Class 5: Data Visuaization with GGPLOT

Alma

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Our first plot **1**

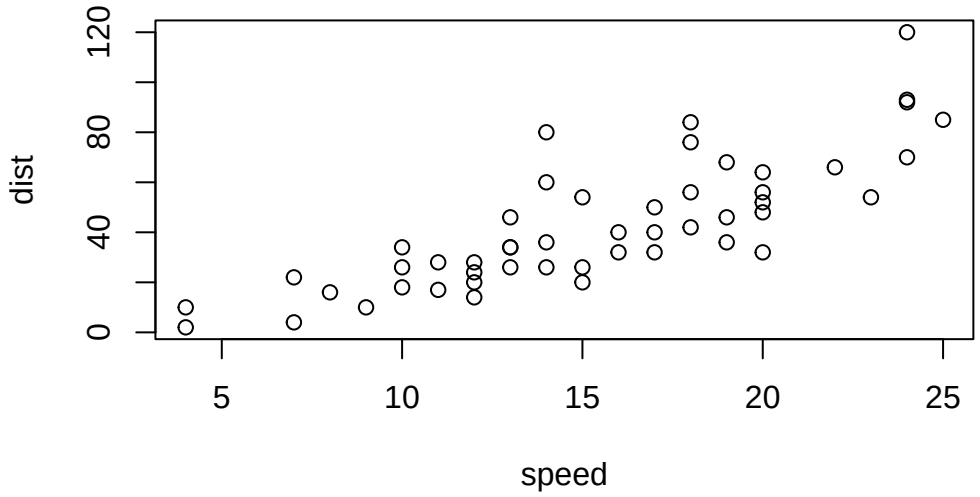
Our first plot

R has base graphics

```
head (cars)
```

```
  speed dist
1     4    2
2     4   10
3     7    4
4     7   22
5     8   16
6     9   10
```

```
plot (cars)
```



How would I plot this with `ggplot2`? No, need to install using `install.packages()` function. Don't install in the code chunk since you will render the function every time. You can add a `#`

Before I can use this package I need to load with a `library()` call.

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

Every ggplot needs at least 3 layers:

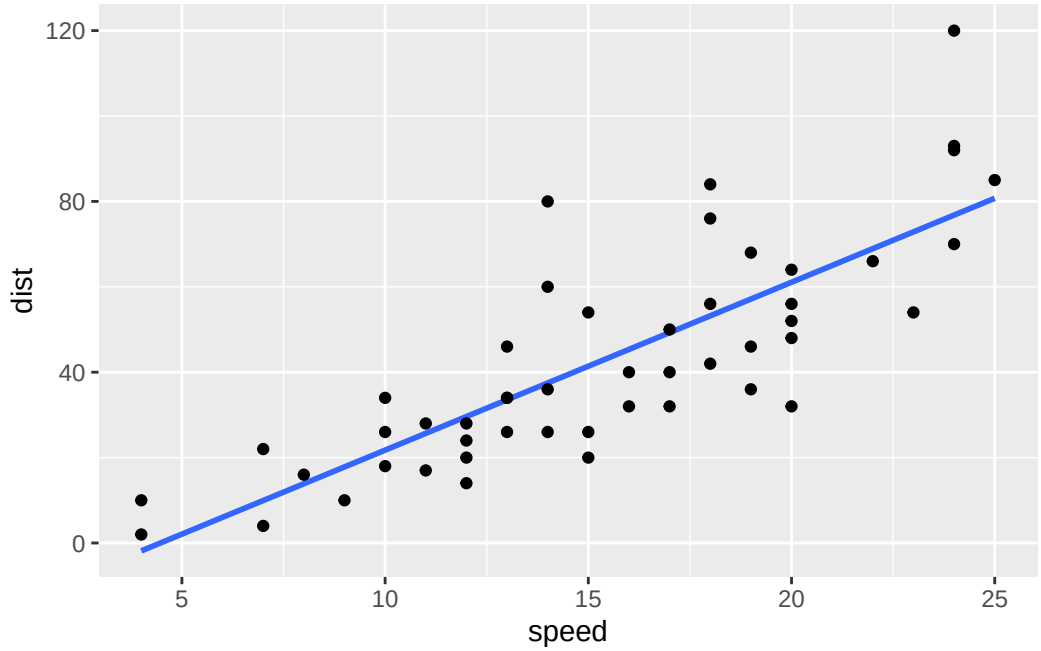
-**Data** (i.e. the data frame we have)

