Lab 2

Key

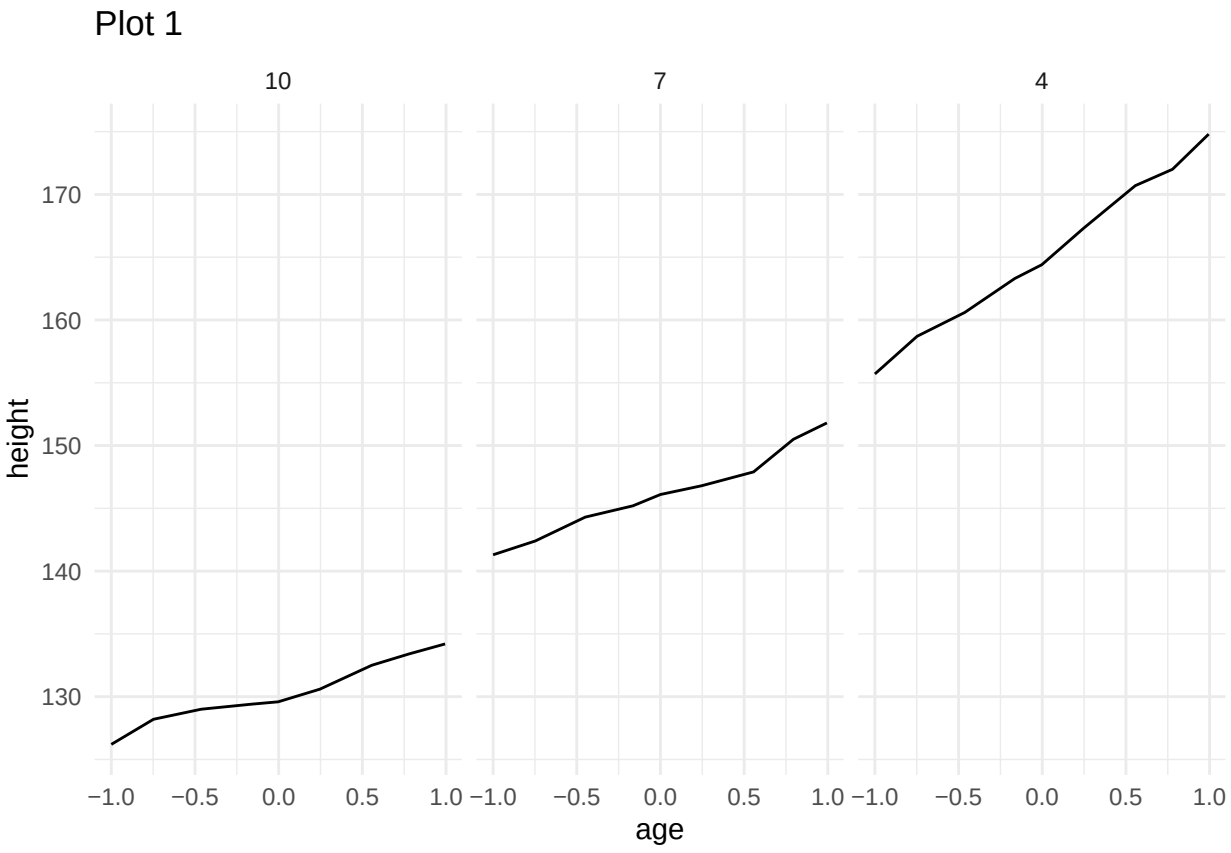
October 9, 2019

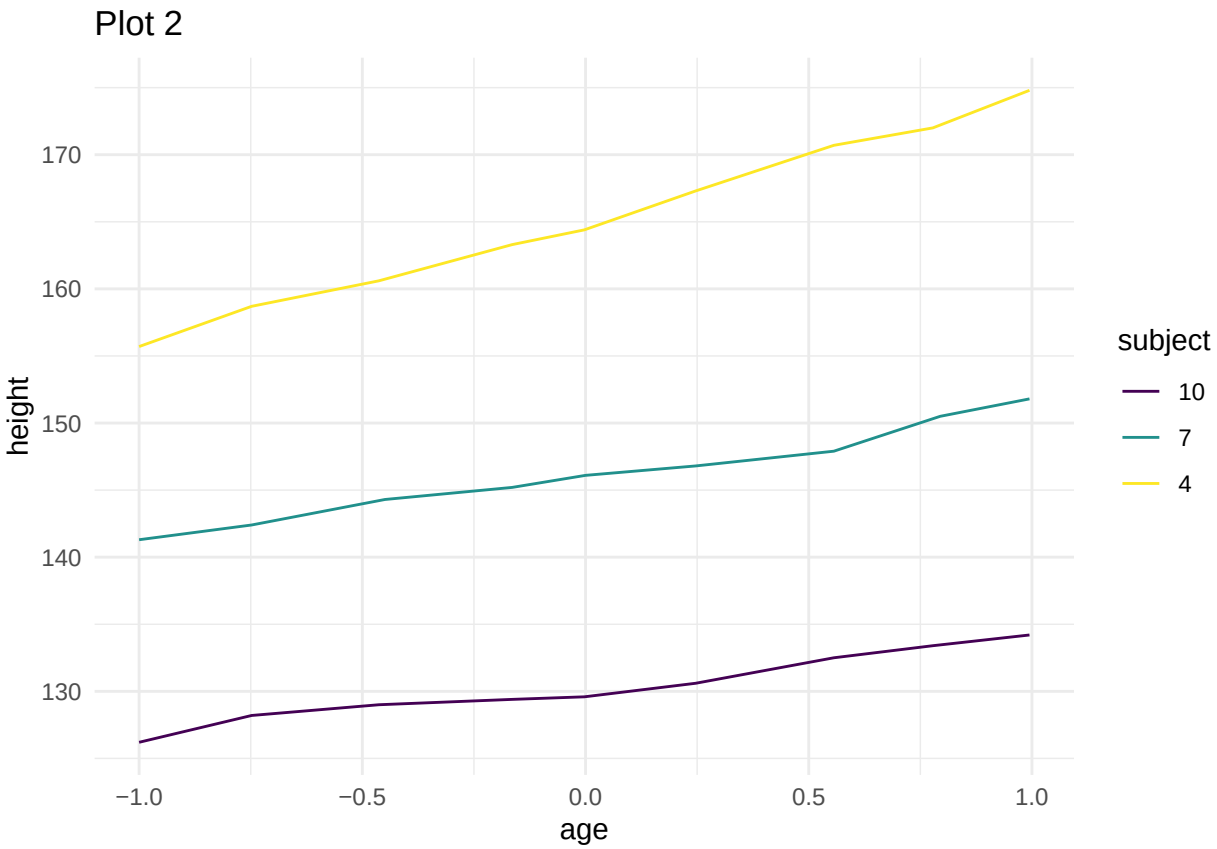
1. Run the following code to

(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.

