

# Homework 2

## Key

1. Install the `{nlme}` package
2. Load `{nlme}`, `{janitor}`, and the `{tidyverse}` packages in the “setup” chunk
3. Run the chunk below to prep some data from the `{nlme}` package for plotting

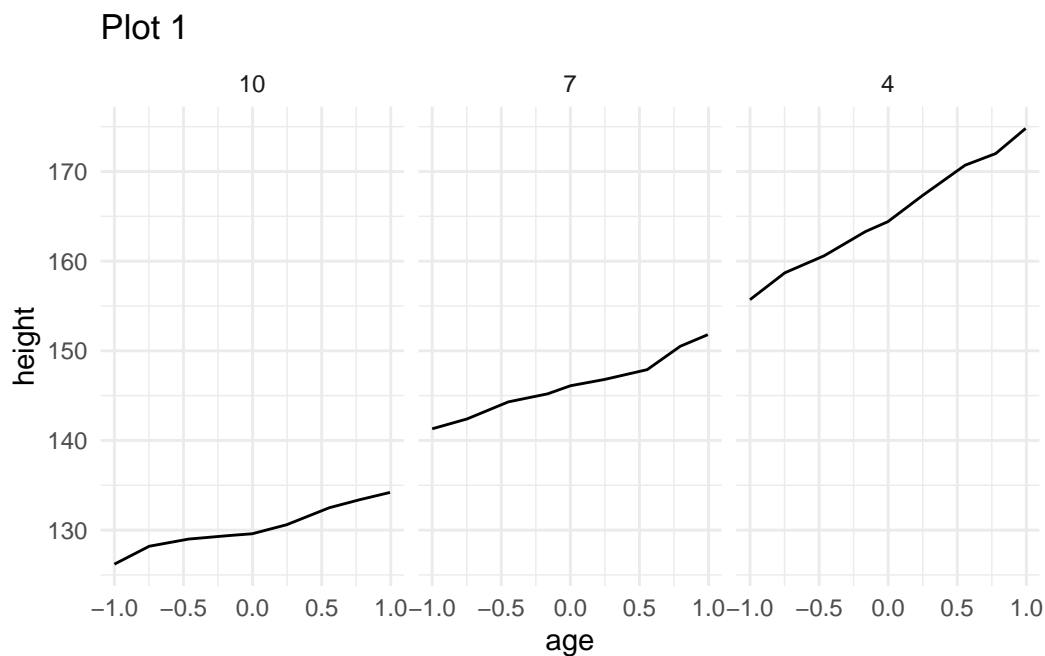
```
pd <- Oxborns %>%  
  clean_names() %>%  
  mutate(subject = factor(subject),  
         occasion = factor(occasion)) %>%  
  filter(subject == "10" | subject == "4" | subject == "7") %>%  
  as_tibble()
```

4. 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.

```
theme_set(theme_minimal())

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

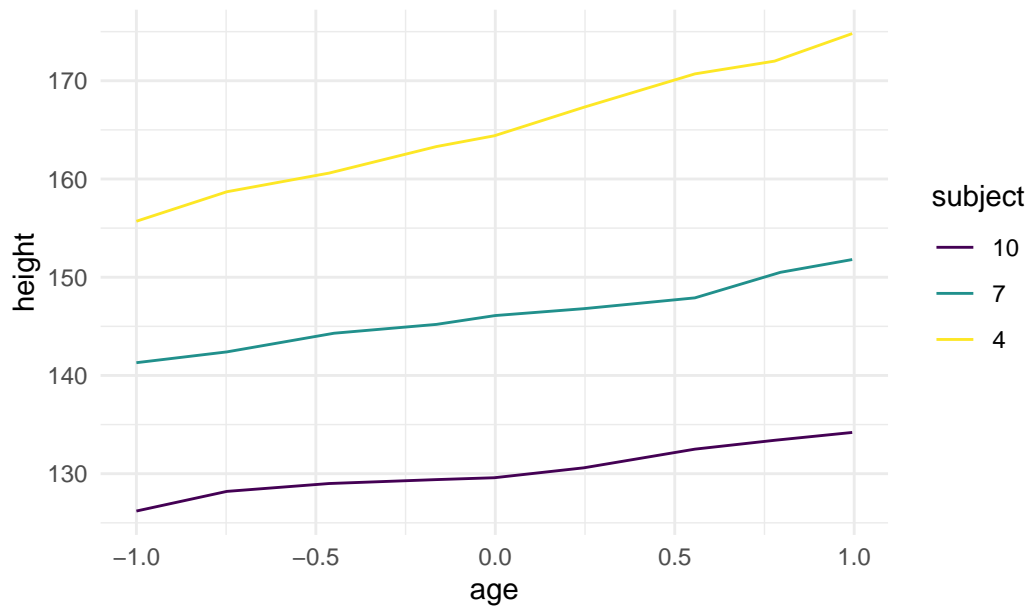
ggplot(pd, aes(age, height)) +
  geom_line() +
  facet_wrap(~subject) +
  labs(title = "Plot 1")
```



