

# Exploratory Data Analysis

Stat 250

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sample.Rmd x

ABC 🔎 Knit ⚙️

Go to file/function Addins

```

---
title: "Viridis Demo"
output: html_document
---

```{r include = FALSE}
library(viridis)
```

The code below demonstrates two color palettes in the
[viridis](https://github.com/sjmgarnier/viridis) package. Each
plot displays a contour map of the Maunga Whau volcano in
Auckland, New Zealand.

## Viridis colors

```{r}
image(volcano, col = viridis(200))
```

## Magma colors

```{r}
image(volcano, col = viridis(200, option = "A"))
```

```

Viridis Demo

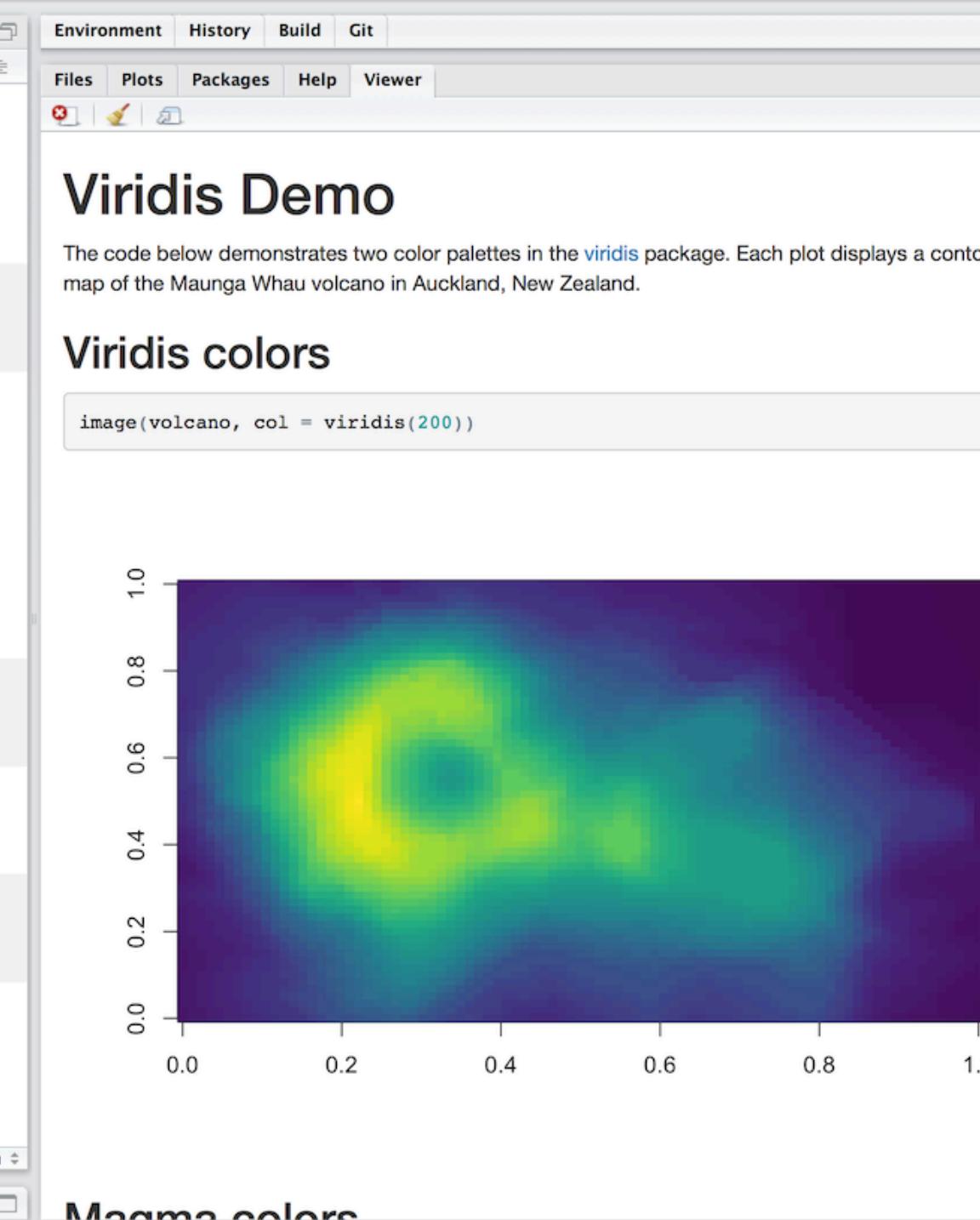
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Viridis colors

