PSYCH 252: Statistical Methods for Behavioral and Social Sciences

Visualization 2

Things that came up ...

10 guidelines for effective data visualization (Keheller & Wagner, 2011)

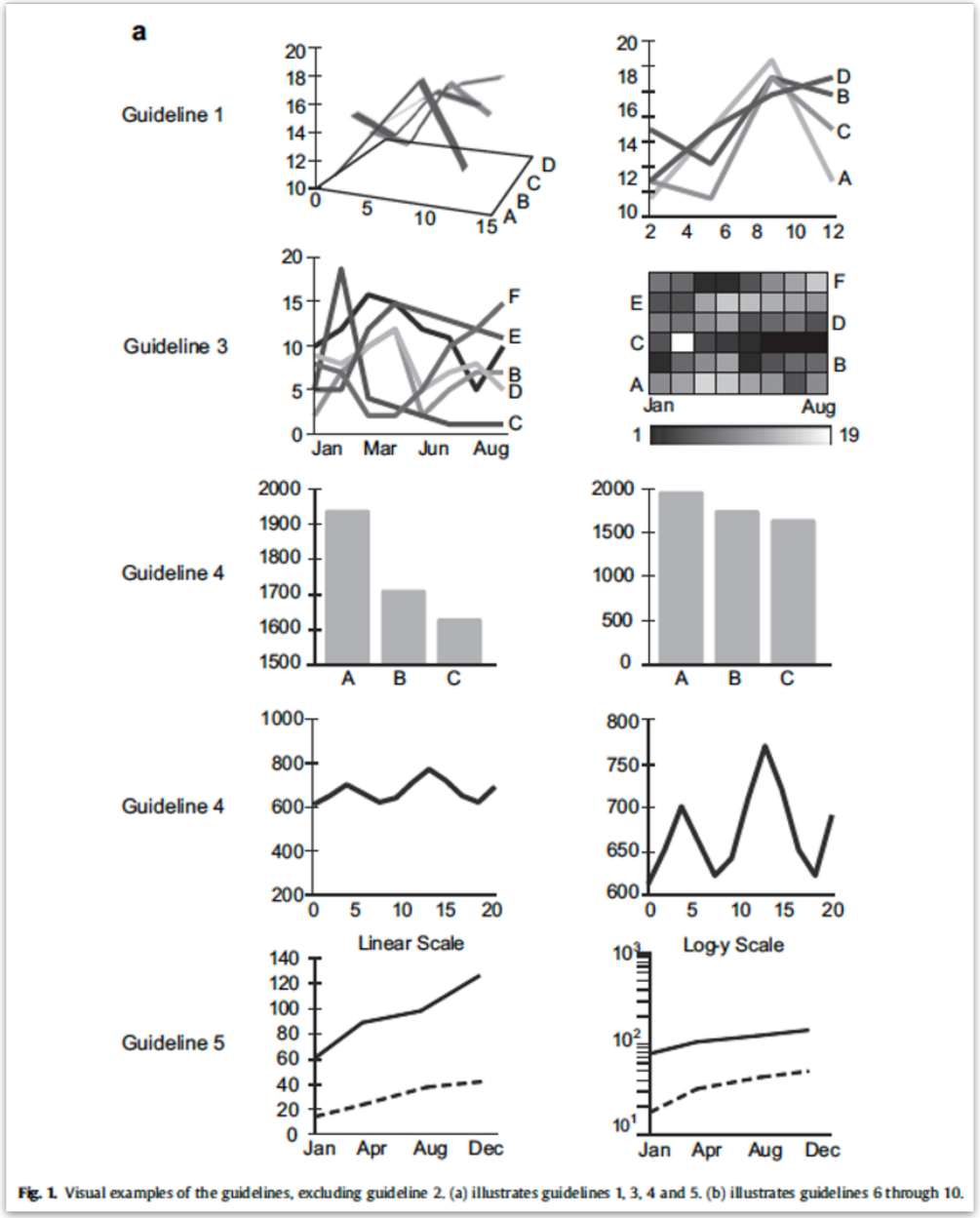


Fig. 1. Visual examples of the guidelines, excluding guideline 2. (a) illustrates guidelines 1, 3, 4 and 5. (b) illustrates guidelines 6 through 10.

