



Introduction to R Markdown

Saghir Bashir

24th October 2019

<https://github.com/saghirb/Rmarkdown-Intro-Workshop>

Relax

Experiment

Make Mistakes

Learn

Enjoy



Outline

R Markdown Examples

What is R Markdown?

HTML & PDF Documents

Pretty Tables

Summary

Prerequisites



Latest versions of:

1. R: <https://cran.r-project.org>
2. RStudio: <https://www.rstudio.com/products/rstudio>



R Markdown Examples



HTML "Analysis" Document

World Population Data

Exercise Questions

Read in the data

Pre-processing the Data

Exercise Answers

Portugal: 1950 v 2017

World Population

Population by Continent

Population by Country

Portugal: 1950 to 2015

High & Low Female Proportion

Portuguese Females Over Time

Read in the data

First load the `data.table` package (hint: use the `library()` function). Then use the `fread()` function to read in the data file `World-Population.csv` in an object called `un`. Finally look at the `un` dataset using the `str()` function.

```
library(data.table)
un <- fread("World-Population.csv")
un
```

```
##           continent   Location Time AgeGrp AgeGrpStart PopFemale PopMale
## 1:        Asia Afghanistan 1950    0-4          0   661.58   630.04
## 2:        Asia Afghanistan 1950    5-9          5   487.33   516.21
## 3:        Asia Afghanistan 1950   10-14         10   423.33   461.38
## 4:        Asia Afghanistan 1950   15-19         15   369.36   414.37
## 5:        Asia Afghanistan 1950   20-24         20   318.39   374.11
## ...
## 47942:    Africa Zambia 2015  80-84         80   23.30   16.10
## 47943:    Africa Zambia 2015  85-89         85   9.17    5.84
## 47944:    Africa Zambia 2015  90-94         90   2.40    1.30
## 47945:    Africa Zambia 2015  95-99         95   0.35    0.16
## 47946:    Africa Zambia 2015 100+          100   0.03    0.01
```

```
str(un)
```

```
## Classes 'data.table' and 'data.frame':  47946 obs. of  7 variables:
## $ continent : chr  "Asia" "Asia" "Asia" "Asia" ...
## $ Location  : chr  "Afghanistan" "Afghanistan" "Afghanistan" "Afghanistan" ...
## $ Time      : int  1950 1950 1950 1950 1950 1950 1950 1950 ...
## $ AgeGrp    : chr  "0-4" "5-9" "10-14" "15-19" ...
## $ AgeGrpStart: int  0 5 10 15 20 25 30 35 40 45 ...
## $ PopFemale : num  662 487 423 369 318 ...
```



HTML Website



https://dsup.org

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A community for data science
📍 Lisbon

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---------	---------

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We Are All Imposters

📅 2018-06-05 · 441 WORDS · 3 MINUTE READ [BLOG](#)
🏷️ IMPOSTER SYNDROME · STATISTICS · CRITICAL THINKING · LEARNING

We are all imposters. Let's enjoy it!

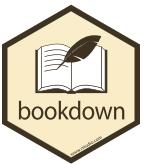
[Read more](#)

CATEGORIES

- ▶ blog (5)
- ▶ events (1)

TAGS

- ▶ accessibility (1)
- ▶ critical-thinking (2)
- ▶ data-science (5)
- ▶ events (2)
- ▶ food (1)
- ▶ imposter-syndrome (1)
- ▶ latex (1)
- ▶ learning (4)
- ▶ r-language (3)
- ▶ r-markdown (1)



HTML Book



R Markdown: The Definitive Guide

☰ Q A ⌂ ⓘ

[Preface](#)

How to read this book

Structure of the book

Software information and conventions

Acknowledgments

About the Authors

Yihui Xie

J.J. Allaire

Garrett Grolemund

I Get Started

1 Installation

2 Basics

2.1 Example applications

2.1.1 Airbnb's knowledge repository

2.1.2 Homework assignments on R Markdown

2.1.3 Personalized mail

2.1.4 2017 Employer Health Benefits Survey

2.1.5 Journal articles

2.1.6 Dashboards at eeloo

2.1.7 Books

2.1.8 Websites

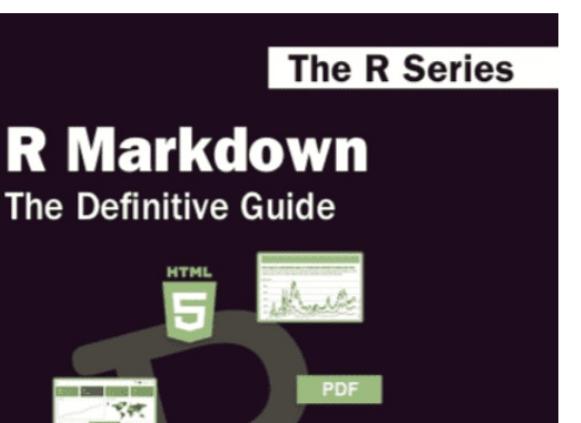
R Markdown: The Definitive Guide

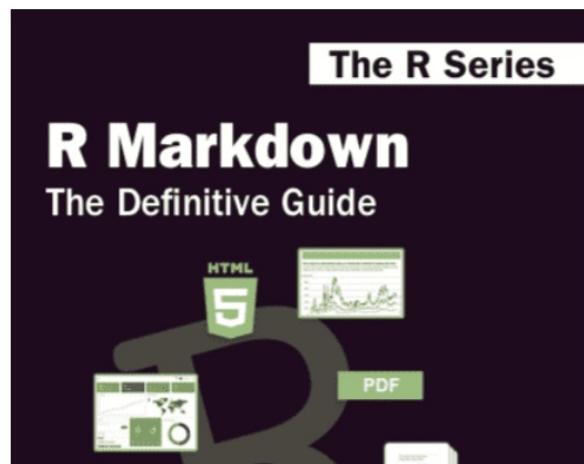
Yihui Xie, J. J. Allaire, Garrett Grolemund

2019-06-03

Preface

Note: This book has been published by Chapman & Hall/CRC. The online version of this book is free to read here (thanks to Chapman & Hall/CRC), and licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.





PDF Article



Women in Parliament – data.table

Saghir Bashir

This version was compiled on April 16, 2019

We will use the World Bank's indicator data for "Women in Parliament" as a case study when working with the data.table R package. We will guide you through the geographical and time trends for the percentage of women in national parliaments. We will start by learning about and understanding the raw data, which we will then process ("wrangle") in preparation for some exploratory analysis.

Women in Parliament | World Bank Indicator | data.table | Tinyverse

1. Preface

We present a real-life case study for the data.table¹ package using the World Bank's "Women in Parliament" indicator data. To get the most out of this case-study guide, repeat the examples and do the exercises whilst reading it.

Guide materials. You can download materials for this guide from this link:

- <https://ilustat.com/shared/WiP-rdatatable.zip>

Unzip the file, which contains the data, this guide and an R script exercise file. We advise you to work with "WiP-Exercise.R" file to follow the examples and do the exercises. If you are using RStudio, you can double click on "WiP-dt.Rproj" to get started.