Magma colors



# Recommended workflow

1. Create an R project to keep your files organized (this creates a new folder)
2. Keep all of your data (inputs) in a **data/** folder (for now we'll read from URLs)
3. Download/create an RMarkdown (.Rmd) file to house both your thoughts and your R code; this will keep both your work and your final products in one place
4. While you're writing your code (i.e., drafting your analysis) run the chunks in the console; when you are finished, knit to PDF (or Word)

# Why RMarkdown?

- The analysis is self-documenting
- It's easy to extend or refine analyses by copying and modifying code blocks
- The analysis can be disseminated by providing the RMarkdown file and data sources
- The results can also be shared as HTML (fully self contained), PDF, or Word if just a summary of the analysis is needed

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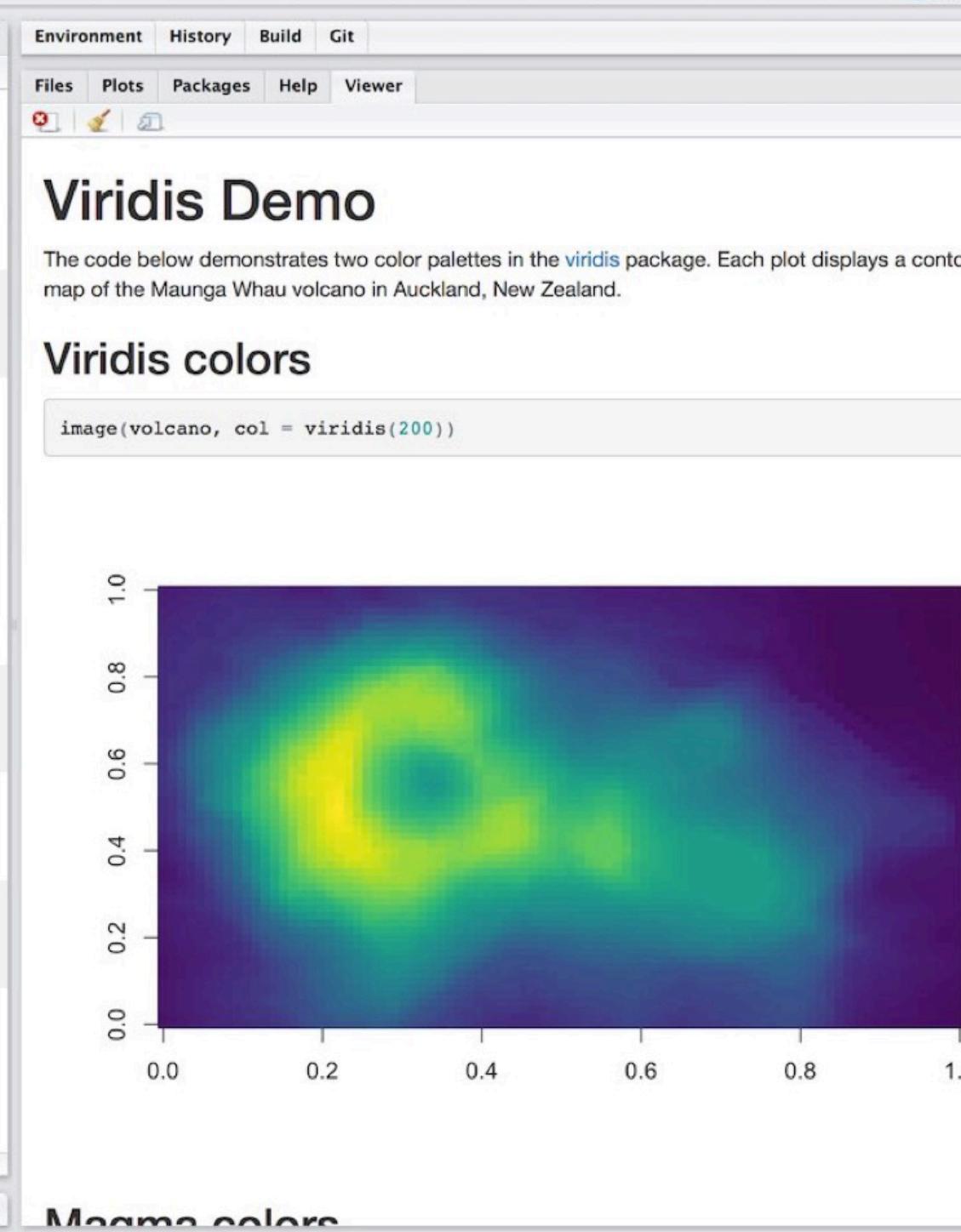
```

## Magma colors
```

```

