Lab 2

Diana DeWald

10/11/2020

Run the following code to (a) install the {nlme} and {janitor} packages (b) load the packages along with the tidyverse, and (c) access and quickly prep some data (from the {nmle} package) for plotting.

```
# Note: You only need to run this next line one time to install these two packages.
install.packages(c("nlme", "janitor")) #(a)
```

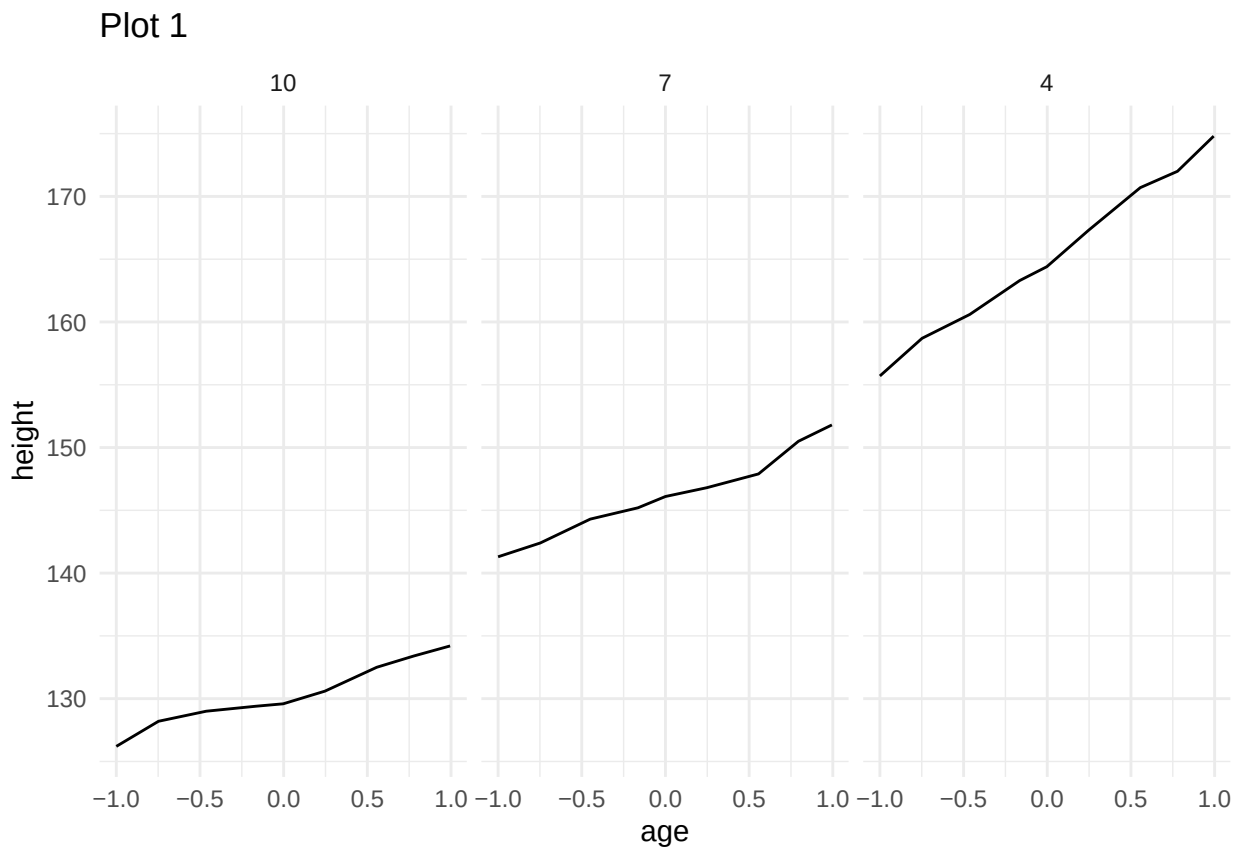
```
library(nlme) # (b)
library(janitor) # (b)
library(tidyverse) # (b)
theme_set(theme_minimal()) # (b)

pd <- Oxboys %>% # (c)
  clean_names() %>%
  mutate(subject = factor(subject),
         occasion = factor(occasion)) %>%
  filter(subject == "10" | subject == "4" | subject == "7") %>%
  tbl_df()
```

