

Creating reproducible reports using R Markdown

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Background

- Introduced in 2012 in **knitr** package
 - Embed code chunks in Markdown documents
 - Supports: Markdown, LaTeX, HTML, AsciiDoc, reStructuredText, Textile
- Also works with Pandoc
 - Universal document converter
 - Renders to PDF, HTML, Word, etc.



Possible uses

- R tutorials
- Compile a single R Markdown document to a report in different formats, such as PDF, HTML, or Word.
- Create notebooks in which you can directly run code chunks interactively.
- Make slides for presentations (HTML5, LaTeX Beamer, or PowerPoint).
- Produce dashboards with flexible, interactive, and attractive layouts.
- Build interactive applications based on Shiny.
- Write journal articles.
- Author books/theses with multiple chapters.
- Generate websites and blogs.

Supported code & useful extensions

- Code:
 - R, Python, Bash, Rcpp, SQL, D3, Stan, Javascript, CSS
- Extensions:
 - Bookdown – useful for longer documents and academic writing
 - Thesisdown – render a thesis in various formats
 - blogdown – generating blogs and personal websites
 - rticles – generating scientific papers with templates from many journals

How to install

- # Install from CRAN
- `install.packages('rmarkdown')`

- # Or if you want to test the development version,
- # install from GitHub
- `if (!requireNamespace("devtools"))`
- `install.packages('devtools')`
- `devtools::install_github('rstudio/rmarkdown')`

- For PDF output:
 - `install.packages('tinytex')`
 - `tinytex::install_tinytex()`

References to get started

- <https://bookdown.org/yihui/rmarkdown/>
- <https://www.rstudio.com/wp-content/uploads/2015/03/rmarkdown-reference.pdf>
- <https://rmarkdown.rstudio.com/lesson-1.html>