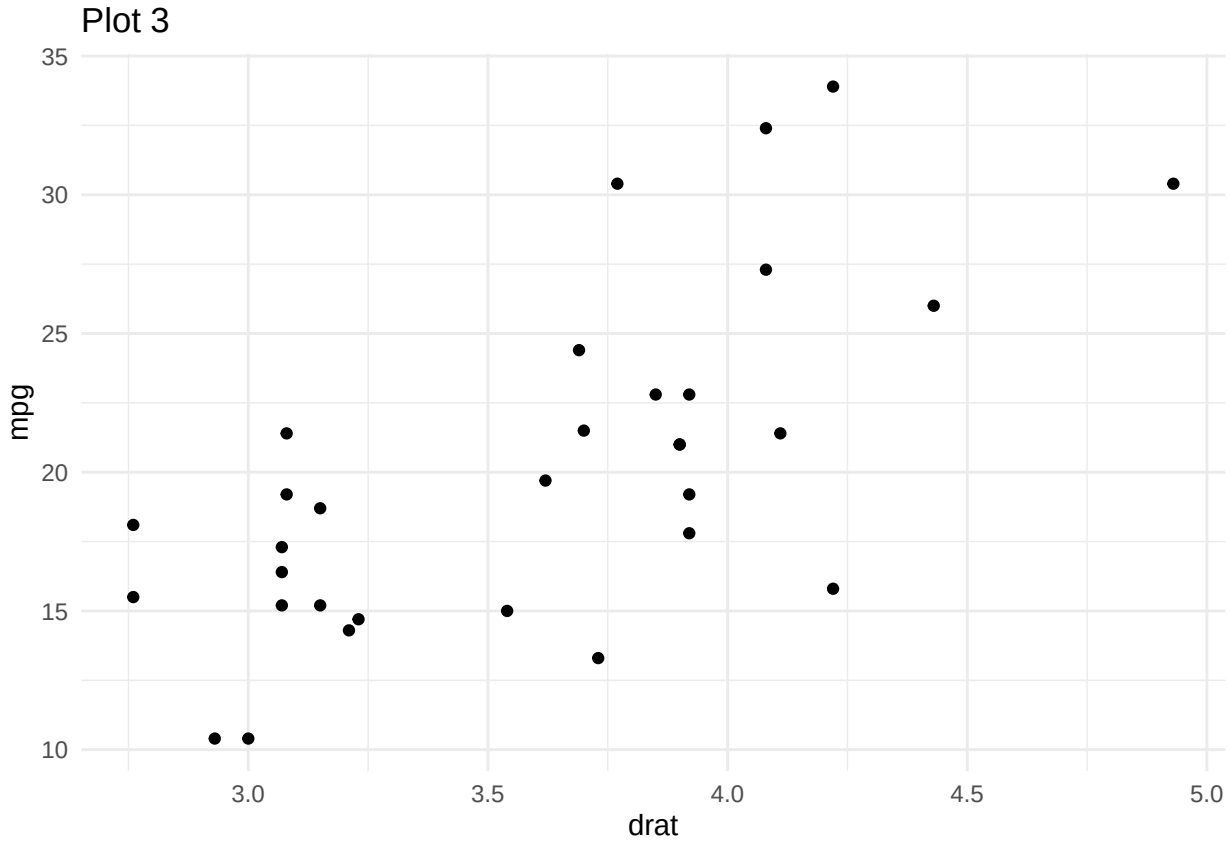
```
#install.packages(c("nlme", "janitor"))
library(nlme)
library(janitor)
library(tidyverse)

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

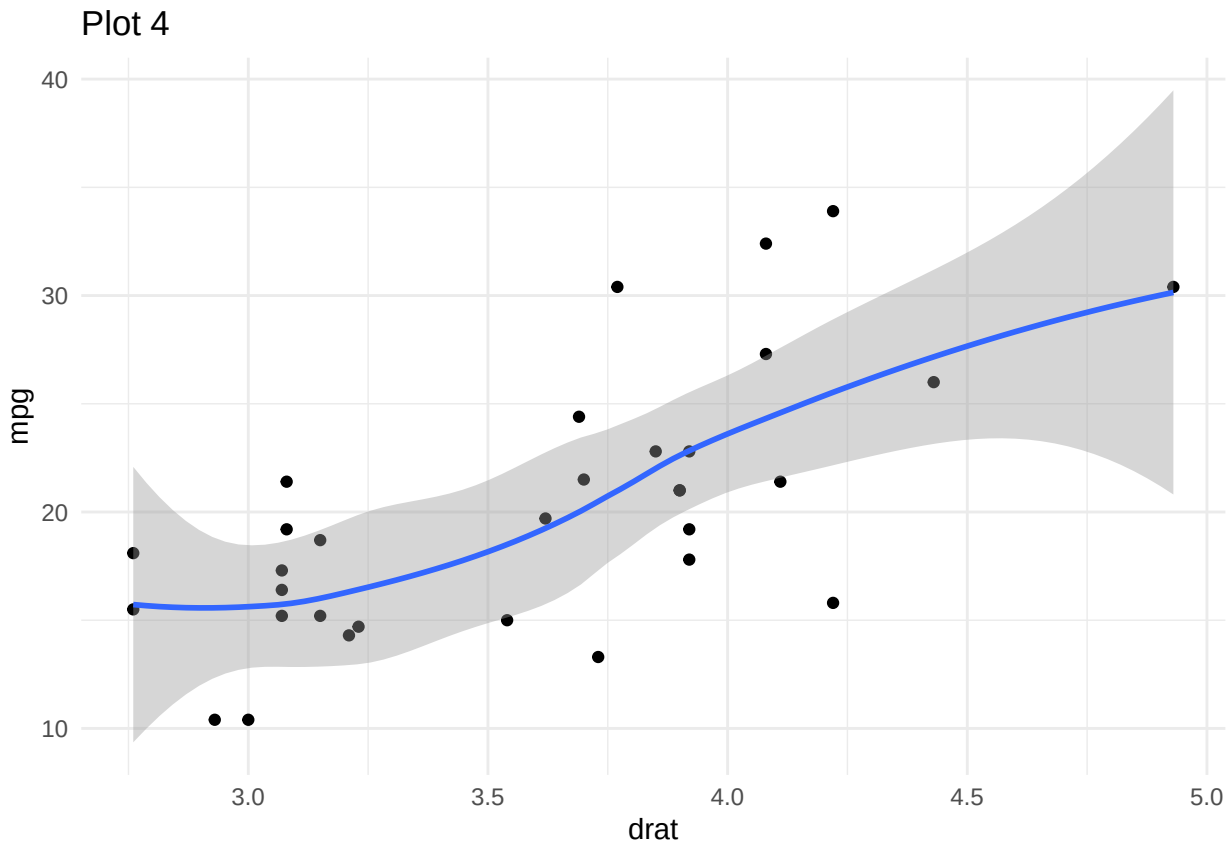