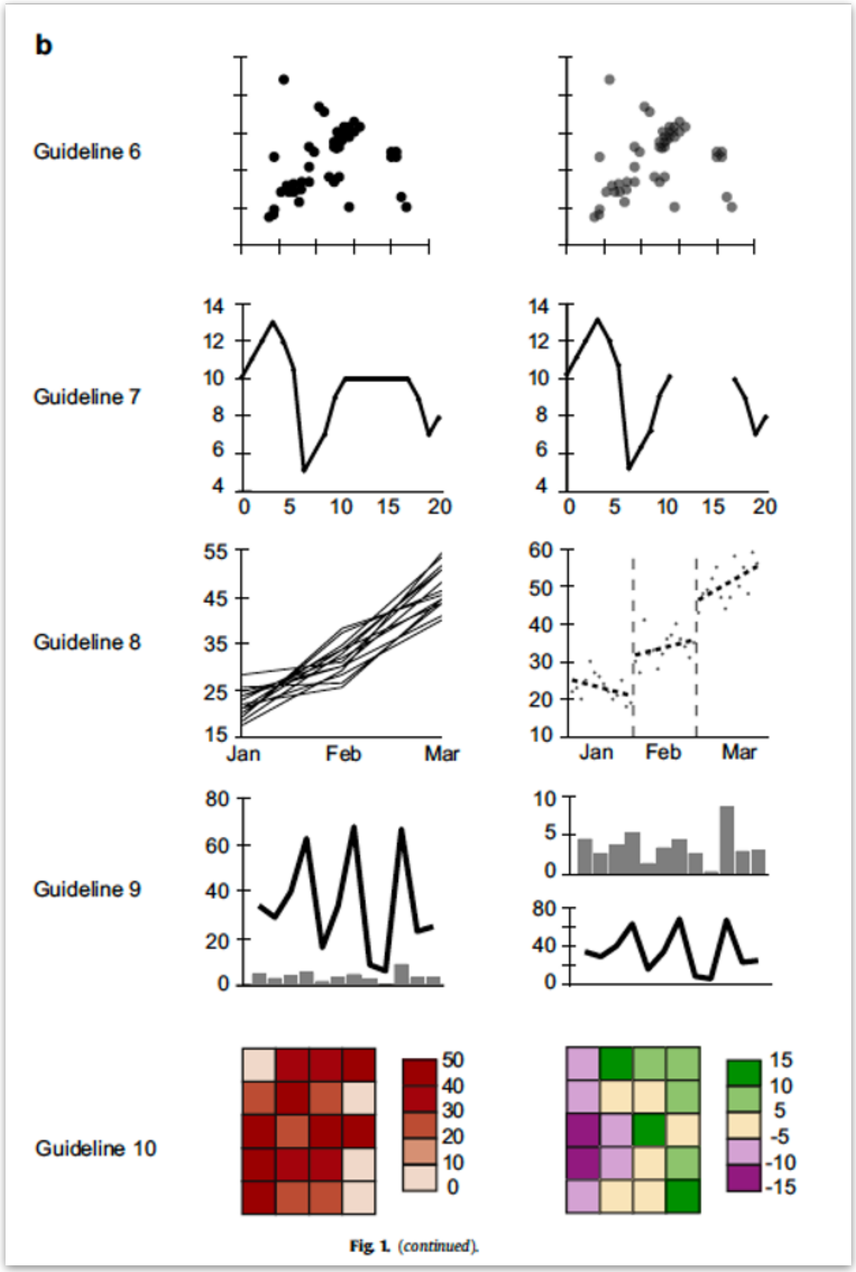
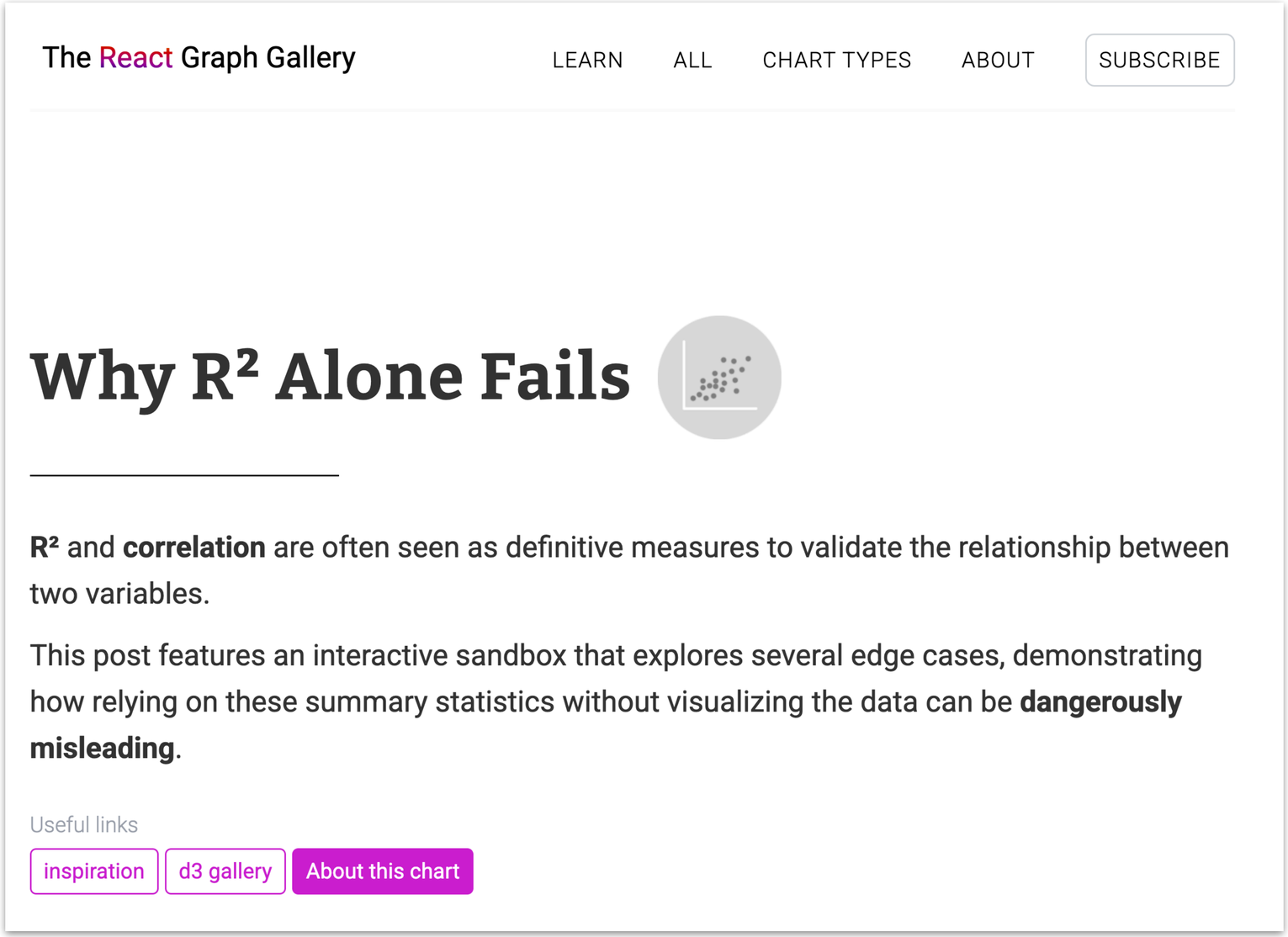


Fig. 1. (continued).

Nice interactive visualization



https://www.react-graph-gallery.com/example/scatterplot-r2-playground

Homework

Homework

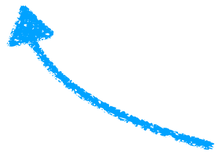
In this homework, **you'll write a short blog post** about a data set. Your goal is to tell us something interesting using a well-crafted, thoughtfully-prepared data graphic.

Grading Rubric

There are 15 possible points for this homework.

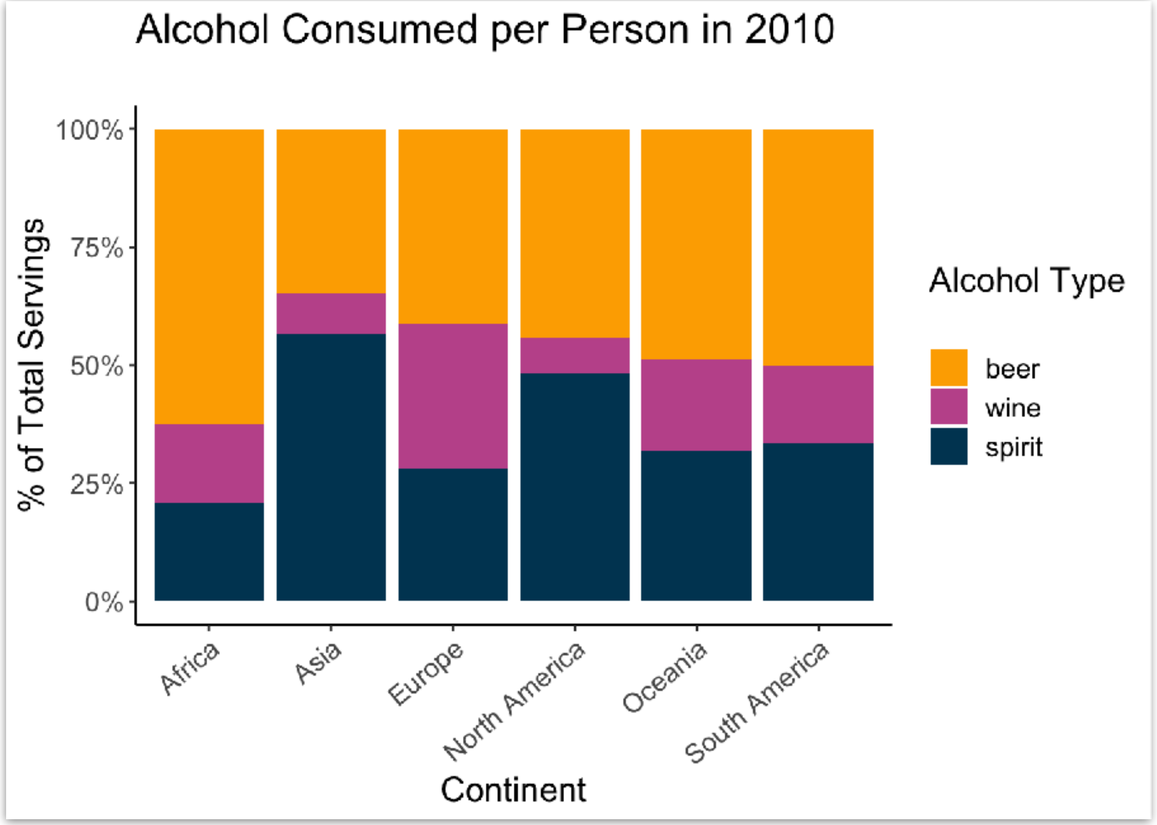
Here are some of the things we care about:

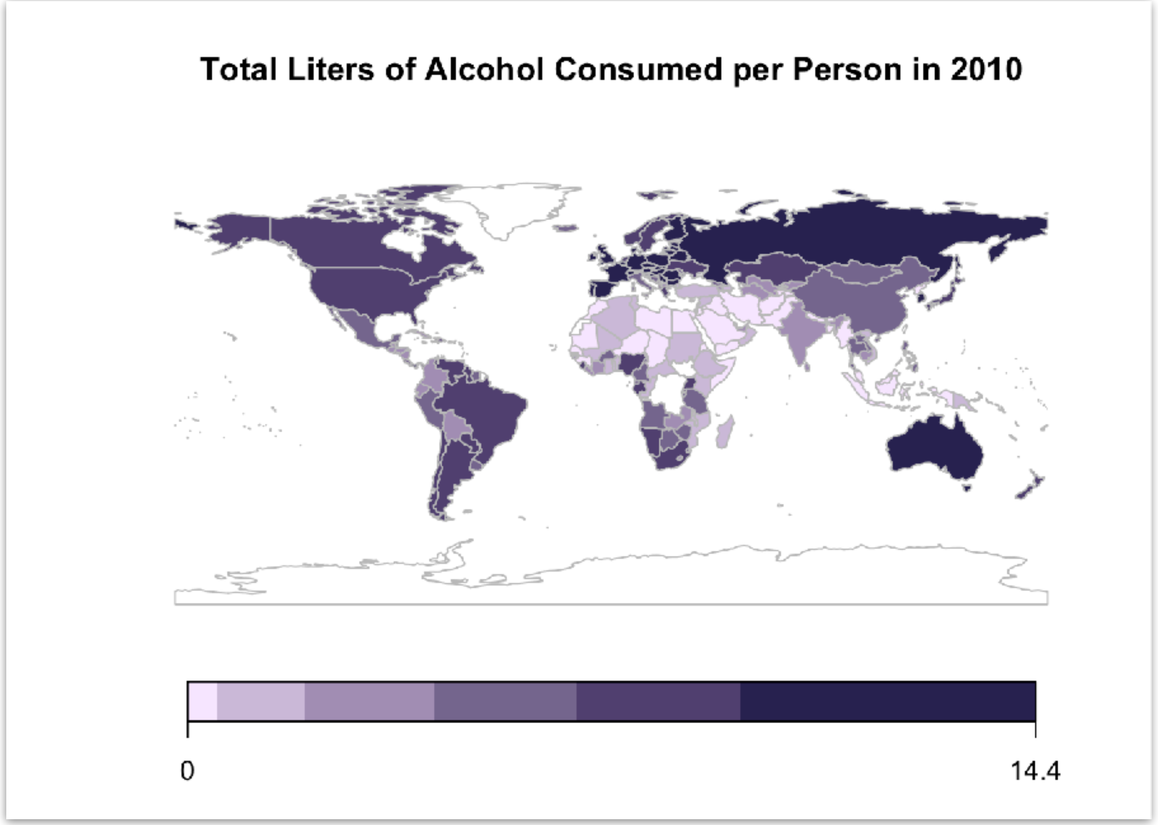
- include all the code that you used to generate the plot (3 points)
- consistent coding style (2 points)
- all the code can be seen in the knitted pdf document (1 point)
- an interesting plot that demonstrates what you've learned in class (4 points)
- a figure caption that is sufficient to understand the plot (2 points)
- a succinct blog post to go with the plot (3 points)



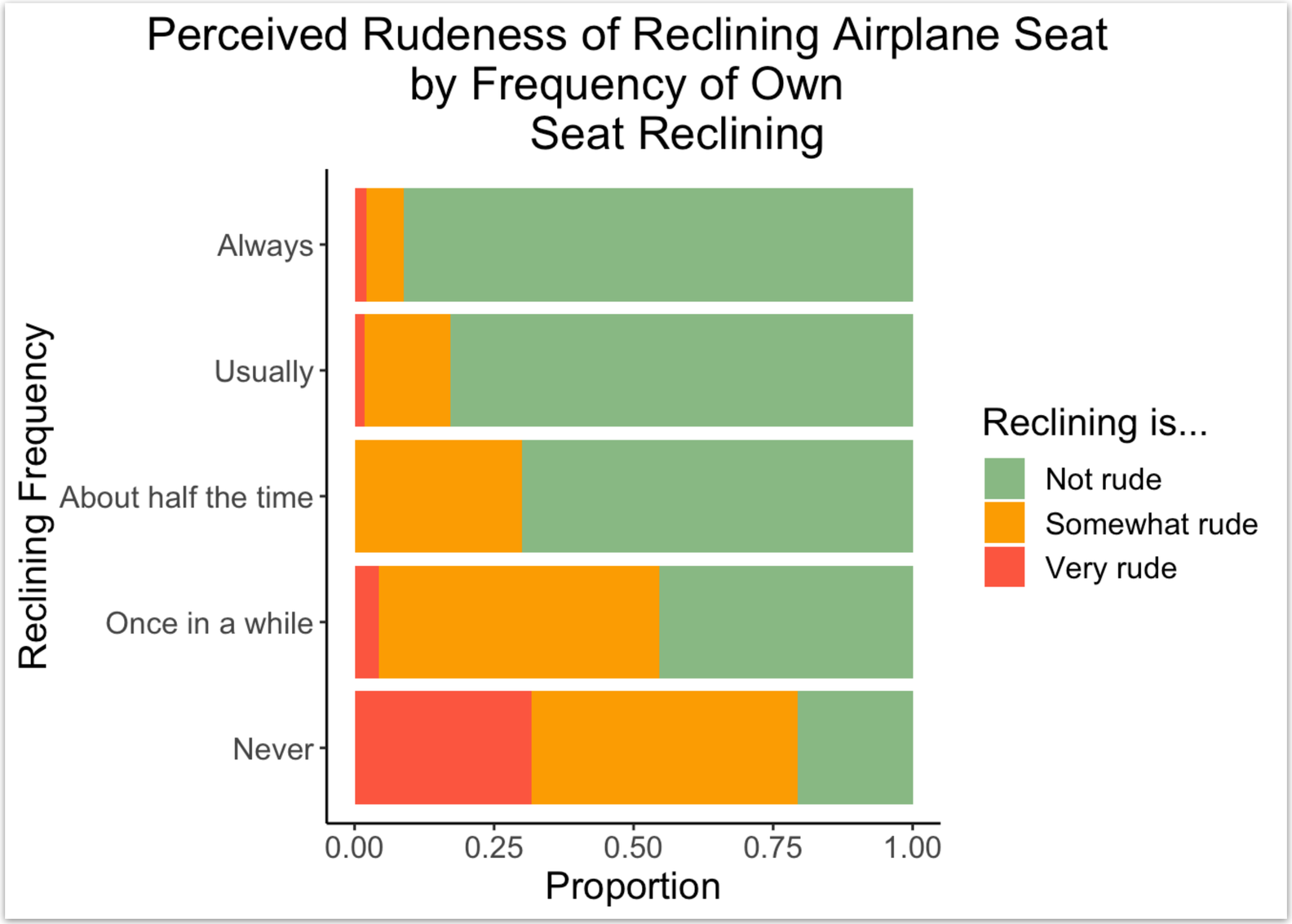
is at the bottom of the RMarkdown file

Homework


Alcohol Consumed per Person in 2010
100%
75%
50%
25%
0%
% of Total Servings
Africa
Asia
Europe
North America
Oceania
South America
Continent
Alcohol Type
beer
wine
spirit