```{r}
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```

```



sample.Rmd x

ABC 🔎 Knit ⚙️

Go to file/function Addins

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```{r include = FALSE} } R code chunk
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Viridis Demo

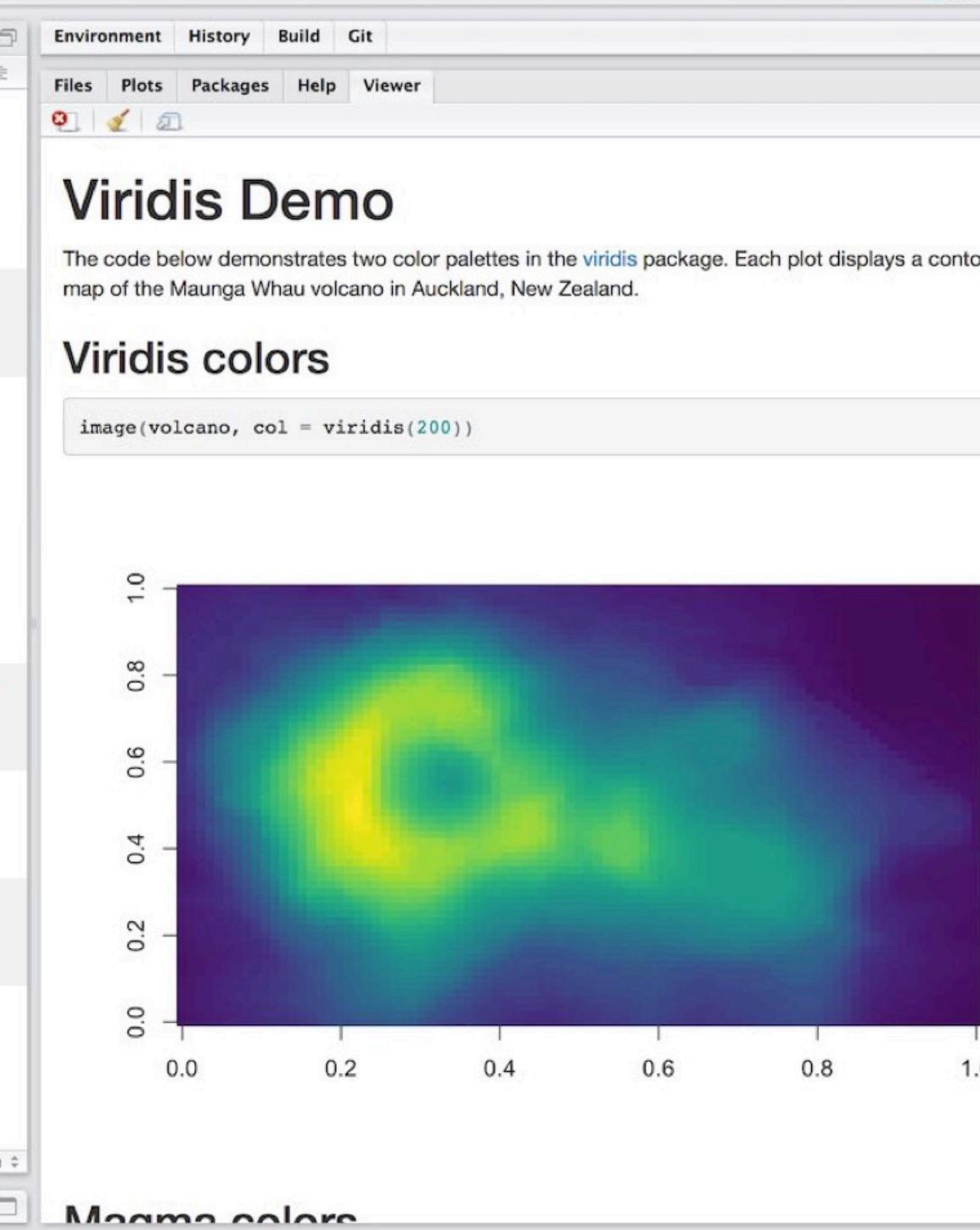
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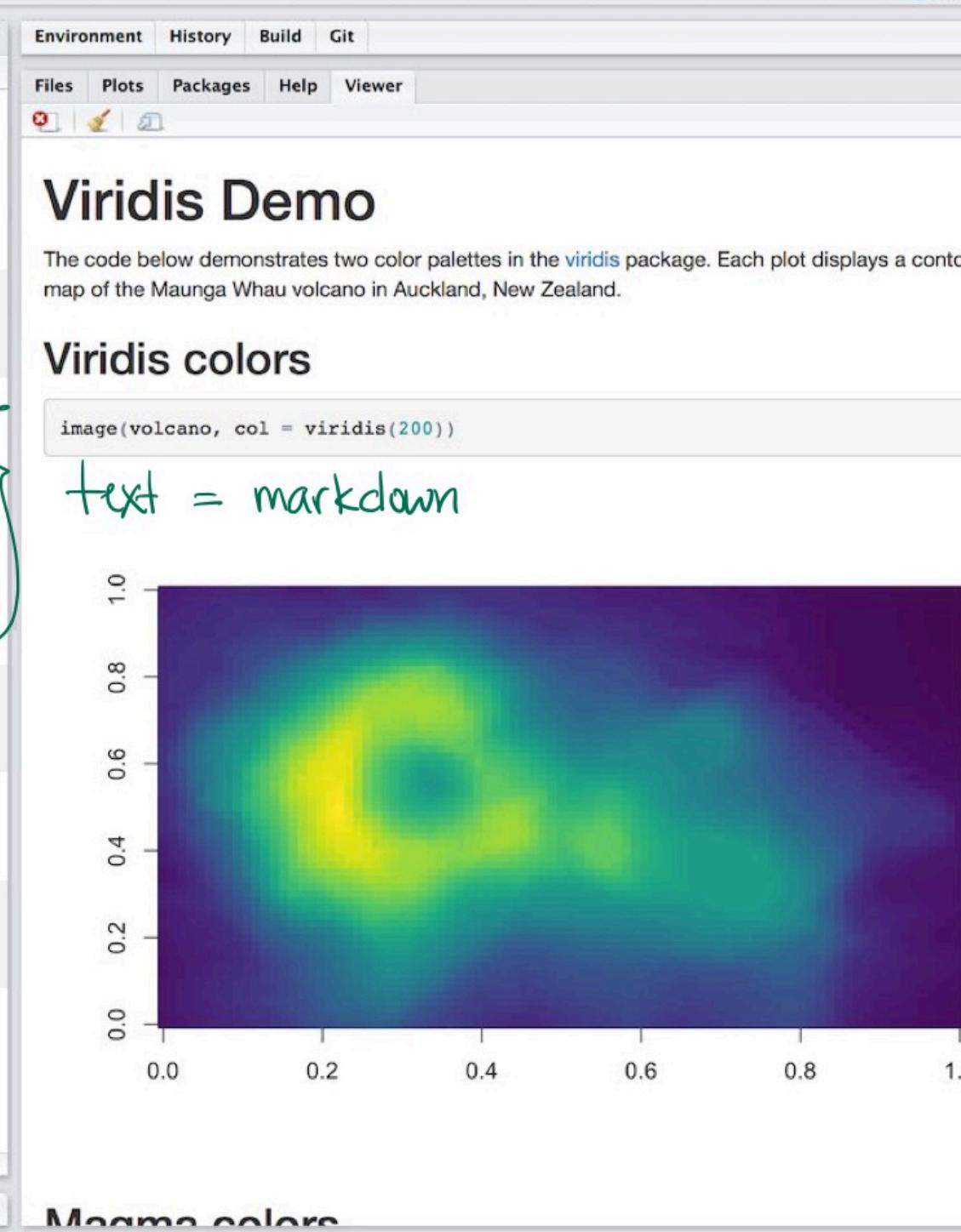
Viridis Demo

The code below demonstrates two color palettes in the `viridis` package. Each plot displays a contour map of the Maunga Whau volcano in Auckland, New Zealand.

`image(volcano, col = viridis(200))`

`text = markdown`

Maunga Whau volcano contour map using Viridis color palette.



# Metadata

The header stores the necessary metadata for your document

- Always start and end with three hyphens ---
- Put the text for the title, author, and date in quotes
- Let RStudio take care of the indentation for you