Data limitations. Take caution when interpreting these data, as parliamentary systems vary from country to country, and in some cases over time. Some of the issues to consider include:

- Who has, and who does not have, the right to become a Member of Parliament (MP)?
- How does someone become an MP? Through democratic elections? How is "democratic election" defined?
- What is the real power of MPs and their parliament? Can MPs make a difference?

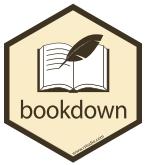
Data definitions & assumptions.

"**Women**". The definition for "women" is not given, so we will assume that it refers to a binary classification for gender (sex).

"**Country (Region)**". The definition of countries and regions can change over time. (e.g. formation of new countries after conflicts, new member states joining a pre-existing collective). How are these changes reflected in the data? How do they affect the interpretation?

Pro tip. Understand the limitations of your data before anybody else points them out to you.

4. About the data file



PDF Book



Chapter 3

Tables, Graphics, References, and Labels

3.1 Tables

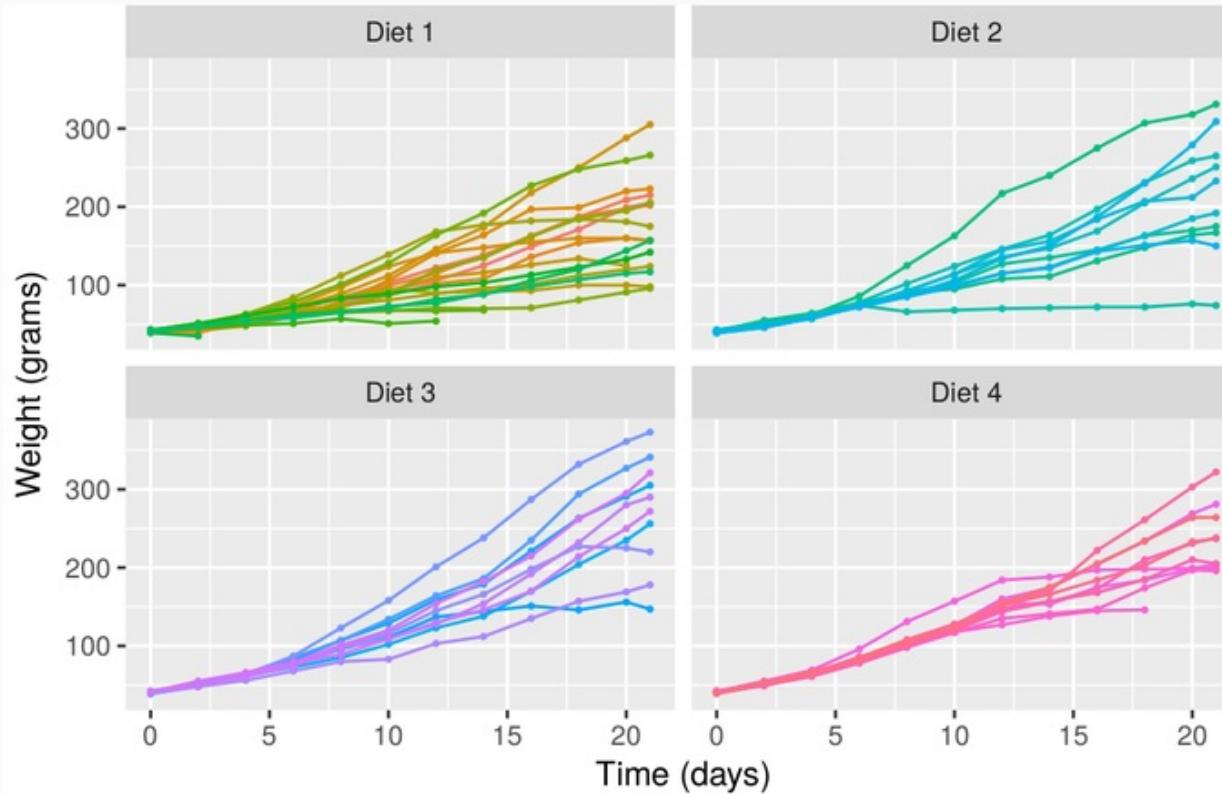
In addition to the tables that can be automatically generated from a data frame in **R** that you saw in [R Markdown Basics](#) using the `kable` function, you can also create tables using `pandoc`. (More information is available at <http://pandoc.org/README.html#tables>.) This might be useful if you don't have values specifically stored in **R**, but you'd like to display them in table form. Below is an example. Pay careful attention to the alignment in the table and hyphens to create the rows and columns.

Table 3.1: Correlation of Inheritance Factors for Parents and Child

Factors	Correlation between Parents & Child	Inherited
Education	-0.49	Yes
Socio-Economic Status	0.28	Slight
Income	0.08	No
Family Size	0.18	Slight

PDF Presentation

Analysis - By Chick Plot



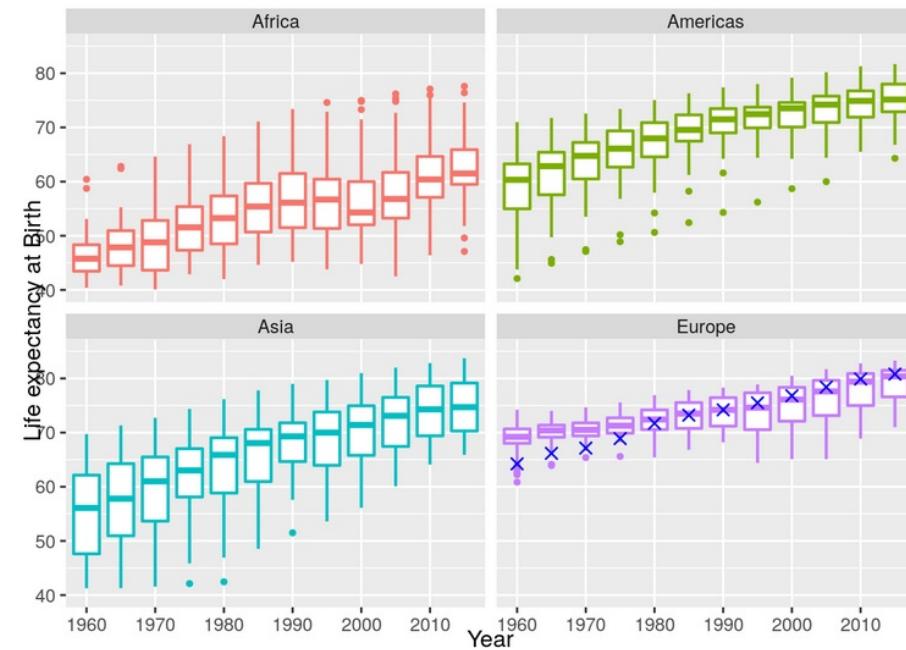


HTML Presentation



Life Expectancy - By Continent

```
gm[continent!="Oceania"] %>%  
  ggplot(aes(fyear, lifeexp,  
             colour = continent)) +  
  geom_boxplot(outlier.size = .5) +  
  geom_point(data=gmPT,  
             shape = 4,  
             colour="blue") +  
  scale_x_discrete(  
    breaks=seq(1960, 2010, 10)) +  
  scale_y_continuous(limits=c(40,85)) +  
  facet_wrap(~continent) +  
  xlab("Year") +  
  ylab("Life expectancy at Birth") +  
  theme(legend.position = "none")
```



More R Markdown



Formats

- HTML
- PDF
- Word & ODF
- Power Point & ODF

Other

- Dashboards
- Web Applications
- HTML Notebooks
- CVs



What is R Markdown?