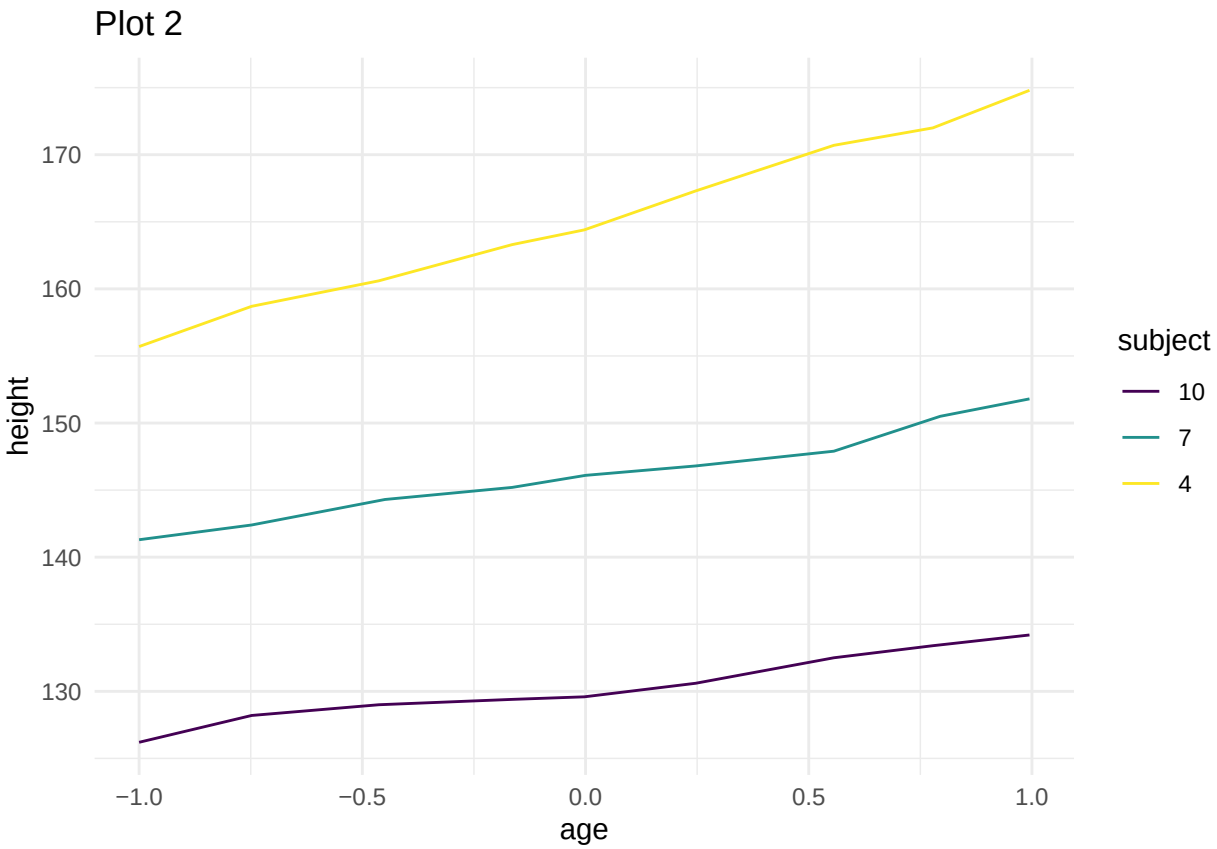
1. Reproduce the following two plots, using the *pd* data. You can use whatever theme you want (I used `theme_minimal()`), but all else should be the same.

```
# Put code below for Plot 1. Note that Plot 1 is a line plot, not a smooth.

ggplot(pd, aes(age, height)) +
  geom_line() +
  facet_wrap(~subject) +
  labs(title = "Plot 1")
```

