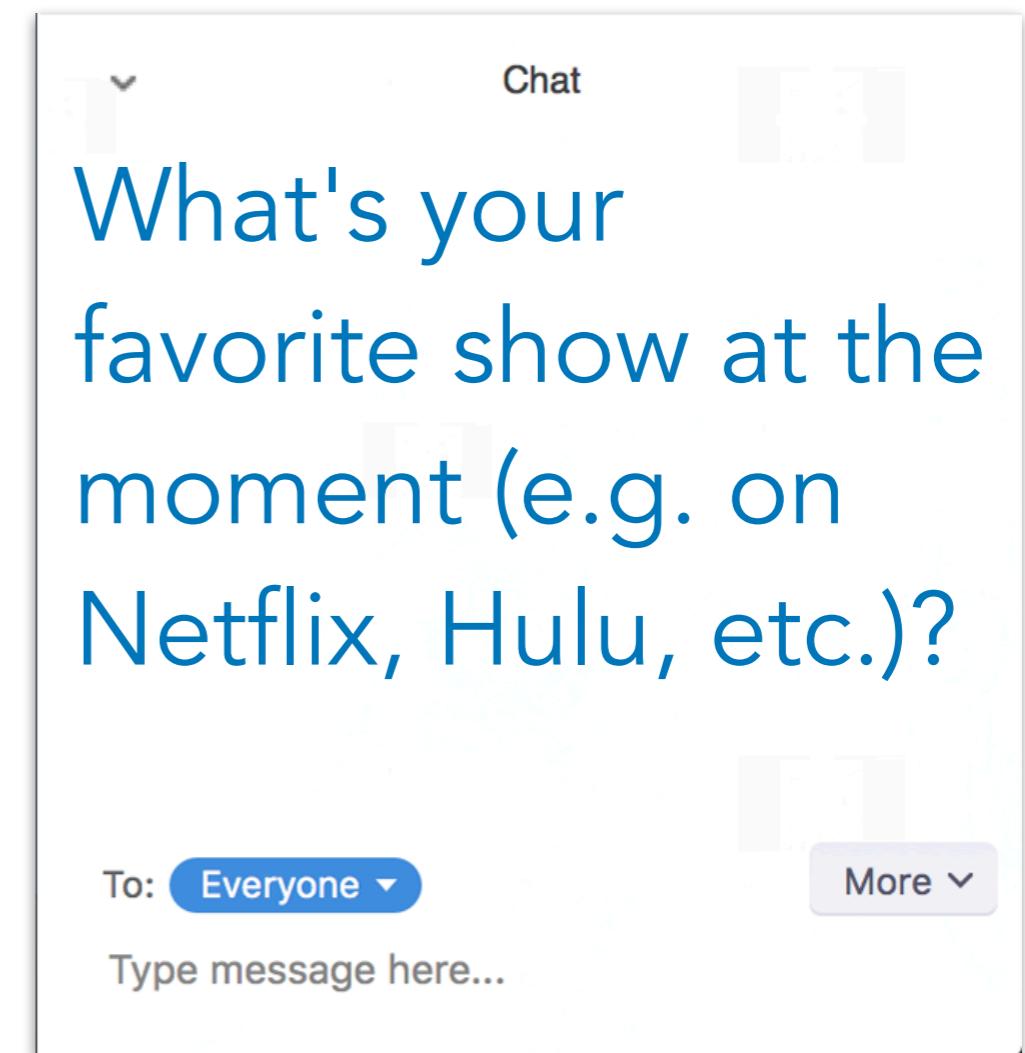


Visualization 2

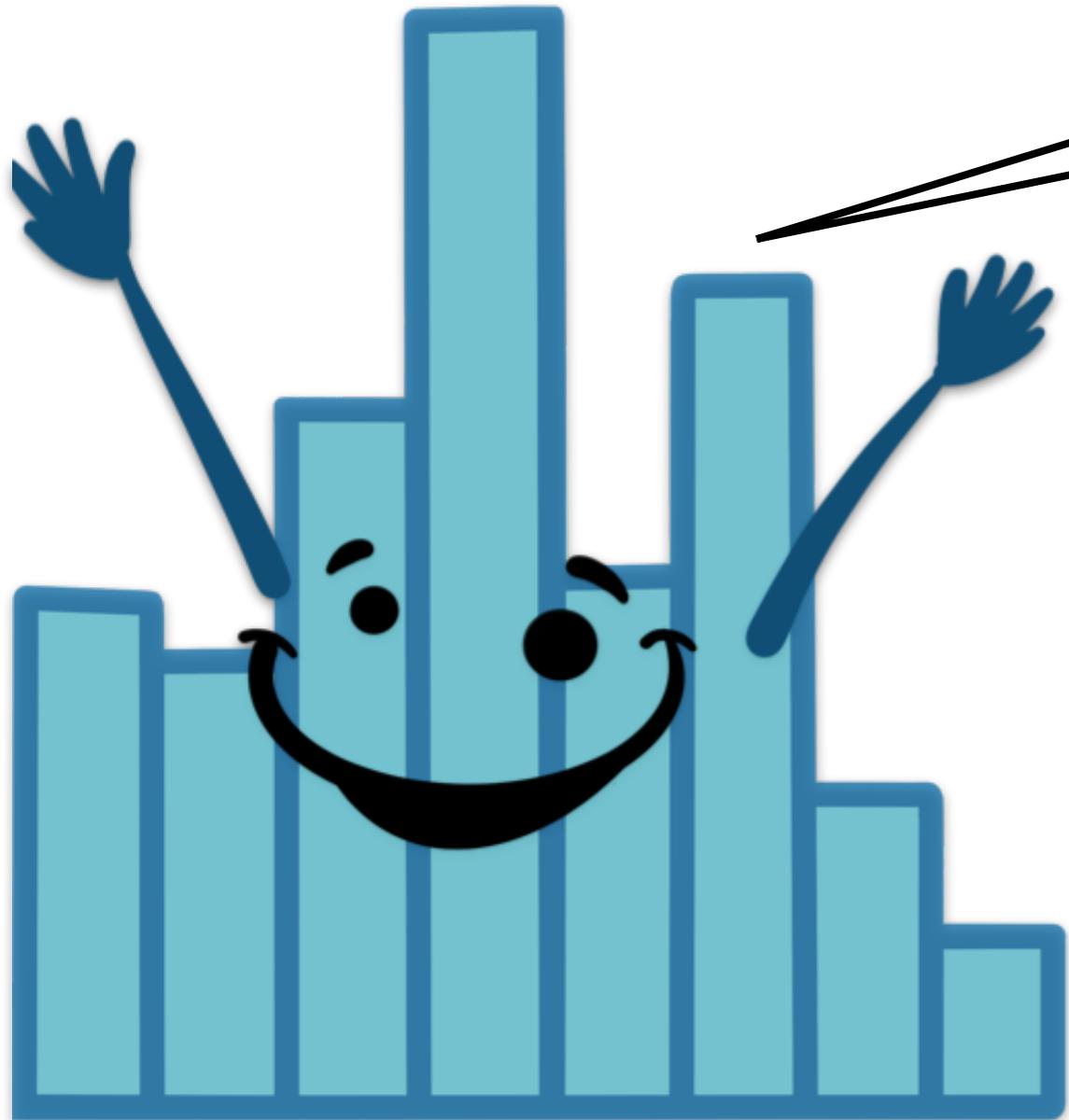


O COLLABORATIVE PLAYLIST
psych252
<https://tinyurl.com/psych252spotify21>

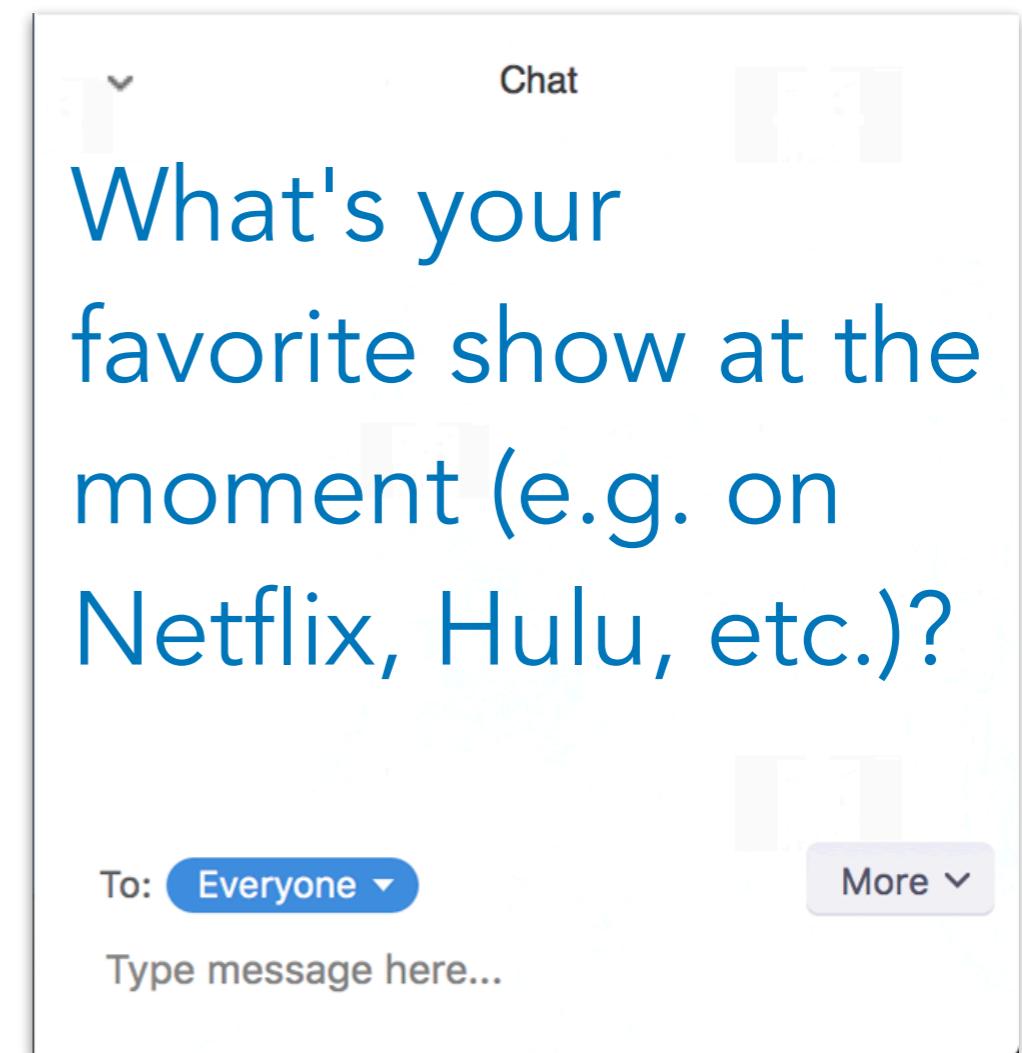
PLAY ...

01/15/2021

Remember to
record the
lecture!



Visualization 2



O COLLABORATIVE PLAYLIST
psych252
