R for Data Science: Exercise 3.2.4

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```r
library(tidyverse)
```

```
## -- Attaching packages ----------------------------------------------------------------------- ti
## v ggplot2 3.3.0     v purrr   0.3.4
## v tibble  3.0.0     v dplyr   0.8.5
## v tidyr   1.0.2     v stringr 1.4.0
## v readr   1.3.1     v forcats 0.5.0

## -- Conflicts -------------------------------------------------------------------------------- tidyvers
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```
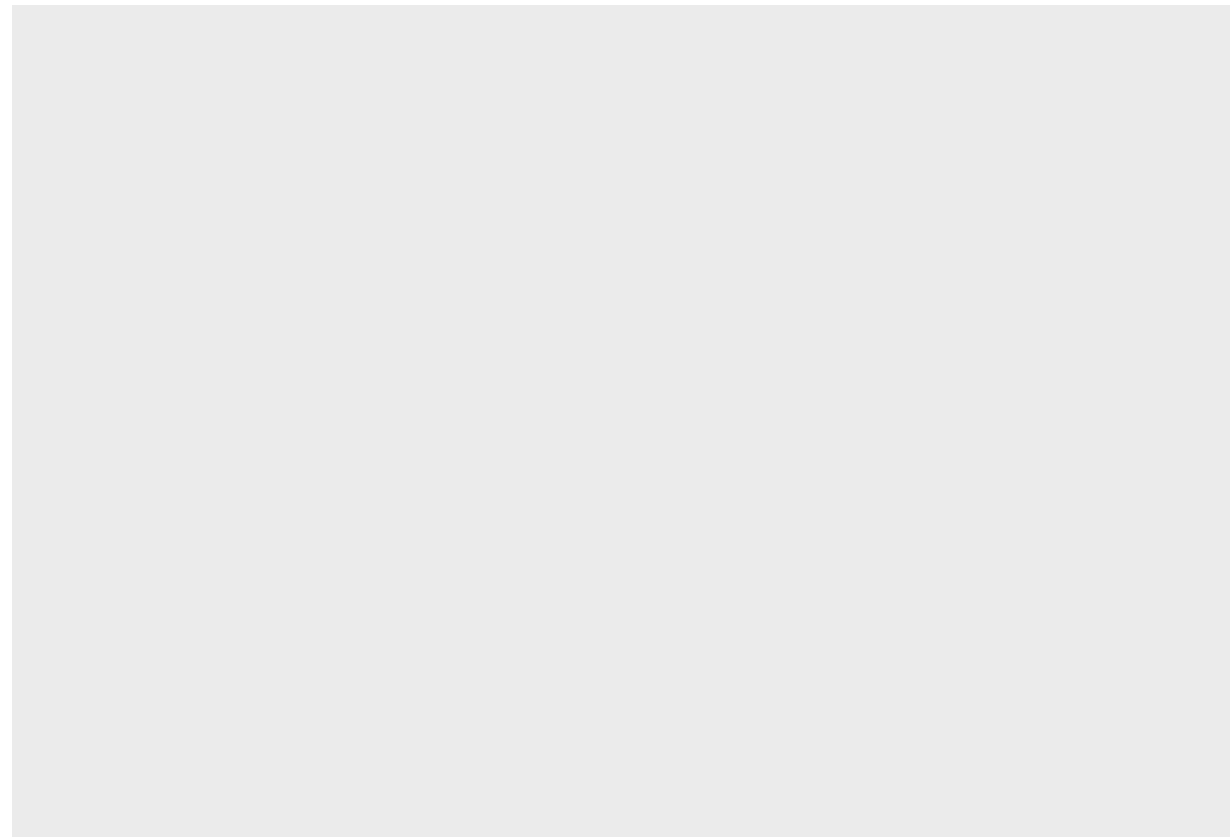
1.

```r
ggplot((data = mpg))
```


The output is an empty graph.

