Lab 2

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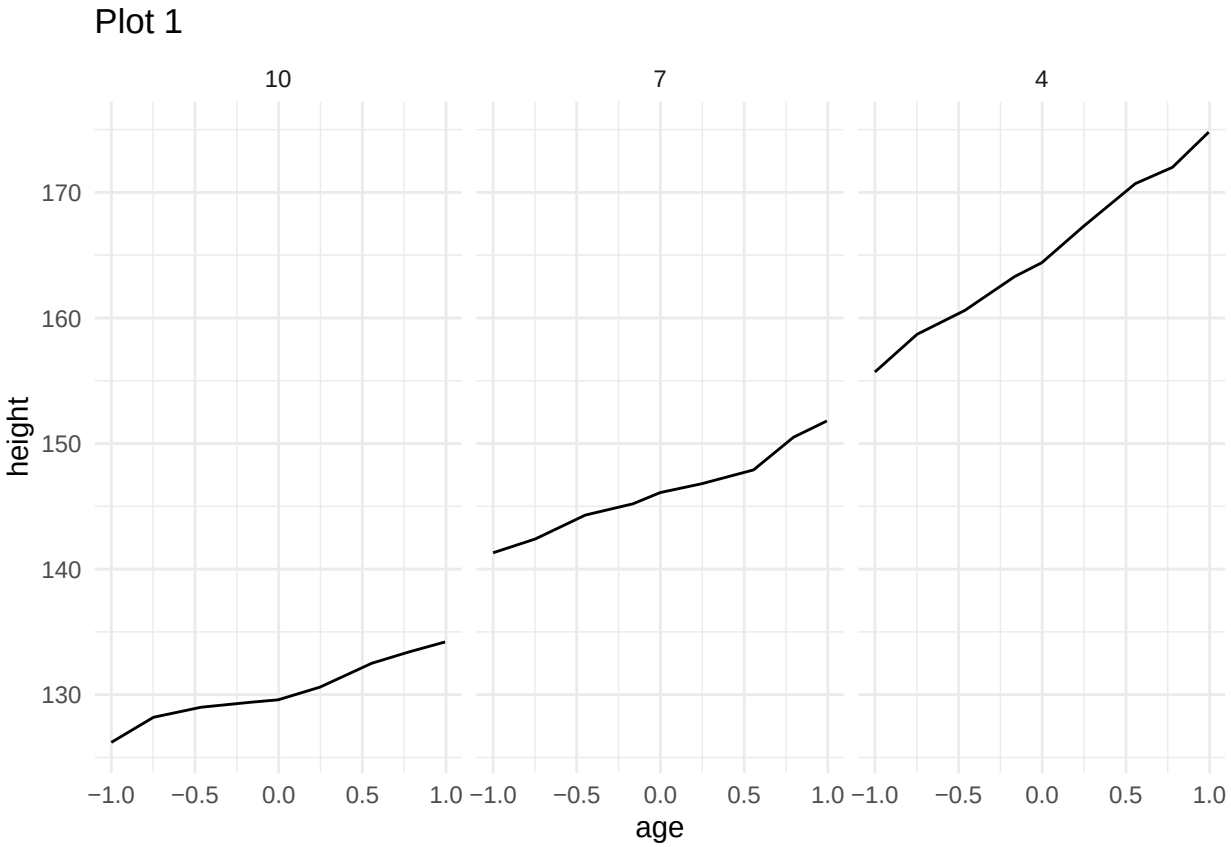
Run the following code to (a) install the {nlme} and {janitor} packages (b) load the packages along with the tidyverse, and (c) access and quickly prep some data (from the {nmle} package) for plotting.