Total Liters of Alcohol Consumed per Person in 2010
0
14.4

Homework

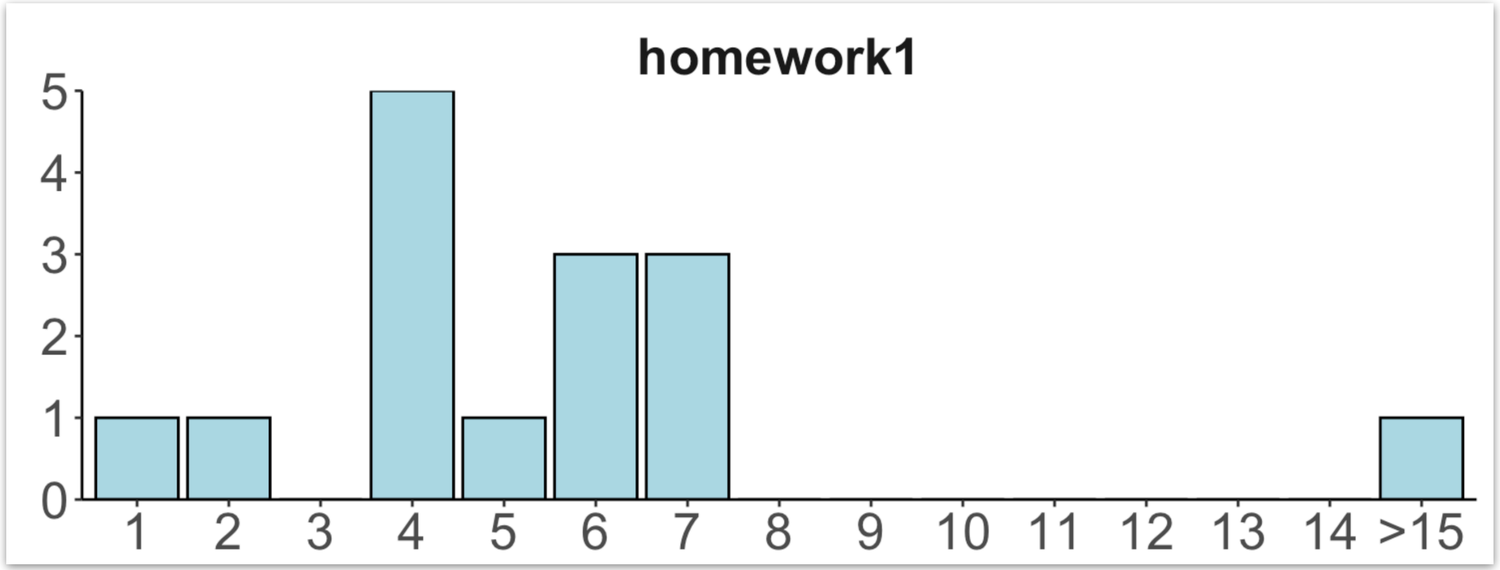

Perceived Rudeness of Reclining Airplane Seat
by Frequency of Own
Seat Reclining
Reclining Frequency
Always
Usually
About half the time
Once in a while
Never
0.00
0.25
0.50
0.75
1.00
Proportion
Reclining is...
Not rude
Somewhat rude
Very rude

Homework

Homework is due by **Thursday 15th, 8pm**

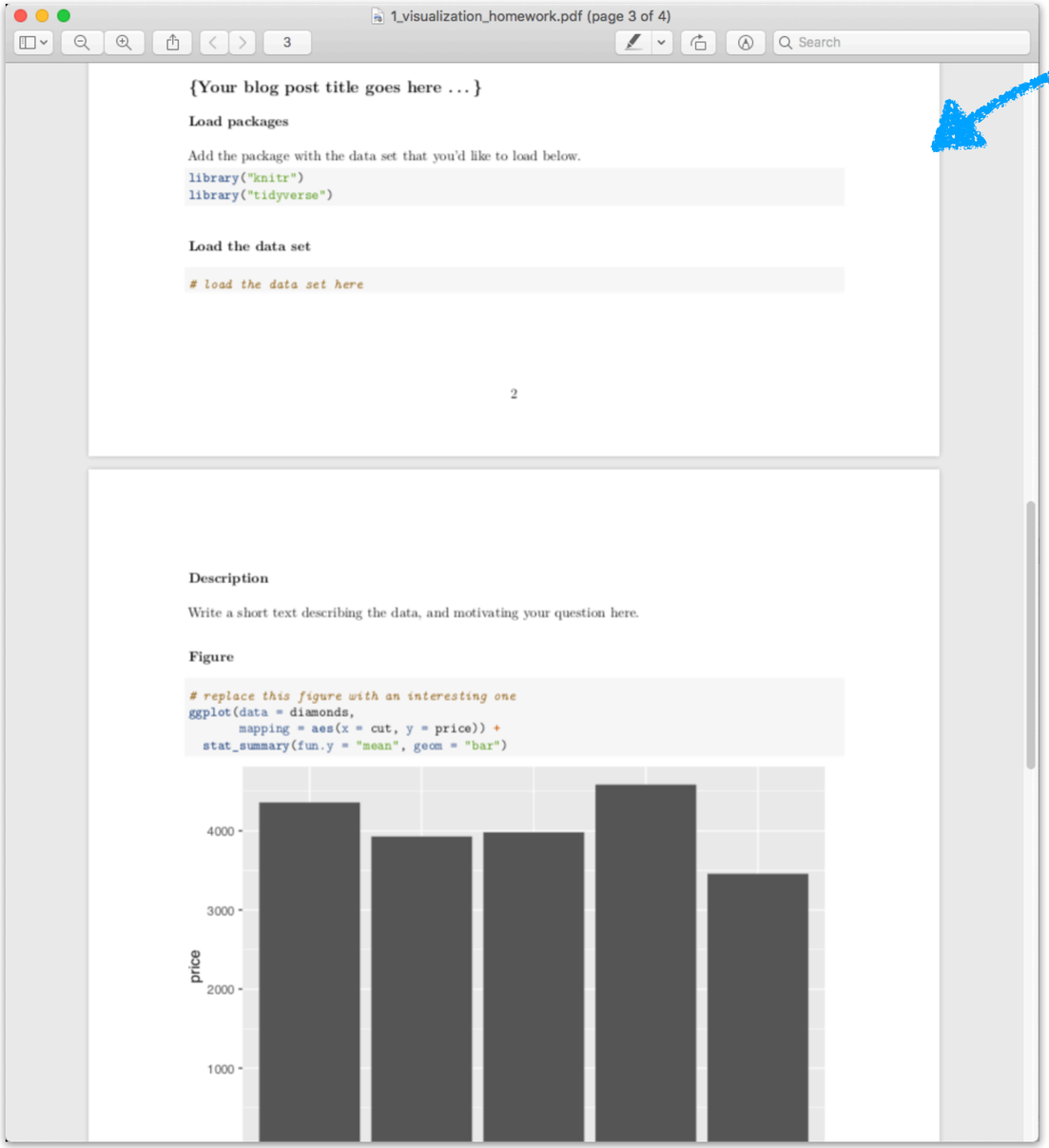
Submit **two files:**

- the raw **.Rmd** file
- the rendered **.pdf** file that contains the code as well as the figure.



