

# Reports and manuscripts with Quarto

# What is quarto?

- *Open-source document format and computational notebook system*
- Integrates text, code, and output
- Can create multiple different types of products (documents, slides, websites, books)



# Why not R Markdown?

Only because quarto is newer and more featured!

- Anything you already know how to do in R Markdown you can do in quarto, and more!<sup>1</sup>
- All of these slides, website, etc. are all made in quarto.
- If you know and love R Markdown, by all means keep using it!

<sup>1</sup>. Slight caveat...

# Quarto workflow

1. Create a Quarto document
2. Write code
3. Write text
4. Repeat 2-3 in whatever order you want
5. Render

# How does it work?

- You text in markdown and code in R
- `knitr` processes the code chunks, executes the R code, and inserts the code outputs (e.g., plots, tables) back into the markdown document
- `pandoc` transforms the markdown document into various output formats



# Text and code...

```
1 # My header  
2  
3 Some text  
4  
5 Some *italic text*  
6  
7 Some **bold text**  
8  
9 - Eggs  
10 - Milk  
11  
12 ` `` {r}  
13 x <- 3  
14 ..
```

... becomes ...

My title

Some text

Some *italic text*

Some **bold text**

- Eggs
- Milk

```
1 x <- 3  
2 x
```

```
[1] 3
```

If you prefer, you can use the visual editor

## My title



Some text

Some *italic text*

Some **bold text**

```
{r}
```

```
x <- 3
```

```
x
```



# R chunks

Everything within the chunks has to be valid R<sup>1</sup>

```
1 ` `` {r}
2 x <- 3
3 `` ``
```

```
1 ` `` {r}
2 x + 4
3 `` ``
```

```
[1] 7
```

Chunks run in order, continuously, like a single script

<sup>1</sup>. You can also use other languages, like Python!

# YAML

At the top of your Quarto document, a header written in *yaml* describes options for the document

```
1 ---  
2 title: "My document"  
3 author: Louisa Smith  
4 format: html  
5 ---
```

There are a *ton* of possible options, but importantly, this determines the document output

# Output



<https://quarto.org/docs/output-formats/all-formats.html>

# Exercises

We're going to focus on html output

- It's easy to transition to Word (`format: docx`) but it's not as good for constant re-rendering
- You need a LaTeX installation for pdf
  - I recommend `{tinytex}`

# Exercises

You can choose whether you want to have chunk output show up within the document (vs. just the console) when you are running Quarto (and RMarkdown) documents interactively

*Tools > Global options*

**R Markdown**

Show document outline by default

Soft-wrap R Markdown files

Show in document outline: Sections and Named Chunks ▾

Show output preview in: Viewer Pane ▾

Show output inline for all R Markdown documents

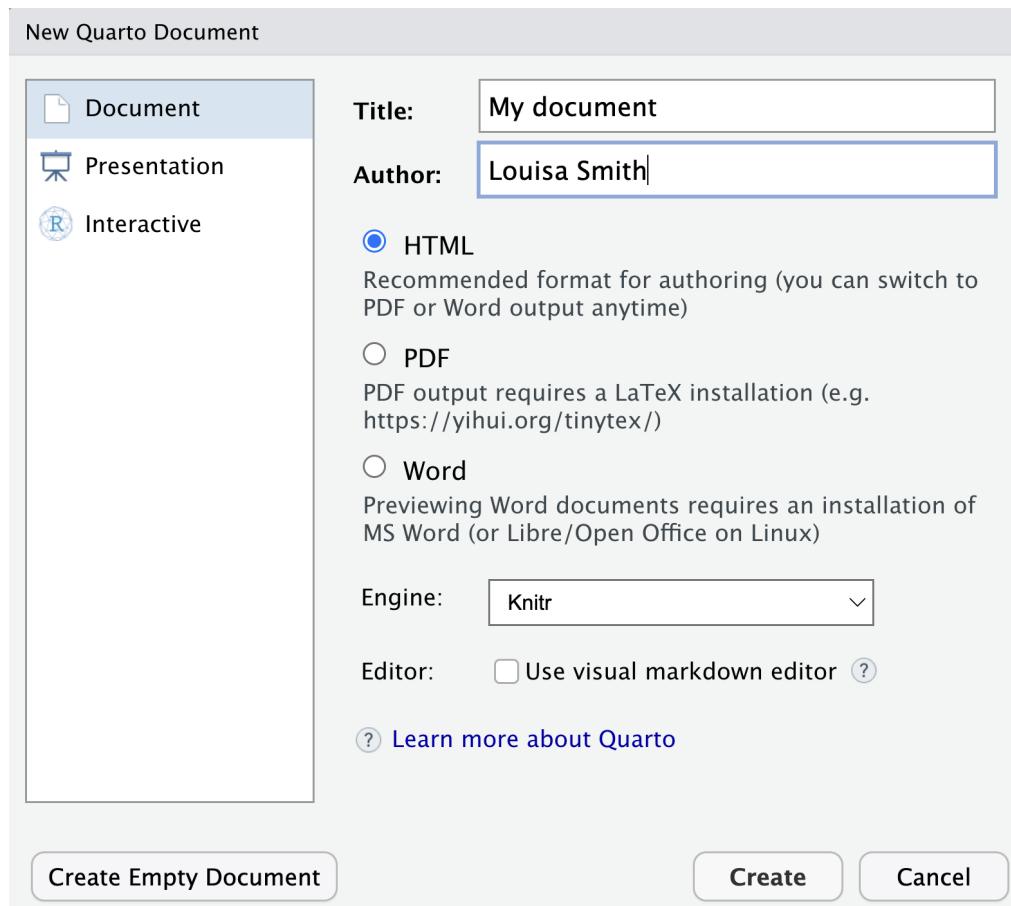
Show equation and image previews: In a popup ▾

