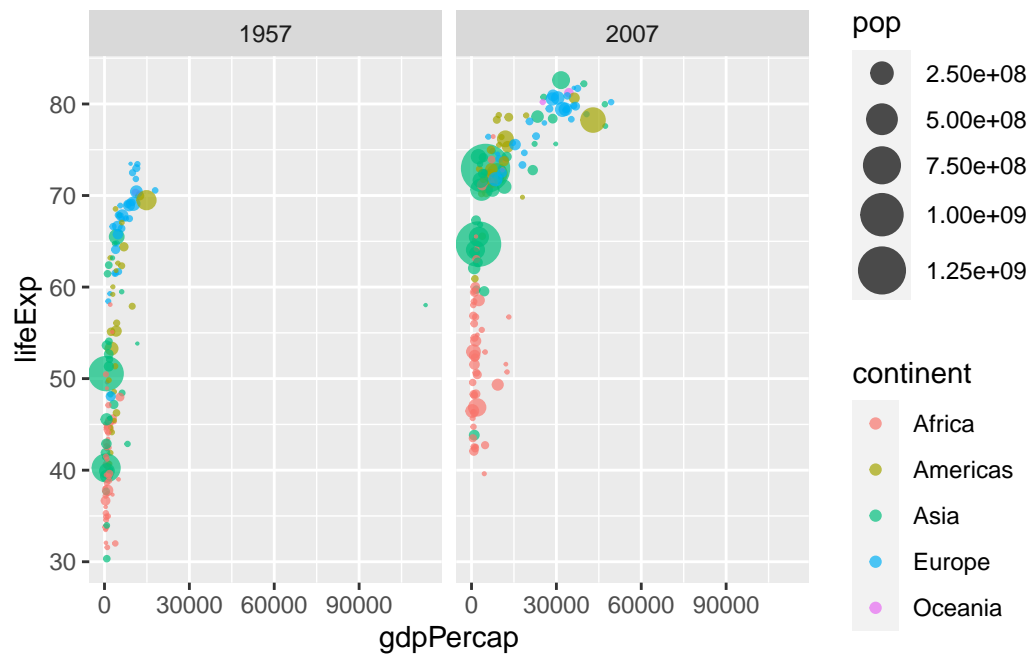
```
gapminder_1957 <- gapminder %>% filter(year==1957)

gapminder_1957_gg<- ggplot(gapminder_1957)+
  aes(x=gdpPercap,y=lifeExp,color=continent,size=pop)+
  geom_point(alpha=.7)+
  scale_size_area(max_size = 10)

gapminder_1957 <- gapminder %>% filter(year==1957 | year==2007)

ggplot(gapminder_1957) +
  geom_point(aes(x = gdpPercap, y = lifeExp, color=continent,
                 size = pop), alpha=0.7) +
  scale_size_area(max_size = 8) +
```

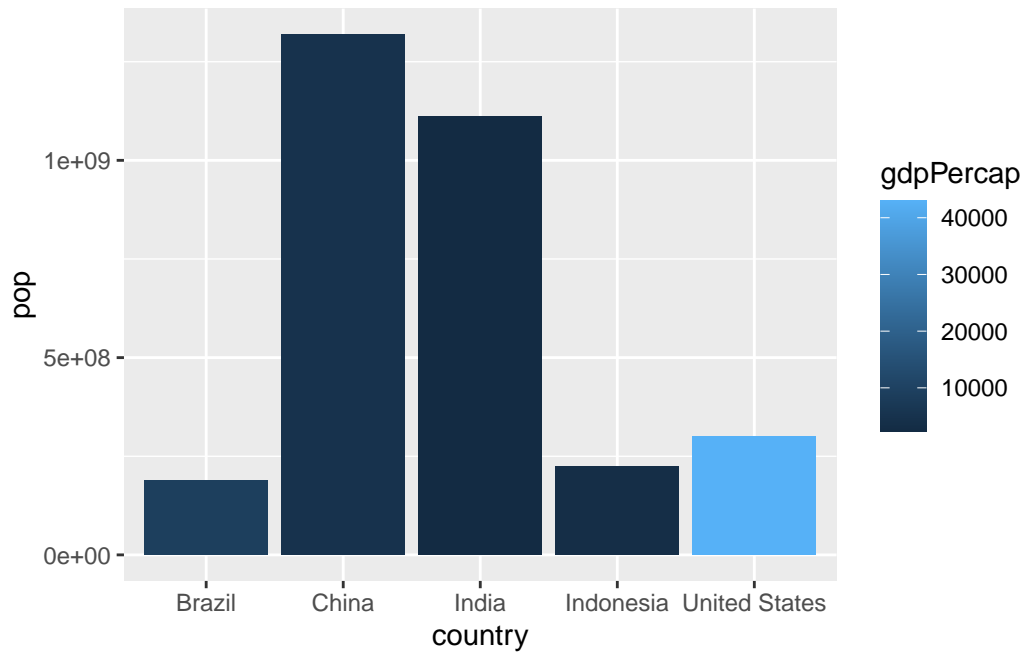
```
facet_wrap(~year)
```



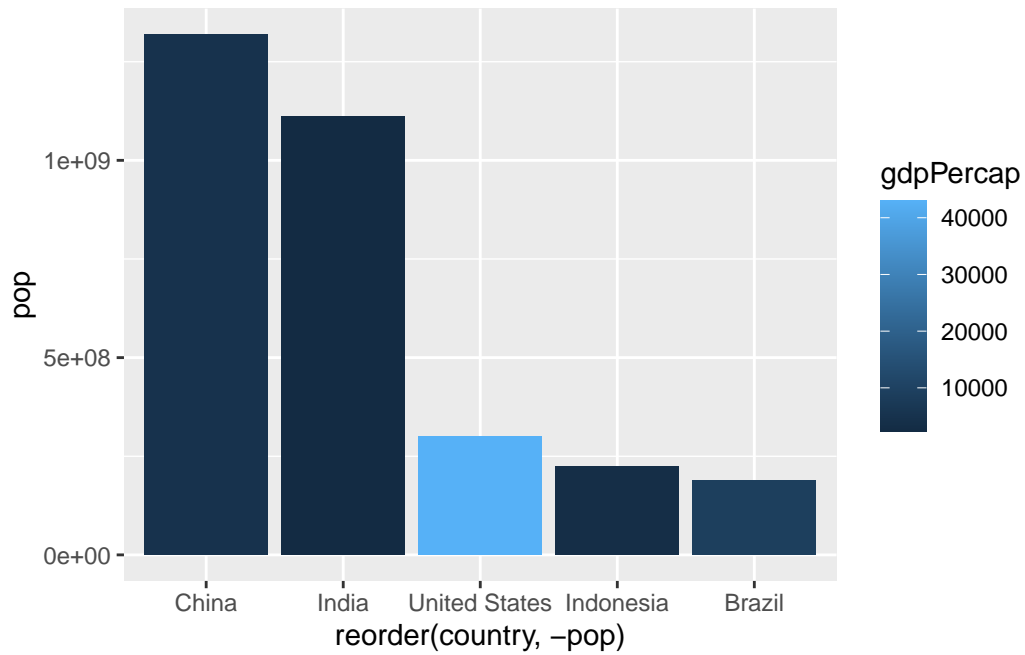
#BAR CHARTS

```
gapminder_top5 <- gapminder %>%
  filter(year==2007) %>%
  arrange(desc(pop)) %>%
  top_n(5, pop)

