

# 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!
- All of these slides, website, etc. are all made in quarto.
- If you know and love R Markdown, by all means keep using it!

# Quarto workflow

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

# 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

# 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 (`format: 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*

The screenshot shows the 'R Markdown' settings in the 'Global options' dialog. It includes checkboxes for 'Show document outline by default' and 'Soft-wrap R Markdown files'. Below these are dropdown menus for 'Show in document outline' (set to 'Sections and Named Chunks'), 'Show output preview in' (set to 'Viewer Pane'), and 'Evaluate chunks in directory' (set to 'Project'). There are also checkboxes for 'Show output inline for all R Markdown documents' and 'Show equation and image previews' (set to 'In a popup').

**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

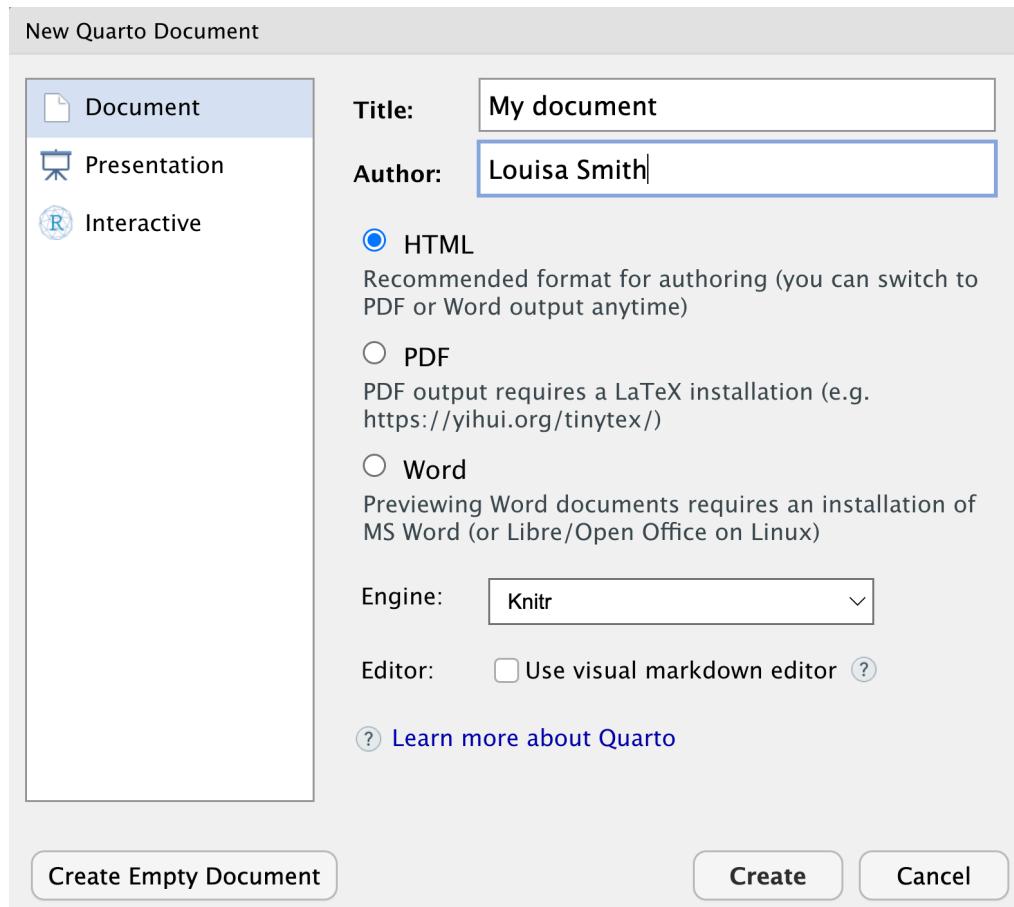
Show equation and image previews: In a popup