how long it took people in the past

Homework



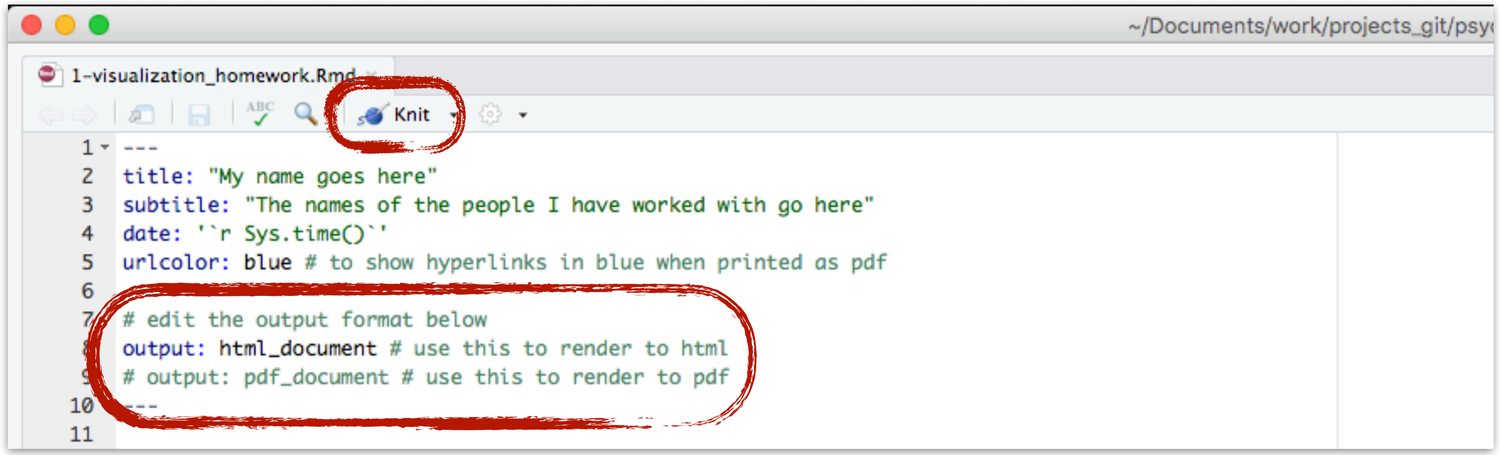
should look sort of like this ...

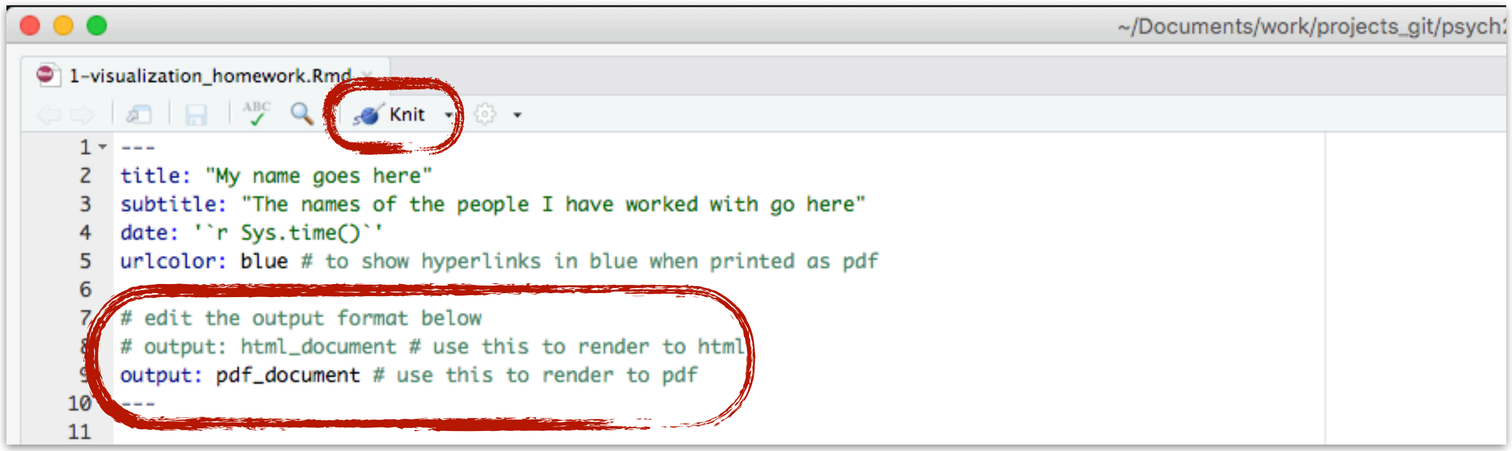
Homework

- install `tinytex` (https://yihui.name/tinytex/r/)
  - open `1-visualization.Rproj`
  - open `1-visualization_homework.Rmd` within RStudio

