

MATH9102

Fundamentals of Data Analysis

GETTING STARTED WITH QUARTO



Quarto

Quarto is an open-source publishing system for creating documents, presentations, blogs, and dashboards.

It is the next-generation version of R Markdown, supporting multiple languages, including R, Python, and Julia.

Why Use Quarto with R?

- Seamless integration with R for data analysis and visualization.
- Create reproducible reports and dynamic documents.
- Publish results in various formats (HTML, PDF, Word, slides).



Key Features

Multi-Format Output:

- Export to HTML, PDF, Word, and more.

Code and Output Integration:

- Run R code directly in the document with output inline.

Interactive Visualizations:

- Use ggplot2, plotly, and leaflet within reports.

Cross-Referencing and Citations:

- Add figures, tables, and references easily.

Version Control:

- Work with Git for collaborative projects.



Some Basics

File extension

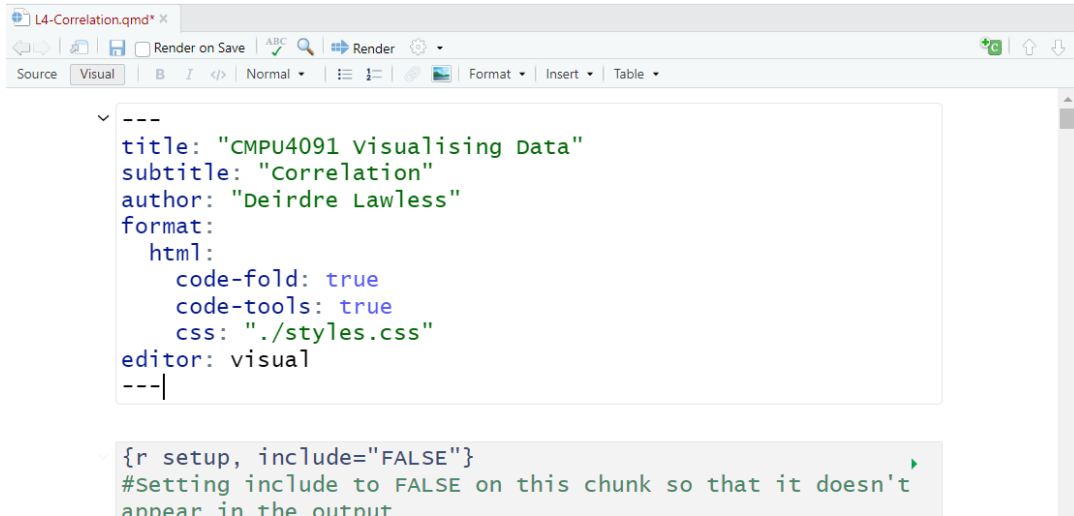
- .qmd

Use the Render button in the RStudio IDE to render the file:



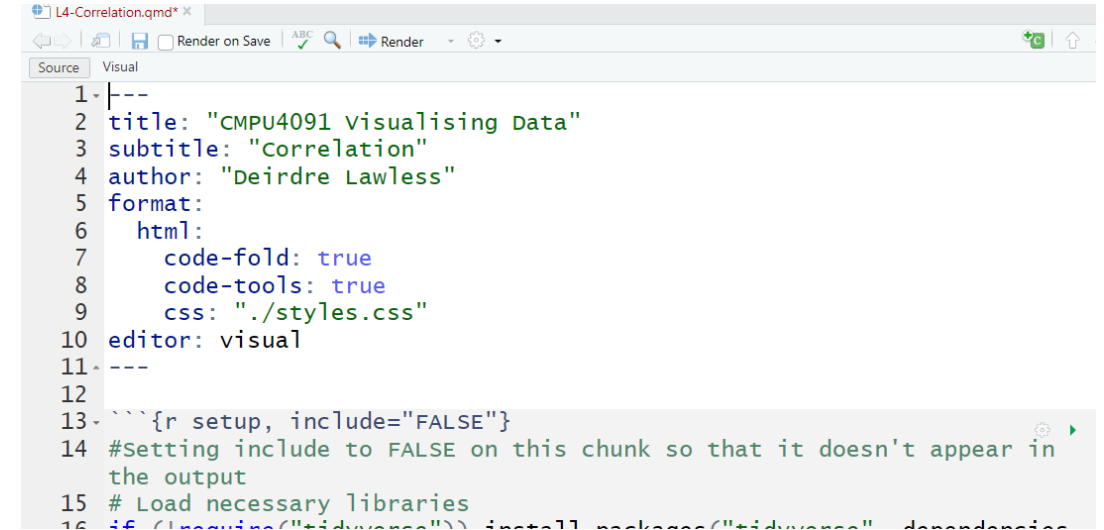
Keyboard shortcuts:

