

Data Visualization with R R Markdown tutorial

Ariane Ducellier

University of Washington - Fall 2024

Installing R and RStudio

Install the latest version of R from the CRAN website:
<https://cran.r-project.org/>

Install the latest version of RStudio from
<https://posit.co/download/rstudio-desktop/>

Open RStudio and go to File > New File > R Markdown

RStudio interface

The screenshot displays the RStudio interface with the following components:

- Source Editor:** Contains an R Markdown document titled "R Markdown tutorial". The document includes a title, author, date, and output format. It also contains a code chunk for setting up the environment and a paragraph of text.
- Console:** Shows the R version (4.2.3) and copyright information. It also displays the R license and a message about natural language support.
- Environment:** Shows the Global Environment with a data frame named "mtcars". The data frame has 32 observations and 11 variables.
- Data Input:** A section titled "Data Input" with a description of the `read.table()` function and its usage.

Environment Pane Data:

		32 obs. of 11 variables
\$ mpg :	num	21 21 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 ...
\$ cyl :	num	6 6 4 6 8 6 8 4 4 6 ...
\$ disp :	num	160 160 108 258 360 ...
\$ hp :	num	110 110 93 110 175 105 245 62 95 123 ...
\$ drat :	num	3.9 3.9 3.85 3.08 3.15 2.76 3.21 3.69 3.92 ...
\$ wt :	num	2.62 2.88 2.32 3.21 3.44 ...

Data Input Description:

Reads a file in table format and creates a data frame from it, with cases corresponding to lines and variables to fields in the file.

Usage:

```
read.table(file, header = FALSE, sep = "", quote = "\"",  
  dec = ".", numerals = c("allow.loss", "warn.loss", "no.  
  row.names, col.names, as.is = !stringsAsFactors,  
  na.strings = "NA", colClasses = NA, nrows = -1,  
  skip = 0, check.names = TRUE, fill = !blank.lines.skip,  
  strip.white = FALSE, blank.lines.skip = TRUE,  
  comment.char = "#").
```

Rmd file structure

YAML header:

```
---  
title: "R Markdown tutorial"  
author: "Ariane Ducellier"  
date: "8/29/2023"  
output: pdf_document  
---
```

R code chunks:

```
```{r cars}  
summary(cars)
```
```

Markdown text:

```
## R Markdown
```

```
This is an R Markdown document.
```

Main options for R chunk options

```
““{r chunk_name, options}  
R code  
““
```

- `include = FALSE` - No code and no results printed in the finished file.
- `echo = FALSE` - No code.
- `message = FALSE` - No messages generated by the code.
- `warning = FALSE` - No warnings generated by the code.
- `fig.cap = "..."` - Caption for graphical results.

Basic Markdown syntax

```
_Italic text_  
**Bold text**  
# Header one  
## Header two  
### Header three  
[R Markdown](https://rmarkdown.rstudio.com)  
![RStudio interface](RMarkdown.png)  
> "A quote"  
* List item 1  
* List item 2  
1. Ordered list item 1  
2. Ordered list item 2  
Line 1 followed by two spaces  
Line 2
```

Inline code:

```
Here is the result: 'r result'.
```

Printing tables:

```
```{r ktable, results='asis'}  
library(knitr)
kable(mtcars[1:5], caption="A knitr table")
```
```

More yaml options

Table of contents:

```
output:  
  pdf_document  
  toc: true
```

Dashboards:

```
output:  
  flexdashboard::flex_dashboard:  
    orientation: columns
```


More on R Markdown

Markdown tutorial: <https://www.markdowntutorial.com/>

R Markdown tutorial:

<https://rmarkdown.rstudio.com/lesson-1.html>

R Markdown guide: <https://bookdown.org/yihui/rmarkdown/>

In RStudio, go to:

- Help > Markdown Quick Reference
- Help > Cheatsheets > R Markdown Cheat Sheet