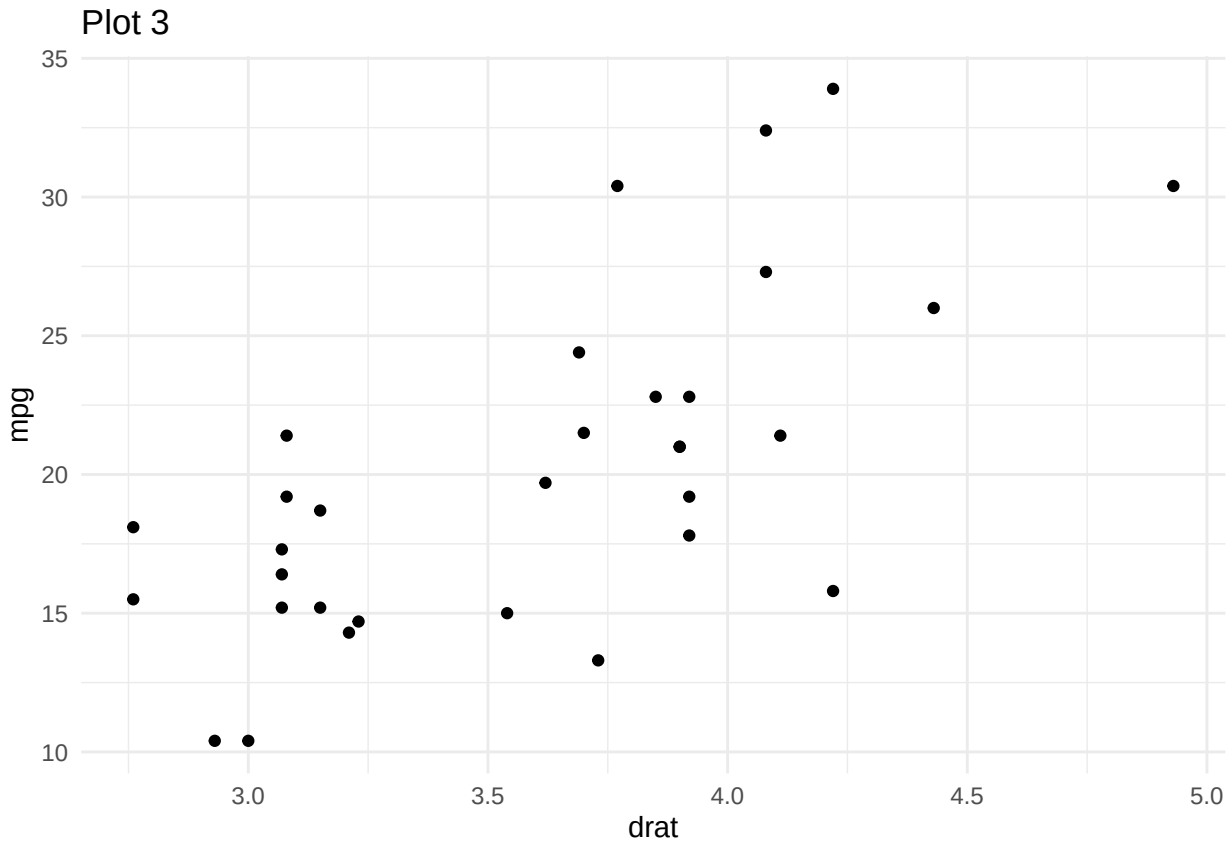



```
# Put code below for Plot 2. Note that Plot 2 is a line plot also.
ggplot(pd, aes(age, height, color = subject)) +
  geom_line() +
  labs(title = "Plot 2")
```

