

## Case Study 3

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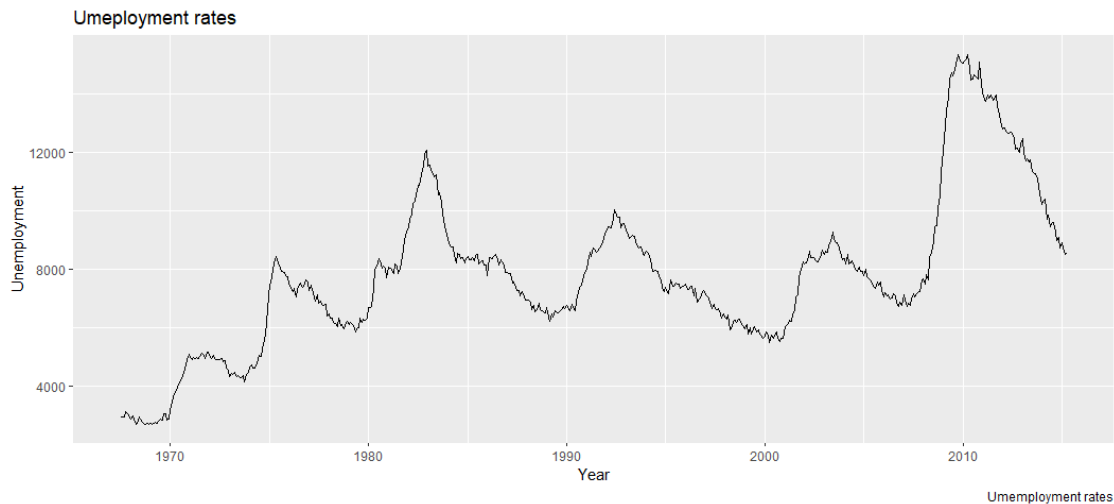
4/19/2020

### Class Practice - 8

```
library(ggplot2)
library(ggforce)
library(gghighlight)
```

1. plot the following graph and label as shown: `ggplot(economics, aes(date, unemploy)) + geom_line() + labs(title=caption, y="Unemployment", x="Year")`

```
ggplot(economics, aes(date, unemploy)) + geom_line() + labs(title="Unemployment rates", y="Unemployment", x="Year", caption = "Unemployment rates")
```



### 2 Plot following program to annotate the graph

```
p <- ggplot(mpg, aes(displ, cty)) +
  geom_point(data = filter(mpg, manufacturer == "audi"), colour = "red",
    size = 3
  ) + geom_point()
```

```
## Warning in data.matrix(data): NAs introduced by coercion
```

```
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```

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```

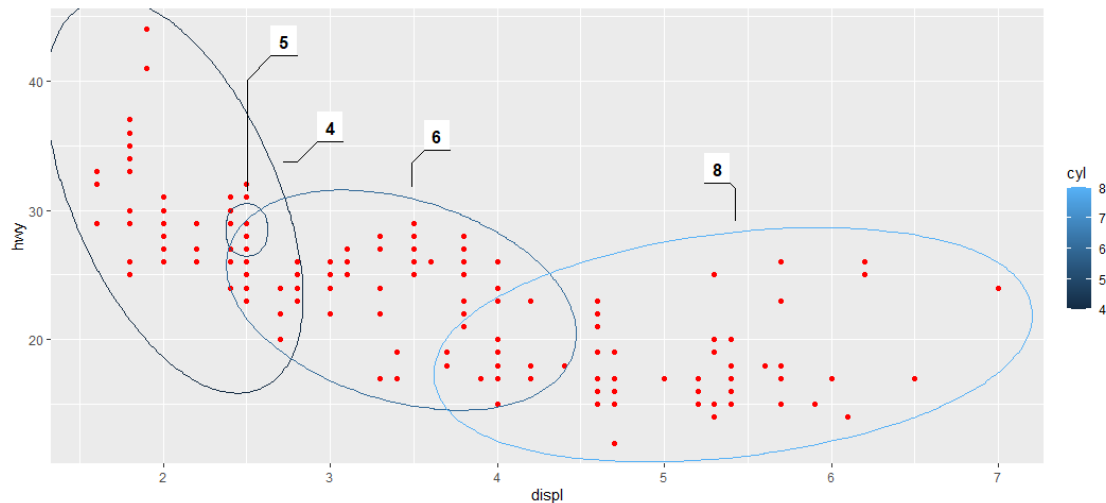
```
## Warning in data.matrix(data): NAs introduced by coercion
```

