

Lab 01: Data visualization

Due: Mon, Feb 27 at 11:59pm

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Packages

```
library(tidyverse)
```

Exercise 1

```
ncol(mpg)
## [1] 11

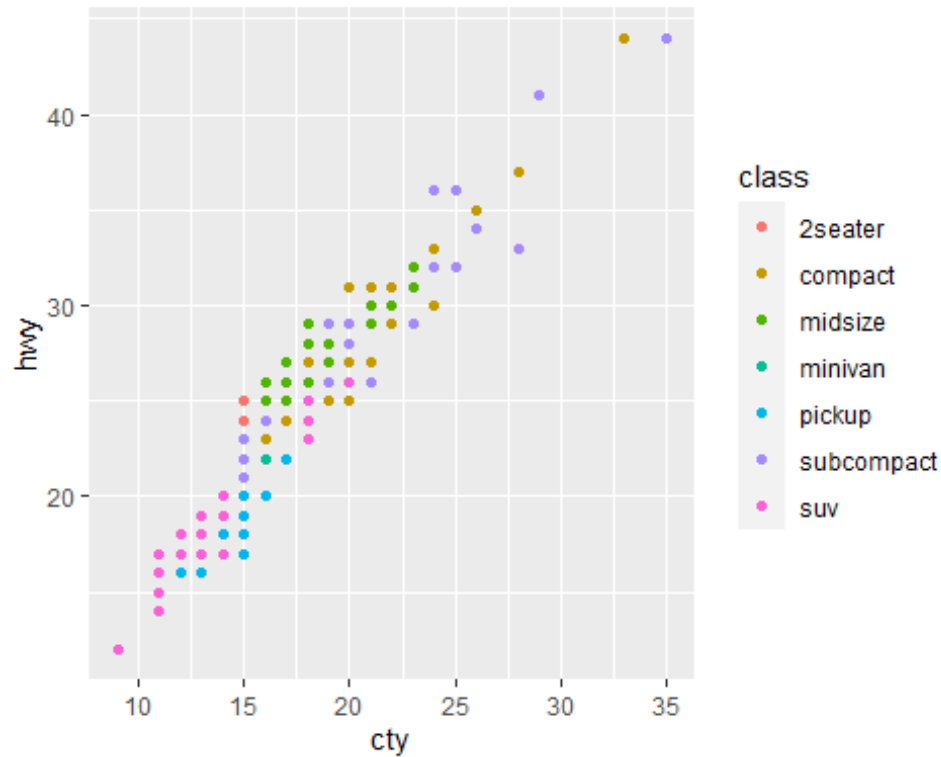
nrow(mpg)
## [1] 234

glimpse(mpg)
## Rows: 234
## Columns: 11
## $ manufacturer <chr> "audi", "audi", "audi", "audi", "audi", "audi",
"audi", "...
## $ model <chr> "a4", "a4", "a4", "a4", "a4", "a4", "a4", "a4
quattro", "...
## $ displ <dbl> 1.8, 1.8, 2.0, 2.0, 2.8, 2.8, 3.1, 1.8, 1.8, 2.0,
2.0, 2.0, ...
## $ year <int> 1999, 1999, 2008, 2008, 1999, 1999, 2008, 1999, 1999,
2008, ...
## $ cyl <int> 4, 4, 4, 4, 6, 6, 6, 4, 4, 4, 4, 6, 6, 6, 6, 6, 8,
8, ...
## $ trans <chr> "auto(l5)", "manual(m5)", "manual(m6)", "auto(av)",
"auto...", ...
## $ drv <chr> "f", "f", "f", "f", "f", "f", "f", "4", "4", "4",
"4", "4...", ...
## $ cty <int> 18, 21, 20, 21, 16, 18, 18, 18, 16, 20, 19, 15, 17,
17, 17, ...
## $ hwy <int> 29, 29, 31, 30, 26, 26, 27, 26, 25, 28, 27, 25, 25,
25, 25, ...
## $ fl <chr> "p", "p", "p", "p", "p", "p", "p", "p", "p", "p", "p",
"p", "p...", ...
```

```
## $ class      <chr> "compact", "compact", "compact", "compact",
"compact", "c...
my_mpg <- mpg
```