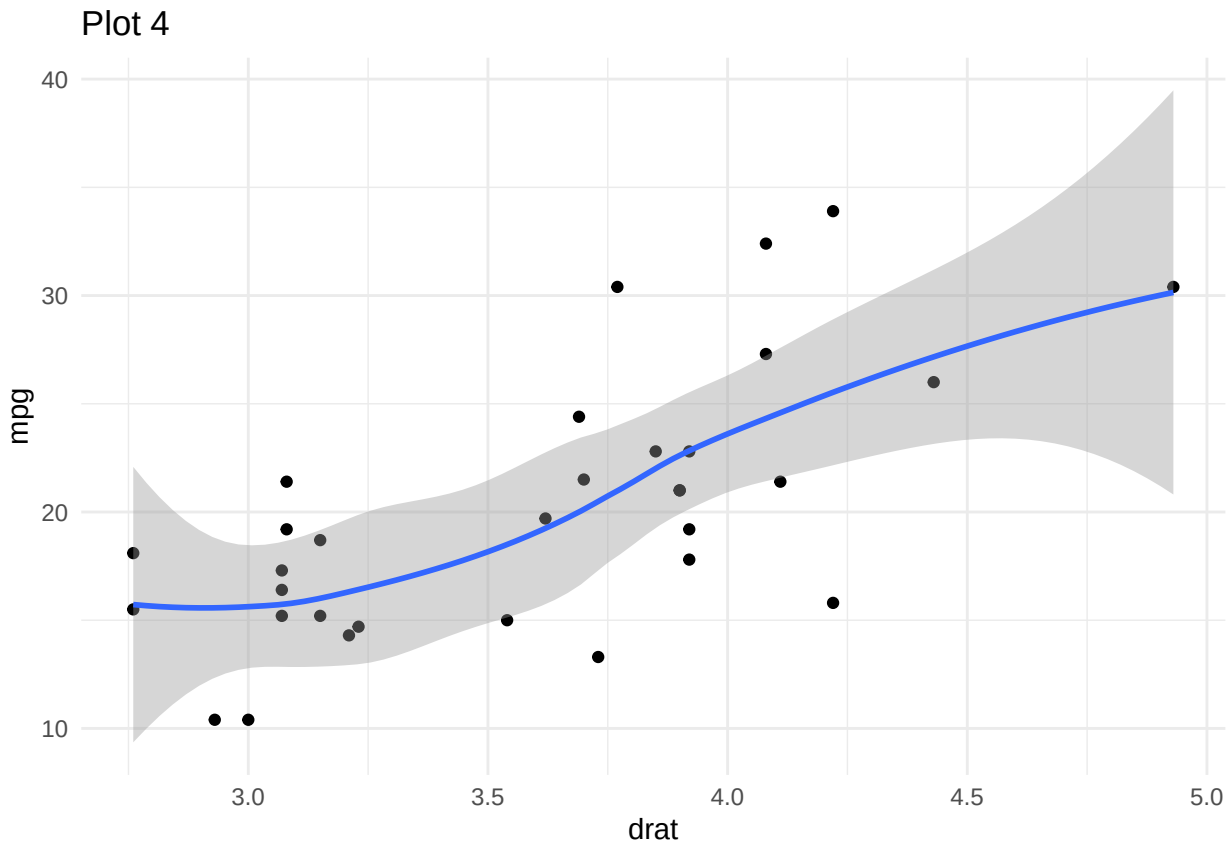

Plot 2
height
170
160
150
140
130
−1.0
−0.5
0.0
0.5
1.0
age
subject
10
7
4

2. Use the *mtcars* dataset from base R to replicate the following plots. (Just type *mtcars* into the console to see the dataset).

