

Applied Economic Forecasting

Introduction to R Markdown

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What is R Markdown?

According to RStudio,

“R Markdown is a format that enables easy authoring of reproducible web reports from R. It combines the core syntax of Markdown (an easy-to-write plain text format for web content) with embedded R code chunks that are run so their output can be included in the final document”.

You can watch the video explaining in more detail what it is [here](#)

Why is R Markdown useful?

Traditional way: Save your analysis from any statistical software, tables or figures. Then copy and paste them into your report.

Why is this not good?

Imagine that your client tell you that they do not want full-sample analysis, instead, they want a sub-sample analysis. Then you have to re-do everything and comb through the whole report to make sure that everything is updated!

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1. R Markdown is **dynamic**.
 2. Results are **reproducible** with R Markdown. Everyone having your report could see the results as well as the code producing them.

The idea should be simple enough: 1. interweave narratives with code in a document, 2. knit the document to dynamically generate results from the code, 3. and you will get a report.

This idea was not invented by R Markdown, but came from an early programming paradigm called **Literate Programming** (Knuth 1984).

Where has R Markdown been used?

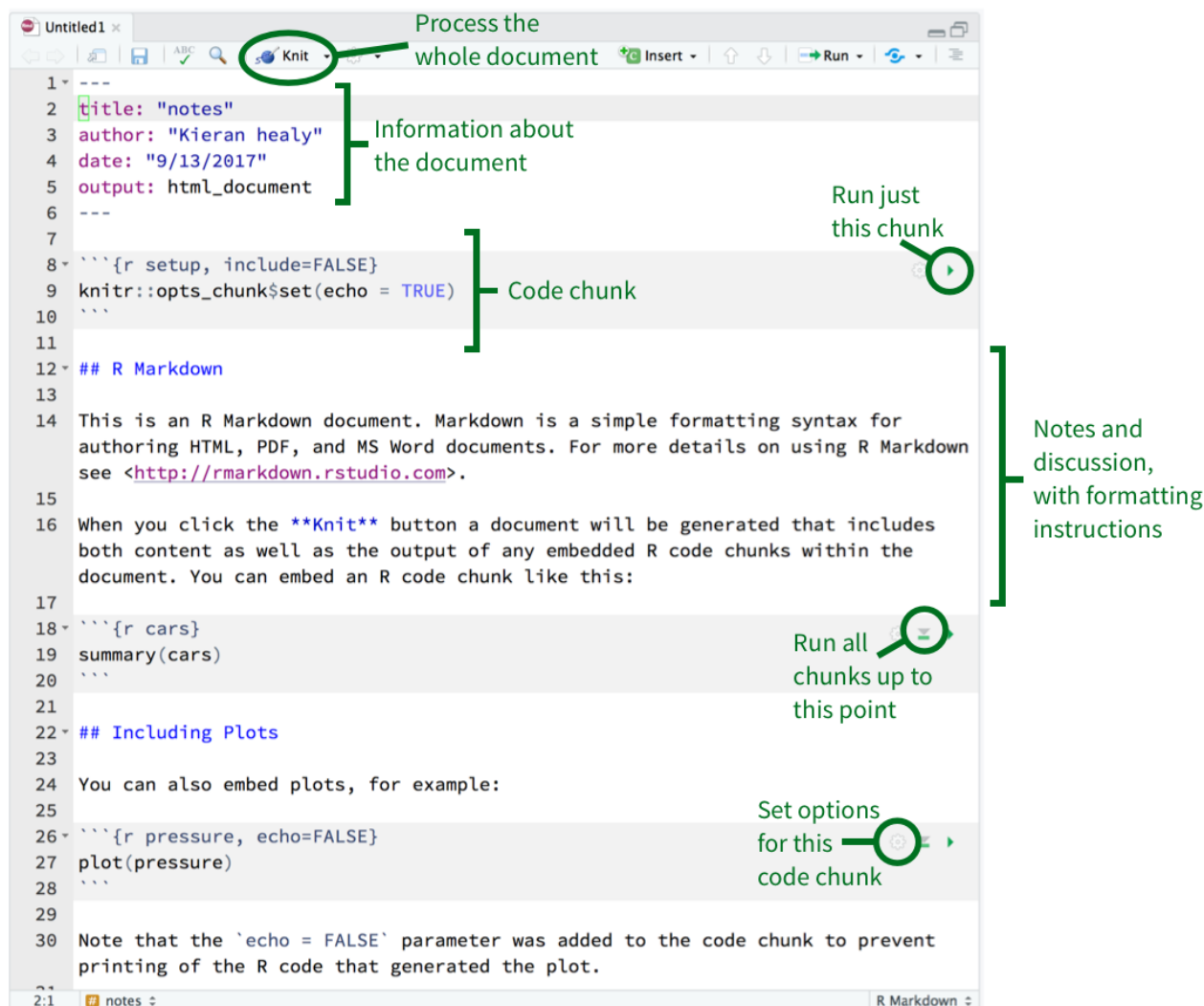
[Xie et al. 2018 R Markdown: The Definitive Guide:](#)

Due to the simplicity of Markdown and the powerful R language for data analysis, R Markdown has been widely used in many areas. <https://bookdown.org/yihui/rmarkdown/basics-examples.html>

1. Airbnb’s knowledge repository
2. 2017 Employer Health Benefits Survey
3. Journal articles
4. My slides!
5. etc. . .

Document Structure

R Markdown combines normal text such as this sentence, code and the output from the code all in one Rmarkdown (.Rmd) file.



Code chunks start with three back ticks (to the left of the 1) and an r in braces. Chunks close (end) with another three back ticks. Note the background color of this section has changed to a different shade. This helps you identify you have closed your code chunk properly.

You can insert code chunks by using the button in the top right of an RMD file (Insert → R), or by typing CTRL + ALT + I.

Only code goes in code chunks. No normal text. All explanatory text goes outside a code chunk.

Writing Rmd Scripts

- Go to File → New File → R Markdown to open a new R markdown window.
- Choose the file type as a pdf.
- Assign the file the name "First RMarkdown", and put your name as the author.
- Click on the **knit** button and witness the magic.

- Now delete all texts after line 11
- Insert a new code chunk
 - recall that you can achieve this using CTRL + ALT + I or by clicking on *Insert* then R.
- Now **edit** and add the code below to your .Rmd document. Then **knit** to .html format.

```
# load the fpp2 library
library(_____)

# Assign the dataset livestock to a variable called `sheep`

_____ <- livestock

# obtain the class of `sheep`

_____

# view the first 7 observations in the `sheep` variable
# remember that you can use the `help()` command to understand how to use a particular function
head(_____, n = _____)

# Using the autoplot function produce a time series plot of `sheep`
# Do not worry about proper axes labels right now

_____
```