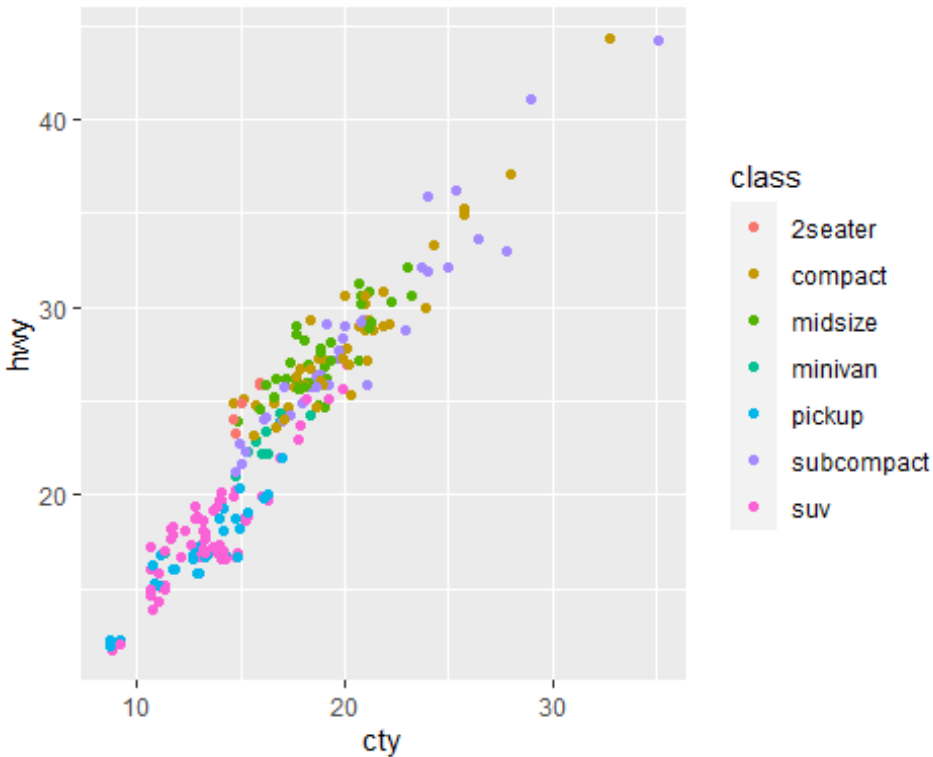
Exercise 2

```
ggplot(data = my_mpg, mapping = aes(x= cty, y=hwy, color = class)) +
  geom_point()
```



Exercise 3

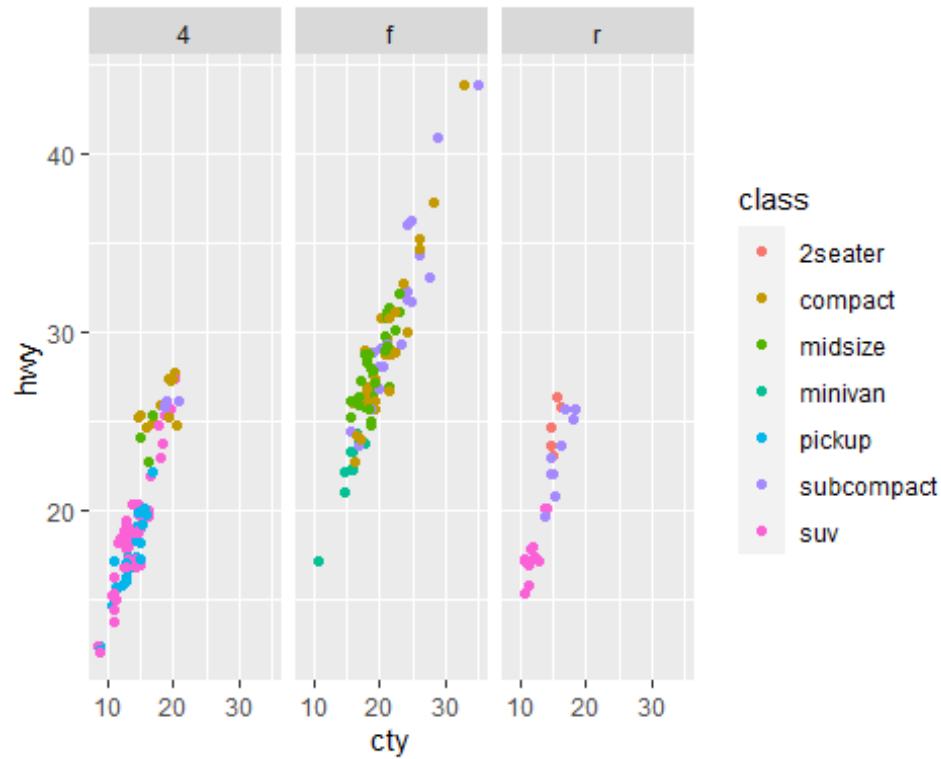
```
ggplot(data = my_mpg, mapping = aes(x= cty, y=hwy, color = class)) +
  geom_jitter()
```