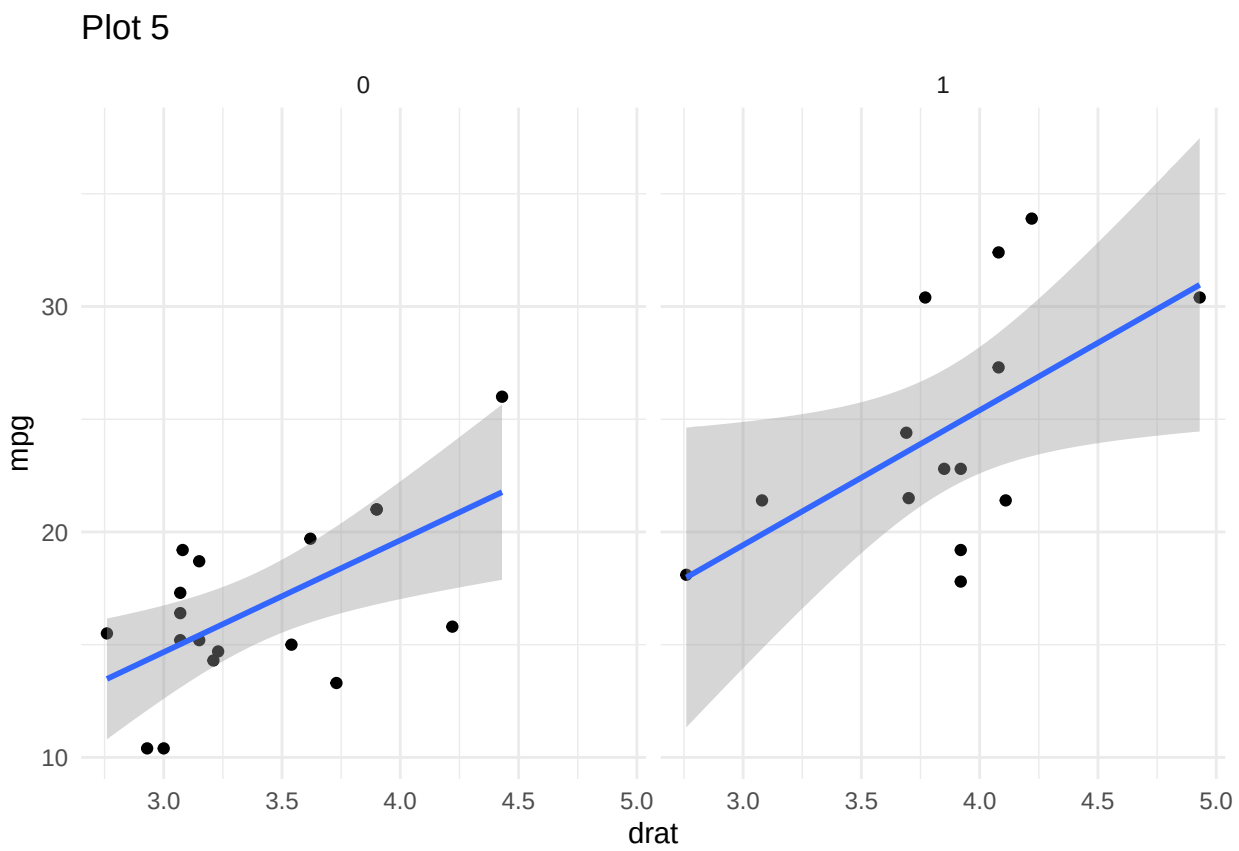
```
# Put code below for Plot 3
ggplot(mtcars, aes(drat, mpg)) +
  geom_point() +
  labs(title = "Plot 3")
```