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

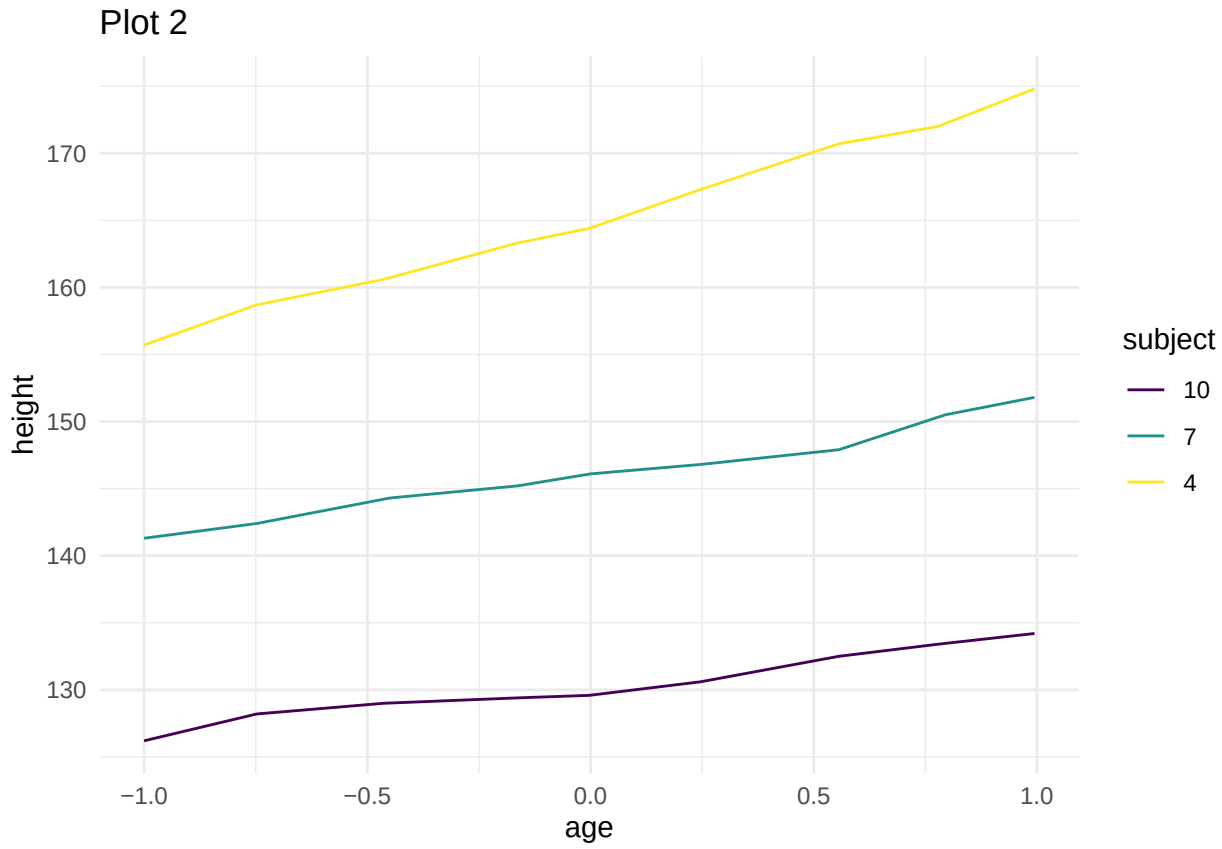
```
library(nlme) # (b)
library(janitor) # (b)
library(tidyverse) # (b)

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.
# pd %>% filter(subject == c('10','4','7'))

plot1 <-
  pd %>% ggplot(mapping = aes(x = age, y = height)) +
  geom_line() + theme_minimal() + facet_wrap(~subject) + ggtitle("Plot 1")
plot1
```