-**Aesthetic** (the aesthetic mapping of our data to what we want to plot)

-**Geoms**(how we want to plot this stuff)

```
ggplot(data=cars) +
  aes(x=speed,y=dist) +
geom_smooth(method = lm, se = FALSE) + geom_point()
```

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




```
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
```

Q1. how many genes are in this dataset?

```
nrow(genes)
```

```
[1] 5196
```

There are 5196 genes in this data set.

```
colnames(genes)
```

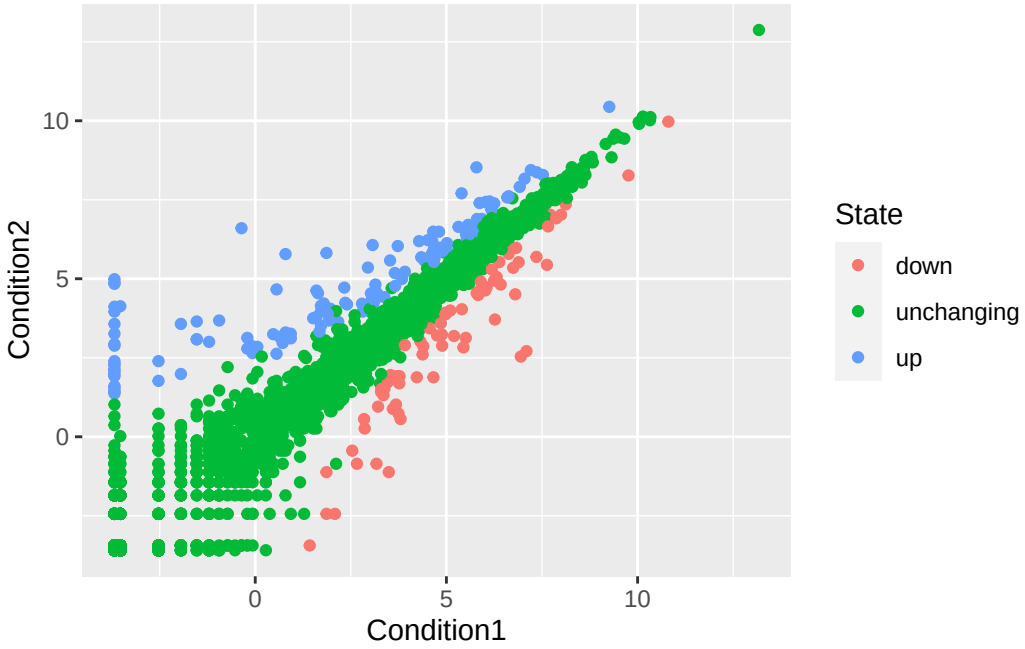
```
[1] "Gene"       "Condition1" "Condition2" "State"
```