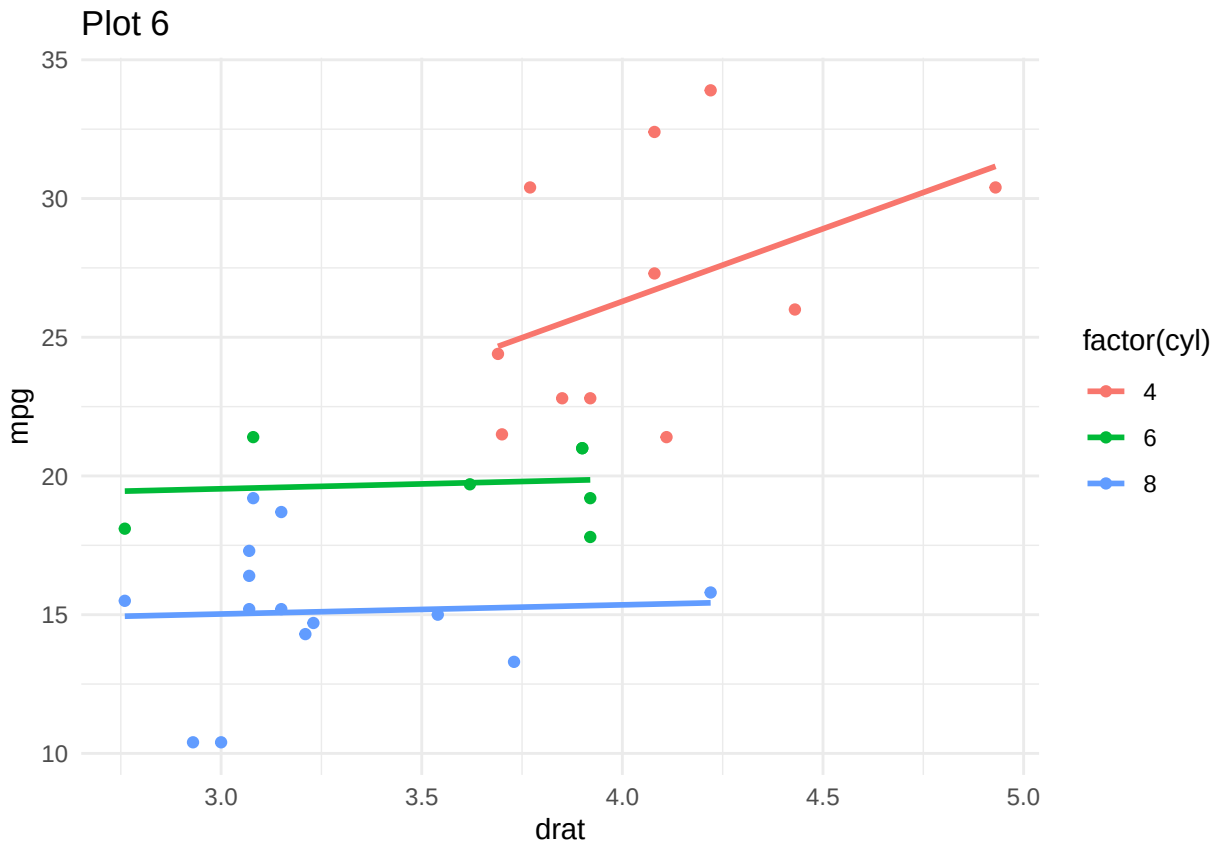

```
# Put code below for Plot 4
ggplot(mtcars, aes(drat, mpg)) +
  geom_point() +
  geom_smooth() +
  labs(title = "Plot 4")
```




```
# Put code below for Plot 5
ggplot(mtcars, aes(drat, mpg)) +
  geom_point() +
  geom_smooth(method = "lm") +
  facet_wrap(~vs) +
  labs(title = "Plot 5")
```