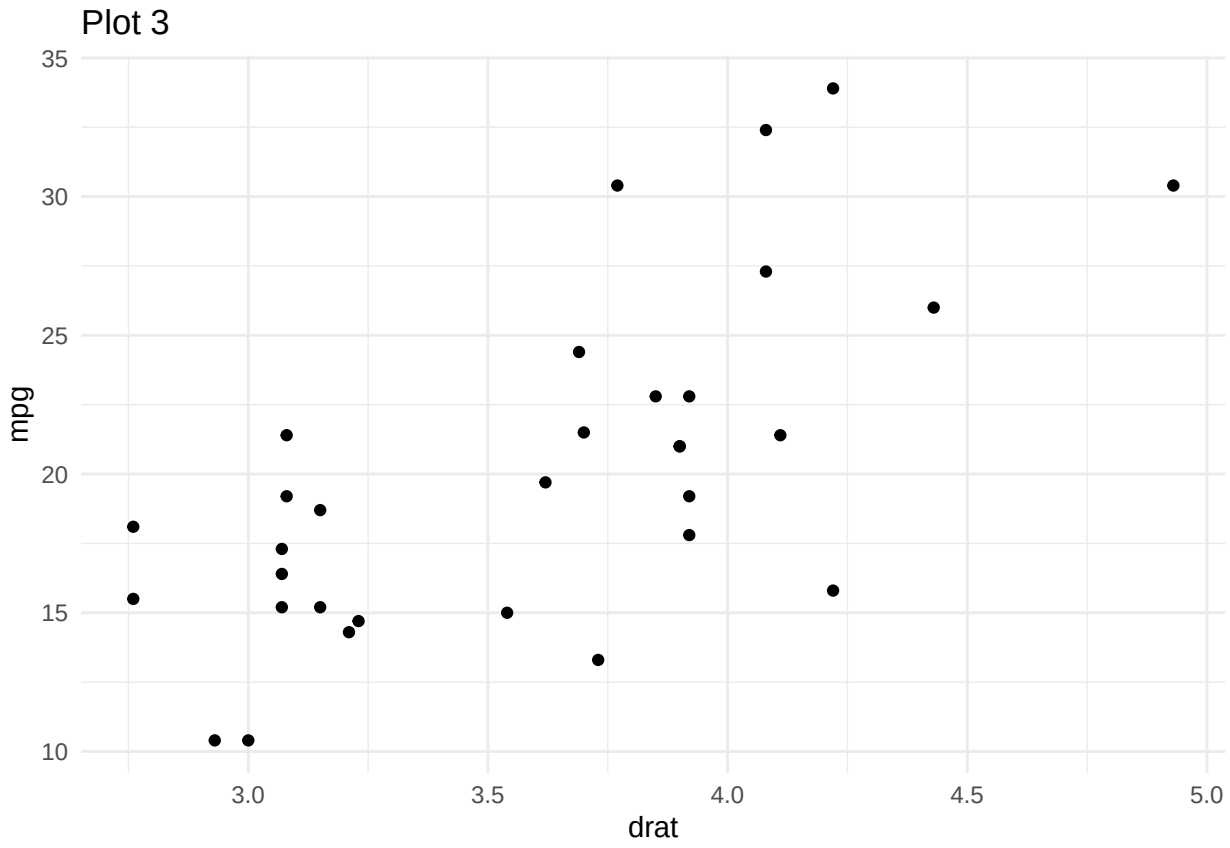

Plot 1
10
7
4
height
170
160
150
140
130
−1.0
−0.5
0.0
0.5
1.0
age

```r
# Put code below for Plot 2. Note that Plot 2 is a line plot also.

plot2 <-
  pd %>% ggplot(mapping = aes(x = age, y = height, color = subject)) +
  geom_line() + theme_minimal() + ggtitle("Plot 2")

plot2
```