```
## Warning in data.matrix(data): NAs introduced by coercion
## Warning in data.matrix(data): NAs introduced by coercion
## Error in filter(mpg, manufacturer == "audi"): object 'manufacturer' not found
und

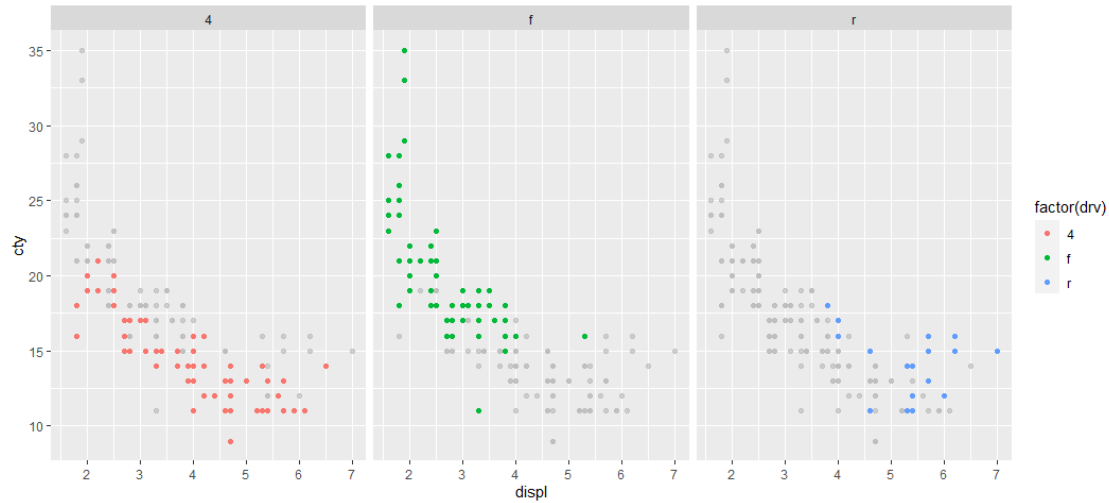
p +
  annotate(
    geom = "curve", x = 3, y = 35, xend = 2.8, yend = 20,
    curvature = .3, arrow = arrow(length = unit(2, "mm"))
  ) +
  annotate(geom = "text", x = 3.1, y = 35, label = "Audi", hjust = "left")