<https://tinyurl.com/psych252spotify21>

PLAY ...

01/15/2021

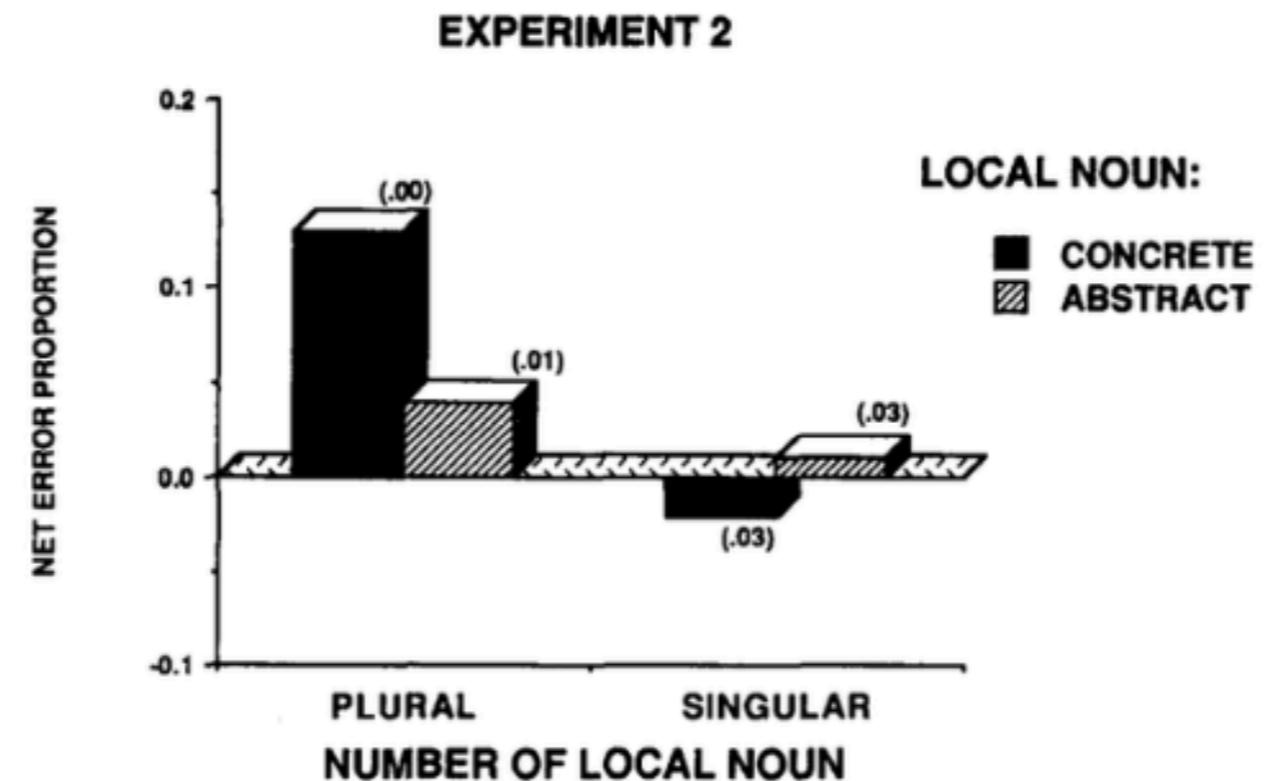
Things that came up ...

Struggling with 3D plots



Dr Laurel Brehm
@DrLearnasaurus

plea for open science: 30 years later, some poor sap might end up needing to estimate your raw data by inverting difference scores read from a 3d bar plot.