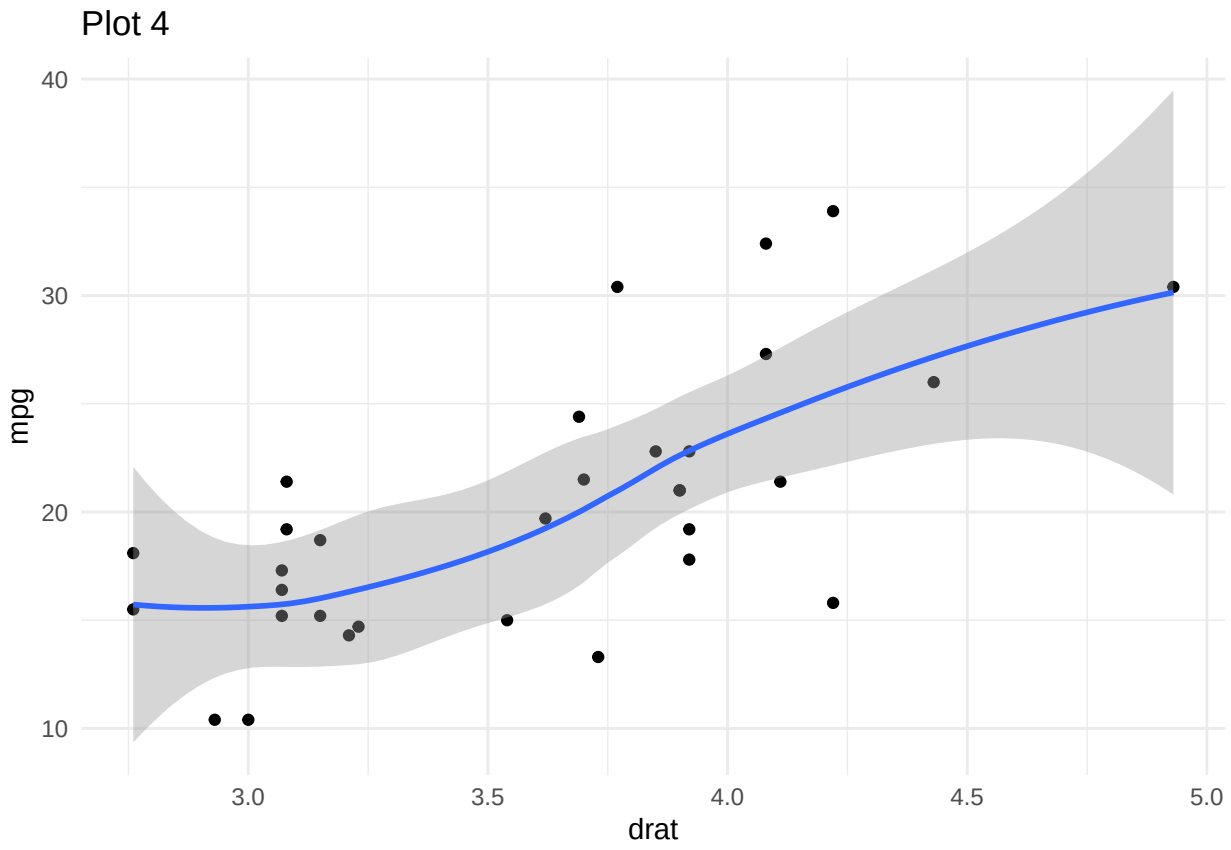


2. Use the *mtcars* dataset from base R to replicate the following plots. (Just type *mtcars* into the console to see the dataset).

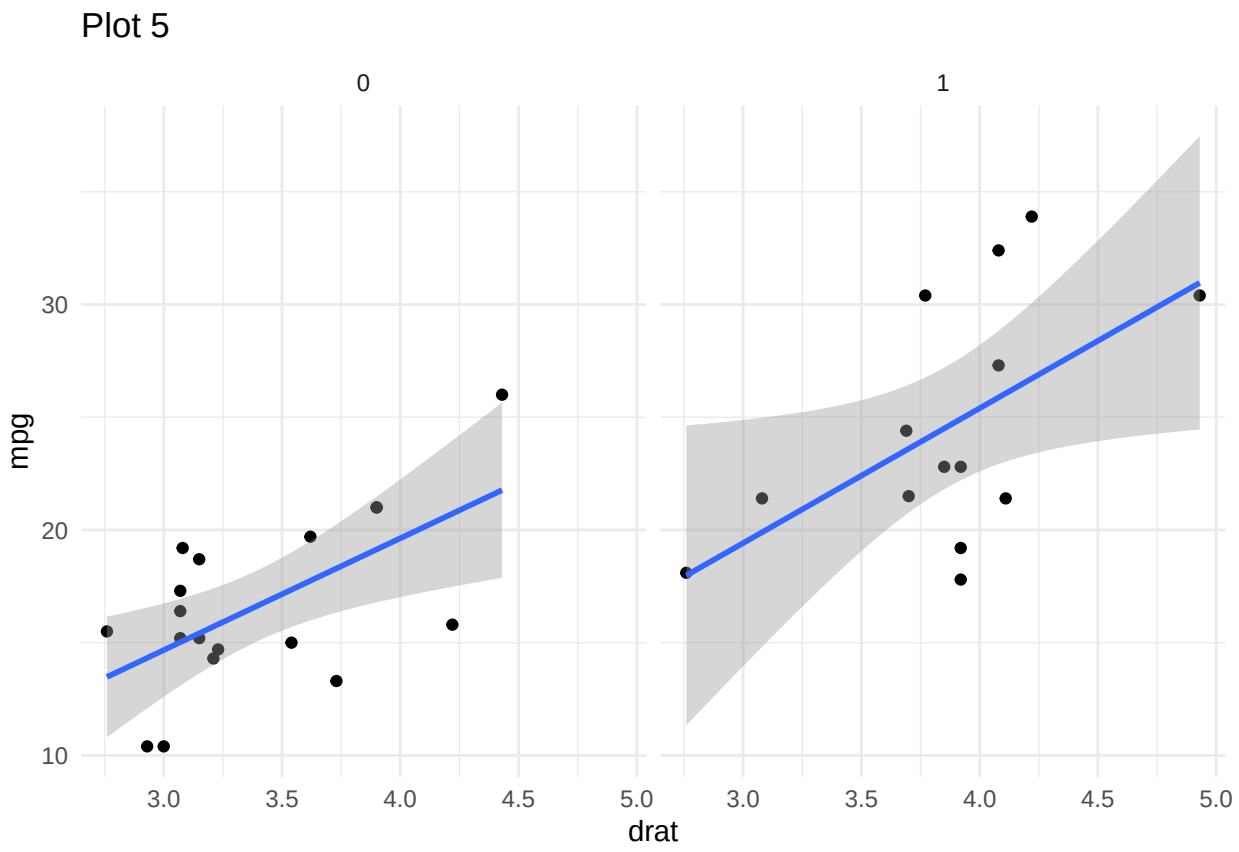
```
# Put code below for Plot 3
plot3 <-
  mtcars %>% ggplot(mapping = aes(x = drat, y = mpg)) +
  geom_point() + ggtitle("Plot 3") + theme_minimal()
plot3
```