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

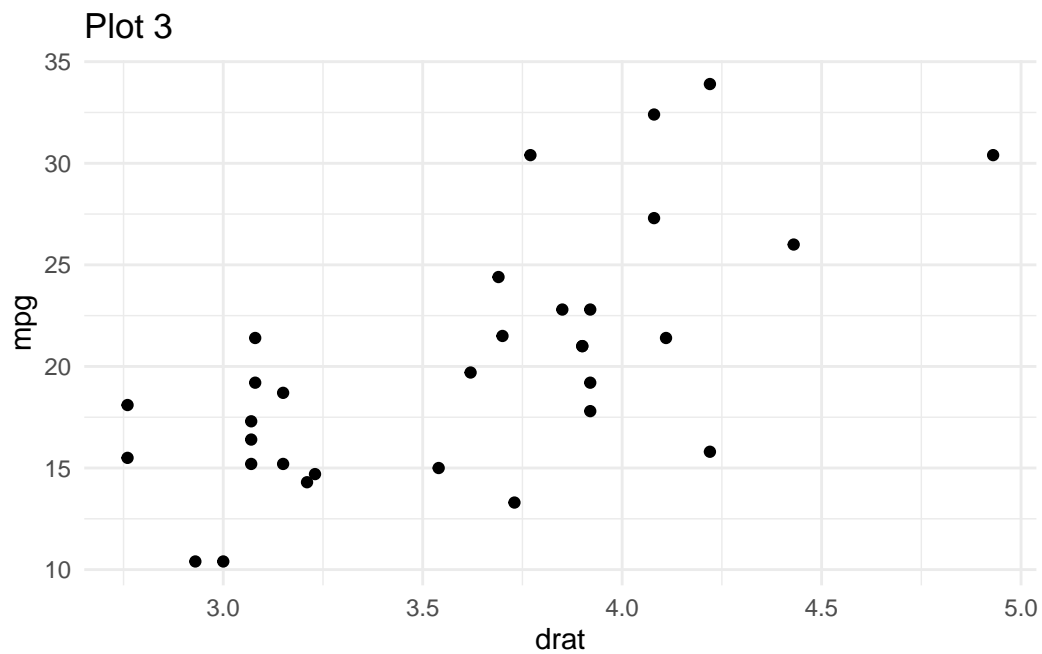
```
ggplot(pd, aes(age, height, color = subject)) +
  geom_line() +
  labs(title = "Plot 2")
```

Plot 2



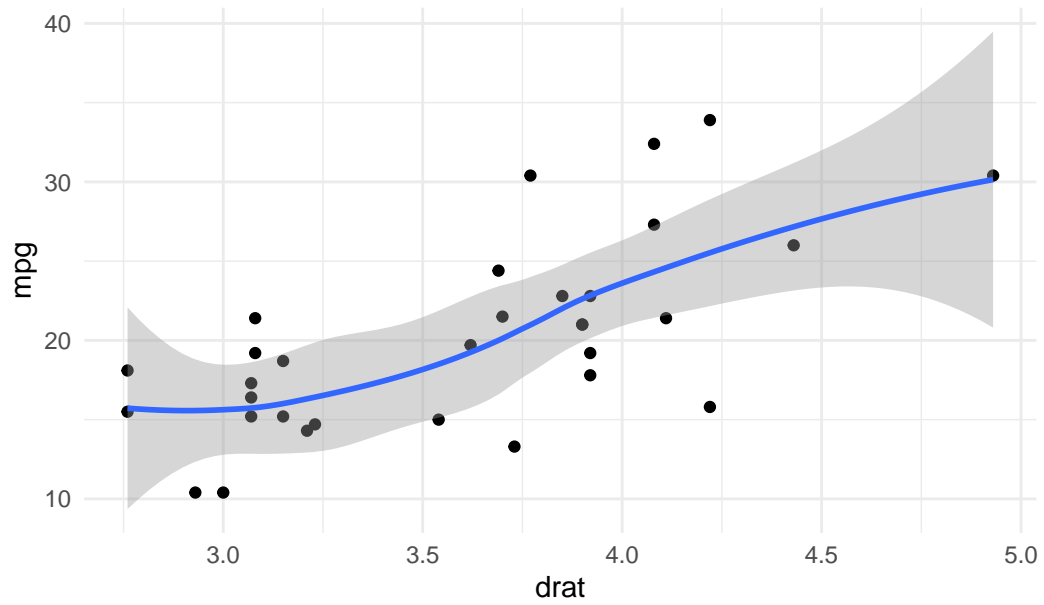
5. Use the *mtcars* dataset from base R to replicate the following plots. (Just type *mtcars* into the console to see the dataset).

