M2_How to create an R Markdown File in R Studio and the R Markdown File Structure: Task4

- Due Jan 24, 2022 by 8am
- Points 0
- Available until May 6, 2022 at 11:59pm

This assignment was locked May 6, 2022 at 11:59pm.

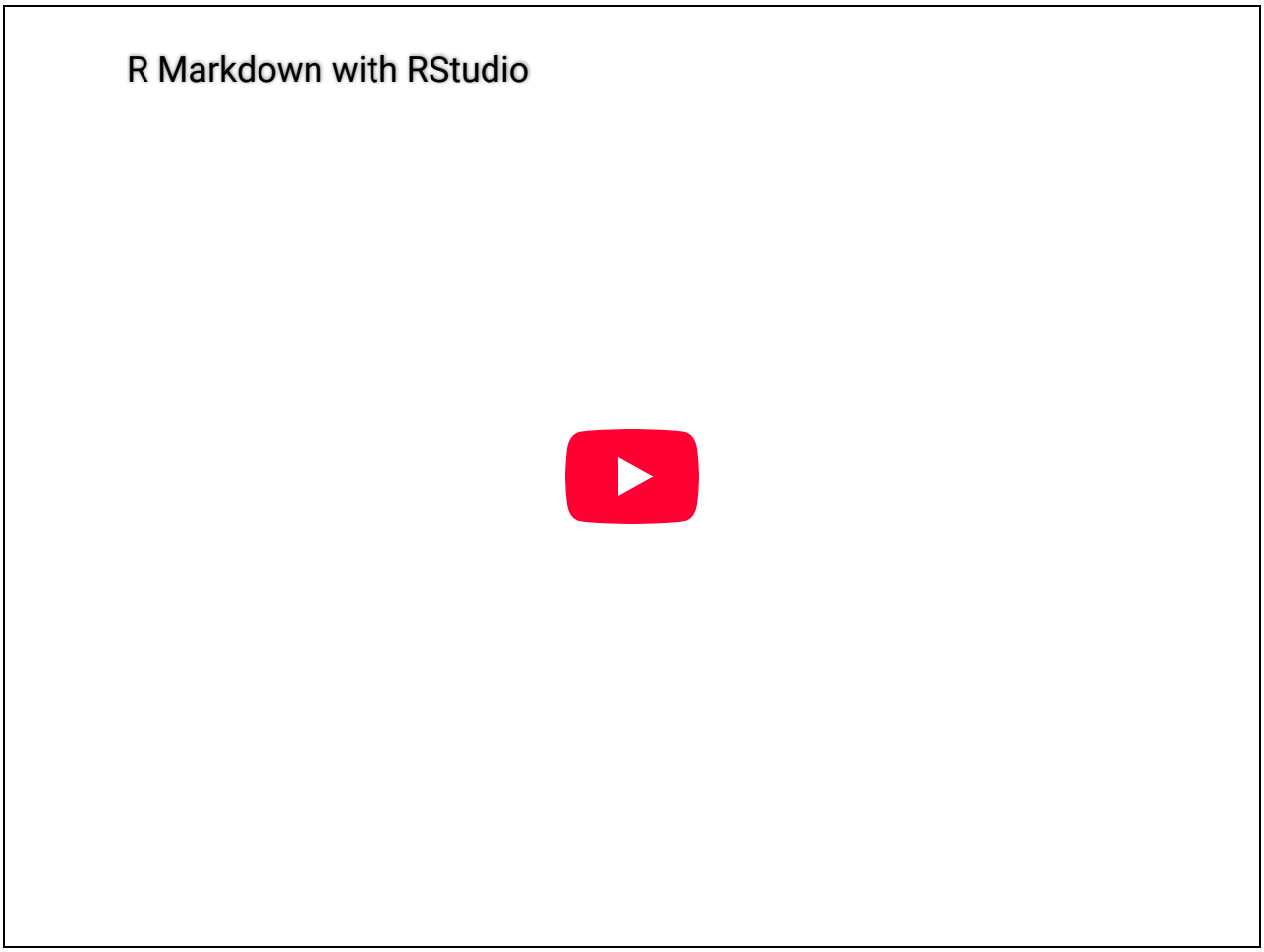
In this tutorial, you will use the knitr and R Markdown packages in RStudio to create a report that links your analysis, results, and associated data. You will learn how to document your work - by connecting data, methods, and outputs in one or more reports or documents. You will learn the R Markdown file format which can be used to generate reports that connect your data, code (methods used to process the data), and outputs. You will use the R markdown and knitr package to write R Markdown files in Rstudio and publish them in different formats (html, pdf, etc).