What are the advantages and disadvantages of each? `geom_point()` plots each data point at its exact x-y coordinates on the plot, while `geom_jitter()` randomly adjusts the x-y coordinates of each point within a specified range. The points of the plot in Ex2 is more clear than the one in Ex3.

Exercise 4

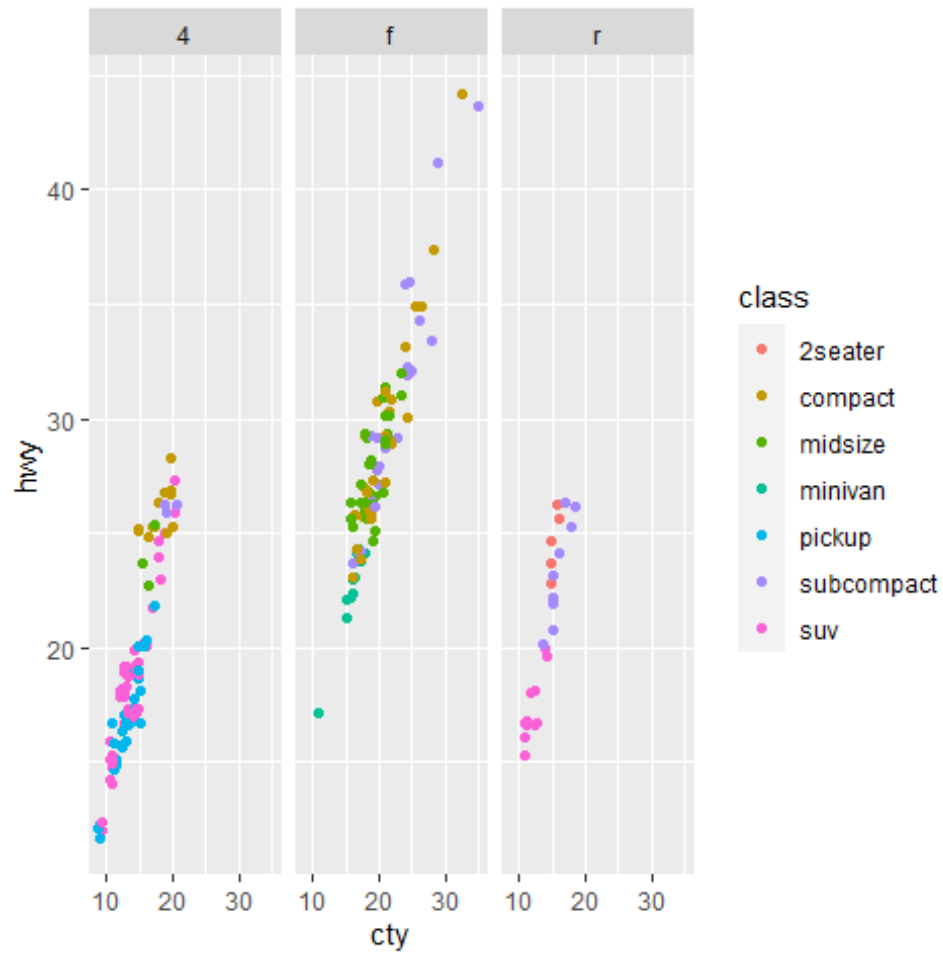
```
ggplot(data = my_mpg, mapping = aes(x= cty, y=hwy, color = class)) +
  geom_jitter() + facet_wrap(~drv)
```



Comment here on what you notice about the relationship between class and city miles per gallon.