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



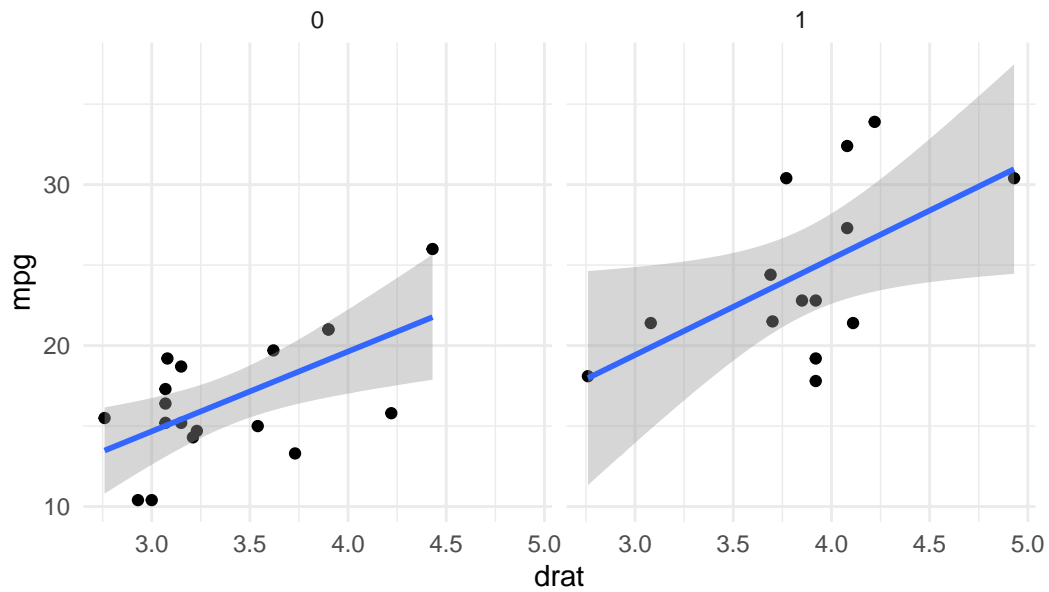
```
# Put code below for Plot 4
ggplot(mtcars, aes(drat, mpg)) +
  geom_point() +
  geom_smooth() +
  labs(title = "Plot 4")
```