## Error in eval(expr, envir, enclos): object 'p' not found

ggplot(mpg, aes(displ, hwy)) +
  geom_point(colour = "red") +
  ggforce::geom_mark_ellipse(aes(label = cyl, group = cyl, color = cyl))
```



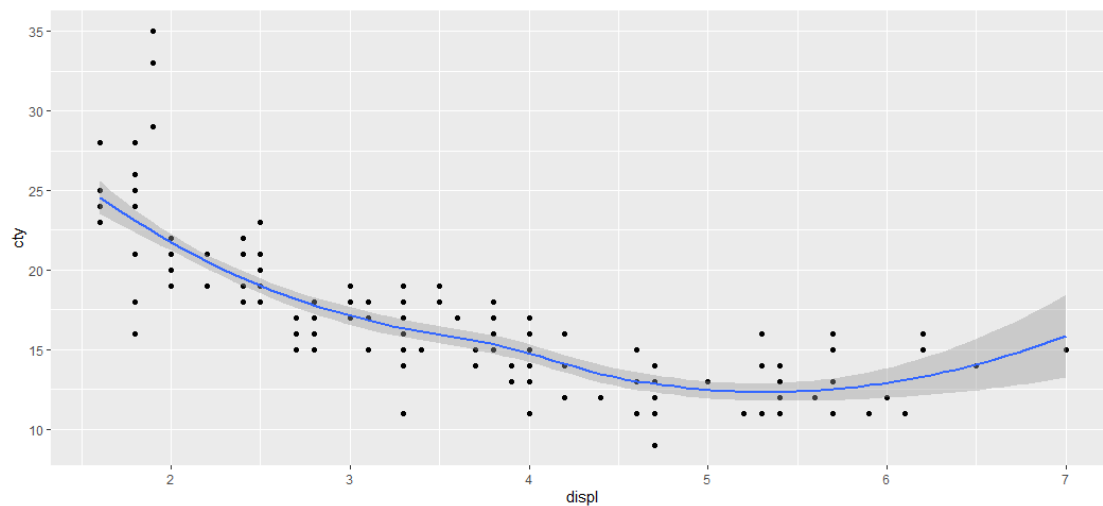
```
ggplot(mpg, aes(displ, cty,
  colour = factor(drv))) +
  geom_point() +
  gghighlight::gghighlight() +
  facet_wrap(vars(drv))
```



### 3 Try following plot

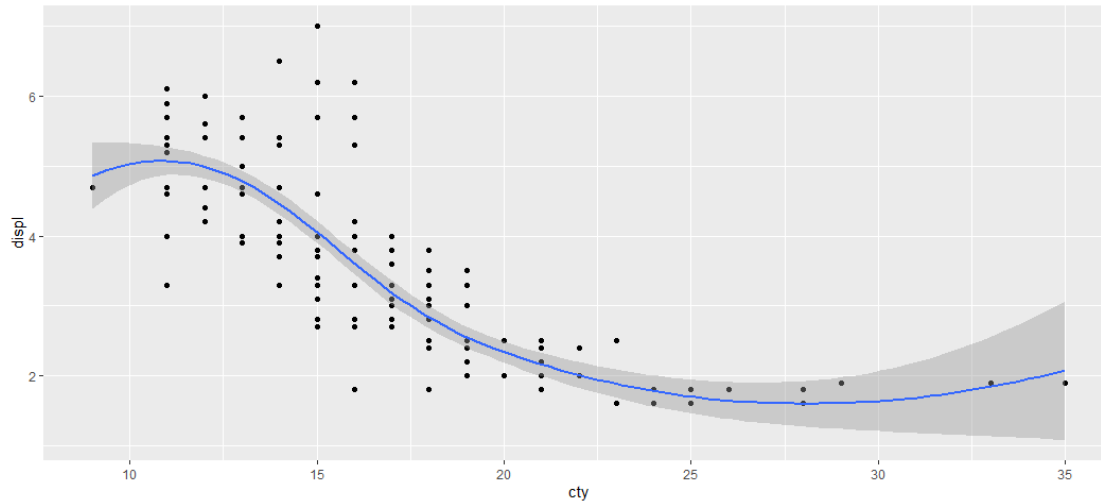
```
#Plot 1:
ggplot(mpg, aes( displ,cty)) +
  geom_point() +
  geom_smooth()

## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



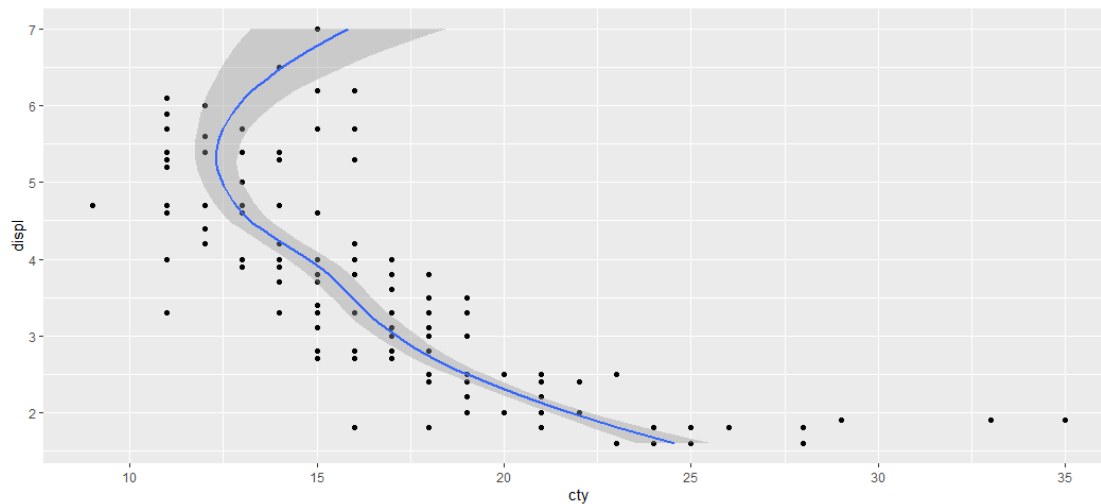
```
#Plot 2:
ggplot(mpg, aes(cty,displ)) +
  geom_point() +
  geom_smooth()

## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



