

# Radvance

## RMarkdown and Quarto

PhD Toolbox - R introductory course - stream II  
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# RMarkdown

- Markdown is a lightweight markup language for creating formatted text using a plain-text editor
  - Text formatting is **CODE**-based allowing reproducibility

# RMarkdown

- Special characters are used to define text styles

# is used for header definition

# First level heading

## Second-level heading

### Third-level heading

\* \* around a word makes it **bold**

\_ or \* around a word make it *italic*

...and so on...

# RMarkdown

The code is finally **rendered** into the final document

- pdf
- html
- MSOffice document

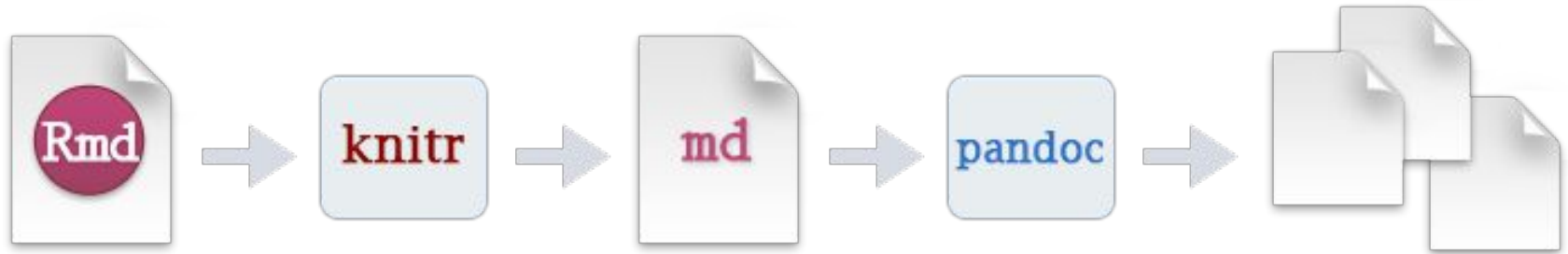
# RMarkdown

Markdown language is fully integrated with R and RStudio thanks to **RMarkdown**



- produce high-quality and fully reproducible **reports**
- integrate narrative text with lines of code and plots
- several outputs formats available:
  - static or interactive
- html, slides, pdf, word documents, websites and many other

# RMarkdown



# RMarkdown

There are 3 fundamental elements in a Rmarkdown document

1. Metadata header
2. Text
3. R chunks

# RMarkdown

## 1. YAML header

```
---  
title: "This is your first **RMarkdown** document"  
author: "Matteo Chialva"  
date: "2023-03-09"  
output:  
  html_document:  
    toc: yes  
    toc_float: true  
bibliography: citations.bib  
---
```

- Title/subtitles
- Authors
- Date
- output formats
- Table of contents (TOC)
- Themes
- Code folding
- bibliography
- output format

**keep the indents hierarchical!**



# RMarkdown

## 2. Text (Markdown format)

```
## Results 1 {.tabset}
```

```
### Tab One
```

```
Hey! I'm the first tab!
```

```
### Tab Two
```

```
Hey! I'm the second tab!
```

```
## Results 2 {.tabset .tabset-pills}
```

Add your narrative flow in  
Markdown format

- Chapterize your document
  - you can create tabset with different layouts
  - tables
  - References section
- ```
## References
```

# RMarkdown

## 3. Code chunks

```
```${r pressure, include=T, echo=T}  
plot(pressure)  
```
```



- delimited by three back-quotes!
- can be named (for indexing purposes)
- parameters:
  - include or not the chunk and its output (include parameter)
  - include or not the code (echo parameter)
  - figures options
  - manage displayed errors and warnings
  - many other!

Within each chunk you are fully working in an R environment

# RMarkdown

## 3. Code chunks

```
```{bash}  
# execute the following bash code  
pwd  
```
```

Not only R!

bash  
python  
...

# RMarkdown

## 3. Code chunks

```
```{bash}  
# execute the following bash code  
pwd  
```
```

Not only R!

bash  
python  
...

# RMarkdown

Few notes on the **slides** format

Different implementations with different functionalities

- ioslides
- Slidy
- Beamer
- xarigan
- **reveal.js**

Each method has different parameters (YAML)

# RMarkdown

## revealjs

- based on Java
- highest browser compatibility compared to other methods
- several plugins available
- easy-to-use syntax
- nice text formatting

# RMarkdown

```

|---
title: "This is your first **RMarkdown** Presentation"
author: "Matteo Chialva & Martino Adamo"
date: "2024-01-24"
output:
  revealjs::revealjs_presentation:
    transition: default
    self_contained: false
    reveal_plugins:
      - search
      - zoom
      - notes
      - chalkboard
      - menu
    reveal_options:
      slideNumber: true
      chalkboard:
        theme: chalkboard
        toggleNotesButton: true
      menu:
        numbers: true

```

- Different output format and YAML field compared to html document
- the file has still an \*.Rmd format

# RMarkdown

## revealjs

- as for html reports you can include code chunks
- slides are created according to a Markdown-styled chapterization

### Slide 1  
Content

Text styles (font, face, size and color) have to be defined in a **CSS** (**Cascading Style Sheets**) file or called directly in-line:

### Slide 2  
Content

```
## [R Markdown]{style="font-size: 60px;  
font-weight: bold; color:red;"}
```





- An open-source scientific and technical publishing system
- next generation version of R Markdown
  - enhanced graphical capability (useful mainly for presentations)
  - backward-compatible with RMarkdown



## Differences from RMarkdown

- different YAML syntax (simplified)

```
---  
title: "This is your first **Quarto** document"  
author: "Matteo Chialva & Martino Adamo"  
date: "2024-01-24"  
format:  
  html:  
    code-fold: true  
    toc: true  
    toc-title: Contents  
    toc-location: left  
bibliography: citations.bib  
---
```



- Component layout are surrounded by `:::`

```
::: panel-tabset
```

```
### Tab One
```

```
Hey! I'm the first tab!
```

```
### Tab Two
```

```
Hey! I'm the second tab!
```

```
:::
```



- chunk arguments are indicated within the chunk using `#|`

```
```{r}  
#| echo: true  
#| include: true  
#| fig-cap: "(A) Cars plot"  
library(ggplot2)  
plot(cars)  
```
```

# RMarkdown/Quarto

Let's review all these elements with their syntaxis  
live on the ***Example*** files