Evaluate chunks in directory: Project

# Exercises

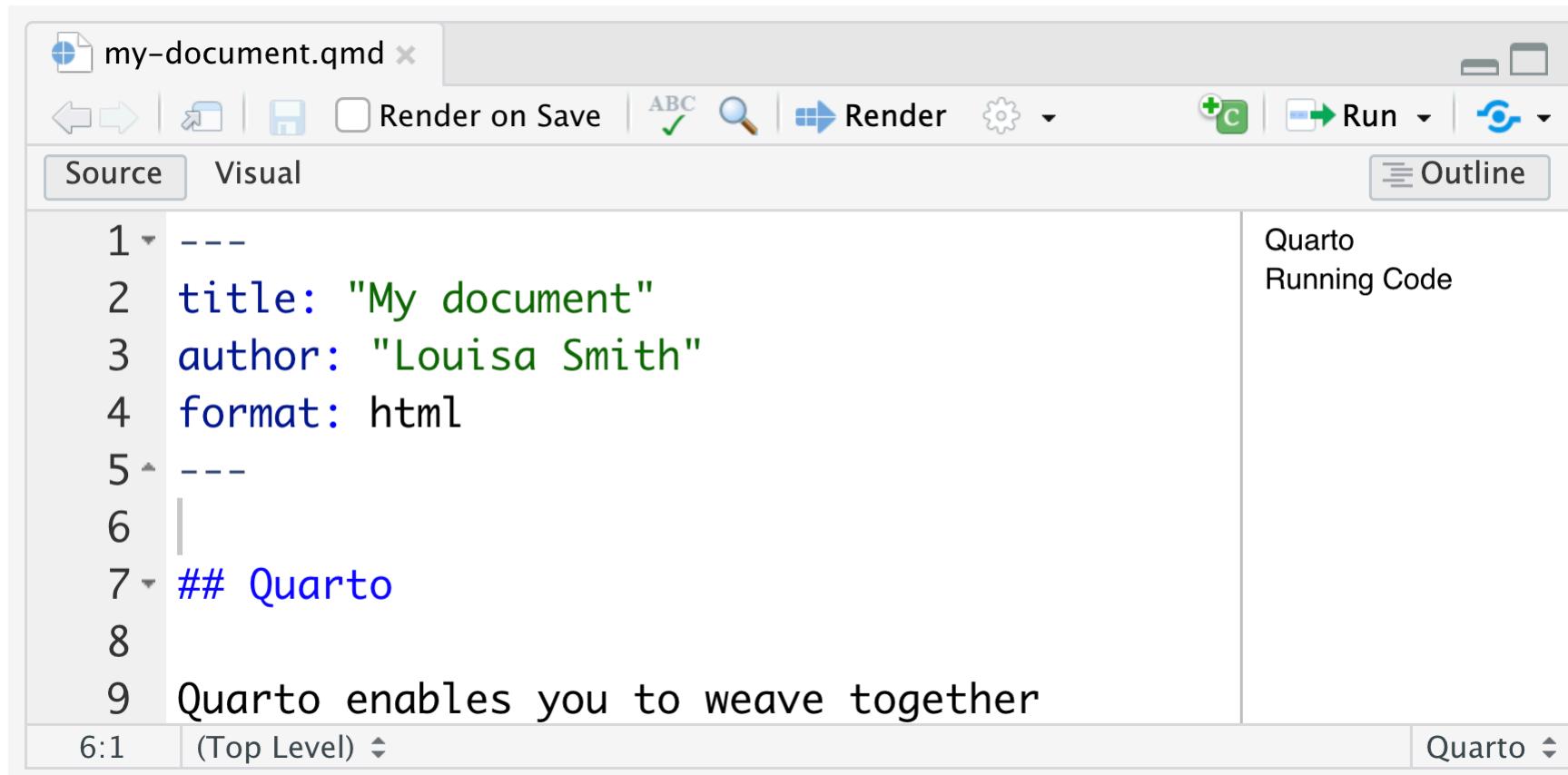
Open up your epi590r-2023-in-class R project!

*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



The screenshot shows the Quarto Editor interface. The title bar says "my-document.qmd". The toolbar includes icons for back, forward, search, and render, along with "Render on Save" and "Outline" buttons. Below the toolbar, there are tabs for "Source" (which is selected) and "Visual". The main area displays the following code:

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

The right panel shows the status "Quarto Running Code". At the bottom, it says "6:1 (Top Level)" and "Quarto".