What is Markdown?



Special computer language ("Markup")

- Plain text file with special syntax.
- Human readable.
- "Tags" define Structure & elements.
- Converts to HTML, PDF, ...

Markdown Example



```
# Markdown Example

Paragraphs are separated by a blank line.

## Format text

Some _italic_, **bold** and `monospace` text.

Bullet list
+ Apples.
+ Oranges.
+ Pears

An [example link](https://github.com/saghirb)..
```

Markdown Example

Paragraphs are separated by a blank line.

Format text

Some *italic*, **bold** and monospace text.

Bullet list

- Apples.
- Oranges.
- Pears

An example link.

What is R Markdown?



A mix of R programming and markdown.

- R code and documentation in one place.
- Great for doing reproducible research.
- Great for collaborating and sharing.
- Converts to HTML, PDF, websites, article, books, ...

R Markdown Example



```
---
```

```
title: "R Markdown Demo"
author: "Saghir Bashir"
date: "13/06/2019"
output: html_document
---
```

```
_Using_ **R** as a calculator.
```

```
```{r Rcalc}
2+5
8**2
````
```

```
Plot the `ChickWeight` data.
```

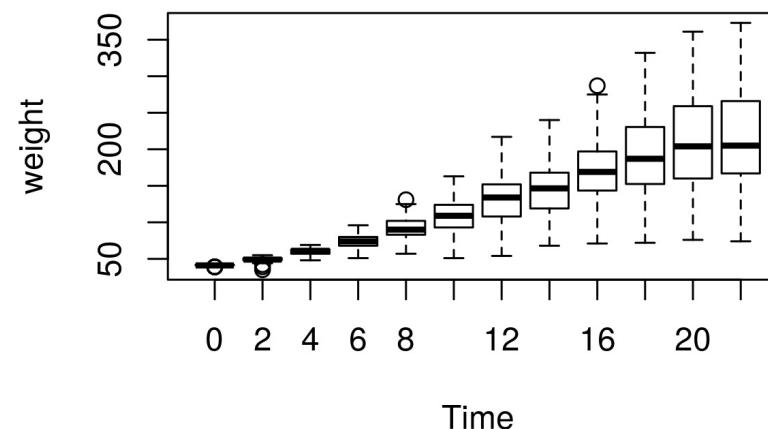
```
```{r plotCW, echo=FALSE, out.width="80%"}
with(ChickWeight, boxplot(weight ~ Time))
```

*Using R as a calculator.*

```
(2+5)**2
```

```
[1] 49
```

*Plot the ChickWeight data.*



# R Markdown Explained - YAML



```

title: "R Markdown Demo"
author: "Saghir Bashir"
date: "13/06/2019"
output: html_document

Using R as a calculator.

```{r Rcalc}
2+5
8**2
```

Plot the `ChickWeight` data.

```{r plotCW, echo=FALSE, out.width="80%"}
with(ChickWeight, boxplot(weight ~ Time))
```
```

**File extension is .Rmd**

- e.g. My-Report.Rmd

**Top is YAML header**

- Descriptive information.

- Format & Style.

# R Markdown Explained - Markdown



```

title: "R Markdown Demo"
author: "Saghir Bashir"
date: "13/06/2019"
output: html_document

Using **R** as a calculator.

```{r Rcalc}
2+5
8**2
```

Plot the `ChickWeight` data.

```{r plotCW, echo=FALSE, out.width="80%"}
with(ChickWeight, boxplot(weight ~ Time))
```
```

**Below the YAML header**  
**- Markdown code.**

# R Markdown Explained - R Chunks



```

```

```
title: "R Markdown Demo"
author: "Saghir Bashir"
date: "13/06/2019"
output: html_document

```