```
---
```

```
title: "My First RMarkdown Document"
author: "Adam Loy"
date: "01/10/2025"
output: pdf_document
---
```

# Code chunks

```
```{r}
1 + 2 * 3
20:30
mean(rnorm(20))
```

- Always begin and end with three backticks
- Additional options can be placed inside of the brackets
- The lines wrapped inside the beginning and closing three backticks must be R code that you could run in the R Console.

# Headers (titles)

Headers start with hashtags

```
# Top-level header  
## A second-level header  
### A third-level header
```

## Text

Write your thoughts in plain text

# Mathematical expressions

You can write mathematical expressions using  
LaTeX code

$\alpha + \beta$

$\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i$

$S^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X}_n)^2$

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RStudio

Project: (None)

rmarkdown\_template.Rmd x

Source Visual

1 ---  
2 title: "Standard R Markdown File"  
3 author: "Author's Name"  
4 date: "2025-01-09"  
5 output: html\_document  
6 ---  
7  
8 ```{r setup, include=FALSE}  
9 knitr::opts\_chunk\$set(echo = TRUE)  
10```  
11  
12 ## R Markdown  
13  
14 This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <<http://rmarkdown.rstudio.com>>.  
15  
16 When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:  
17  
18 ```{r cars}  
19 summary(cars)  
20```  
21  
22 ## Including Plots  
23  
24 You can also embed plots, for example:  
25  
26 ```{r pressure, echo=FALSE}  
27 plot(pressure)  
28```

3:23 # Standard R Markdown File ▾ R Markdown ▾

Outline

document outline

Console

Files Plots Packages Help Viewer Presentation

Standard R Markdown File

Author's Name

2025-01-09

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```
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```

```
##      speed          dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0  1st Qu.: 26.00
##  Median :15.0  Median : 36.00
##  Mean   :15.4  Mean   : 42.98
##  3rd Qu.:19.0  3rd Qu.: 56.00
##  Max.   :25.0  Max.   :120.00
```

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RStudio

Project: (None)

rmarkdown\_template.Rmd x

Source Visual

Knit Run Publish Outline

insert code chunk

render document

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