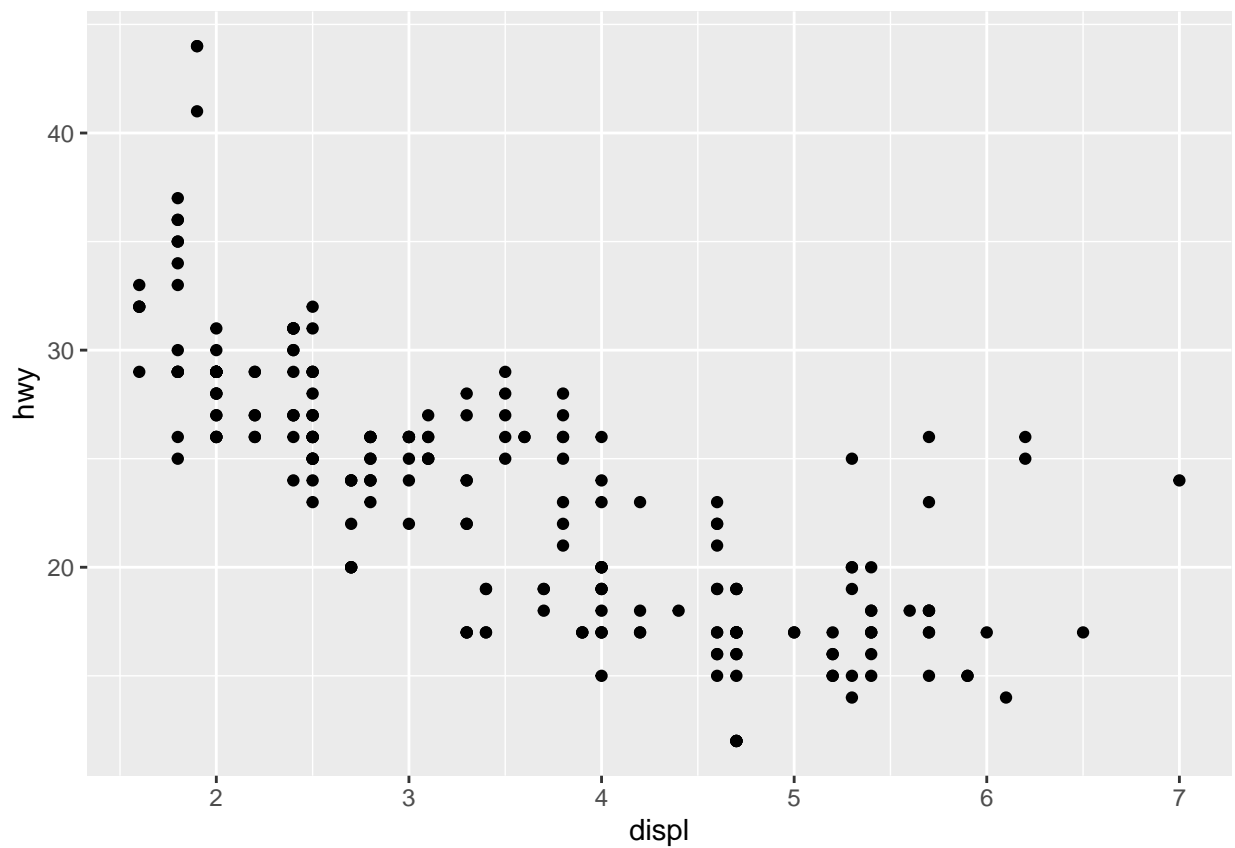# Chapter 3

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```
library(ggplot2)
ggplot2::ggplot(data=ggplot2::mpg)+
  geom_point(aes(x=displ, y=hwy))
```
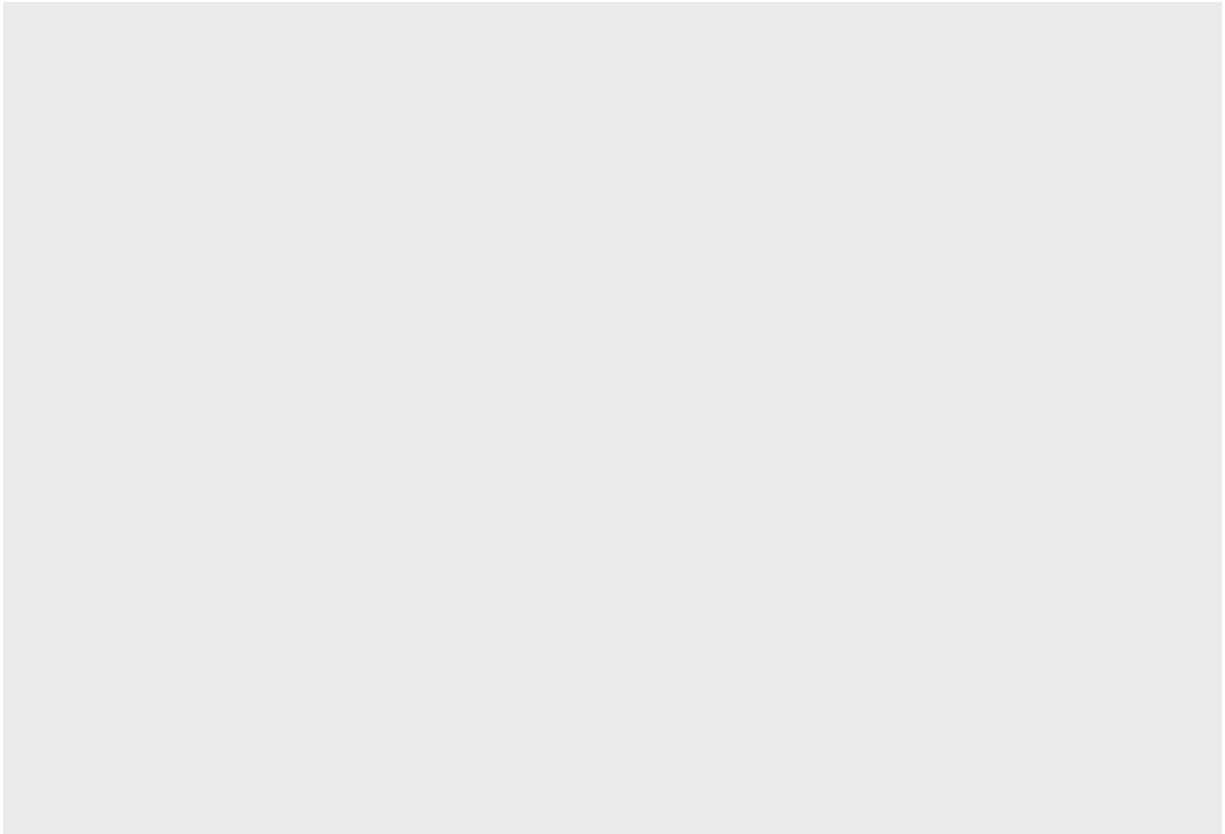

Placing the *aes* inside the ggplot we do not need to restate the variables in the geometry parts. All the aesthetic changes will be made considering the declared dataset. If instead you place the *aes* in the geometry segment, you'll have to change accordly to what type of graph you want.