```
Using **R** as a calculator.
```

```
```{r Rcalc}
2+5
8**2
````
```

```
Plot the `ChickWeight` data.
```

```
```{r plotCW, echo=FALSE, out.width="80%"}
with(ChickWeight, boxplot(weight ~ Time))
````
```

## Below the YAML header

- **Markdown code.**
- **R code chunks with:**
  - **unique names.**
  - **chunk options.**



# HTML Document



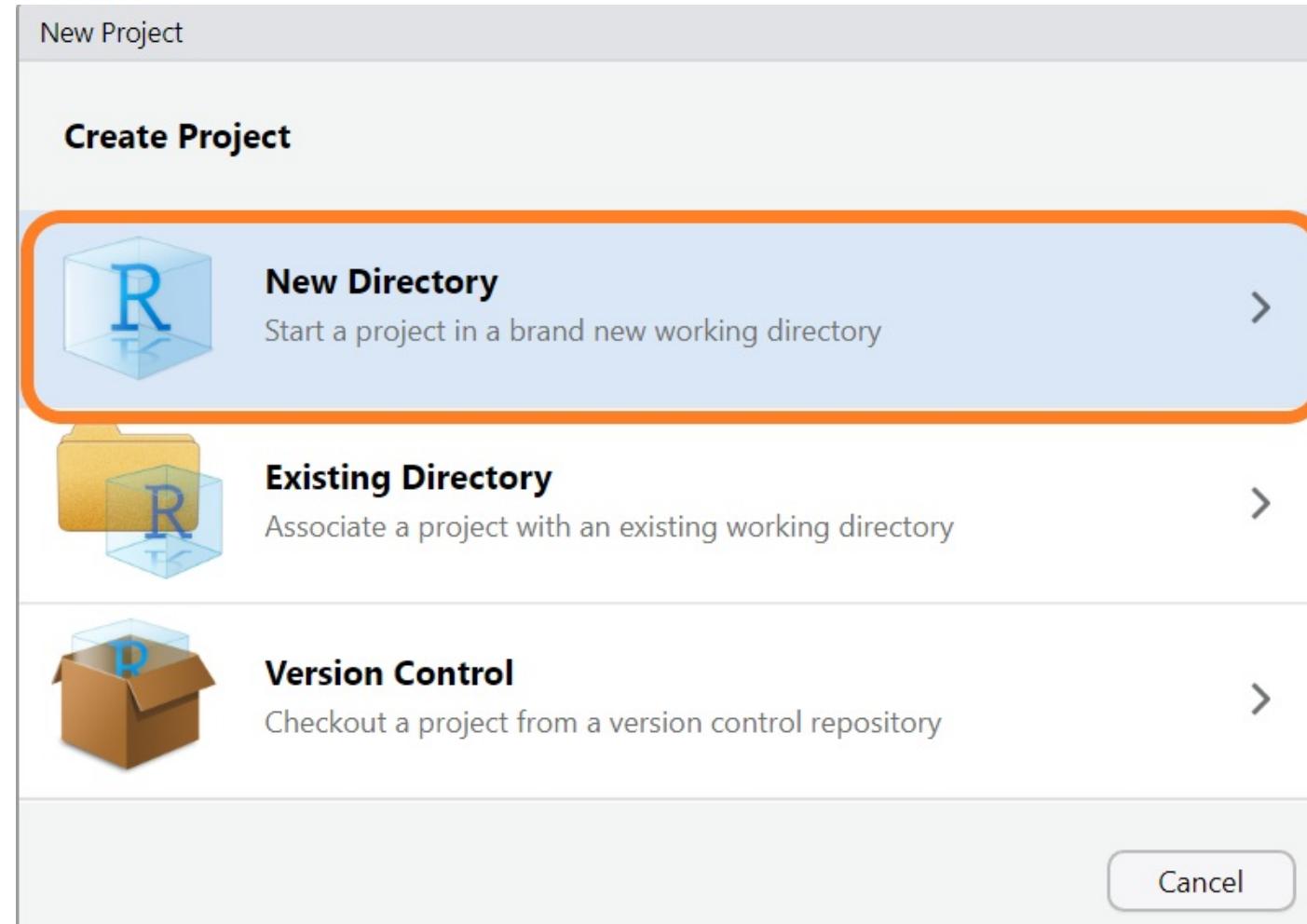
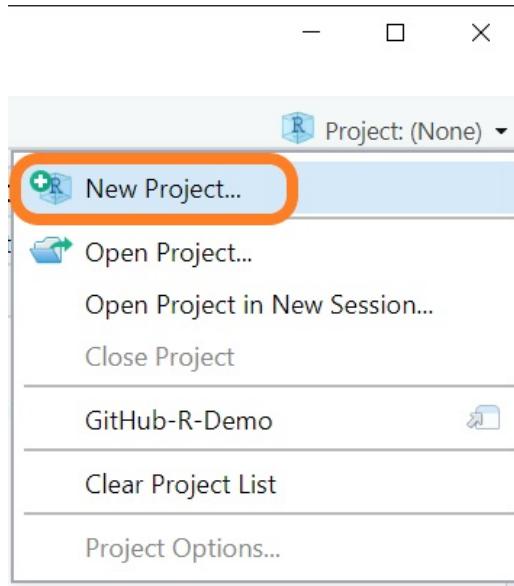
```
install.packages("kableExtra")
```