1:50 PM · Jan 8, 2020 · Twitter Web App

20 Likes

Introductory survey

A screenshot of a survey interface. At the top, there are two buttons: "Questions" (in green) and "Responses" (in grey). A black rectangular box highlights the "Responses" button, which has the number "13" in a circle next to it. A blue arrow points from the text "I want some more :)" to the top right corner of this highlighted box. Below the buttons, a green header bar contains the title "Psych 252: Introductory survey". The main content area below the header contains the text: "We would like to get to know you better! Through this survey, we'll get a better sense of who you are that will help us best tailor the class to your needs." There are three horizontal lines for notes at the bottom of this area.

<https://tinyurl.com/psych251survey21>

Section times

Doodle Pricing Help English ▾

Sign up Log in Create a Doodle

Psych 252 section times

by Tobias Gerstenberg • 3 days ago • Print

Add to Slack

Please indicate what section times you would be able to attend.

All times displayed in America/Los Angeles

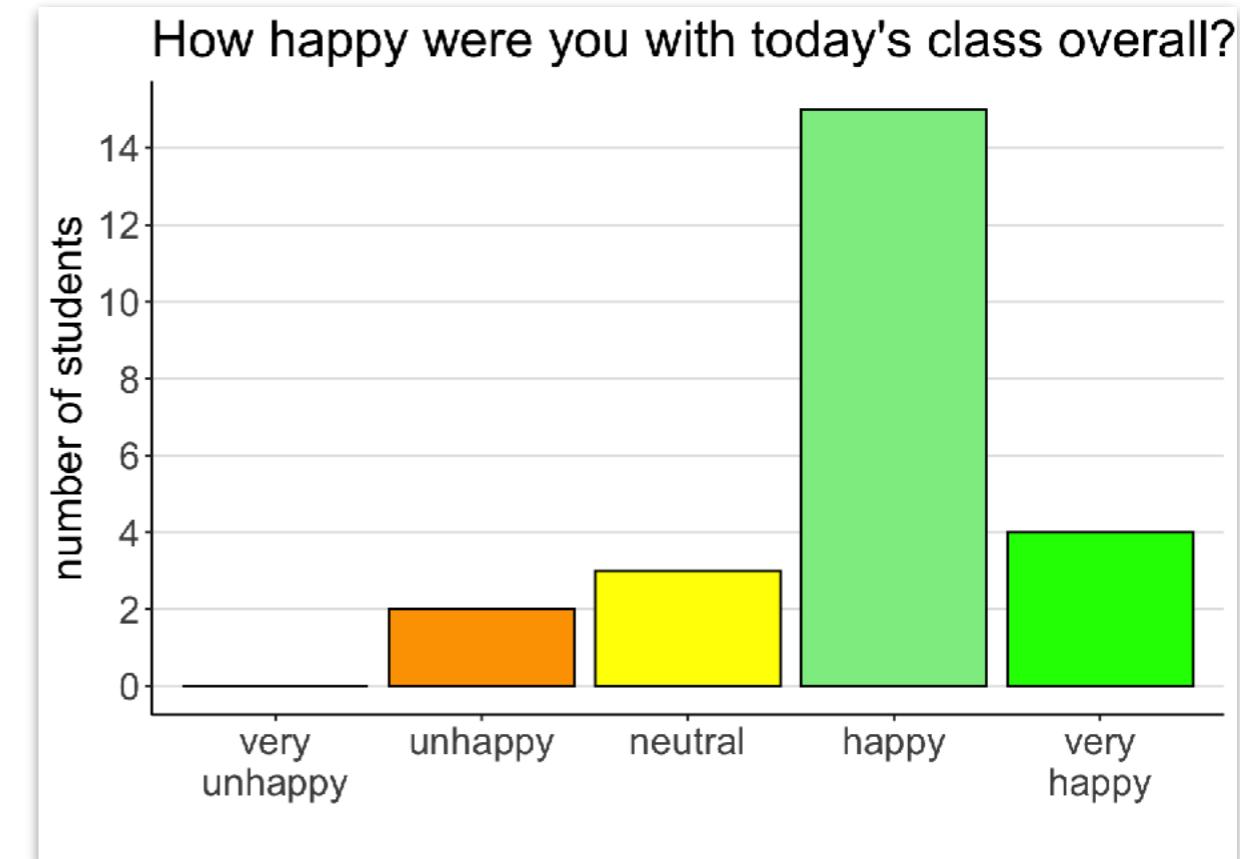
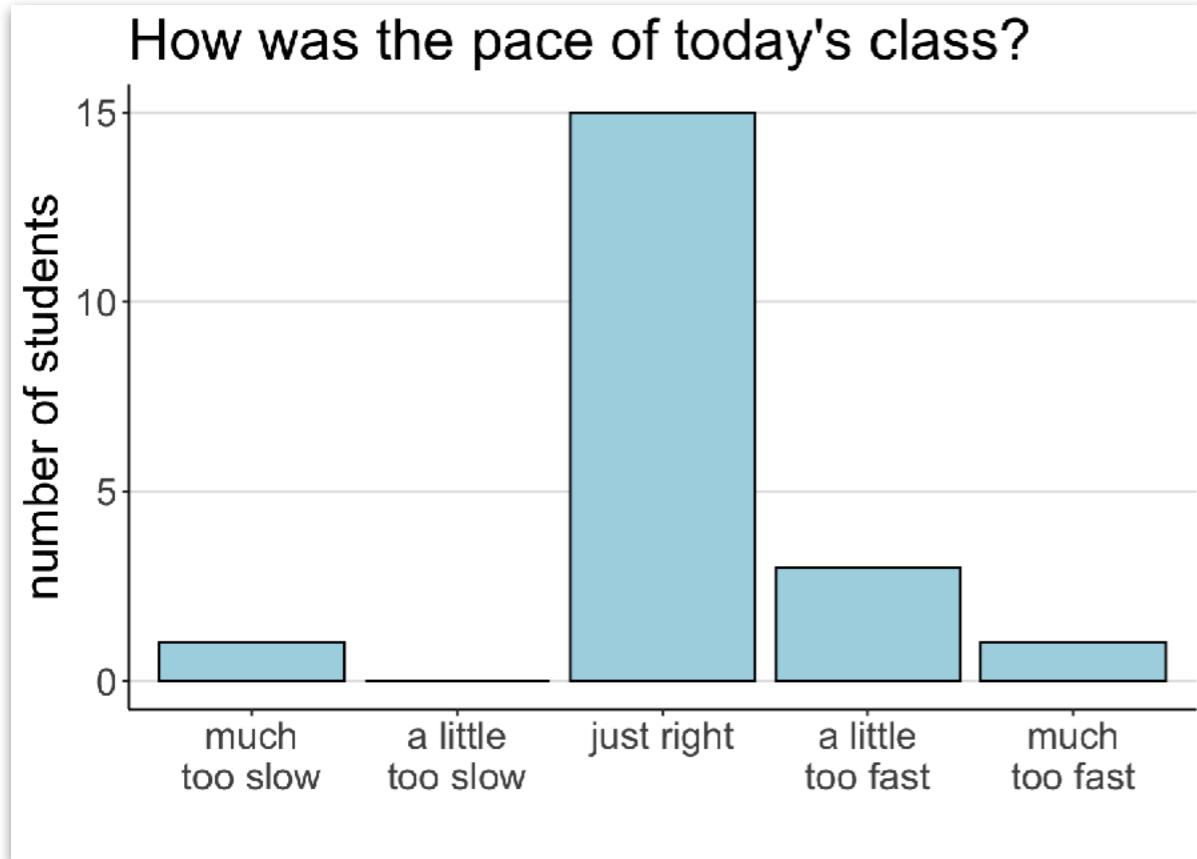
Table Calendar

	Jan 19 TUE	Jan 19 TUE	Jan 21 THU
18 participants	✓ 6	✓ 7	✓ 9

<https://tinyurl.com/psych252doodle21>

Your feedback

Your feedback



Appreciated that the TAs popped in our breakout room and checked if we needed help.