Exercises 3.2.4

Exercise 1

Run $ggplot(data = mpg)$. **What do you see?**

```
ggplot2::ggplot(data=mpg)
```

We see nothing. Adding just the *ggplot* creates a canvas to which we could add layers upon with further codes, like *geom_point*. —

Exercise 2

How many rows are in mpg**? How many columns?**

```
nrow(mpg)
```

```
## [1] 234
```

```
ncol(mpg)
```

```
## [1] 11
```

Exercise 3

What does the _drv_ variable describe? Read the help for _?mpg_ to find out.
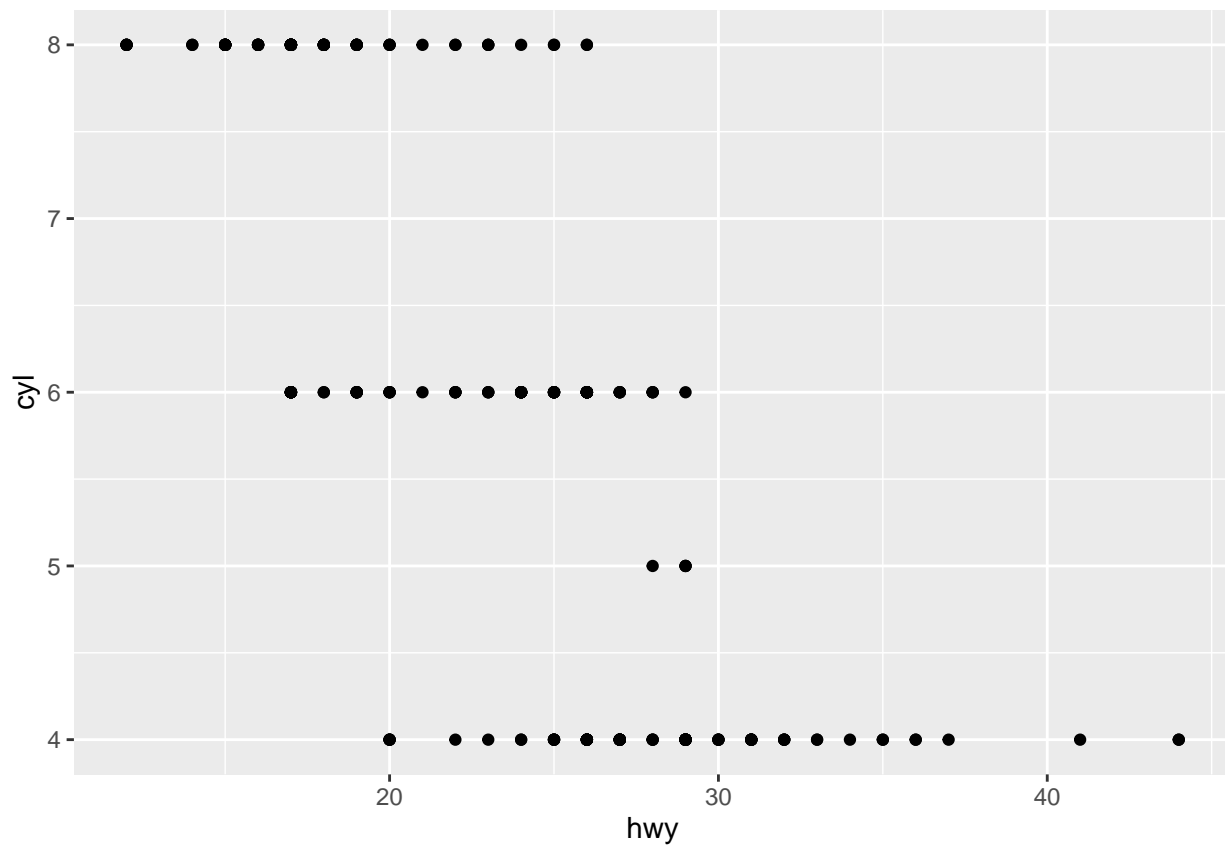
```
?mpg
```