2.

```
ggplot2::mpg
```

```
## # A tibble: 234 x 11
##    manufacturer model    displ  year   cyl trans    drv    cty   hwy fl    class
##    <chr>        <chr>    <dbl> <int> <int> <chr>    <chr> <int> <int> <chr> <chr>
## 1 audi         a4         1.8  1999     4 auto(l~ f        18    29 p     comp~
## 2 audi         a4         1.8  1999     4 manual~ f        21    29 p     comp~
## 3 audi         a4         2    2008     4 manual~ f        20    31 p     comp~
## 4 audi         a4         2    2008     4 auto(a~ f        21    30 p     comp~
## 5 audi         a4         2.8  1999     6 auto(l~ f        16    26 p     comp~
## 6 audi         a4         2.8  1999     6 manual~ f        18    26 p     comp~
## 7 audi         a4         3.1  2008     6 auto(a~ f        18    27 p     comp~
## 8 audi         a4 quat~   1.8  1999     4 manual~ 4        18    26 p     comp~
## 9 audi         a4 quat~   1.8  1999     4 auto(l~ 4        16    25 p     comp~
## 10 audi        a4 quat~   2    2008     4 manual~ 4        20    28 p     comp~
## # ... with 224 more rows
```
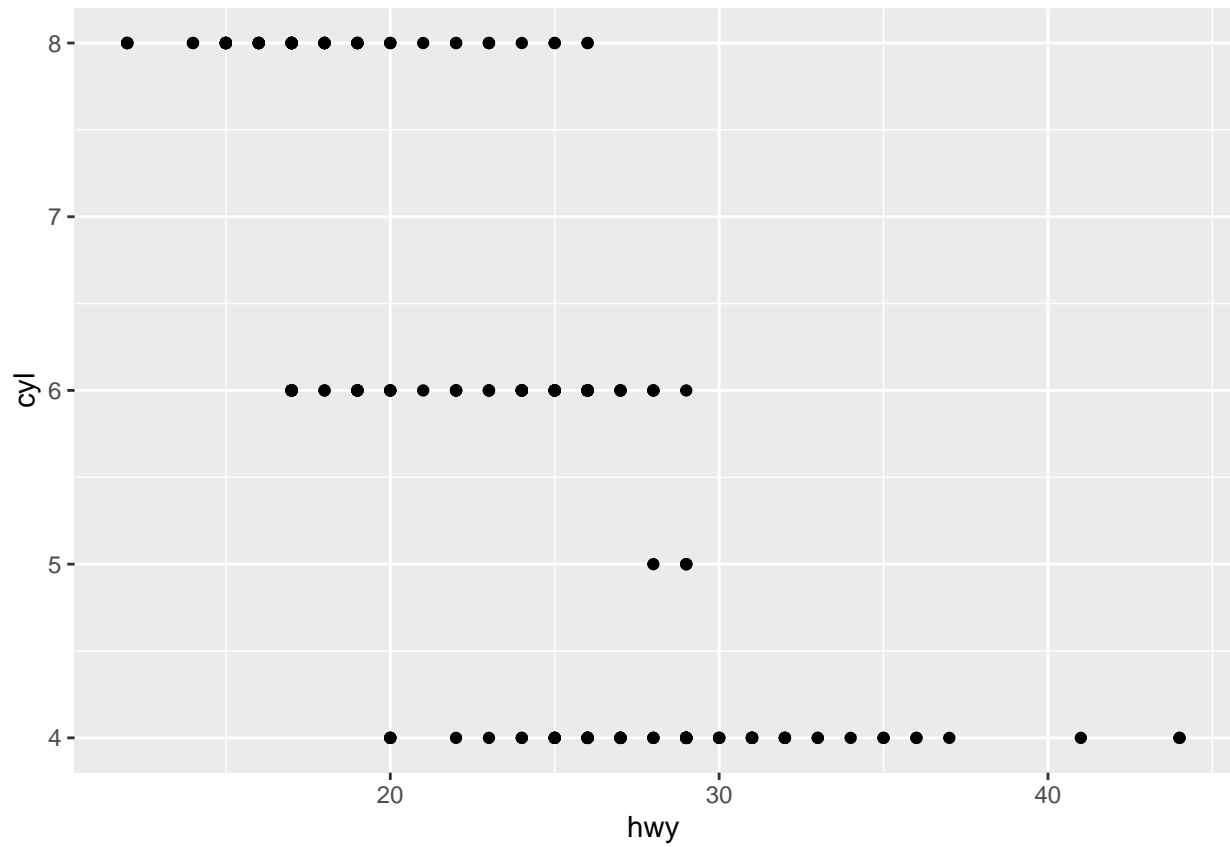
There are 234 rows and 11 columns.