Homework

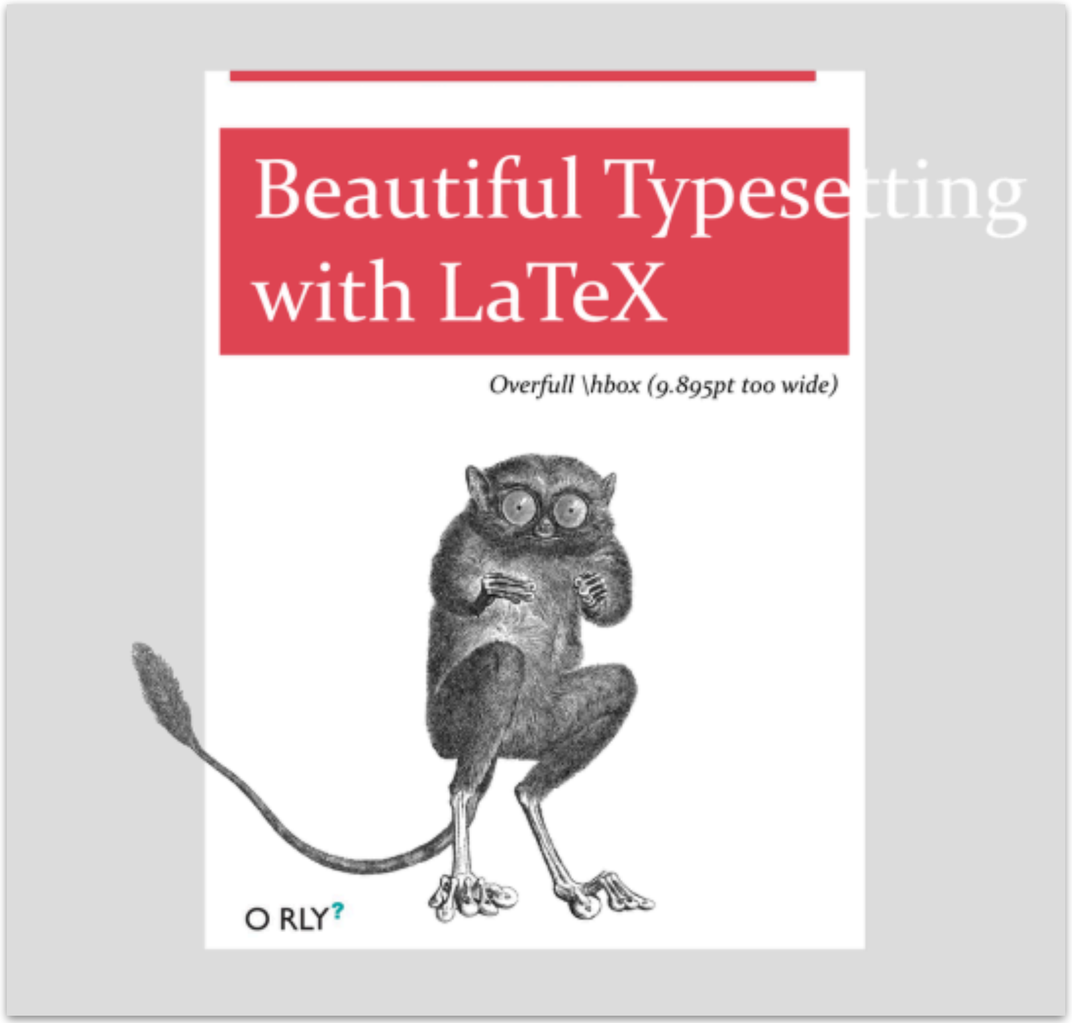
- you can change the output format from html to pdf like so ...





Homework

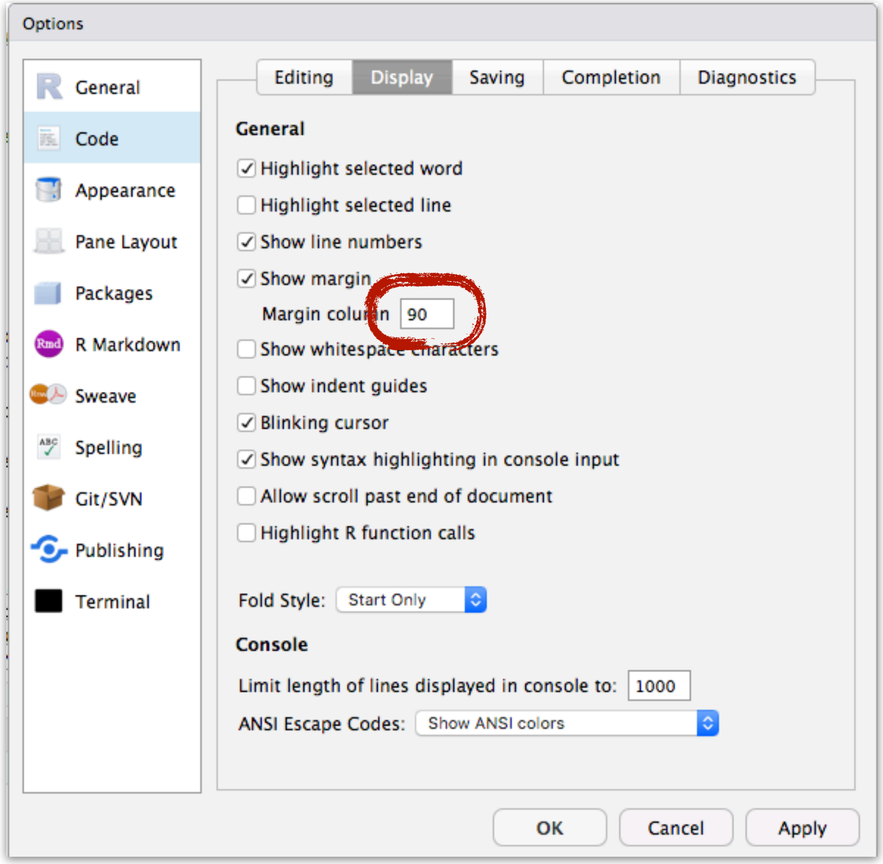
```
1 ggplot(data = df.diamonds, mapping = aes(y = price, x = color, fill = color, group = cut, shape = cut, ...)) +
2   stat_summary(fun.y = "mean", geom = "bar", color = "black") +
3   stat_summary(fun.data = "mean_cl_boot", geom = "linerange") +
4   facet_grid(rows = vars(cut), cols = vars(clarity))
```