```
#Plot 3:
ggplot(mpg, aes(displ, cty)) +
  geom_point() +
  geom_smooth() +
  coord_flip()

## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



#### 4. Using “Annotation” discussed earlier, highlight car type “Honda”

```
h <- ggplot(mpg, aes(displ, cty)) +
  geom_point(
    data = filter(mpg, manufacturer == "honda"),
    colour = "green",
    size = 3
  ) + geom_point() + theme_minimal()

## Warning in data.matrix(data): NAs introduced by coercion
## Warning in data.matrix(data): NAs introduced by coercion
```

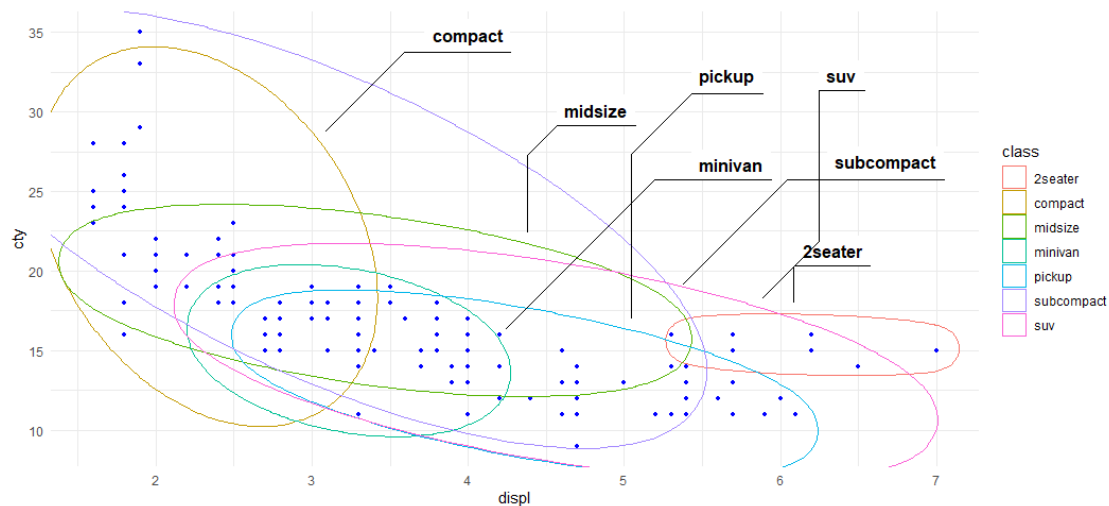
```
## Warning in data.matrix(data): NAs introduced by coercion
## Warning in data.matrix(data): NAs introduced by coercion
## Warning in data.matrix(data): NAs introduced by coercion
## Warning in data.matrix(data): NAs introduced by coercion
## Error in filter(mpg, manufacturer == "honda"): object 'manufacturer' not found

h + annotate(
  geom = "curve", x = 4, y = 27, xend = 2.05, yend = 21.5,
  curvature = .3, arrow = arrow(length = unit(3, "mm"))
) + annotate(geom = "text", x = 4.02, y = 27, label = "Honda", hjust = "left", colour = "red")

## Error in eval(expr, envir, enclos): object 'h' not found
```

## 5. Using ggforce() to highlight the “Class” of cars on “City” mileage based on engine (displ)

```
ggplot(mpg, aes(displ, cty)) +
  geom_point(size = 1, colour = "blue") + theme_minimal() +
  ggforce::geom_mark_ellipse(aes(label = class, group = class, color = class))
```



## 6. Using gghighlight() cluster “transmission” type

```
ggplot(mpg, aes(displ, cty,
  colour = factor(trans))) +
  geom_point(size = 1) + theme_minimal() +
  gghighlight::gghighlight() +
  facet_wrap(vars(trans))
```