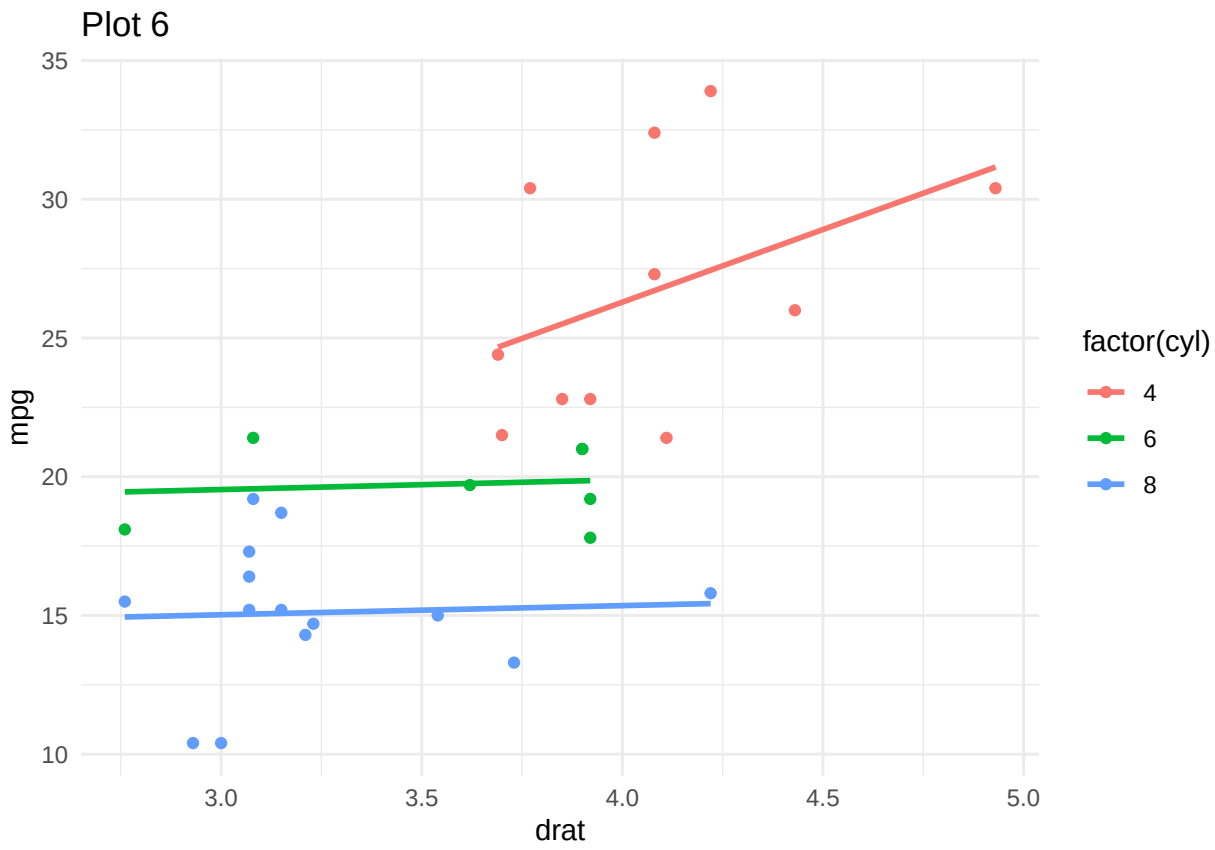
```r
# Put code below for Plot 4
plot4 <- plot3 + geom_smooth() + ggtitle("Plot 4")
plot4
```



```r
# Put code below for Plot 5
plot5 <- plot3 + geom_smooth(method = "lm") + facet_wrap(~vs) + ggtitle("Plot 5")
plot5
```