Really liked working through the problem in the breakout group!

Some interface things with R Studio could be explained better.

Homework

Homework

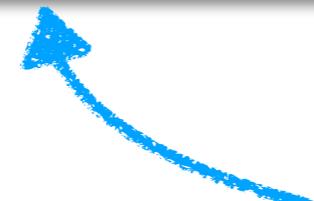
In this homework, **you'll write a short blog post** about a data set. Your goal is to tell us something interesting using a well-crafted, thoughtfully-prepared data graphic.

Grading Rubric

There are 15 possible points for this homework.

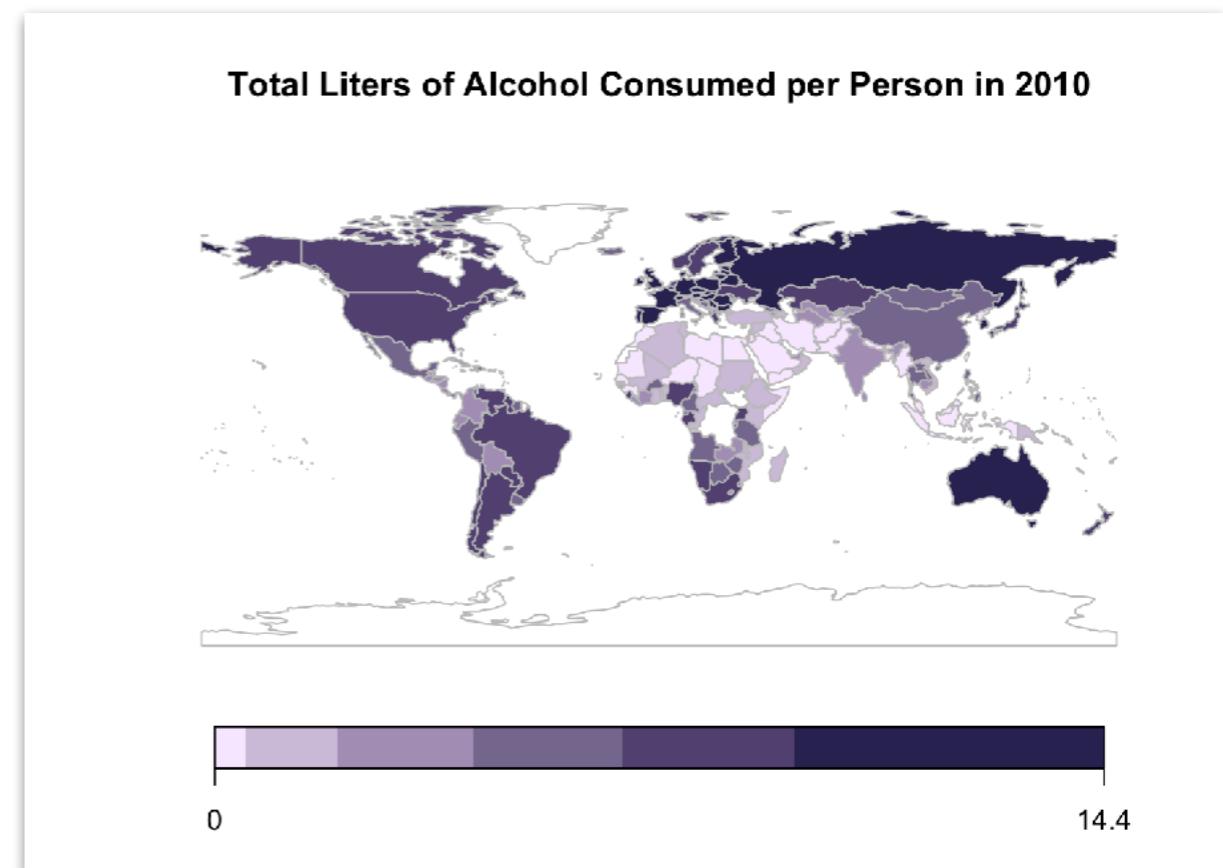
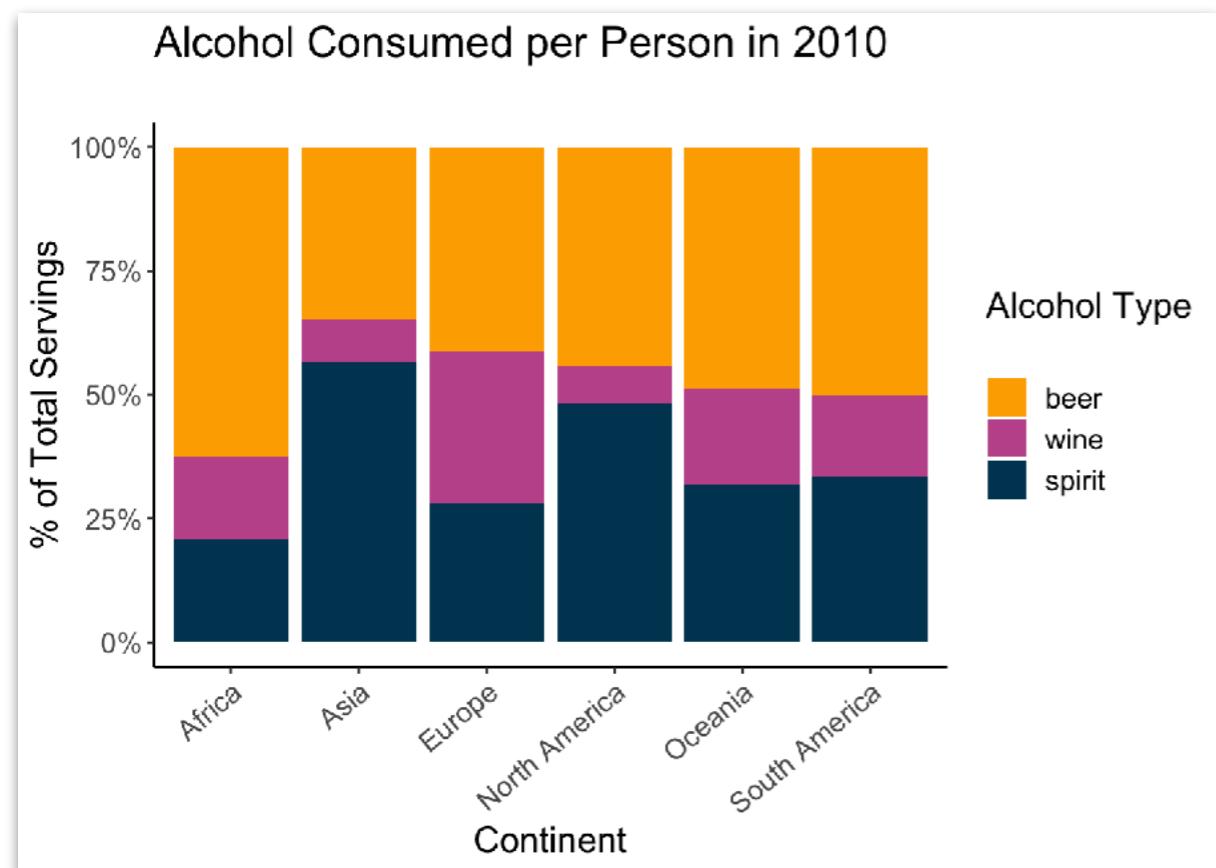
Here are some of the things we care about:

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



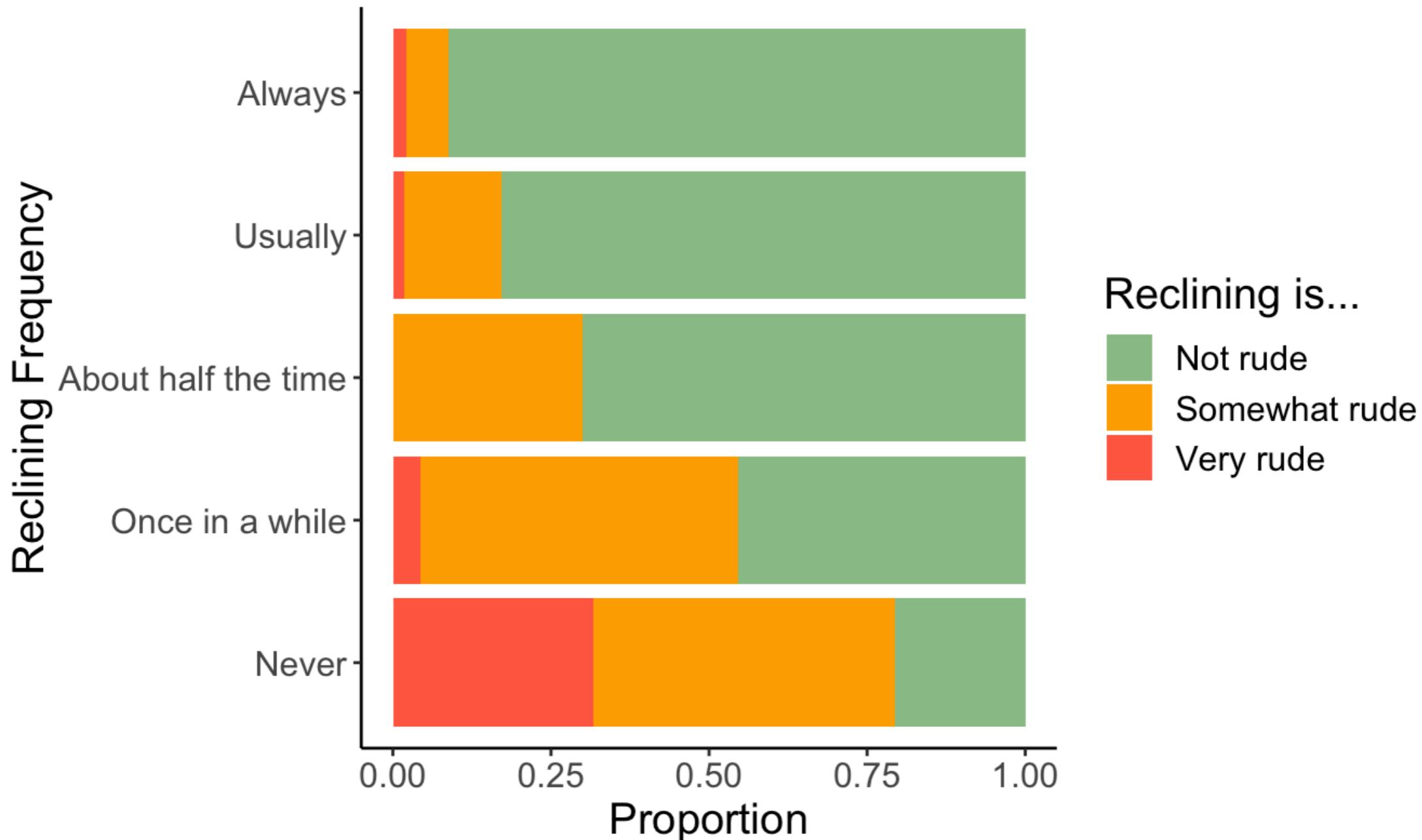
is at the bottom of the RMarkdown file

Homework



Homework

Perceived Rudeness of Reclining Airplane Seat
by Frequency of Own
Seat Reclining



Homework

Homework is due by **Thursday 21st, 8pm**

Submit **one pdf file** (knitted with RMarkdown) that contains the code as well as the figure.



how long it took people last year

Homework

1_visualization_homework.pdf (page 3 of 4)

{Your blog post title goes here ...}

Load packages

Add the package with the data set that you'd like to load below.

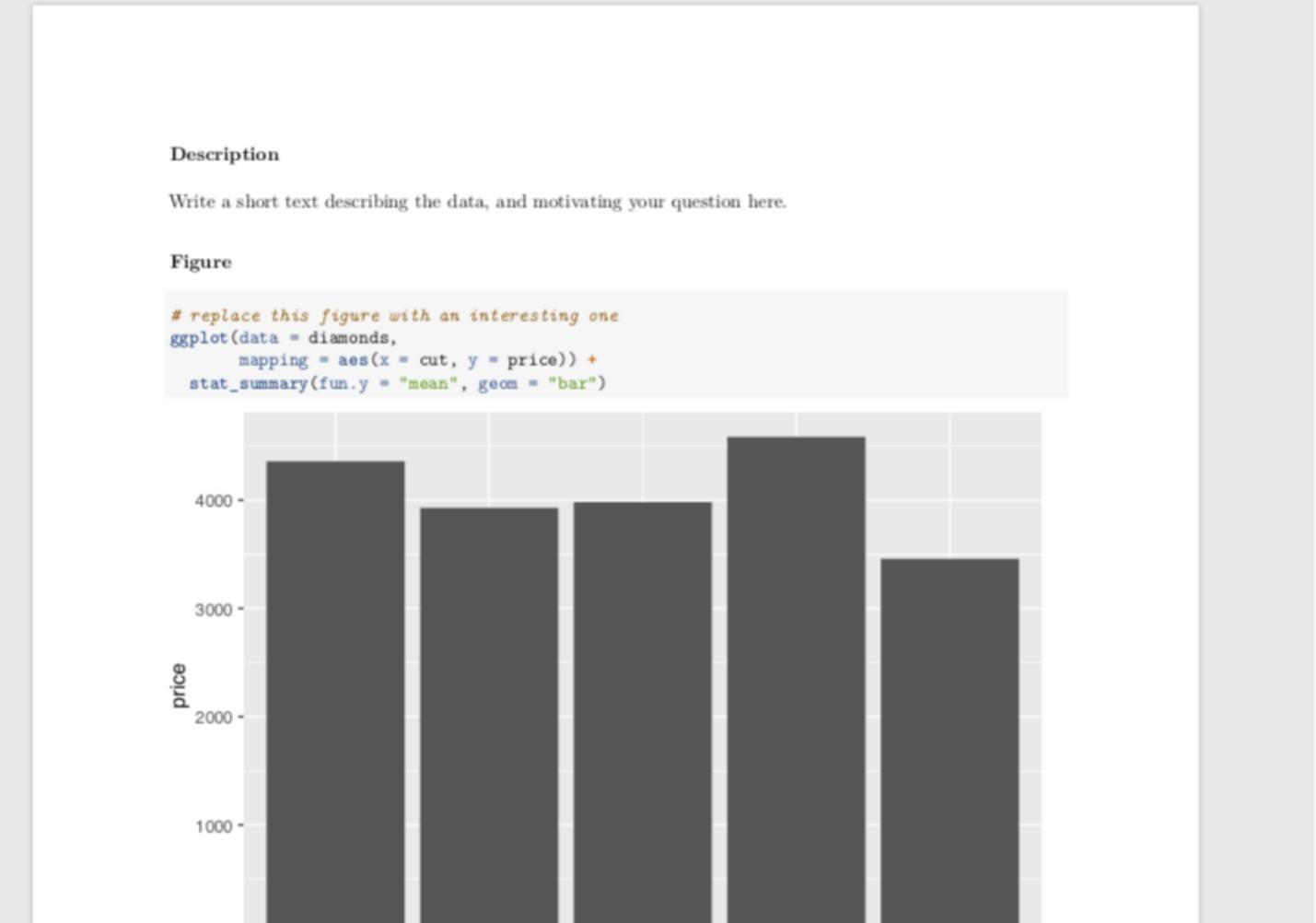
```
library("knitr")
library("tidyverse")
```