Plot 4



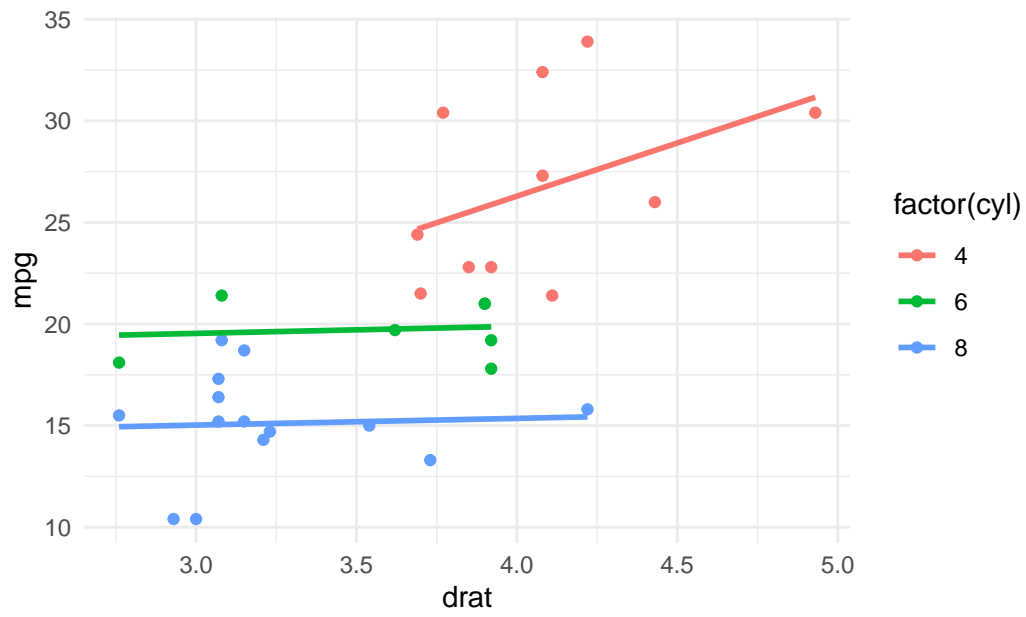
```
# Put code below for Plot 5
ggplot(mtcars, aes(drat, mpg)) +
  geom_point() +
  geom_smooth(method = "lm") +
  facet_wrap(~vs) +
  labs(title = "Plot 5")
```

Plot 5



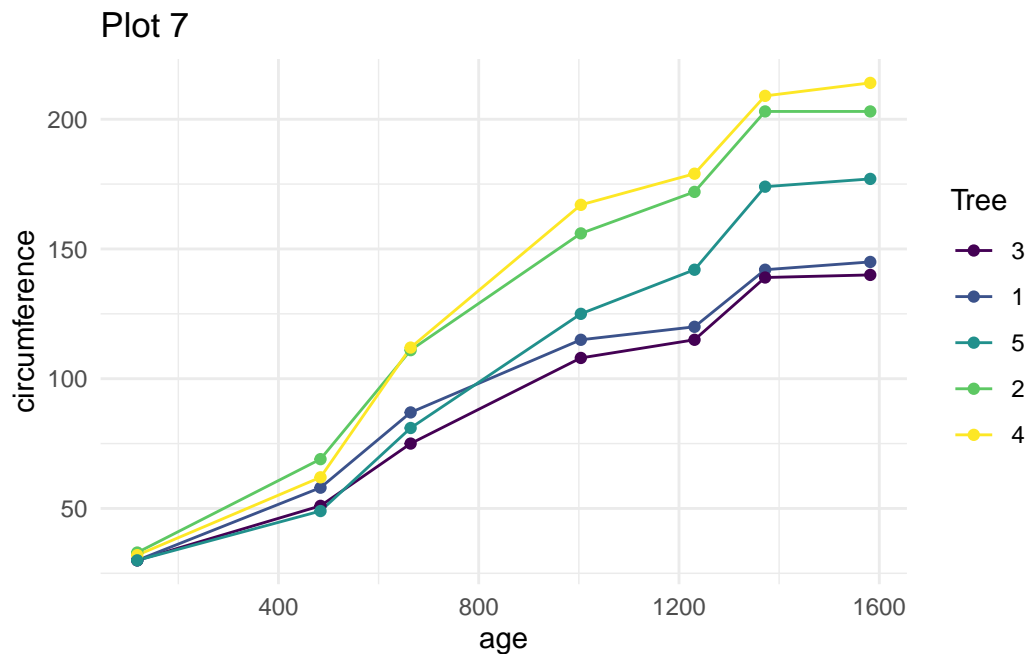
```
# Put code below for Plot 6. I have given you the first line of code to start.  
ggplot(mtcars, aes(drat, mpg, color = factor(cyl))) +  
  geom_point() +  
  geom_smooth(method = "lm", se = FALSE) +  
  labs(title = "Plot 6")
```

Plot 6



6. 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_line() +
  geom_point() +
  labs(title = "Plot 7")
```



```
# Put code below for the last plot. See slide xx from the w3 class for labels.
ggplot(Orange, aes(age, circumference)) +
  geom_smooth(method = "lm", se = FALSE, color = "gray40") +
  geom_point(aes(color = Tree), size = 3) +
  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.