Exercise 5

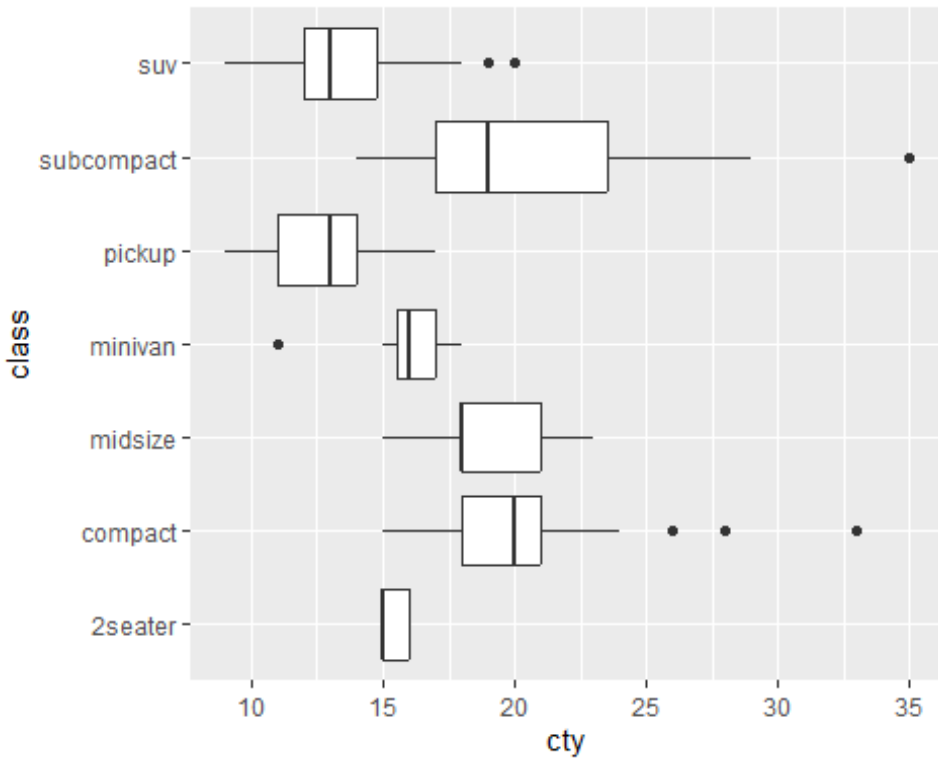
```
ggplot(data = my_mpg, mapping = aes(x= cty, y=hwy, color = class)) +  
  geom_jitter() + facet_wrap(~drv)
```



What do you notice from the bar chart above?

Exercise 6

```
ggplot(data = my_mpg, mapping = aes(x= cty, y=class)) + geom_boxplot()
```