What You Need first: You will need the most current version of `R` and, preferably, `RStudio` loaded on your computer to complete this tutorial.

1. Install R Packages

- **knitr:** `install.packages("knitr")`
- **rmarkdown:** `install.packages("rmarkdown")`

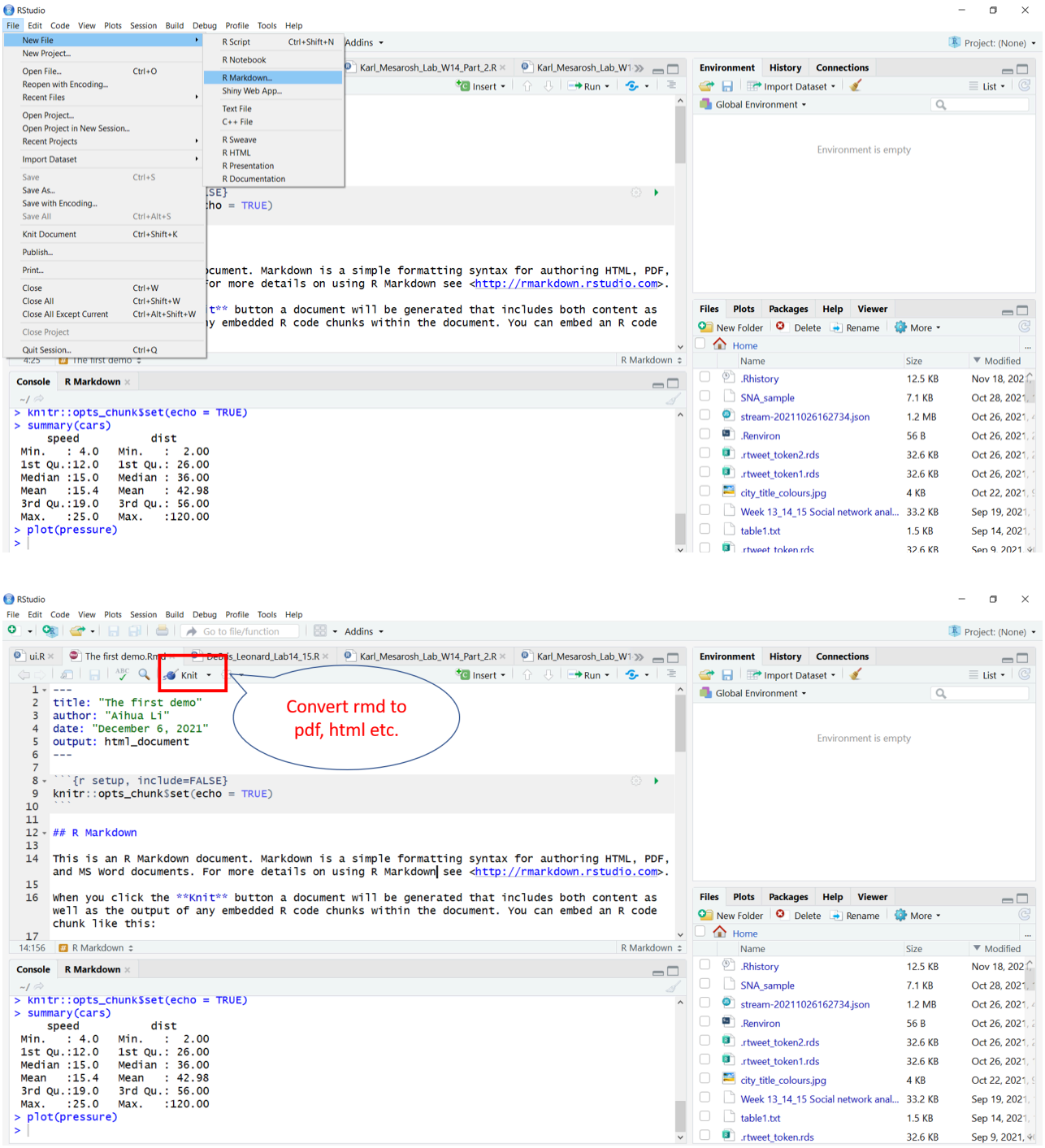
Watch the 6:38 minute video below to see how you convert an `R Markdown` file to `html` (or other formats) using `knitr` in `RStudio`. **NOTE:** The text size in the video is small so you may want to watch the video in full screen mode.