1. Reproduce the following two plots, using the *pd* data. You can use whatever theme you want (I used `theme_minimal()`), but all else should be the same.



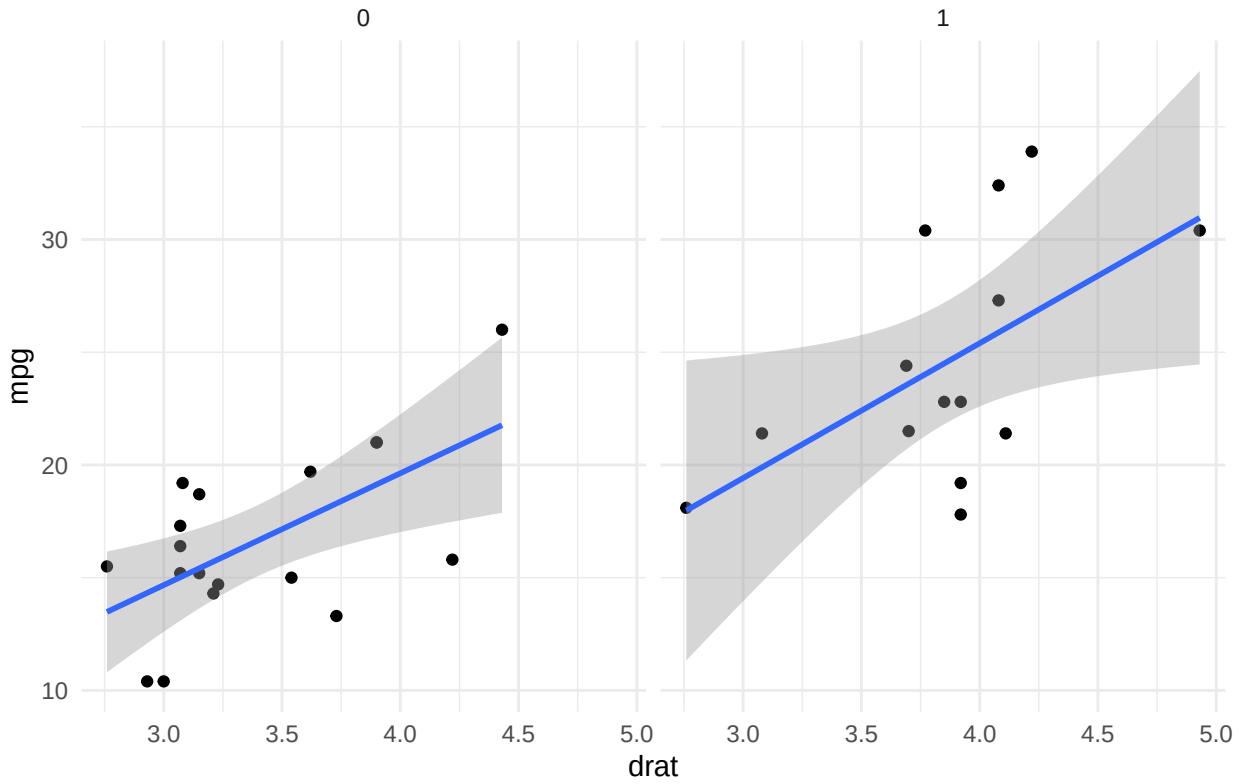

Plot 2
height
170
160