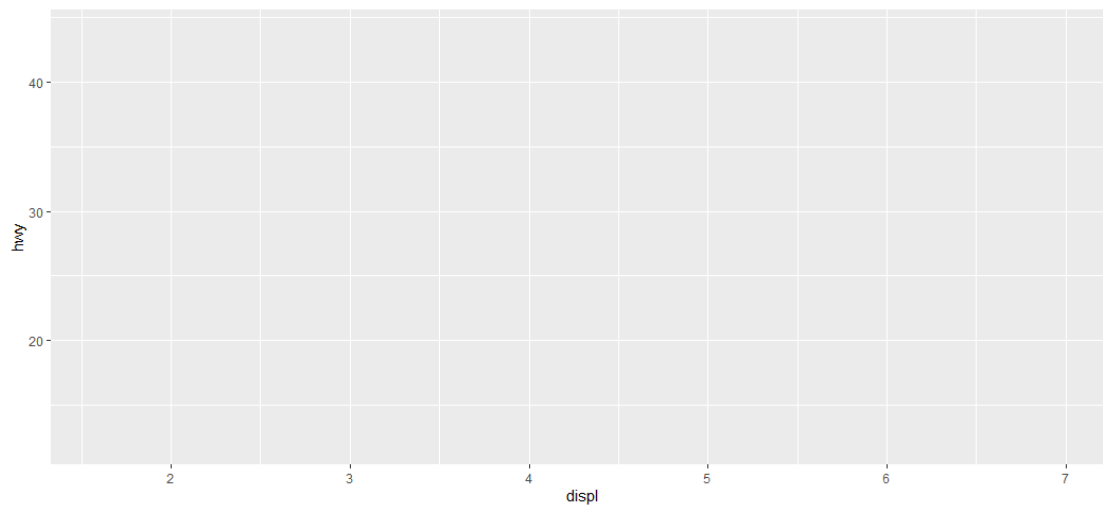


## Class Practice - 9

### Building layers:

1. Execute the following commands to build the first layer: `p<-ggplot(mpg, aes(displ, hwy))`

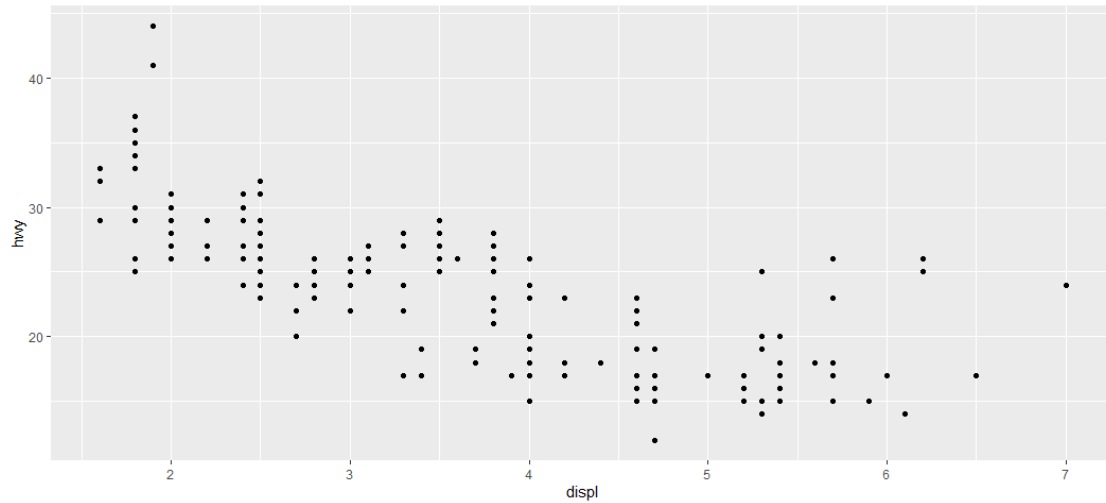
```
p<-ggplot(mpg, aes(displ, hwy))
p
```