2. Create Your .Rmd File

Now that you see how `R Markdown` can be used in `RStudio`, you are ready to create your own `.Rmd` document. Do the following:

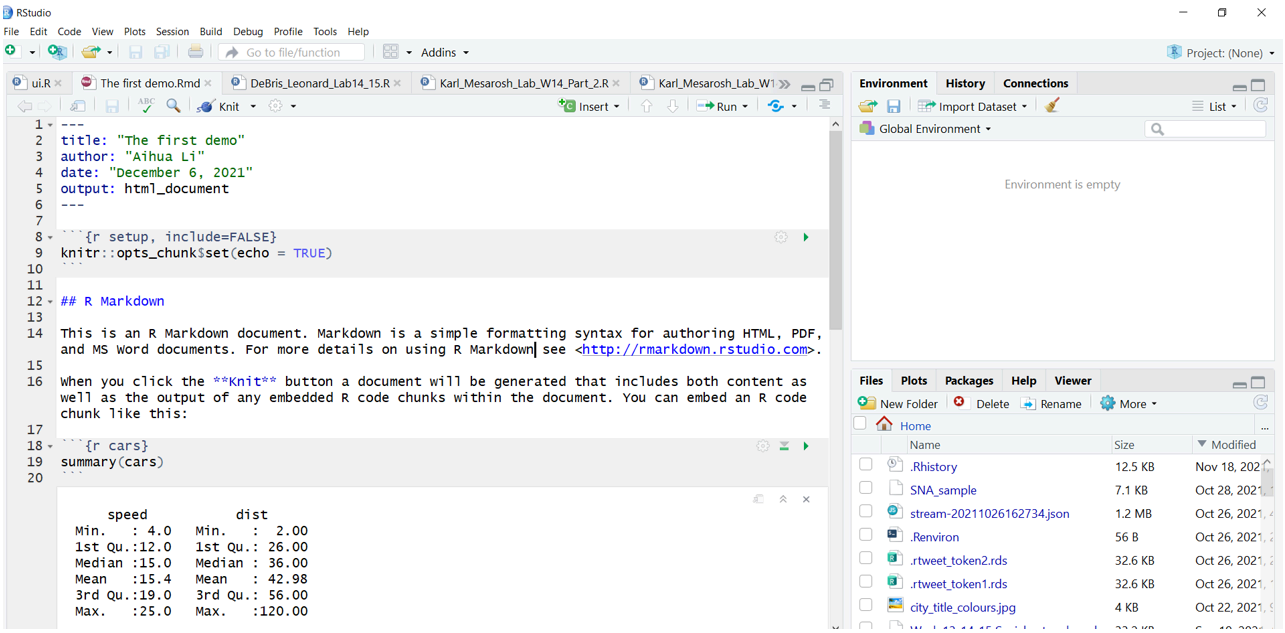
1. Create a new `R Markdown` file and choose `html` as the desired output format.
2. Enter a Title (You can have your lab title here) and Author Name (your name). Then click OK.
3. Save the file using the following format: **first initial-LastName-document-your-science/.Rmd** NOTE: The document title is not the same as the file name.
4. Hit the `` `Knit HTML` `` drop-down button in `RStudio` (as is done in the video above). What happens?



Top: Create a new RMD file using the File drop down menu in R Studio. Bottom: Location of the knit button in RStudio.

If everything went well, you should have an `HTML` format (web page) output after you hit the knit button. Note that this `html` output is built from a combination of code and text documentation that was written using markdown syntax.

3. The Structure of an R Markdown File



Screenshot of a new R Markdown document in RStudio.

⭐**Data Tip:** Screenshots on this page are from `RStudio` with appearance preferences set to `TextMate(default)`. You can change the appearance of your RStudio by **Tools** > **Options** (or **Global options** depending on the operating system). For more, see the **Customizing RStudio page (https://support.rstudio.com/hc/en-us/articles/200549016-Customizing-RStudio)** .

There are three parts to an `. Rmd` file:

- **Header:** The text at the top of the document, written in *YAML* format.
- **Markdown sections:** Text that describes your workflow written using *markdown syntax*.
- **Code chunks:** Chunks of `R` code that can be run and also can be rendered using `knitr` to an output document. Chunks of r code separated by ```

You can use regular **markdown** rules in your **R Markdown** document. Once you **knit** your document, the output will display text formatted according to the following simple rules.

A. Formatting Text

Here are a few common formatting commands:

`*Italic*`

Italic

`**Bold**`

Bold

This is `code` in text

This is `code` in the text

```
# Header 1
```

Header 1

```
## Header 2
```

Header 2

Note that when a `#` symbol is placed inside a code chunk it acts as a normal R comment, but when placed in the text it controls the header size.

```
* Unordered list item
```

- Unordered list item

```
1. Ordered list item
```

1. Ordered list item

```
[Link](https://www.google.com)
```

Link (https://www.google.com/)

```
$A = \pi \times r^{2}$
```

$$A = \pi \times r^2$$

The `$` symbols tell R markdown to use **LaTeX equation syntax (http://reu.dimacs.rutgers.edu/Symbols.pdf)** .