Evaluate chunks in directory: Project ▾

# Exercises

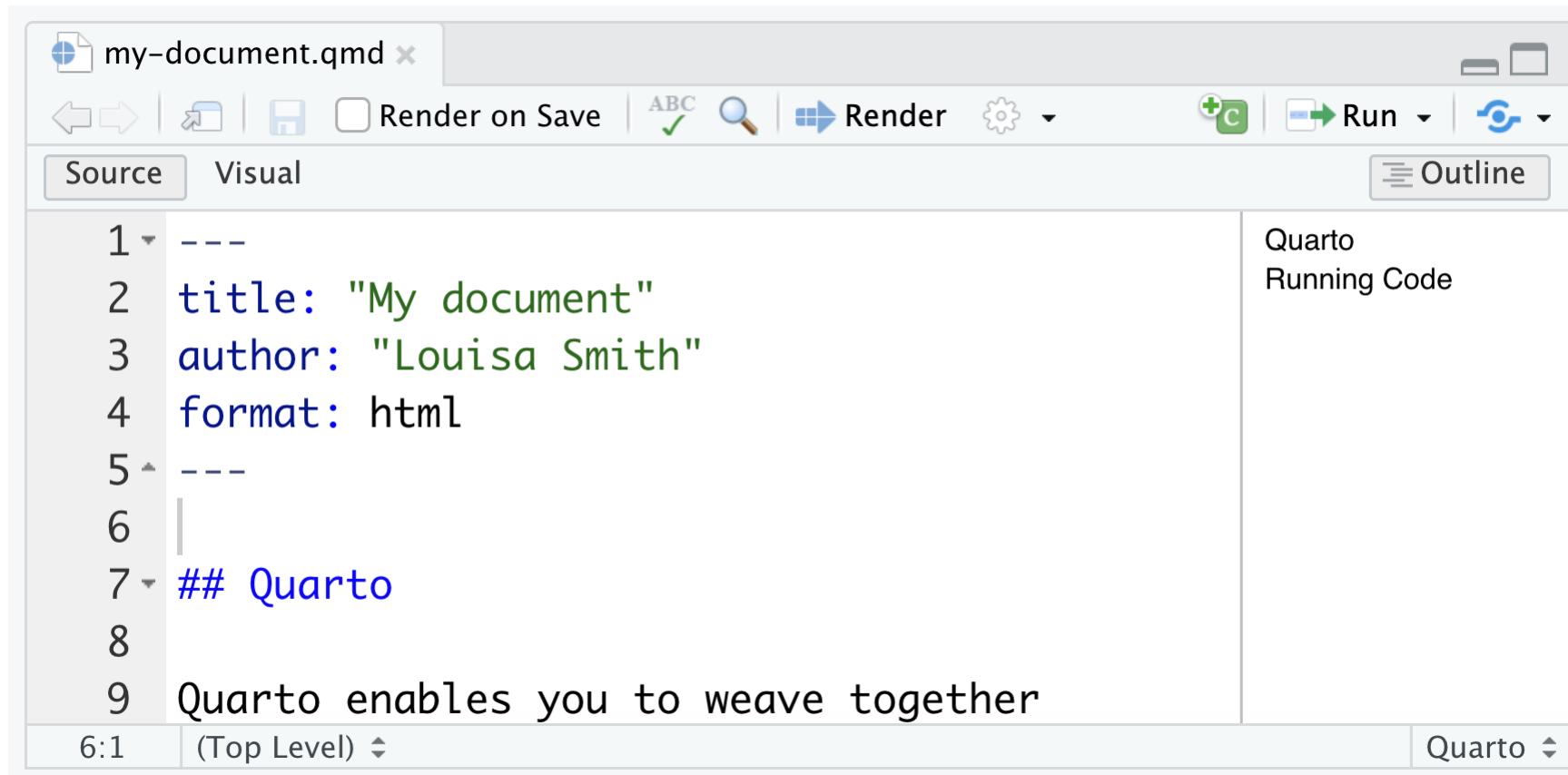
Open up your epi590r-2023-in-class R project!

*File > New File > Quarto Document*



# Exercises

- Try toggling between Source and Visual views
- Toggle on and off the Outline
- Click Render and look at the output



my-document.qmd

Source Visual Outline

```
1 ---  
2 title: "My document"  
3 author: "Louisa Smith"  
4 format: html  
5 ---  
6 |  
7 ## Quarto  
8  
9 Quarto enables you to weave together
```

6:1 (Top Level) Quarto