- Windows: Ctrl + Shift + K
- Mac: ⌘⇧K



The screenshot shows a web-based editor for a file named "L4-Correlation.qmd". The interface includes a toolbar with options like "Render on Save", "Render", and "Format". The main editing area is in "Visual" mode, displaying a YAML frontmatter block with fields for title, subtitle, author, format, and editor. Below the frontmatter, a code chunk is visible with a comment explaining the 'include' setting.

```
---  
title: "CMPU4091 Visualising Data"  
subtitle: "Correlation"  
author: "Deirdre Lawless"  
format:  
  html:  
    code-fold: true  
    code-tools: true  
    css: "./styles.css"  
editor: visual  
---  
  
{r setup, include="FALSE"}  
#Setting include to FALSE on this chunk so that it doesn't  
appear in the output
```



The screenshot shows the same "L4-Correlation.qmd" file in "Source" mode. The raw QMD code is visible, including the frontmatter and a code chunk for setting up R. The code is color-coded, and line numbers are shown on the left.

```
1 ---  
2 title: "CMPU4091 Visualising Data"  
3 subtitle: "Correlation"  
4 author: "Deirdre Lawless"  
5 format:  
6   html:  
7     code-fold: true  
8     code-tools: true  
9     css: "./styles.css"  
10 editor: visual  
11 ---  
12  
13 ```{r setup, include="FALSE"}  
14 #Setting include to FALSE on this chunk so that it doesn't appear in  
15 the output  
16 # Load necessary libraries  
17 if (!require("tidyverse")) install.packages("tidyverse", dependencies = TRUE)
```


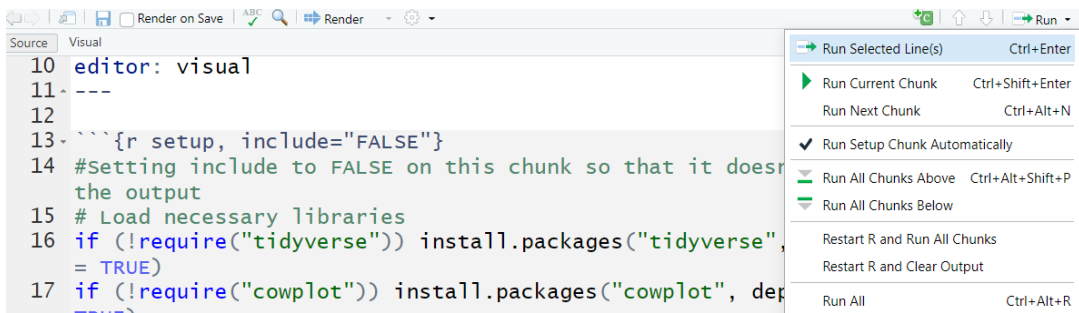
Visual (WYSIWYM) or Source Editor

```
---  
title: "Hello, Quarto"  
format: html  
editor: visual  
---
```

```
```{r}  
#| label: load-packages
#| include: false

library(tidyverse)
library(palmerpenguins)
```
```

YAML Header and Code Chunks



A close-up of the RStudio editor window showing the same R code as the previous image. The `Run` button icon, a green play symbol, is circled in red in the top right corner of the editor window.

```
3- ``{r setup, include="FALSE"}
4 #Setting include to FALSE on this chunk so that it doesn't appear in
  the output
5 # Load necessary libraries
6 if (!require("tidyverse")) install.packages("tidyverse", dependencies
  = TRUE)
7 if (!require("cowplot")) install.packages("cowplot", dependencies =
  TRUE)
8 if (!require("plotly")) install.packages("plotly", dependencies =
  TRUE)
9 if (!require("ggcorrplot")) install.packages("ggcorrplot",
  dependencies = TRUE)
0 if (!require("pastecs")) install.packages("pastecs", dependencies =
  TRUE)
```

Running Chunks

Markdown Syntax

<https://www.markdownguide.org/basic-syntax/>

Lightweight markdown language– very similar to HTML