Load the data set

```
# load the data set here
```

2

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

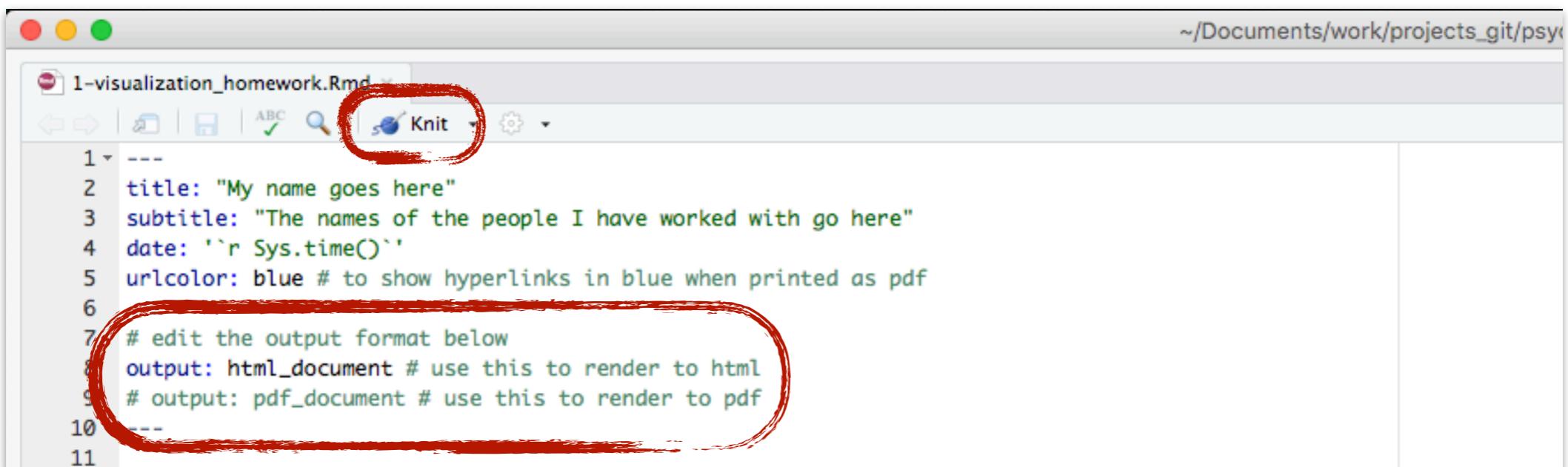
```
30 ## Install tinytex
31
32 In order to knit an RMarkdown document to a pdf file, you have to install LaTeX on your computer. The easiest way of doing so is via the `tinytex` package. Run the code in the following code chunk to do so:
33
34 ```{r eval=FALSE}
35 install.packages("tinytex")
36 tinytex::install_tinytex()
37
38 # If you experience an error like the following when trying to knit to pdf:
39 # !LaTeX Error: File 'xcolor.sty' not found.
40 # then run the following command: tinytex::tlmgr_install("xcolor")
41 # and try to knit again.
42 ````
43
44 You can find out more about the `tinytex` package [here](https://yihui.org/tinytex/).
```

run this code

post on Piazza if you have any trouble getting this to work

Homework

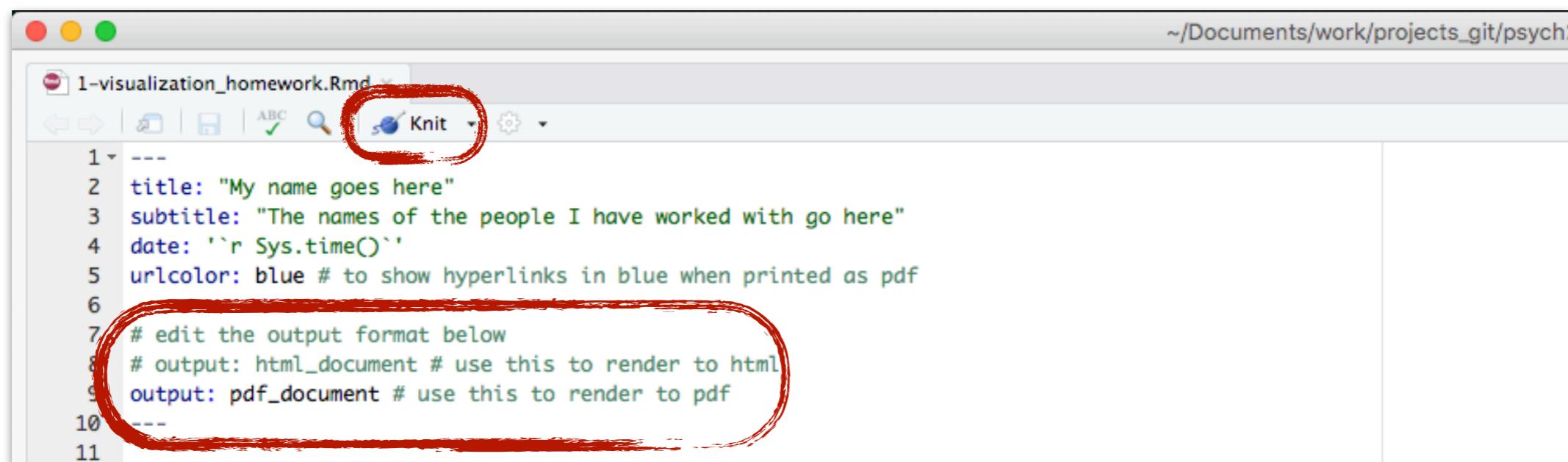
- you can change the output format from html to pdf like so ...