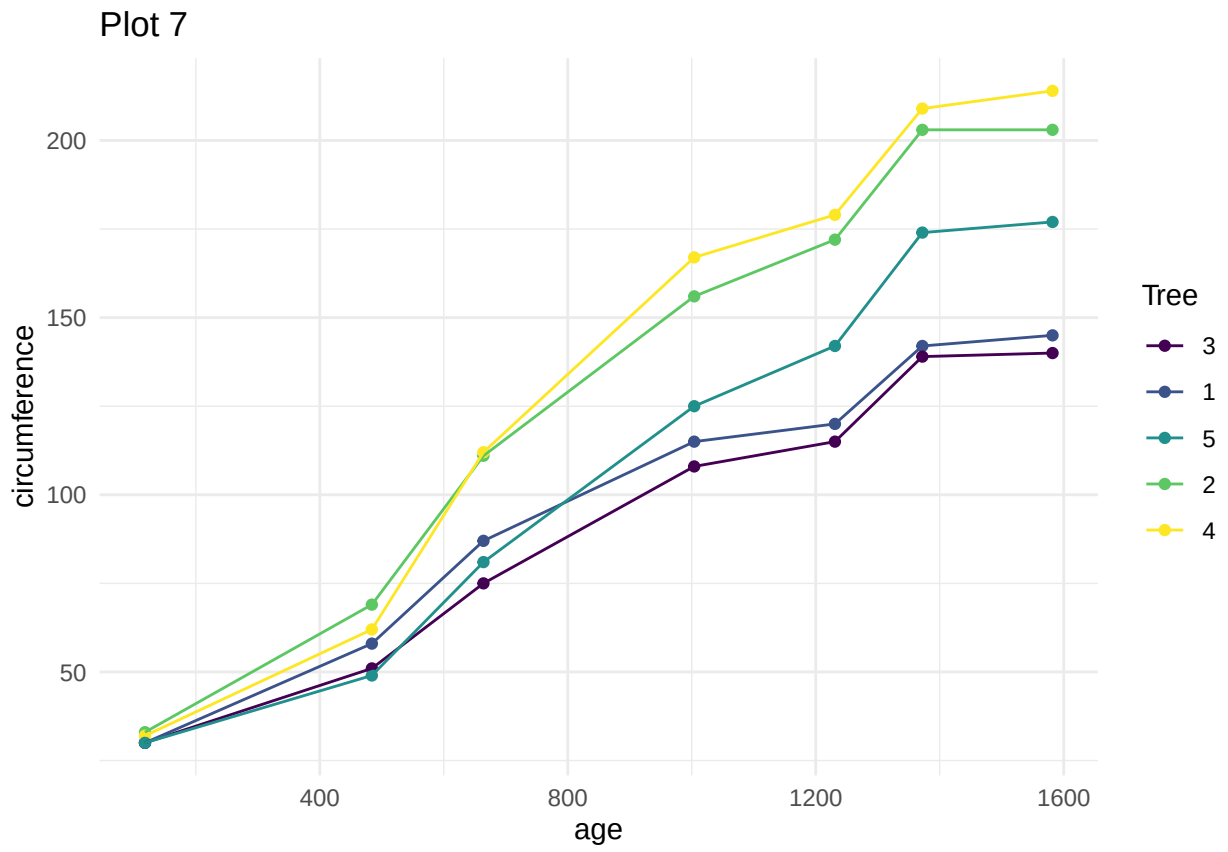



```
# Put code below for Plot 6. I have given you the first line of code to start.
ggplot(mtcars, aes(drat, mpg, color = factor(cyl))) +
  geom_point() +
  geom_smooth(method = "lm", se = FALSE) +
  labs(title = "Plot 6")
```