3.

```
?mpg
```

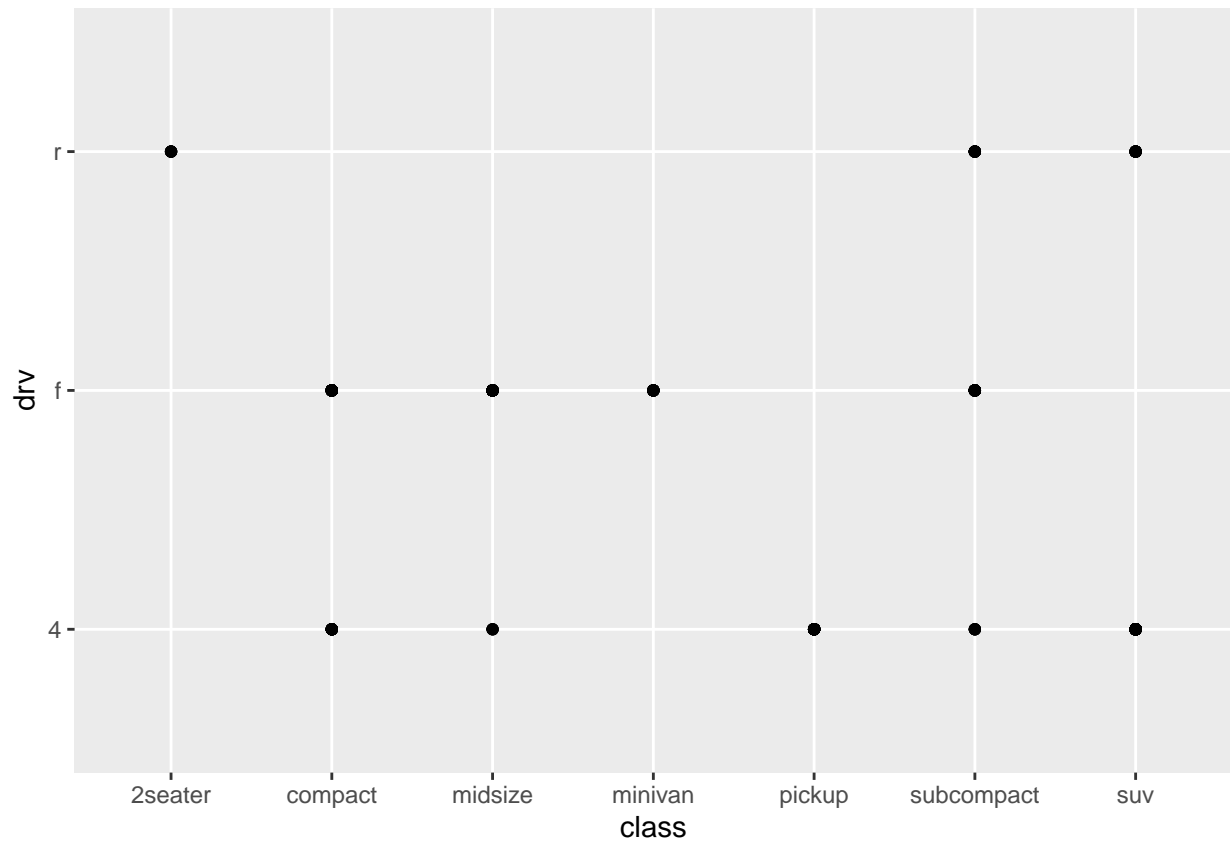drv is the type of drive train, where f = front-wheel drive, r = rear wheel drive, 4 = 4wd.

4.

```
ggplot(mpg) +
  geom_point(mapping = aes(x = hwy, y = cyl))
```

5.

```
ggplot(mpg) +
  geom_point(mapping = aes(x = class, y = drv))
```

This plot is not useful because there is no correlation between the two variables. It is just showing you what type of cars have a certain type of drive train.