150
140
130
−1.0
−0.5
0.0
0.5
1.0
age
subject
10
7
4

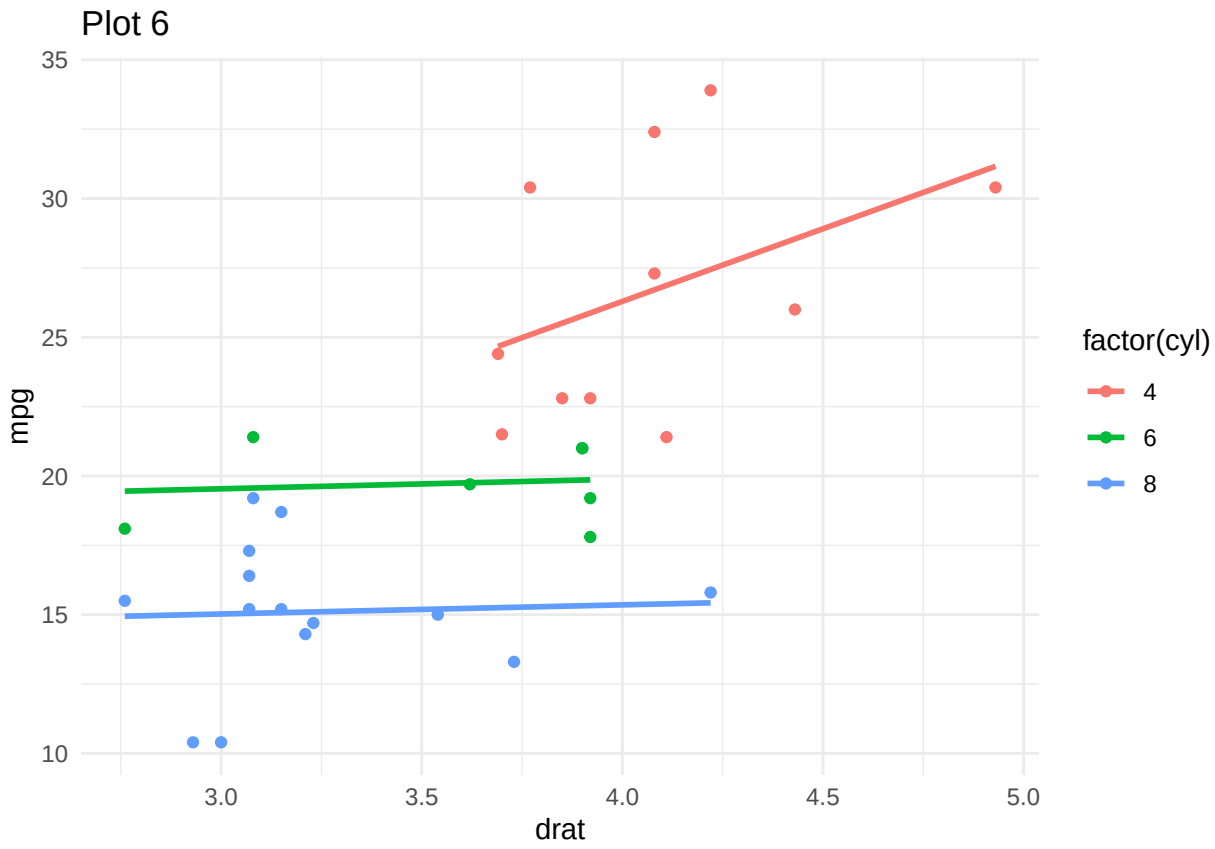
2. Use the *mtcars* dataset from base R to replicate the following plots. (Just type *mtcars* into the console to see the dataset).