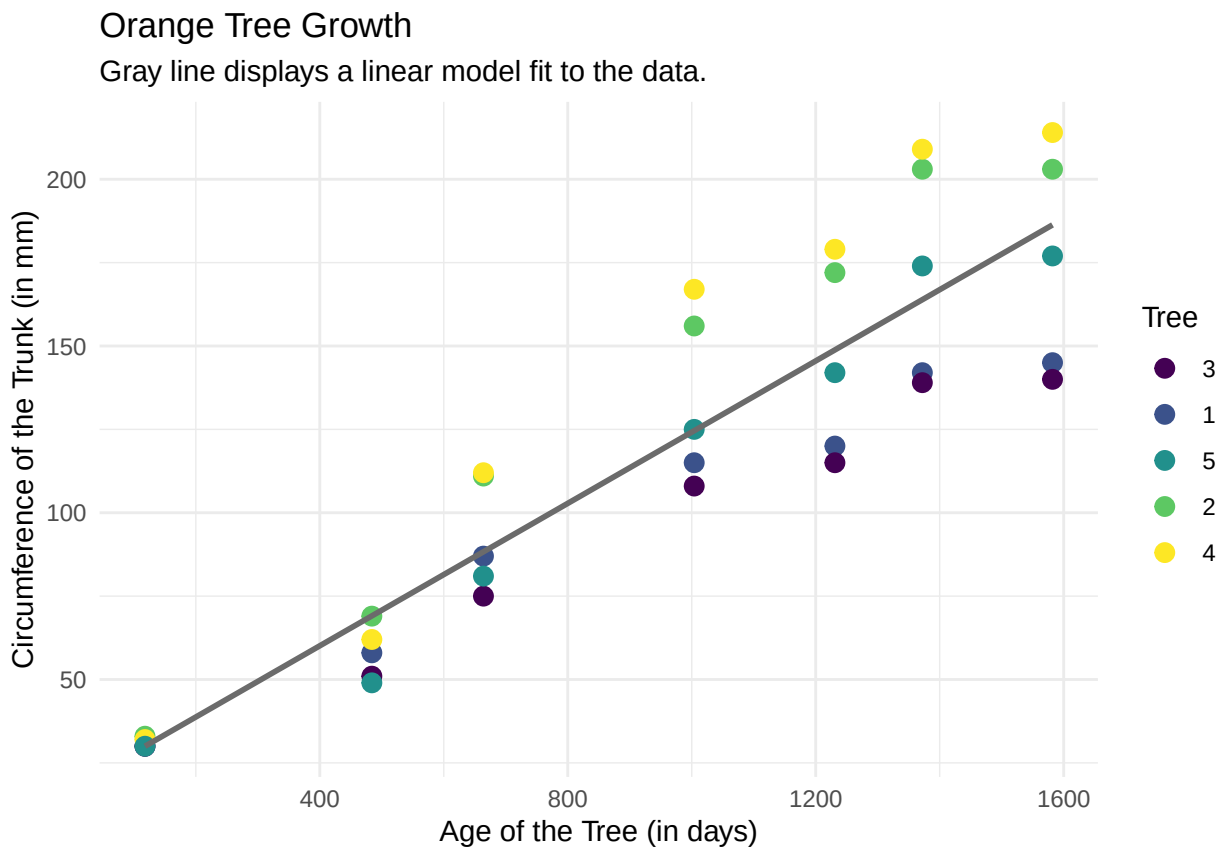

Plot 6
35
30
25
20
15
10
mpg
3.0
3.5
4.0
4.5
5.0
drat
factor(cyl)
4
6
8

3. Use the *Orange* dataset, also part of base R, to replicate the following plots.

```
# Put code below for Plot 7
ggplot(Orange, aes(age, circumference, color = Tree)) +
  geom_point() +
  geom_line() +
  labs(title = "Plot 7")
```




```
# Put code below for the last plot. See slide 51 from the w2p2 class for labels.
ggplot(Orange, aes(age, circumference, color = Tree)) +
  geom_point(cex = 3) +
  geom_smooth(method = "lm", se = FALSE, color = "gray42") +
  labs(x = "Age of the Tree (in days)",
       y = "Circumference of the Trunk (in mm)",
       title = "Orange Tree Growth",
       subtitle = "Gray line displays a linear model fit to the data.")
```


Orange Tree Growth
Gray line displays a linear model fit to the data.
Circumference of the Trunk (in mm)
200
150
100
50
400
800
1200
1600
Age of the Tree (in days)
Tree
3
1
5
2
4