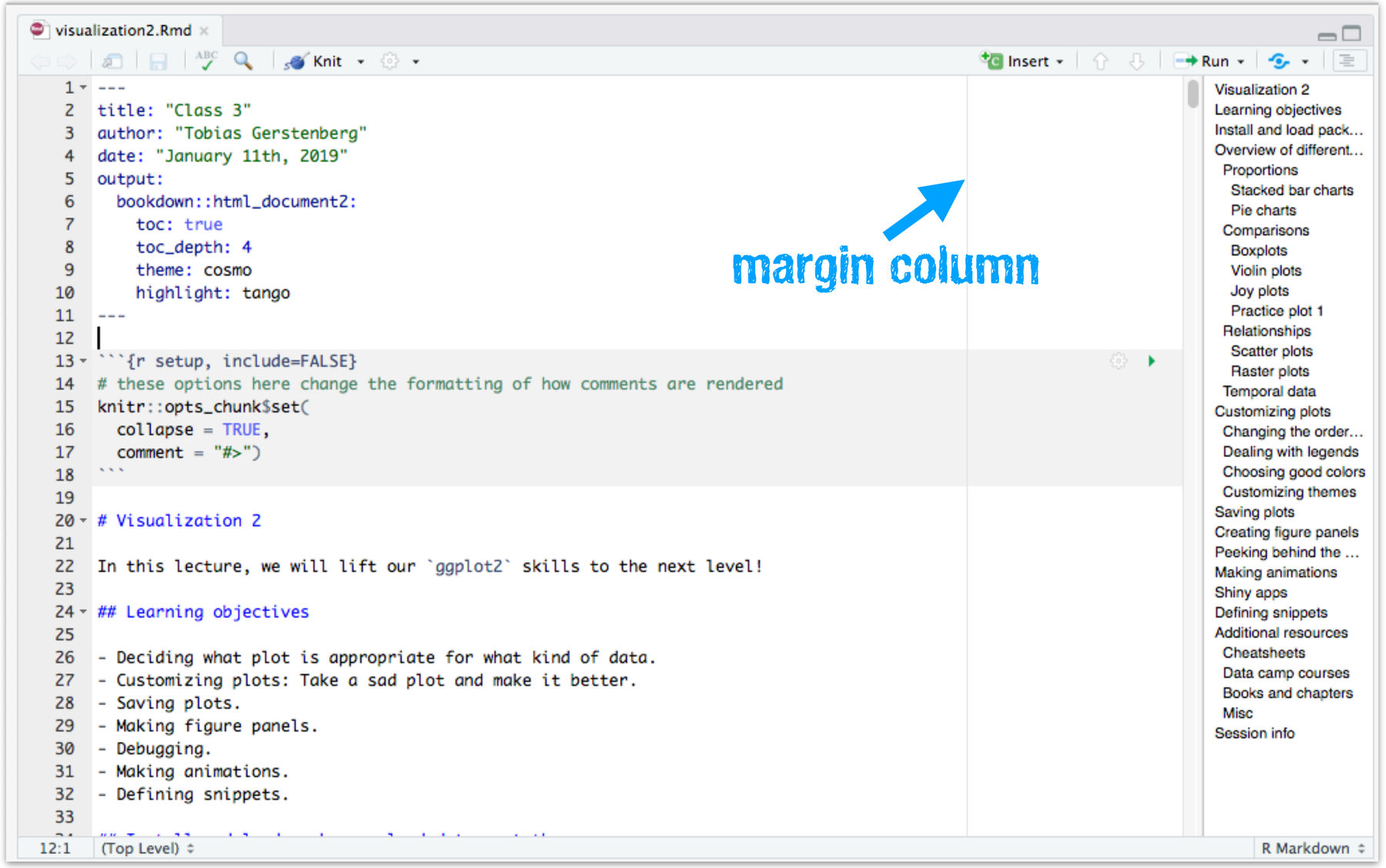
very long code without line break

Homework

- set the margin to 90 (and make sure not to go over that margin in code blocks)
- Preferences... > Code > Display

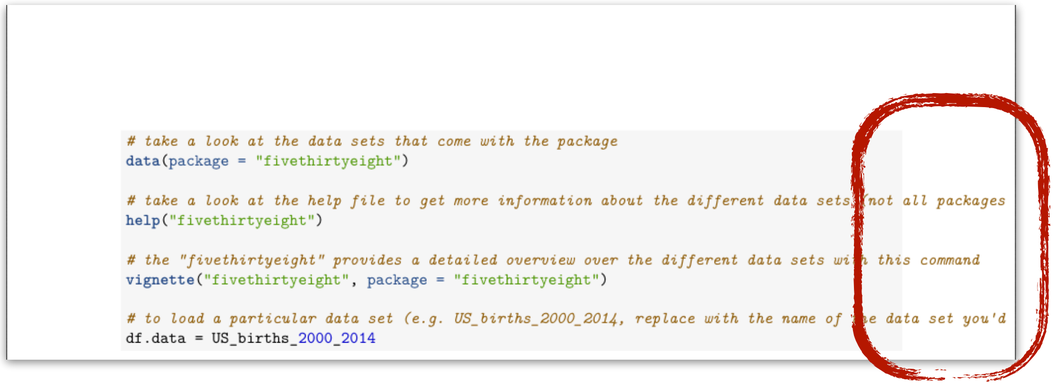


Homework


visualization2.Rmd
Knit
Insert
Run
margin column
1 ---
2 title: "Class 3"
3 author: "Tobias Gerstenberg"
4 date: "January 11th, 2019"
5 output:
6 bookdown::html_document2:
7 toc: true
8 toc_depth: 4
9 theme: cosmo
10 highlight: tango
11 ---
12
13 ```{r setup, include=FALSE}
14 # these options here change the formatting of how comments are rendered
15 knitr::opts_chunk$set(
16 collapse = TRUE,
17 comment = "#>")
18 ```
19
20 # Visualization 2
21
22 In this lecture, we will lift our `ggplot2` skills to the next level!
23
24 ## Learning objectives
25
26 - Deciding what plot is appropriate for what kind of data.
27 - Customizing plots: Take a sad plot and make it better.
28 - Saving plots.
29 - Making figure panels.
30 - Debugging.
31 - Making animations.
32 - Defining snippets.
33
Visualization 2
Learning objectives
Install and load pack...
Overview of different...
Proportions
Stacked bar charts
Pie charts
Comparisons
Boxplots
Violin plots
Joy plots
Practice plot 1
Relationships
Scatter plots
Raster plots
Temporal data
Customizing plots
Changing the order...
Dealing with legends
Choosing good colors
Customizing themes
Saving plots
Creating figure panels
Peeking behind the ...
Making animations
Shiny apps
Defining snippets
Additional resources
Cheatsheets
Data camp courses
Books and chapters
Misc
Session info
12:1
(Top Level)
R Markdown

Homework

- set the margin to 90 (and make sure not to go over that margin in code blocks)
- Preferences... > Code > Display



```
# take a look at the data sets that come with the package
data(package = "fivethirtyeight")

# take a look at the help file to get more information about the different data sets (not all packages
help("fivethirtyeight")

# the "fivethirtyeight" provides a detailed overview over the different data sets with this command
vignette("fivethirtyeight", package = "fivethirtyeight")

# to load a particular data set (e.g. US_births_2000_2014, replace with the name of the data set you'd
df.data = US_births_2000_2014
```