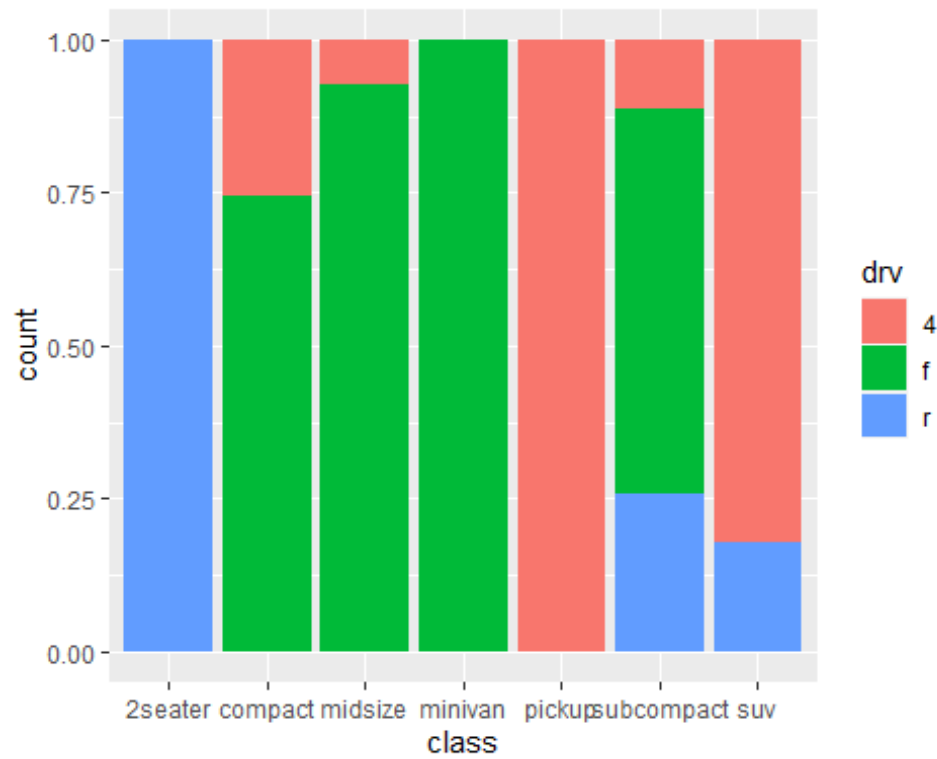


This function

shows the average of city miles per gallon for each class.

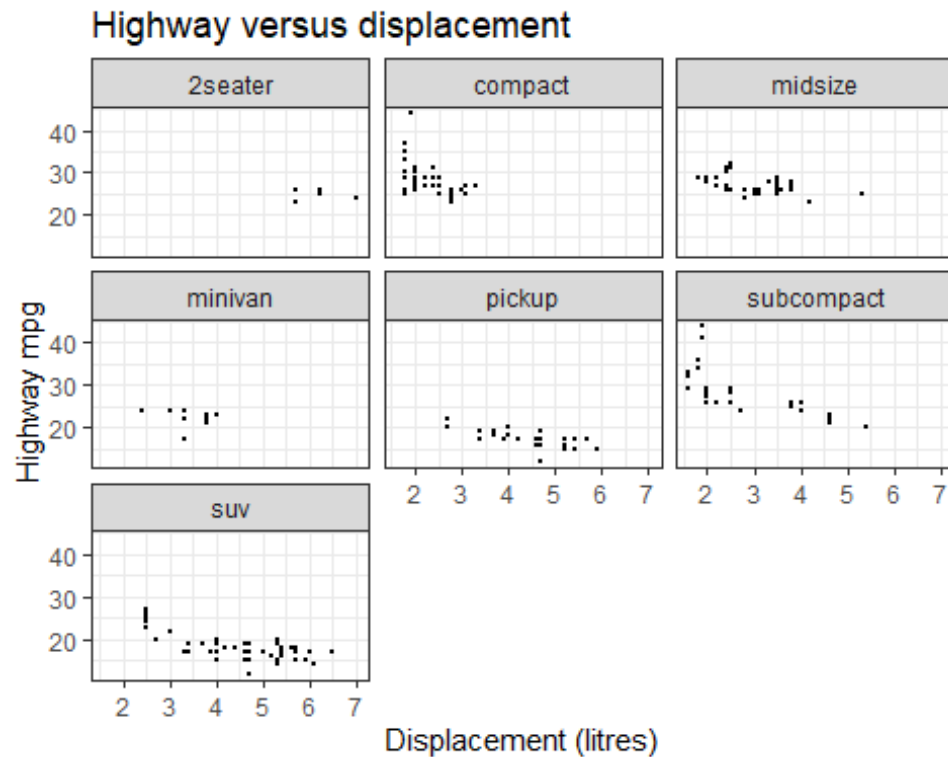
Exercise 7

```
ggplot(data = my_mpg) + geom_bar(mapping = aes(x= class, fill = drv), position = "fill")
```



Exercise 8

```
ggplot(data = my_mpg, mapping = aes(x= displ, y=hwy), width =6, height= 9) +
  geom_point(size = 0.5) +
  labs(title= "Highway versus displacement",x = "Displacement (litres)",
  y="Highway mpg") +
  facet_wrap(~class) + theme_bw()
```



Add a named code chunk here to recreate the plot. Remember, you can insert code chunks using the “insert chunk” button (a green C with a +) and select R. Alternatively, use CMD + OPTION + I (Mac) or CTRL+ ALT + I (Windows).