Assignment #1

Your Name

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Contents

> 💡 Clone the model Quarto document
>
> You can clone the model Quarto document from GitHub. The repository is open-access. Please read my blog post about it.

1 Housekeeping

I typically create a Housekeeping section where I install packages, create functions, and load data.

1.1 Packages

```
## Load packages
library(broom)
library(conflicted)
library(kableExtra)
library(knitr)
library(rmarkdown)
library(tidyverse)

## Prefer over all other packages
conflict_prefer("filter", "dplyr")
```

1.2 Functions

```
## Create function that doubles the input digit
double_it <- function(number){
  double = number * 2
  return(double)
}
```

1.3 Data

```
## Load data
df <- read_csv("data/favorability_polls.csv")
```

2 Quarto's cool features

Notice that you can create headers in Quarto documents. Quarto will use these headers to print the table of contents.

Another cool thing about Quarto is that you can manage your bibliography and references; for instance:

According to Wickham, Çetinkaya-Rundel, and Grolemund (2023), we conduct exploratory data analysis, among other things, to generate new questions about the data or refine the questions we already have.

Once a citation is included, Quarto will automatically create a References section at the end of the document (you must provide the header, though). Check the citation syntax, here.

To add references, you just need to copy the BibTeX reference from Google Scholar and paste it into the *references.bib* file located in the working directory.

Quarto allows you to print code and code output:

```r
## Plot
df |>
  count(politician) |>
  arrange(desc(n)) |>
  filter(n > 20) |>
  mutate(
    politician = gsub(".* ", "", politician),
    politician = factor(politician, levels = politician)
  ) |>
  ggplot(aes(x = politician, y = n))  +
  geom_bar(stat = "identity", fill = "gold") +
  theme_light() +
  theme(axis.text.x = element_text(angle = -45, hjust = 0)) +
  labs(
    title = "Favorability polls: A count of the polls in which each
     ↪ politician has been included",
    subtitle = "Politicians with more than 20 polls",
    x = "",
    y = "",
    caption = "Data source: Latest Polls - FiveThirtyEight"
  )
```

Favorability polls: A count of the polls in which each politician has been included
Politicians with more than 20 polls

Data source: Latest Polls – FiveThirtyEight
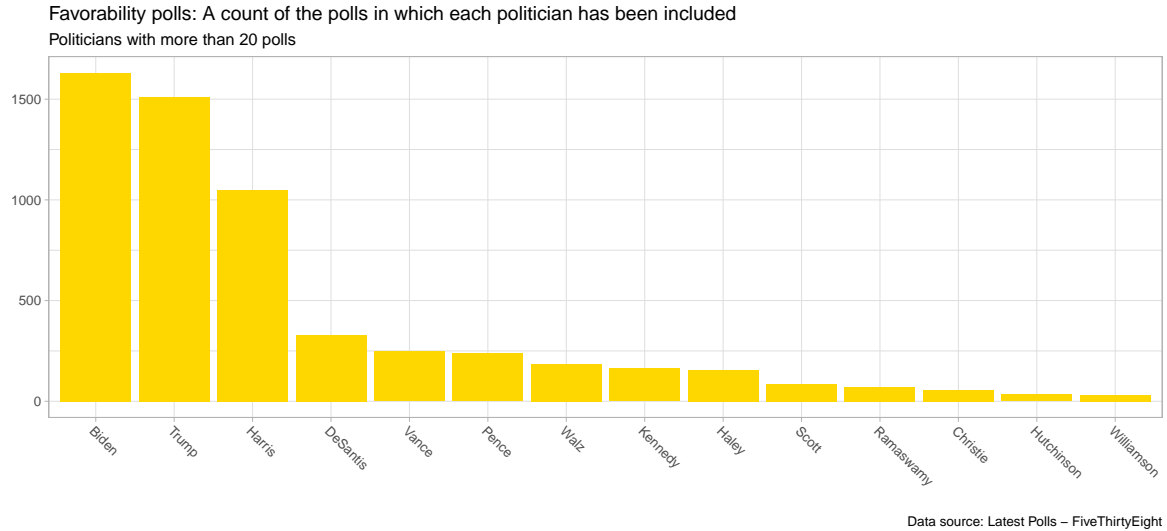
You can set the figures' width and depth as general patterns in the YAML metadata. Likewise, you can set specific parameters by typing, for example, `#| fig-width: 11` at the first line of the chunk that plots the data.

Moreover, you can insert LaTeX math:

$$\bar{y} = \frac{1}{n} \sum_{i=1}^{n} y_i$$

And you can also insert inline LaTeX math: $\bar{y} = \frac{1}{n} \sum_{i=1}^{n} y_i$

> **❗ Install extension**
>
> If the iconic LaTeX string is not rendering in your computer, you must run the following command in the RStudio Terminal:
>
> *quarto add quarto-ext/fancy-text*

The model Quarto document has very extensive YAML metadata. Feel free to change parameters and customize the PDF file the way you find prettier.

By the way, here is some code to print neat regression tables using the `kableExtra` and `broom` packages:

```
## Fit the model
model <- lm(mpg ~ cyl + hp, data = mtcars)

## Print regression table
kableExtra::kable(
  x = broom::tidy(model),
  caption = "Regression output",
  col.names = c("Term", "Estimate", "SE", "t-statistic",
  ↪  "p-value"),
  digits = c(0, 2, 2, 2, 4),
  format = "pipe"
)
```

Table 1: Regression output

Term	Estimate	SE	t-statistic	p-value
(Intercept)	36.91	2.19	16.85	0.0000
cyl	-2.26	0.58	-3.93	0.0005
hp	-0.02	0.02	-1.27	0.2125

3 Rendering Quarto document to PDF file

Three steps are absolutely necessary:

1. Install all the packages loaded in Packages (RStudio will warn you about it).

2. Run the following command in the RStudio Terminal:
   quarto add quarto-ext/fancy-text

3. Run the following command in the RStudio Terminal:
   quarto install tinytex

Remember that the RStudio Terminal (where you install extensions) is different from the RStudio Console (where you run code).

Once steps 1, 2, and 3 are done, you just hit the *Render* button to turn the Quarto document into a PDF file. The new file will be created in the working directory.

Keep in mind that errors in the code will prevent the Quarto document from rendering. Your code must be working prior to hitting the *Render* button.

References

Wickham, Hadley, Mine Çetinkaya-Rundel, and Garrett Grolemund. 2023. *R for Data Science.* O'Reilly Media, Inc.