A screenshot of the RStudio interface showing an R Markdown file named "1-visualization_homework.Rmd". The code editor displays the following YAML front matter:

```
1 ---  
2 title: "My name goes here"  
3 subtitle: "The names of the people I have worked with go here"  
4 date: ``r Sys.time()``  
5 urlcolor: blue # to show hyperlinks in blue when printed as pdf  
6  
7 # edit the output format below  
8 output: html_document # use this to render to html  
9 # output: pdf_document # use this to render to pdf  
10 ---  
11
```

The "Knit" button in the toolbar is circled in red. The line "# edit the output format below" and the subsequent lines defining the output format are also circled in red.



A screenshot of the RStudio interface showing the same R Markdown file "1-visualization_homework.Rmd". The code editor displays the same YAML front matter as the previous screenshot. The "Knit" button in the toolbar is circled in red. The line "# edit the output format below" and the subsequent lines defining the output format are also circled in red.

Homework

very long code without line break



```
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))
```

Homework

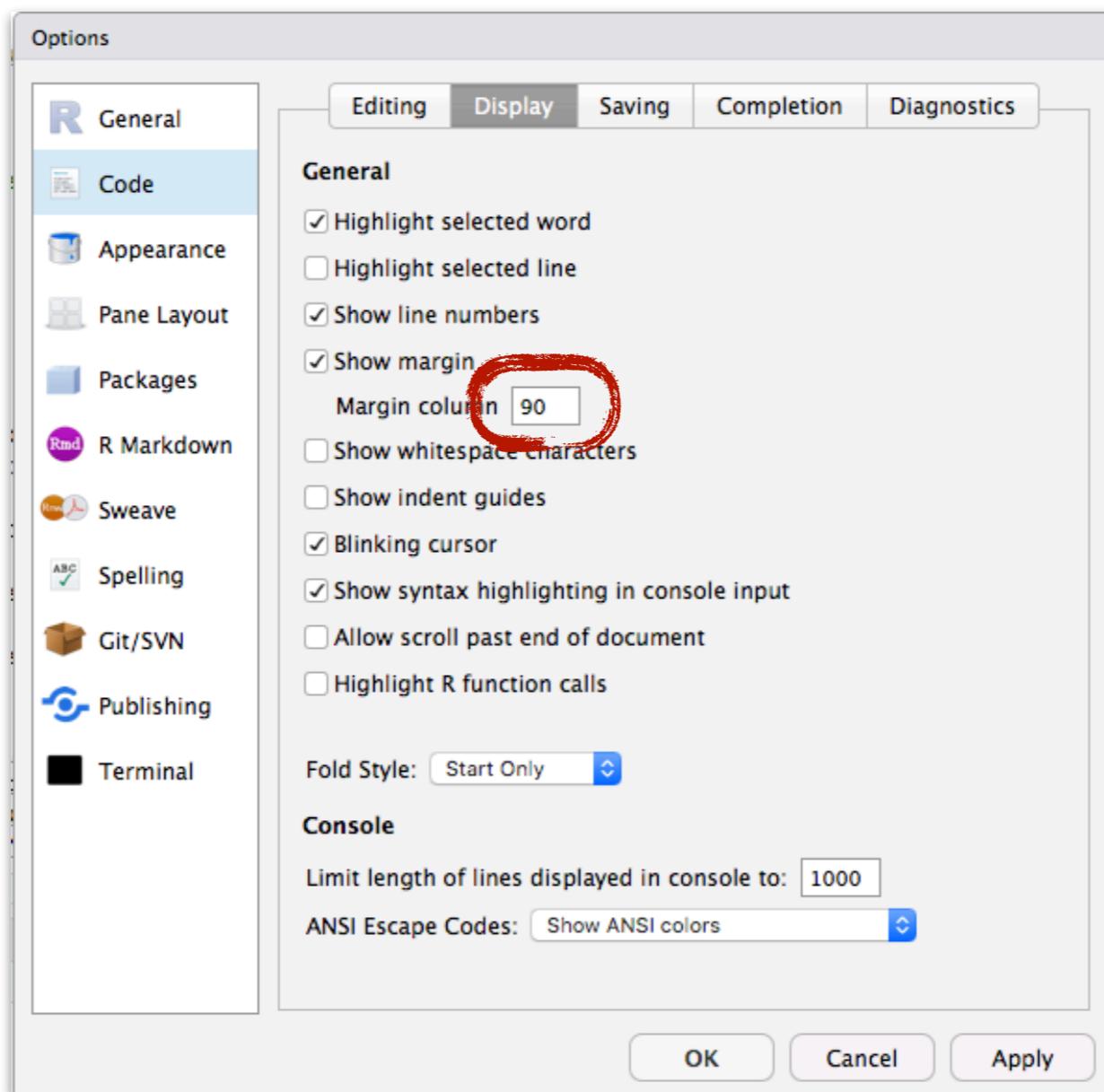
Beautiful Typesetting with LaTeX

Overfull \hbox (9.895pt too wide)