```
install.packages("rticles")
```

```
install.packages("tinytex")
```

```
tinytex::install_tinytex()
```

# Create a New RStudio Project





# Select "New Project"

New Project

Back      Project Type

- R New Project** > Create a new project in an empty directory
- R Package >
- R Shiny Web Application >
- R Package using Rcpp >
- R Package using RcppArmadillo >
- R Package using RcppEigen >
- R Package using devtools >

Cancel



# Define Directory Location

New Project

Back Create New Project

Directory name: Rmarkdown-Workshop

Create project as subdirectory of: ~/Projects [Browse...](#)

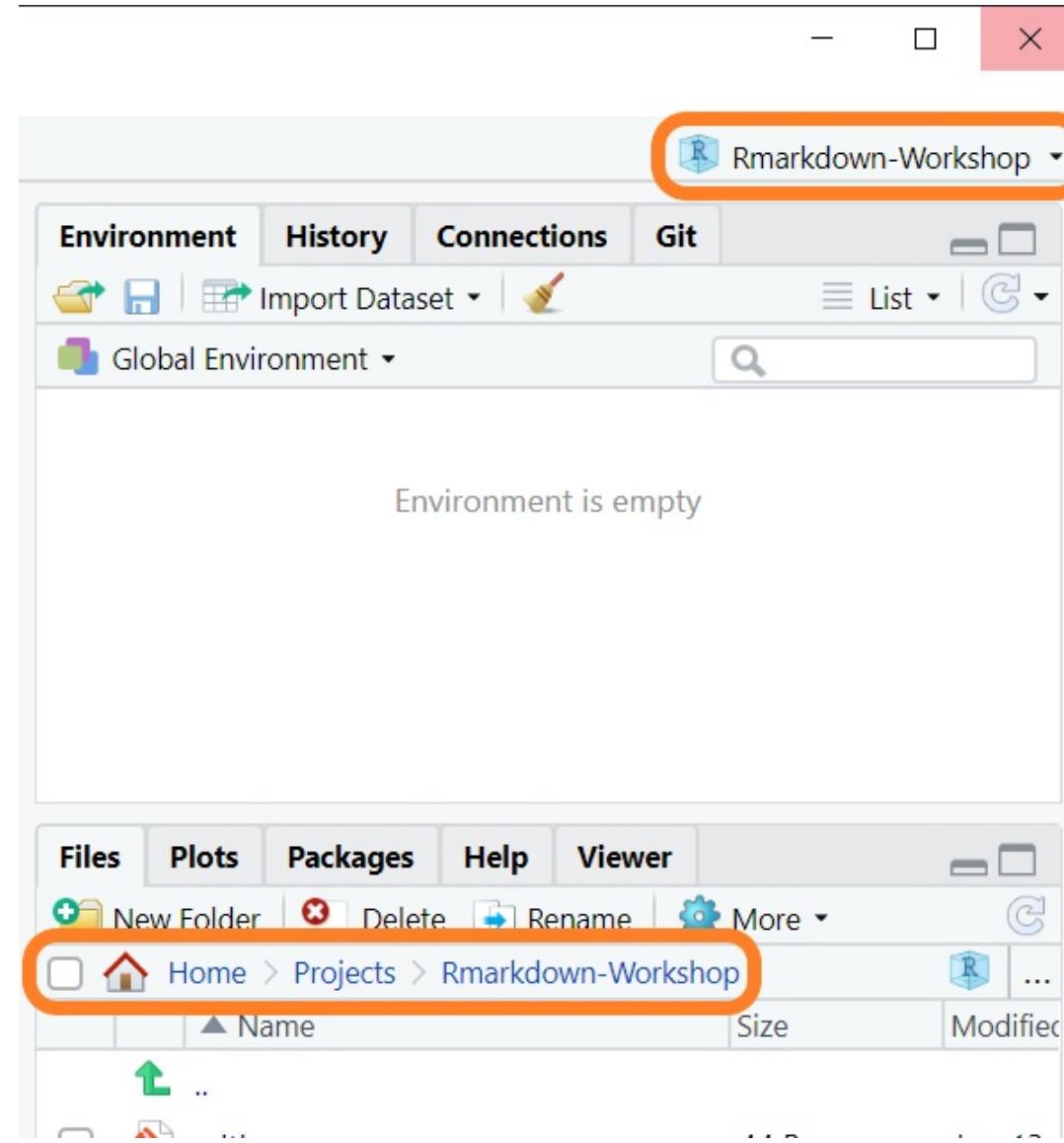
Create a git repository

Open in new session