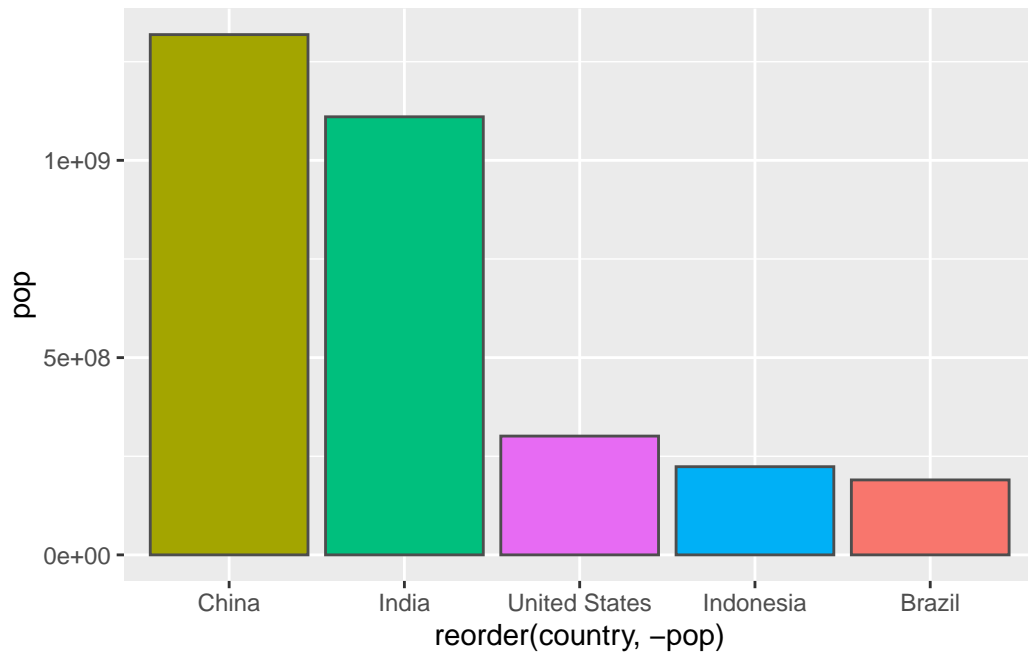
ggplot(gapminder_top5) +
  geom_col(aes(x = country, y = pop, fill=gdpPercap))
```



```
ggplot(gapminder_top5) +  
  aes(x=reorder(country, -pop), y=pop, fill=gdpPercap) +  
  geom_col()
```



```
ggplot(gapminder_top5) +  
  aes(x=reorder(country, -pop), y=pop, fill=country) +  
  geom_col(col="gray30") +  
  guides(fill="none")
```

```
head(USArrests)
USArrests$State <- rownames(USArrests)
ggplot(USArrests) + aes(x=reorder(State,Murder),
y=Murder) + geom_col() + coord_flip()
```

```
ggplot(USArrests) + aes(x=reorder(State,Murder), y=Murder) + geom_point() +
geom_segment(aes(x=State, xend=State, y=0, yend=Murder), color="blue") + co-
ord_flip()
```