```
## starting httpd help server ... done
```

Adding the question mark before any command takes us to the Help tab. According to the documentation of _mpg_ the _drv_ variable gives us what type of drive train the car uses, wether is front, rear ow four-wheel drive.

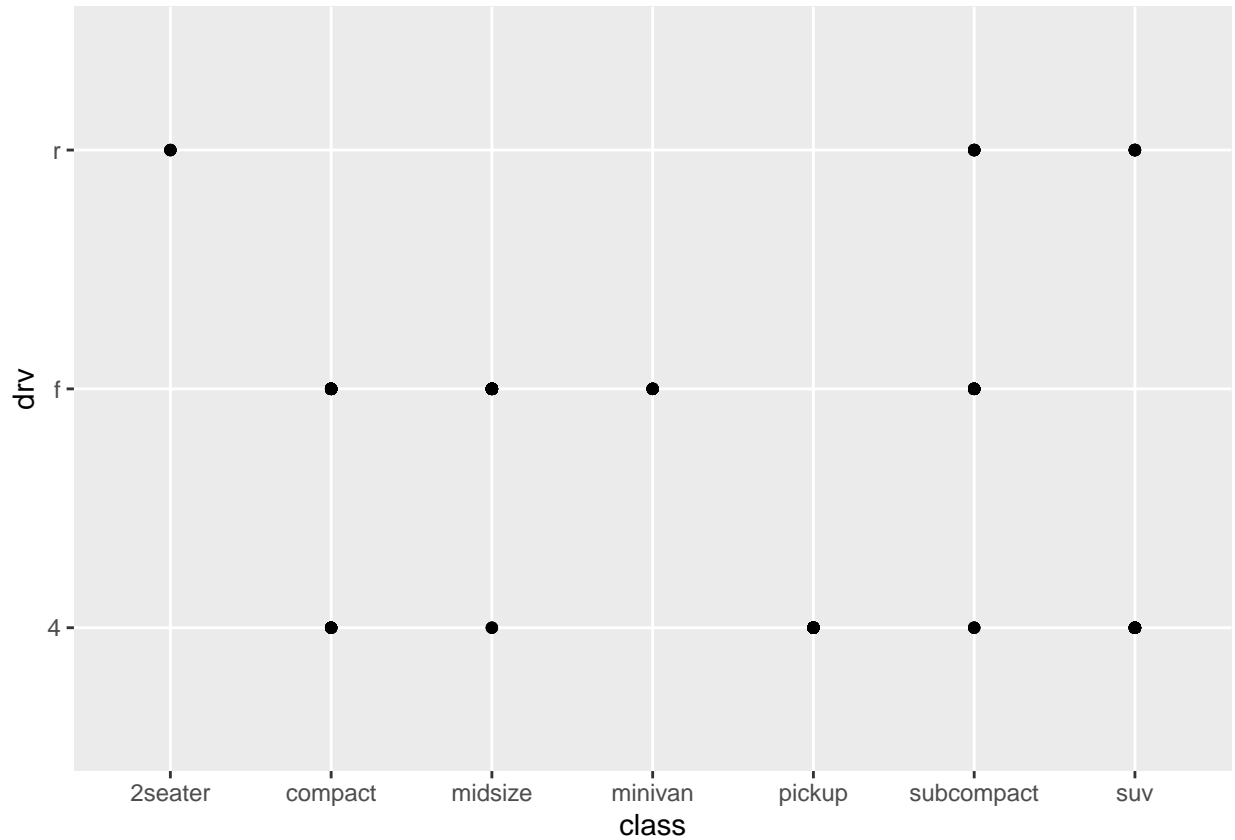
Exercise 4

Make a scatterplot of _hwy_ vs _cyl_.

```
ggplot2::ggplot(data=mpg, aes(x=hwy, y=cyl))+
  geom_point()
```

Exercise 5

What happens if you make a scatterplot of *class* **vs** *drv*? **Why is the plot not useful?**

```
ggplot2::ggplot(data=mpg,aes(x=class, y=drv))+
  geom_point()
```


This scatter plot is not useful since it does not indicate any pattern. No inference can be made with this graph.