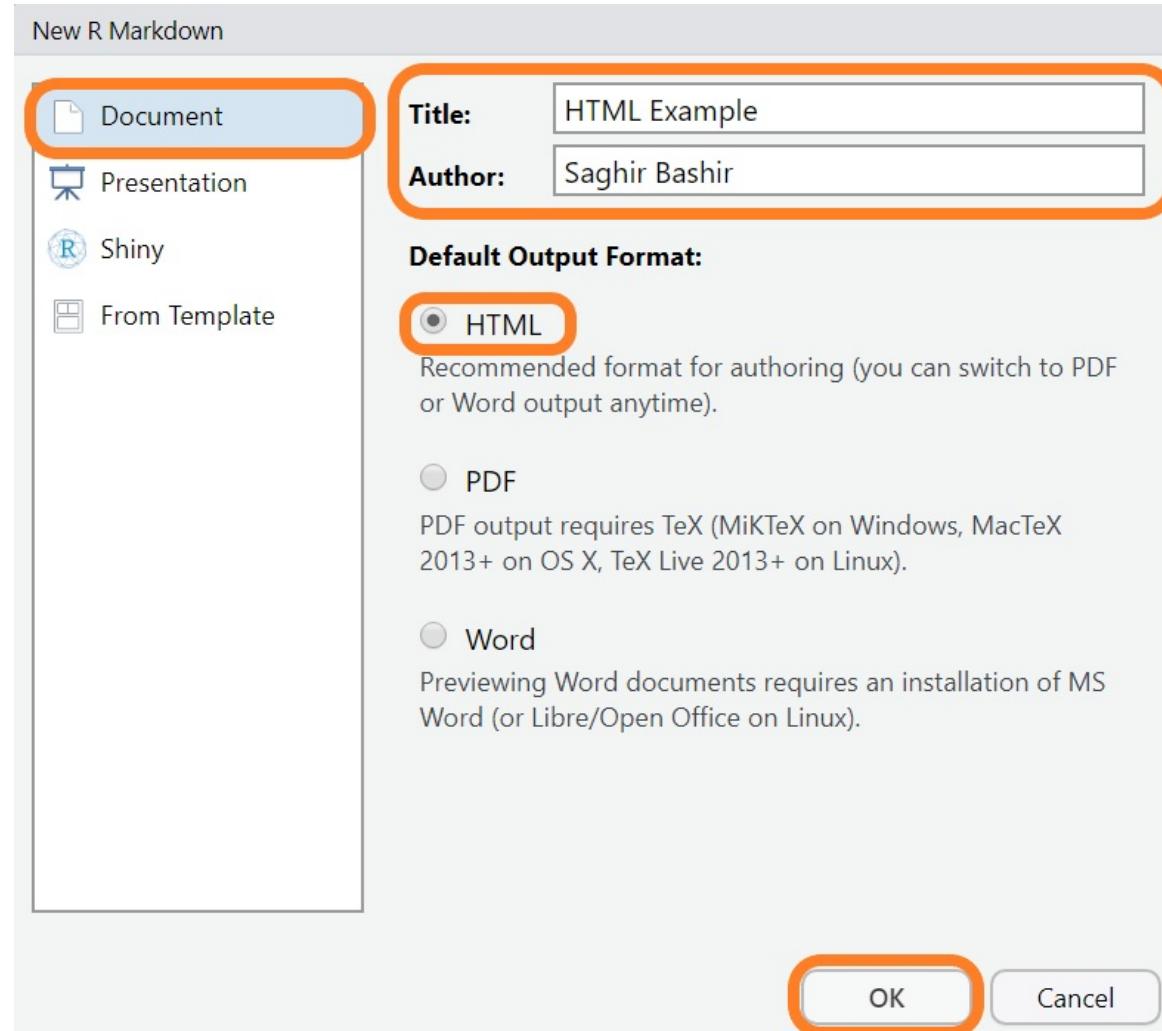
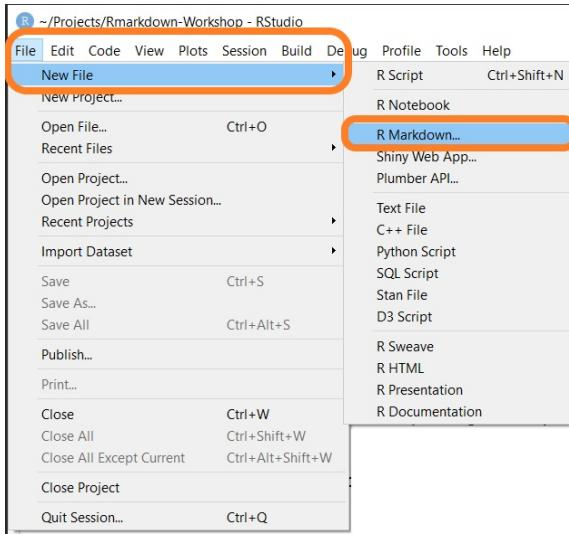
[Create Project](#) [Cancel](#)



# New Project Created



# Create R Markdown Document





# Untitled and Unsaved

The screenshot shows the RStudio interface with the following details:

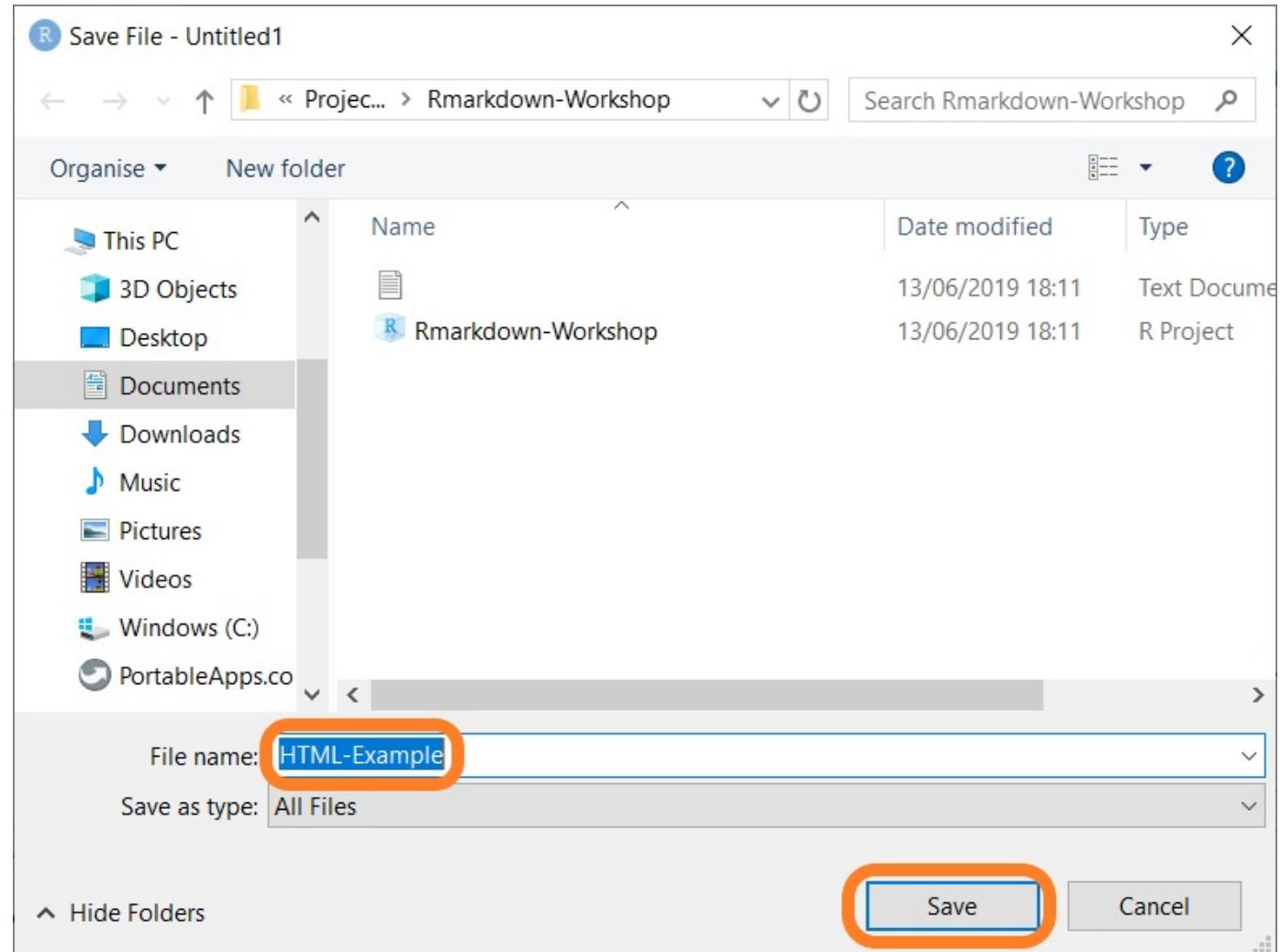
- Title Bar:** Shows the project path: ~/Projects/Rmarkdown-Workshop - RStudio.
- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Toolbar:** Includes icons for file operations like Open, Save, Print, and a Go to file/function search bar.
- Document Editor:** The main workspace displays an R Markdown document titled "Untitled1". The code block starts with a YAML front matter block:

```
1 ---
2 title: "HTML Example"
3 author: "Saghir Bashir"
4 date: "13/06/2019"
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.
2:1 # HTML Example
```
- Environment Tab:** Shows the environment is empty.
- Files Tab:** Displays the project structure:

| Name                     | Size  | Modified |
|--------------------------|-------|----------|
| ..                       |       |          |
| .gitignore               | 44 B  | Jun 13,  |
| Rmarkdown-Workshop.Rproj | 218 B | Jun 13,  |
- Console Tab:** Shows the R startup message and help text.



# Save as .Rmd



# Click "Knit" to Create HTML File



R ~/Projects/Rmarkdown-Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

HTML-Example.Rmd Knit

```
1 ---
2 title: "HTML Example"
3 author: "Saghir Bashir"
4 date: "13/06/2019"
5 output: html_document

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
```

2:1 # HTML Example R Markdown



# HTML Document - Top

The screenshot shows the RStudio interface with an HTML document open. The title bar reads "HTML-Example.html". The main content area displays:

# HTML Example

Saghir Bashir  
13/06/2019

## R Markdown

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>.

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:

```
summary(cars)
```

```
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
```

## Including Plots

# HTML Document - Bottom

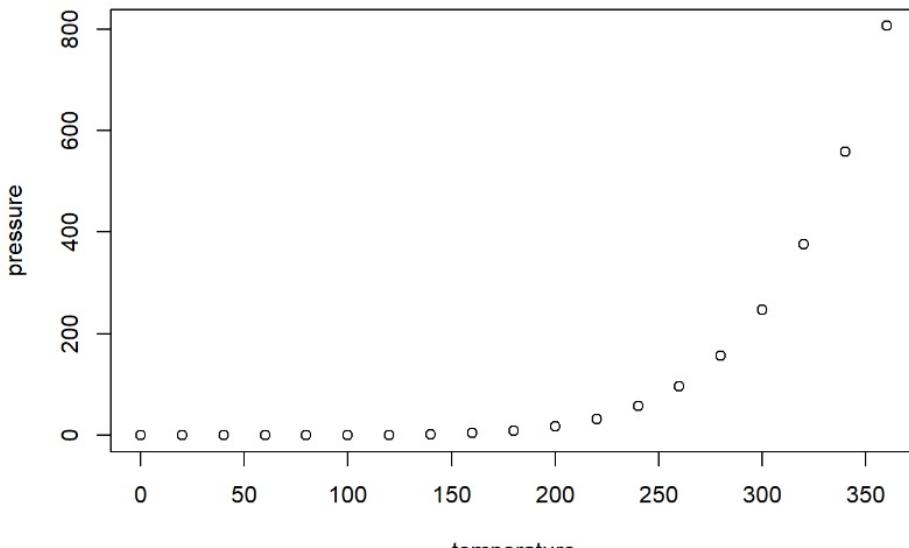
R ~/Projects/Rmarkdown-Workshop/HTML-Example.html

HTML-Example.html | Open in Browser | Find

## Max. :25.0 Max. :120.00

**Including Plots**

You can also embed plots, for example:

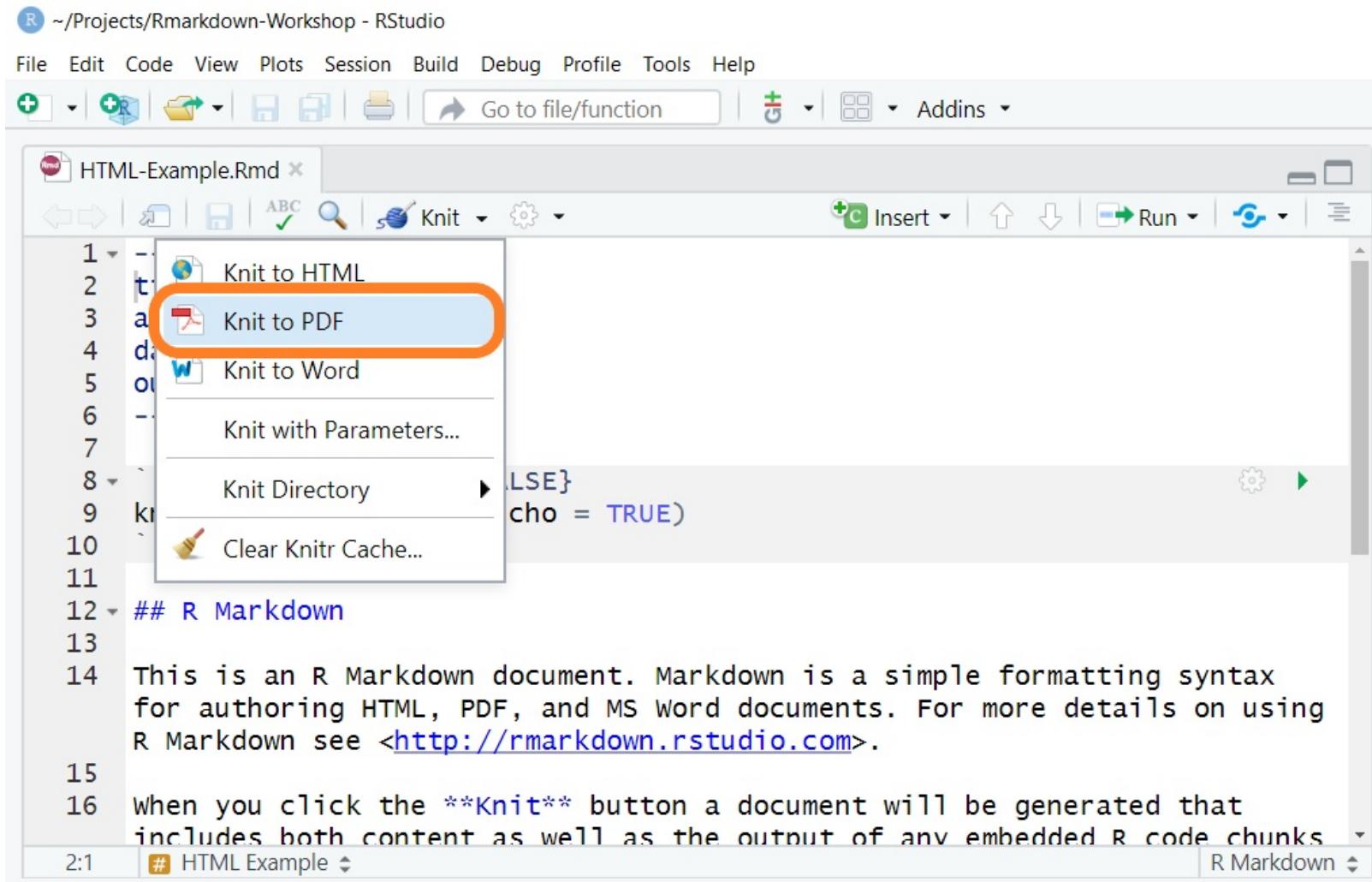


A scatter plot showing the relationship between temperature (x-axis) and pressure (y-axis). The x-axis ranges from 0 to 350 with major ticks every 50 units. The y-axis ranges from 0 to 800 with major ticks every 200 units. The data points, represented by open circles, show a strong positive correlation, starting near (0, 0) and ending near (350, 800).

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.



# You Can "Knit" to PDF



The screenshot shows the RStudio interface with the following details:

- Title Bar:** Shows the path `~/Projects/Rmarkdown-Workshop - RStudio`.
- Toolbar:** Includes standard RStudio icons for file operations, code, plots, session, build, debug, profile, tools, and help.
- File Menu:** Contains options like File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help.
- Knit Button:** Located in the toolbar, with a dropdown menu open.
- Knit Dropdown Options:** The menu includes:
  - Knit to HTML
  - Knit to PDF** (highlighted with an orange oval)
  - Knit to Word
  - Knit with Parameters...
  - Knit Directory
  - Clear Knitr Cache...
- Code Editor:** Displays R Markdown code. The code includes:

```
1 -> t
2 a
3 da
4 ou
5
6
7
8 LSE}
9 cho = TRUE)
10
11
12 ## R Markdown
13
14 This is an R Markdown document. Markdown is a simple formatting syntax
15 for authoring HTML, PDF, and MS Word documents. For more details on using
16 R Markdown see <http://rmarkdown.rstudio.com>.
```
- Status Bar:** Shows the current file as `# HTML Example` and the mode as `R Markdown`.

# PDF Document



## HTML Example

*Saghir Bashir*

*13/06/2019*

### R Markdown

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>.

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:

```
summary(cars)

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
```

### Including Plots

You can also embed plots, for example:

# Change Theme & Style



R ~/Projects/Rmarkdown-Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

HTML-Example.Rmd

Knit

Insert Run

```
1 ---
2 title: "HTML Example"
3 author: "Saghir Bashir"
4 date: "13/06/2019"
5 output:
6 html_document:
7 theme: united
8 highlight: tango
9 toc: true
10 toc_depth: 3
11 toc_float: true
12 ---
13 |
```

(Top Level) R Markdown

This screenshot shows the RStudio interface with an R Markdown file named "HTML-Example.Rmd" open. The code editor displays the YAML front matter and the "output" section. The "Knit" button in the toolbar is highlighted with an orange box. The "output" section, which contains the configuration for the HTML document, is also highlighted with an orange box. The status bar at the bottom indicates the file is at line 13:1 and is currently in "R Markdown" mode.



# Updated Theme

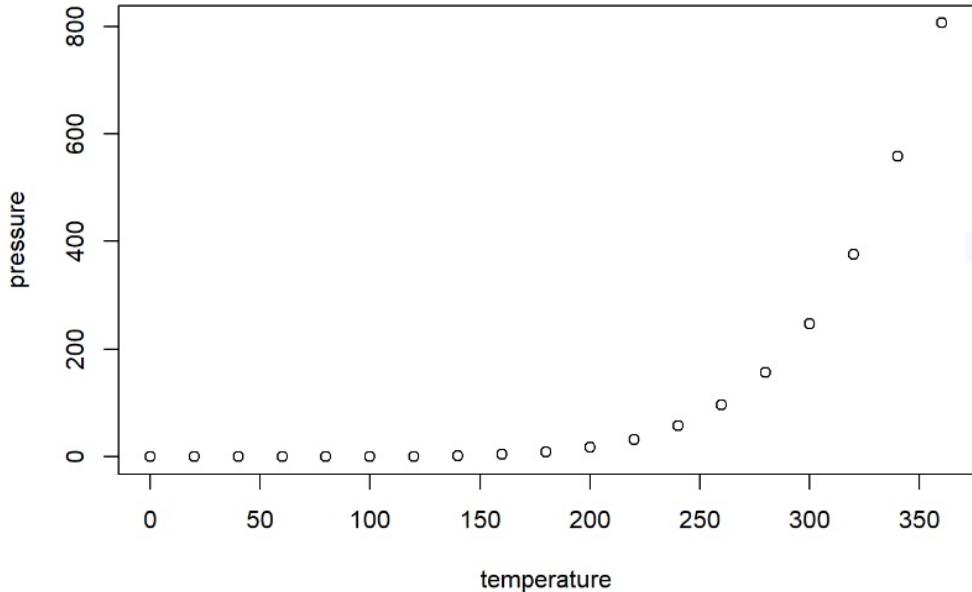
R ~Projects/Rmarkdown-Workshop/HTML-Example.html

HTML-Example.html | Open in Browser | Find | Publish

R Markdown

Including Plots

You can also embed plots, for example:



A scatter plot showing the relationship between temperature (x-axis) and pressure (y-axis). The x-axis ranges from 0 to 350 with major ticks every 50 units. The y-axis ranges from 0 to 800 with major ticks every 200 units. The data points are open circles, showing a positive correlation where pressure increases as temperature increases. There are approximately 20 data points.

| temperature | pressure |
|-------------|----------|
| 0           | 10       |
| 25          | 10       |
| 50          | 10       |
| 75          | 10       |
| 100         | 10       |
| 125         | 10       |
| 150         | 10       |
| 175         | 10       |
| 200         | 10       |
| 225         | 10       |
| 250         | 100      |
| 275         | 150      |
| 300         | 250      |
| 315         | 380      |
| 330         | 400      |
| 345         | 550      |
| 355         | 800      |

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

# R Markdown Cheatsheet



Pandoc's Markdown

Write with syntax on the left to create effect on right (after render)

|                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plain text<br>End a line with two spaces<br>to start a new paragraph.<br>*italics* and **bold**<br>`verbatim` code<br>sub/superscript <sup>1</sup> <sup>2</sup><br>~~strikethrough~~<br>escaped: `^`\\`<br>endash: -, emdash: ---<br>equation: \$A = \pi * r^2\$<br>equation block:<br><br>\$\$E = mc^2\$\$<br>> block quote<br><br># Header1 {#anchor}<br>## Header2 {#css_id}<br>### Header 3 {.css_class} | Plain text<br>End a line with two spaces<br>to start a new paragraph.<br>italics and bold<br>verbatim code<br>sub/superscript <sup>1</sup> <sup>2</sup><br>strikethrough<br>escaped: `^`\\`<br>endash: -, emdash: ---<br>equation: $A = \pi * r^2$<br>equation block:<br><br>$E = mc^2$<br>block quote<br><br><b>Header1</b><br><b>Header 2</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- Useful to find R markdown "tags".
- Use it for the exercises.
- Lots of other useful information too.

Source: <https://www.rstudio.com/resources/cheatsheets/>



# Pretty Tables

# Objective



## Before