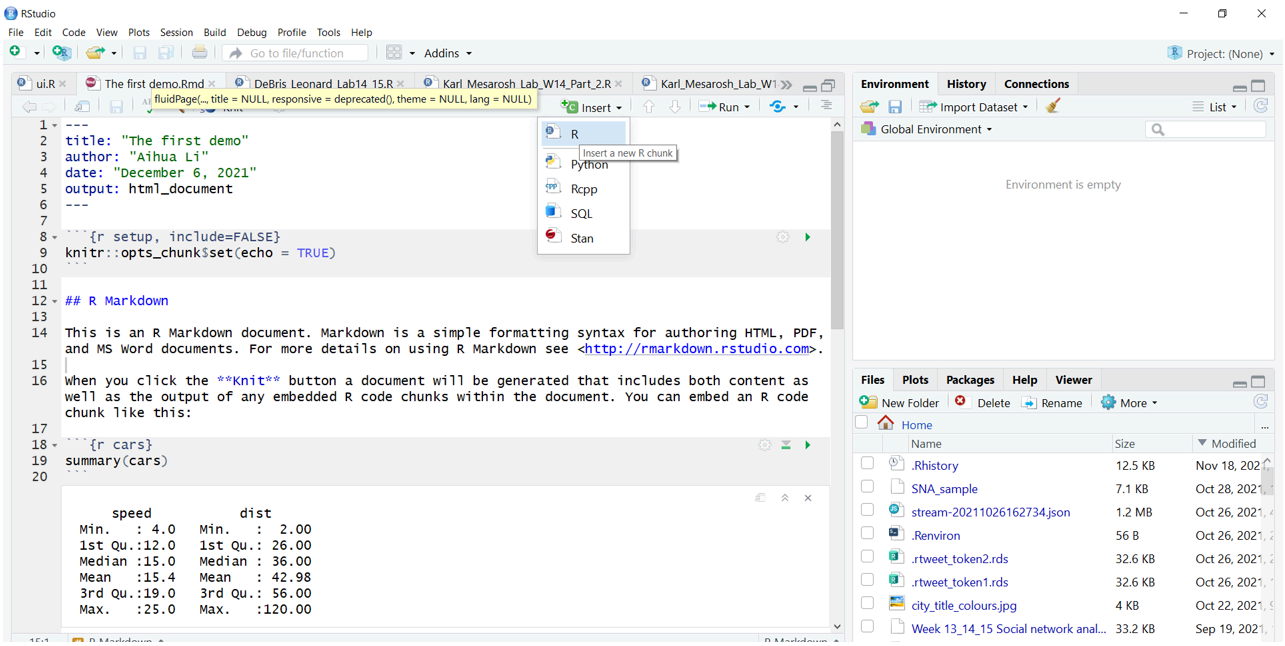
To practice this, try writing some formatted text in your `. Rmd` document and produce a `.html` page using the “Knit” button.

B. Code Chunks

Below the `YAML` header is the space where you will write your code, accompanying explanation, and any outputs. Code that is included in your `.Rmd` document should be enclosed by three backward apostrophes ``` (grave accents!). These are known as code chunks and look like this:

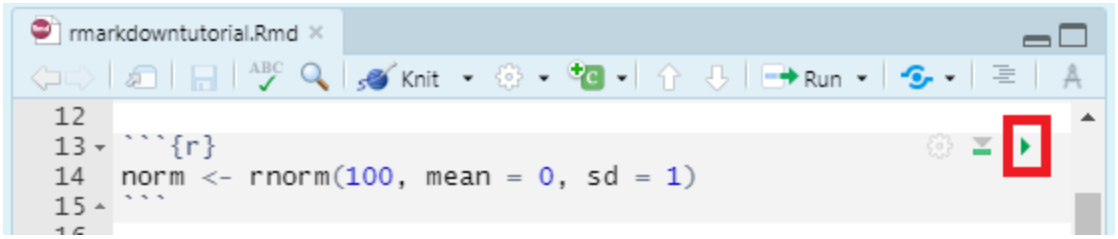
```
```{r cars}
summary(cars)
```
```

You can quickly insert a code chunk in RStudio using a button in the toolbar:



Have a go at grabbing some code from the example R script and inserting it into a code chunk in your `.Rmd` document.

You can run an individual chunk of code at any time by clicking on the small green arrow:



The output of the code will appear just beneath the code chunk.