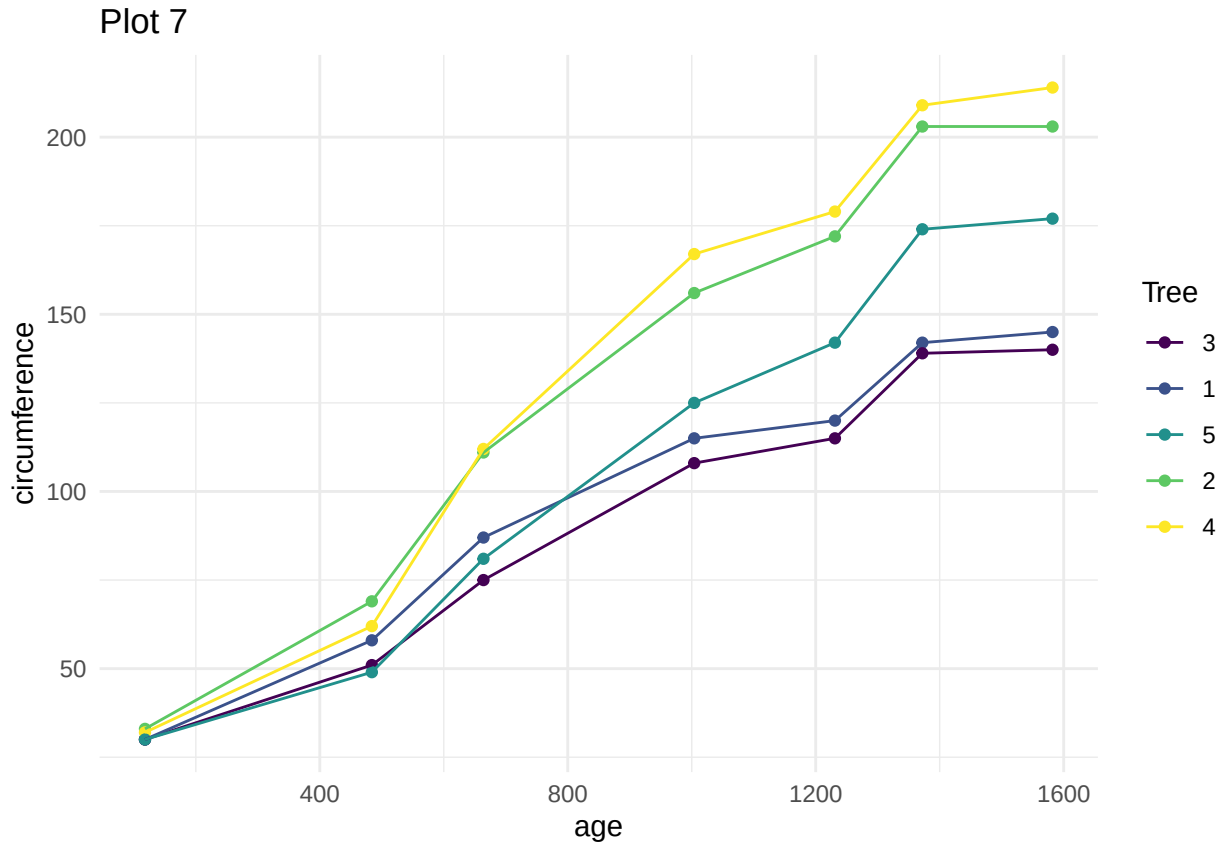


```r
# Put code below for Plot 6. I have given you the first line of code to start.
plot6 <-
  ggplot(mtcars, aes(drat, mpg, color = factor(cyl))) + geom_point() + geom_smooth(method = "lm", se = F

plot6
```



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

```
# Put code below for Plot 7
plot7 <- Orange %>%
  ggplot(mapping = aes(x = age, y = circumference, color = Tree)) +
  geom_point() + geom_line()+ theme_minimal() + ggtitle("Plot 7")
plot7
```



```r
# Put code below for the last plot. See slide 51 from the w2p2 class for labels.

plot8 <- Orange %>%
  ggplot(mapping = aes(x = age, y = circumference)) +
  geom_point(aes(color = Tree)) +
  geom_smooth(method = "lm", se = F, color = "darkgray") +
  theme_minimal() +
  labs(x = "Age of 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"
       )
plot8
```