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

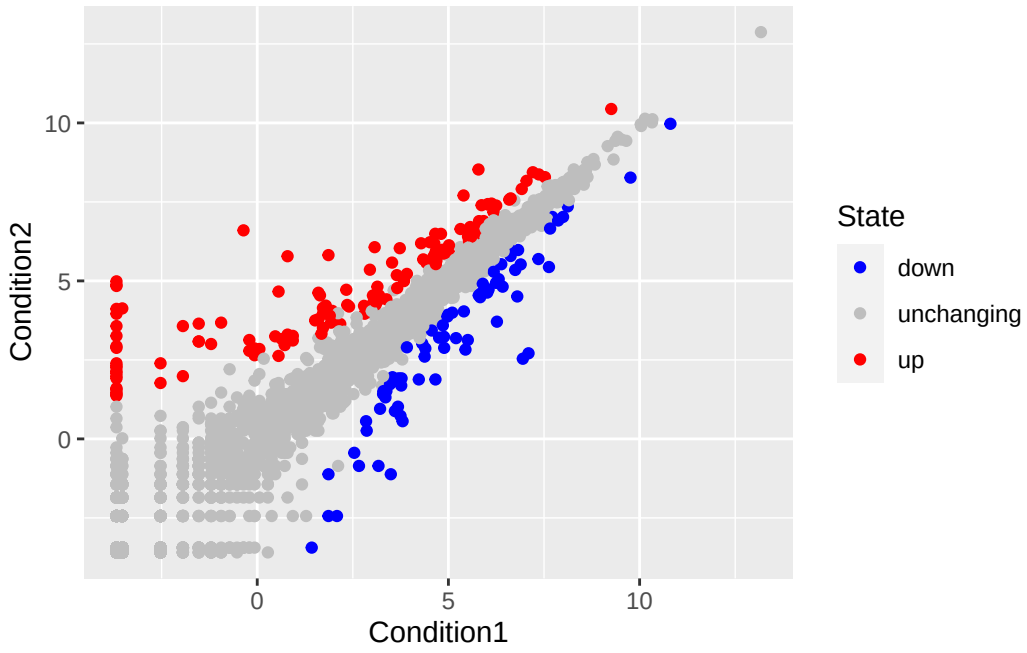
```
    down unchanging         up
      72       4997        127
```

```
p <- ggplot(genes) +
  aes(x=Condition1, y=Condition2, col=State) +
  geom_point()
```

```
p
```



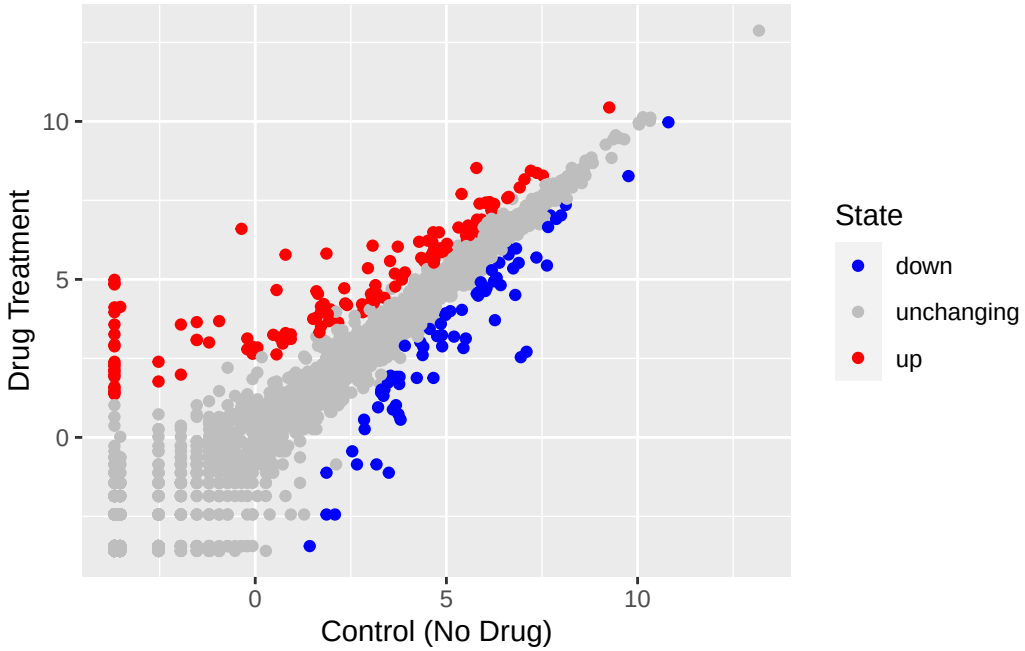
```
c <- p + scale_colour_manual( values=c("blue","gray","red") )

c
```



Alpha has to be in the geom_point to make the points transparent

To change the axis labels from Condition1 to Control, you have to use `lab(x = "Control")`

```
c + labs(x = "Control (No Drug)", y = "Drug Treatment")
```


Drug Treatment
10
5
0
0
5
10
Control (No Drug)
State
down
unchanging
up