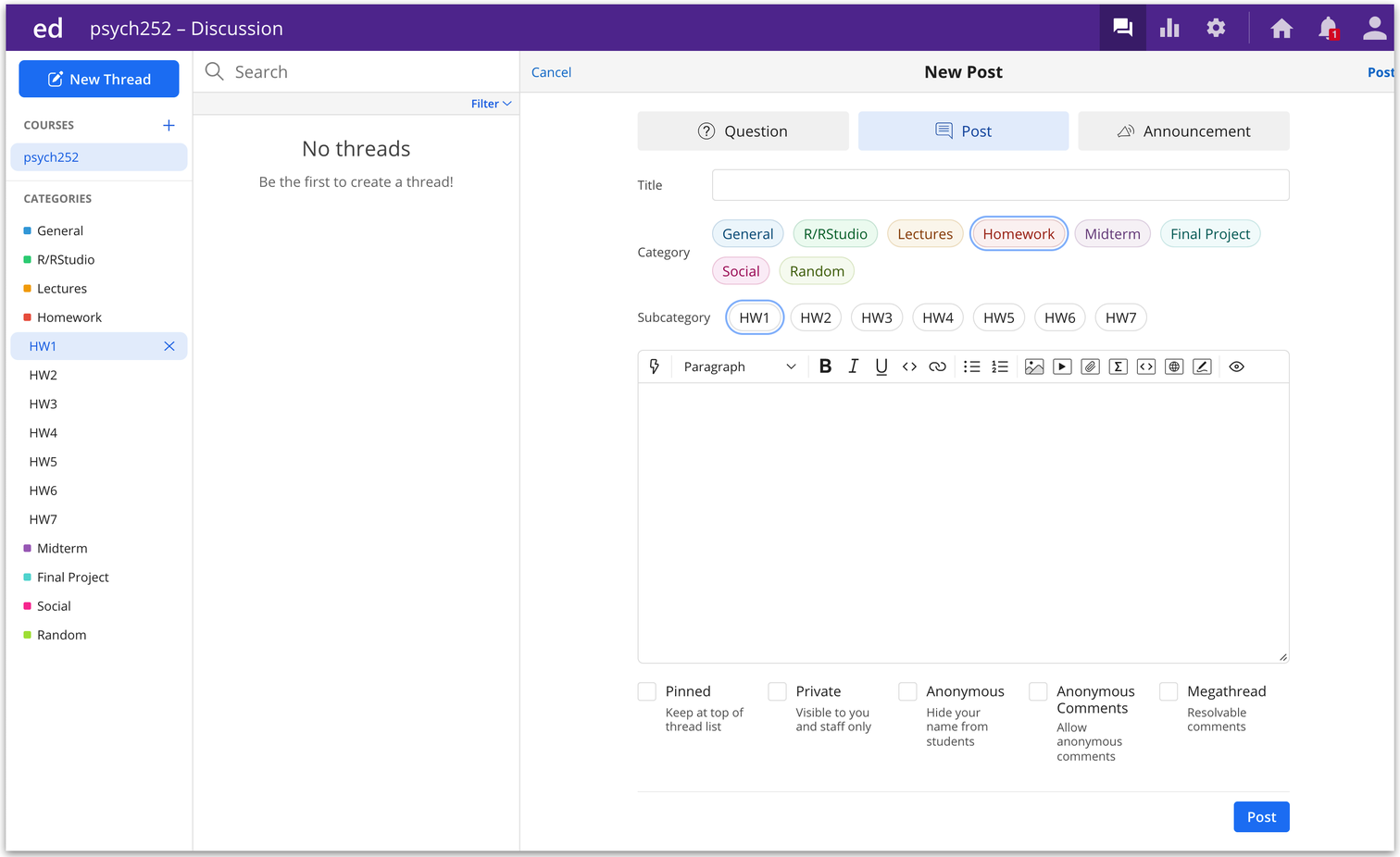
not good

only important in code chunks!

```
# take a look at the data sets that come with the package
data(package = "fivethirtyeight")

# take a look at the help file to get more information about the different data sets (not
# all packages have help files)
help("fivethirtyeight")

# the "fivethirtyeight" provides a detailed overview over the different data sets with
# this command
vignette("fivethirtyeight", package = "fivethirtyeight")

# to load a particular data set (e.g. US_births_2000_2014, replace with the name of the
# data set you'd liked to load) into your environment, run the following
df.data = US_births_2000_2014
```

good!

Homework



post on Ed Discussion if you have any questions about the homework

RStudio & visualization time!

blue

pink

Anatomy of a nice `ggplot`

```
# ggplot call with global aesthetics
ggplot(data = data,
       mapping = aes(x = cause,
                     y = effect)) +
  # add geometric objects (geoms)
  geom_point() +
  stat_summary(fun.y = "mean", geom = "point") +
  ... +
  # add text objects
  geom_text() +
  annotate() +
  # adjust axes and coordinates
  scale_x_continuous() +
  scale_y_continuous() +
  coord_cartesian() +
  # define plot title, and axis titles
  labs(title = "Title",
       x = "Cause",
       y = "Effect") +
  # change global aspects of the plot
  theme(text = element_text(size = 20),
        plot.margin = margin(t = 1, b = 1, l = 0.5, r = 0.5, unit = "cm")) +
  # save the plot
  ggsave(filename = "super_nice_plot.pdf",
         width = 8,
         height = 6)
```

what?

how?

add some text?

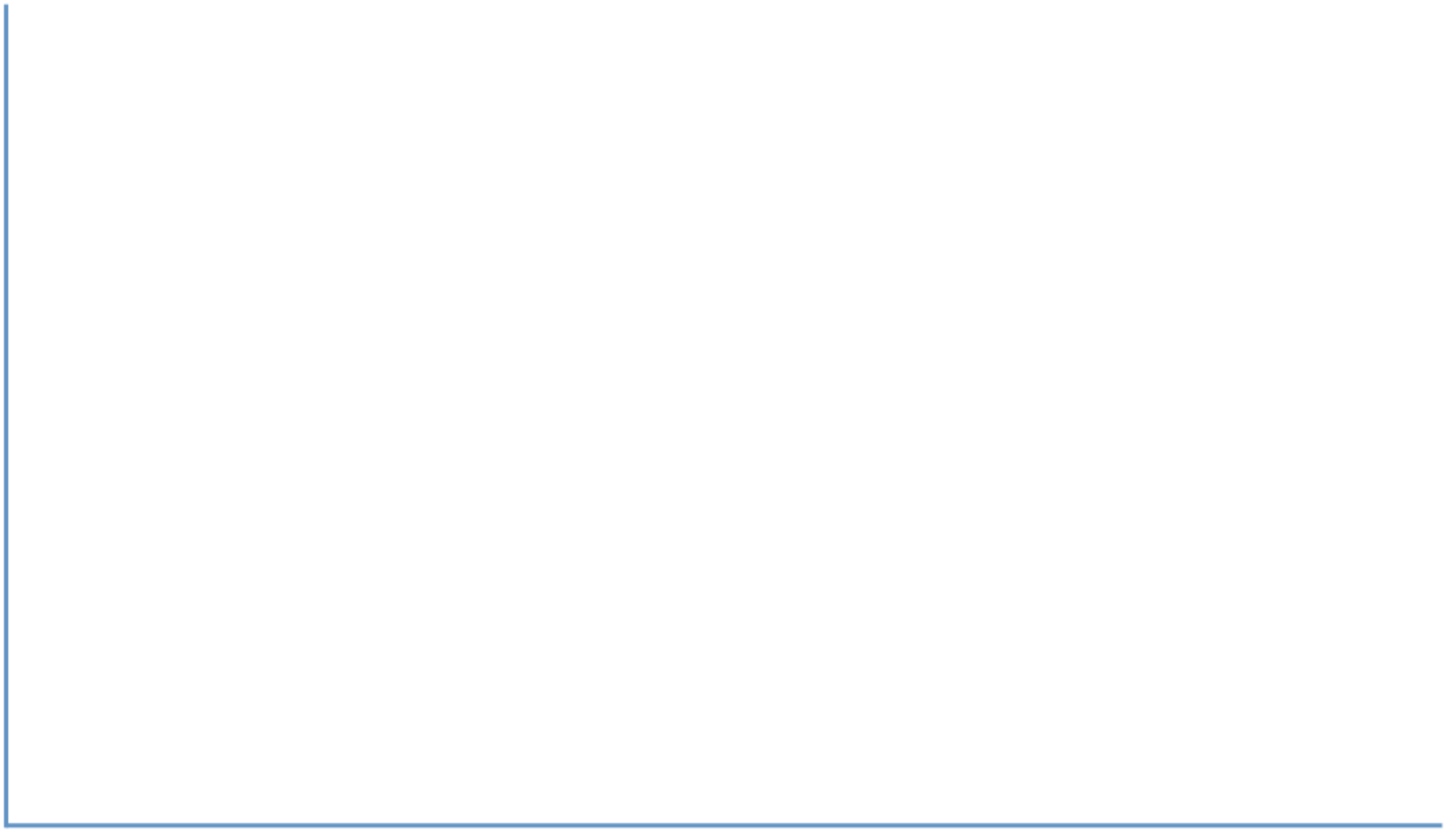
"local" adjustments

"global" adjustments

save the beauty!

Feedback

How was the pace of today's class?



How happy were you with today's class overall?

What did you like about today's class? What could be improved next time?

Thank you!