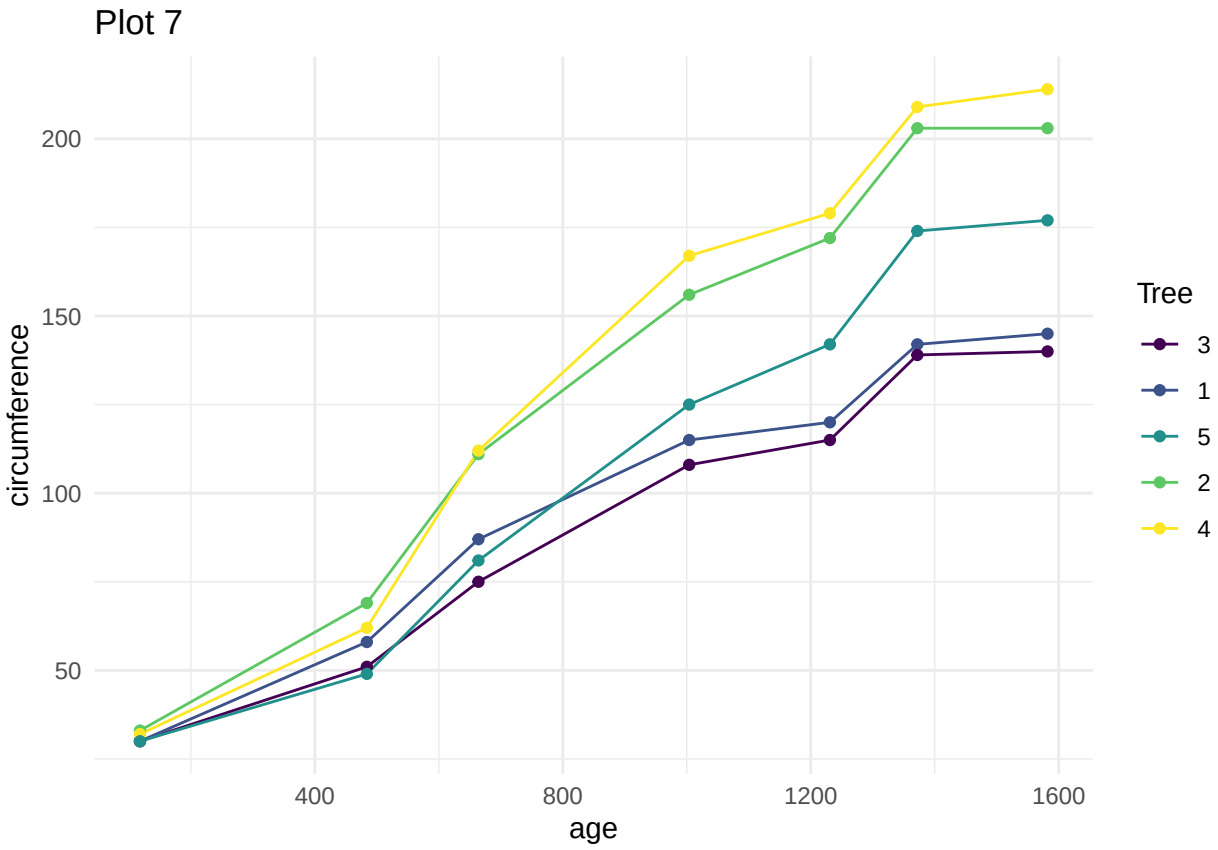

Plot 4
40
30
20
10
mpg
3.0
3.5
4.0
4.5
5.0
drat

Plot 5




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.




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