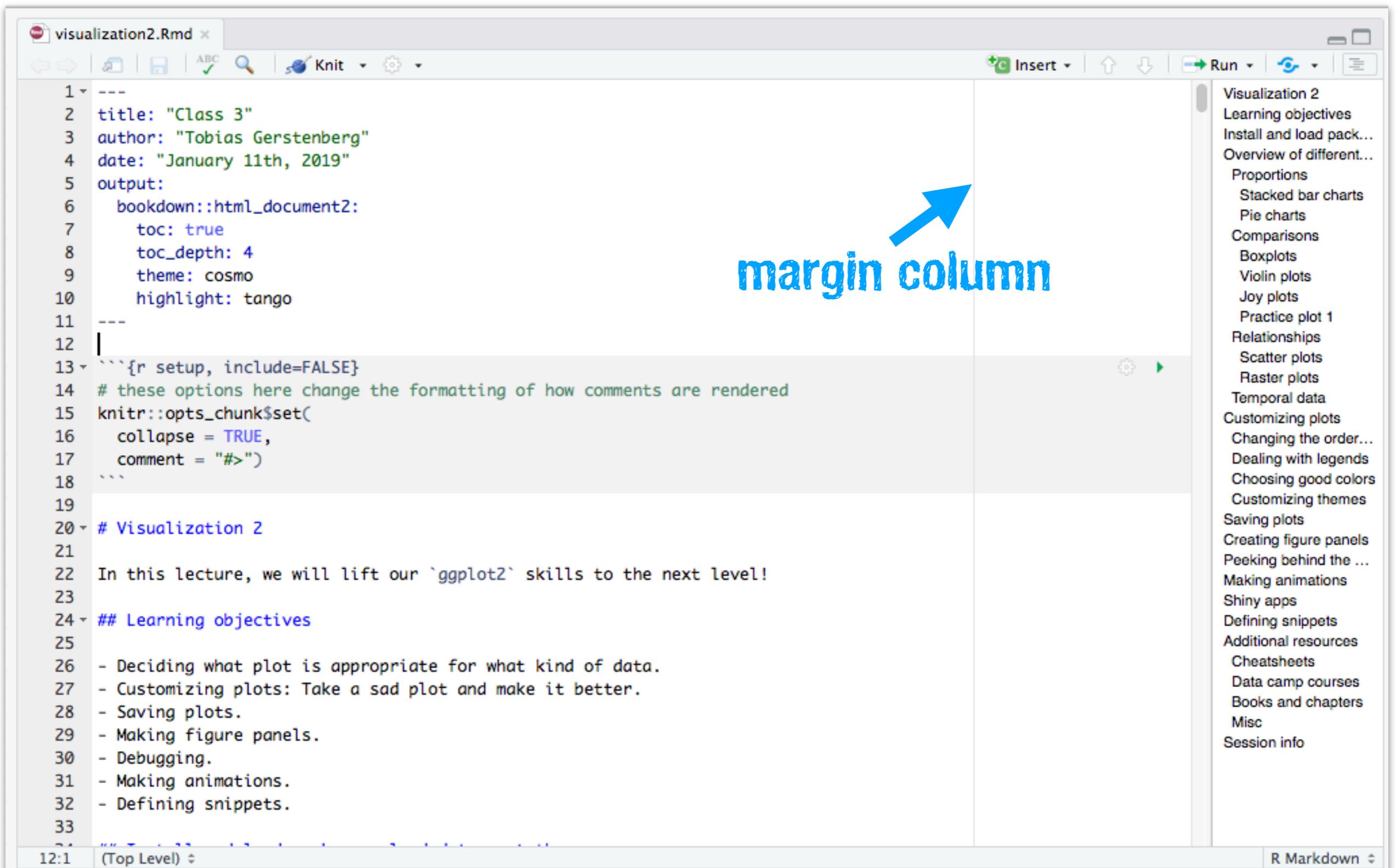


Homework

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



Homework



A screenshot of the RStudio interface showing an R Markdown file named "visualization2.Rmd". The code editor pane contains the following R Markdown code:

```
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
```

The right sidebar shows a navigation tree for "Visualization 2". A large blue arrow points from the text "margin column" to the vertical line separating the code editor from the sidebar.

margin column

- 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

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

```
# 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
```

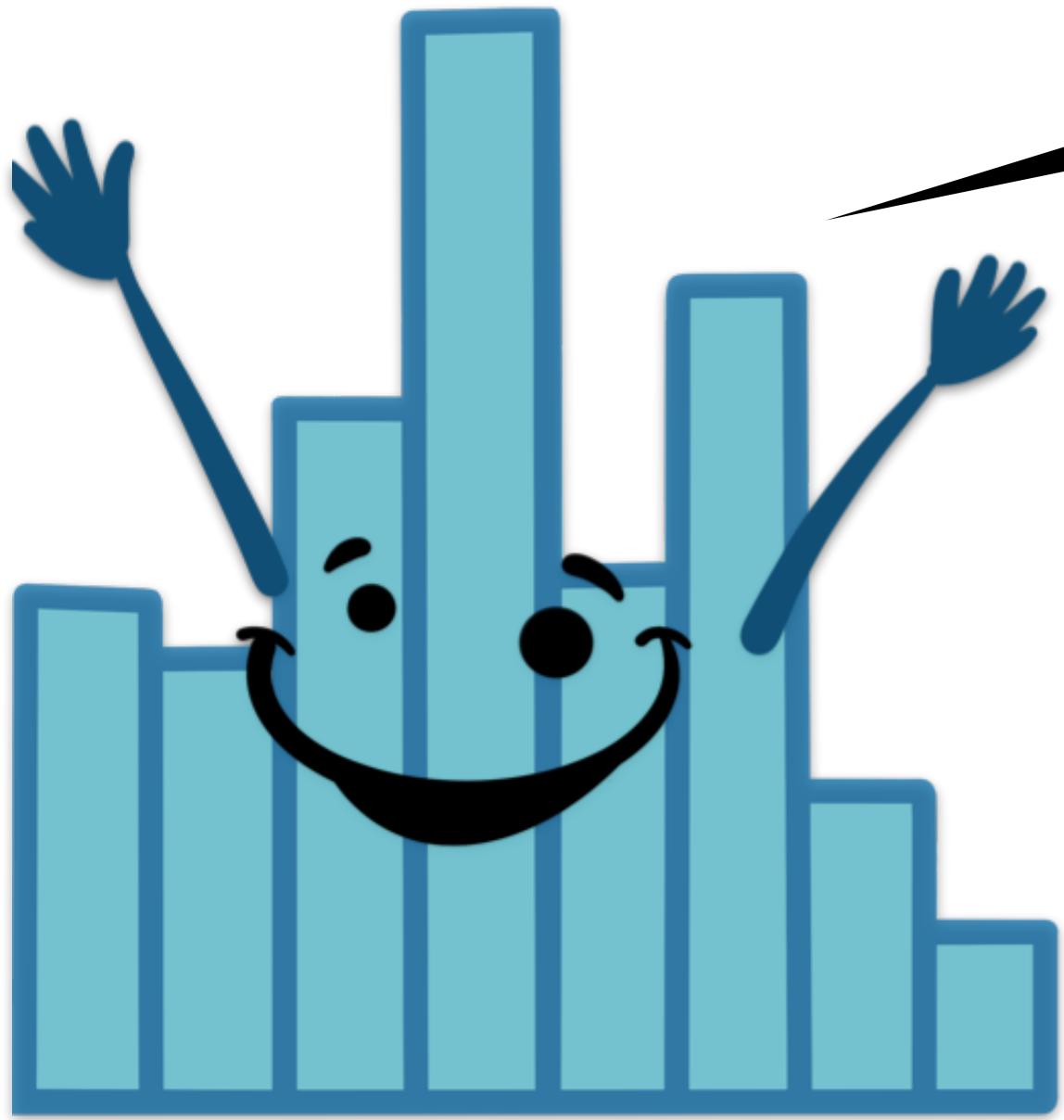
only important in
code chunks!

good!

RStudio & visualization time!

01:00

stretch break!



Anatomy of a nice ggplot

```
1 # ggplot call with global aesthetics
2 ggplot(data = data,
3         mapping = aes(x = cause,
4                         y = effect)) +
5     # add geometric objects (geoms)
6     geom_point() +
7     stat_summary(fun.y = "mean", geom = "point") +
8     ...
9     # add text objects
10    geom_text() +
11    annotate() +
12    # adjust axes and coordinates
13    scale_x_continuous() +
14    scale_y_continuous() +
15    coord_cartesian() +
16    # define plot title, and axis titles
17    labs(title = "Title",
18          x = "Cause",
19          y = "Effect") +
20    # change global aspects of the plot
21    theme(text = element_text(size = 20),
22           plot.margin = margin(t = 1, b = 1, l = 0.5, r = 0.5, unit = "cm")) +
23    # save the plot
24    ggsave(filename = "super_nice_plot.pdf",
25           width = 8,
26           height = 6)
```

The diagram illustrates the structure of the R code by pointing to specific sections with handwritten-style blue arrows:

- A blue arrow points from the word "what?" to the first line of the code, `ggplot(data = data,`.
- A blue arrow points from the word "how?" to the second line of the code, `mapping = aes(x = cause,`.
- A blue arrow points from the words "add some text?" to the third line of the code, `geom_point() +`.
- A blue arrow points from the words "'local' adjustments" to the fourth line of the code, `stat_summary(fun.y = "mean", geom = "point") +`.
- A blue arrow points from the words "'global' adjustments" to the fifth line of the code, `theme(text = element_text(size = 20),`.
- A blue arrow points from the words "save the beauty!" to the sixth line of the code, `ggsave(filename = "super_nice_plot.pdf",`.

Feedback

How was the pace of today's class?

much a little just a little much
too too right too too
slow slow

How happy were you with today's class overall?



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

Have a nice Martin Luther King, Jr. day!

The time is
always right
to do what
is right.

- Martin Luther King, Jr.