2 Add

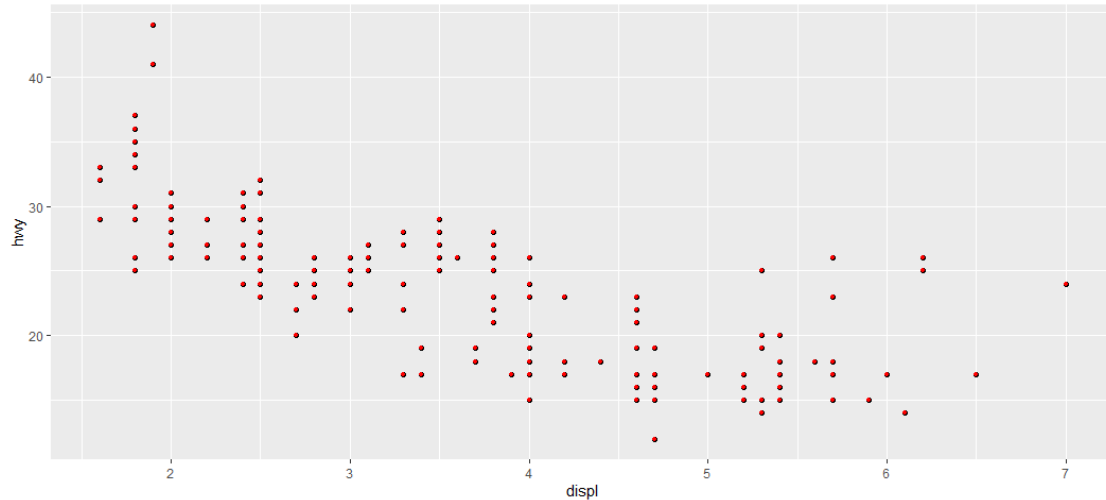
aesthetics to the plot:

```
p + layer(
  mapping = NULL,
  data = NULL,
  geom = "point",
  stat = "identity",
  position = "identity"
)
```



### 3. Can you change “colour” of points?

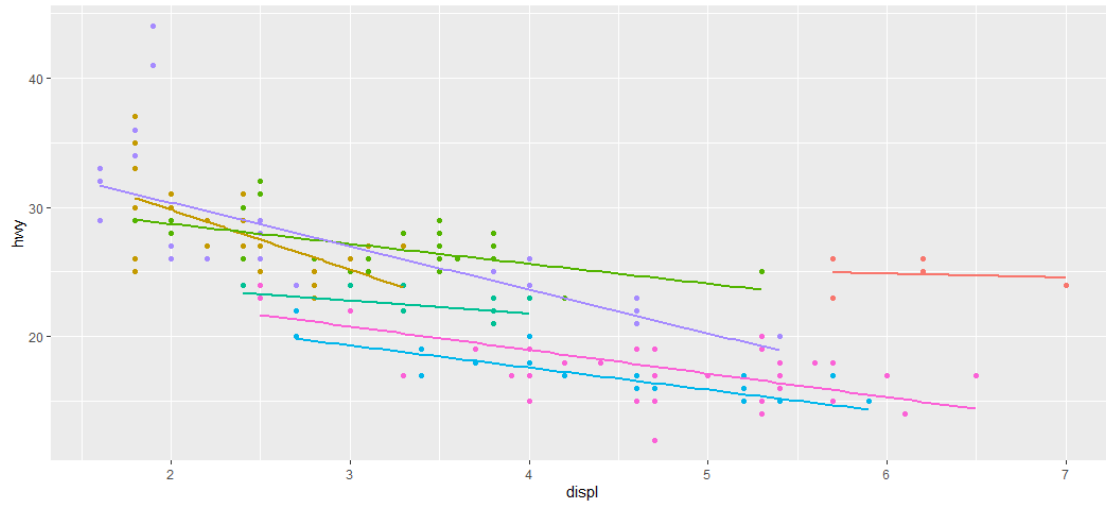
```
ggplot(mpg, aes(displ, hwy))+ layer(
  mapping = NULL,
  data = NULL,
  geom = "point",
  stat = "identity",
  position = "identity",
)+ geom_point(size = 1, colour = "red")
```



### 4. Fit the line to the data points by executing following ggplot() program:

```
ggplot(mpg, aes(displ, hwy, colour = class)) +
  geom_point() +
  geom_smooth(method = "lm", se = FALSE) +
  theme(legend.position = "none")

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



## 5. Add two methods in the geom\_smooth

```
ggplot(mpg, aes(displ, hwy)) +  
  geom_point(aes(colour = class)) +  
  geom_smooth(method = "lm", se = FALSE) +  
  theme(legend.position = "none")
```

## `geom\_smooth()` using formula 'y ~ x'