```
sData
Treatment Visit N Mean S.D.
1: Placebo Baseline 182 27.4 3.23
2: Placebo Final 157 25.6 4.11
3: Active Baseline 179 26.7 3.45
4: Active Final 145 20.7 4.27
```

## After

| Treatment | Visit    | N   | Mean | S.D. |
|-----------|----------|-----|------|------|
| Placebo   | Baseline | 182 | 27.4 | 3.23 |
|           | Final    | 157 | 25.6 | 4.11 |
| Active    | Baseline | 179 | 26.7 | 3.45 |
|           | Final    | 145 | 20.7 | 4.27 |

# Use knitr::kable



```
library(magrittr)
library(knitr)
sData %>%
 kable()
```

| Treatment | Visit    | N   | Mean | S.D. |
|-----------|----------|-----|------|------|
| Placebo   | Baseline | 182 | 27.4 | 3.23 |
| Placebo   | Final    | 157 | 25.6 | 4.11 |
| Active    | Baseline | 179 | 26.7 | 3.45 |
| Active    | Final    | 145 | 20.7 | 4.27 |

```
library(magrittr)
library(knitr)
sData %>%
 kable(align="lcccc", digits=c(0, 0, 0, 1, 2))
```

| Treatment | Visit    | N   | Mean | S.D. |
|-----------|----------|-----|------|------|
| Placebo   | Baseline | 182 | 27.4 | 3.23 |
| Placebo   | Final    | 157 | 25.6 | 4.11 |
| Active    | Baseline | 179 | 26.7 | 3.45 |
| Active    | Final    | 145 | 20.7 | 4.27 |

# Use kableExtra Package



```
library(magrittr)
library(knitr)
library(kableExtra)
sData %>%
 kable(align="lcccc", digits=c(0, 0, 0, 1, 2)) %>%
 kable_styling(bootstrap_options="striped",
 full_width=TRUE)
```

| Treatment | Visit    | N   | Mean | S.D. |
|-----------|----------|-----|------|------|
| Placebo   | Baseline | 182 | 27.4 | 3.23 |
| Placebo   | Final    | 157 | 25.6 | 4.11 |
| Active    | Baseline | 179 | 26.7 | 3.45 |
| Active    | Final    | 145 | 20.7 | 4.27 |

```
library(magrittr)
library(knitr)
library(kableExtra)
sData %>%
 kable(align="lcccc", digits=c(0, 0, 0, 1, 2)) %>%
 kable_styling(bootstrap_options="striped",
 full_width=TRUE) %>%
 column_spec(1:5, width = "4em")
```

| Treatment | Visit    | N   | Mean | S.D. |
|-----------|----------|-----|------|------|
| Placebo   | Baseline | 182 | 27.4 | 3.23 |
| Placebo   | Final    | 157 | 25.6 | 4.11 |
| Active    | Baseline | 179 | 26.7 | 3.45 |
| Active    | Final    | 145 | 20.7 | 4.27 |

# Final Table



```
library(magrittr)
library(knitr)
library(kableExtra)
sData %>%
 kable(align="lcccc", digits=c(0, 0, 0, 1, 2)) %>%
 kable_styling(bootstrap_options="striped",
 full_width=TRUE) %>%
 column_spec(1:5, width = "4em") %>%
 collapse_rows(1, valign = "top")
```

| Treatment | Visit    | N   | Mean | S.D. |
|-----------|----------|-----|------|------|
| Placebo   | Baseline | 182 | 27.4 | 3.23 |
|           | Final    | 157 | 25.6 | 4.11 |
| Active    | Baseline | 179 | 26.7 | 3.45 |
|           | Final    | 145 | 20.7 | 4.27 |

## We started with

```
sData
```

```
Treatment Visit N Mean S.D.
1: Placebo Baseline 182 27.4 3.23
2: Placebo Final 157 25.6 4.11
3: Active Baseline 179 26.7 3.45
4: Active Final 145 20.7 4.27
```

# Exercise (i)



- 1) Download <https://ilustat.com/shared/RmarkdownWS.zip>
- 2) Unzip and double click "CW-Summary.Rproj" file.
- 3) Create a new Rmarkdown file called "CW-Report.Rmd"
- 4) Recreate "CW-Report-Target.html"

# Exercise (ii)



## Creating a HTML presentation

- 1) Create a new "Presentation" from R Markdown.
- 2) Select "HTML (ioslides)" style.
- 3) Save as "CW-Slides.Rmd"
- 4) Recreate "CW-Slides-Target.html"

# Summary

## R Markdown

- R code and documentation in one place.
- Great for doing reproducible research.
- Great for collaborating and sharing.
- A big range of possible outputs.
- The rewards and benefits are big!



# Feedback

Please send your feedback or comments via:

- <https://github.com/saghirb/Rmarkdown-Intro-Workshop> or
- <https://twitter.com/ilustat>

Thanks!

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