Introduction to Version Control with GitHub

Nate Wells

Math 243: Stat Learning

September 1st, 2021

Outline

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- Explore the layout of Rstudio

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- Discuss version control with GitHub
- Describe the typical GitHub workflow
- Practice cloning, pulling, committing, and pushing

Section 1

RStudio

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  - Much more flexibility and customization
  - Can be used after you graduate from Reed

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- RMarkdown can be used to create reports, assignments, journal articles, books, and presentations (like this one!)
- RMarkdown can output a variety of file types: .html, .pdf, .doc, and more

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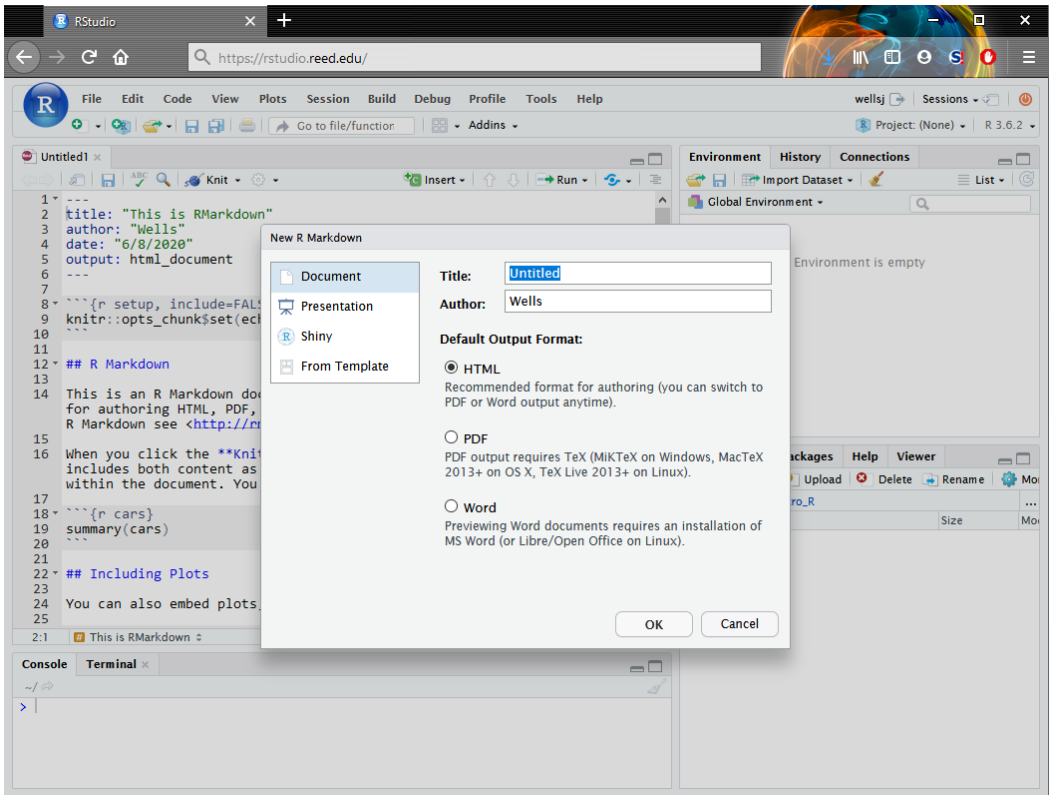

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The standard .Rmd file contains three types of content

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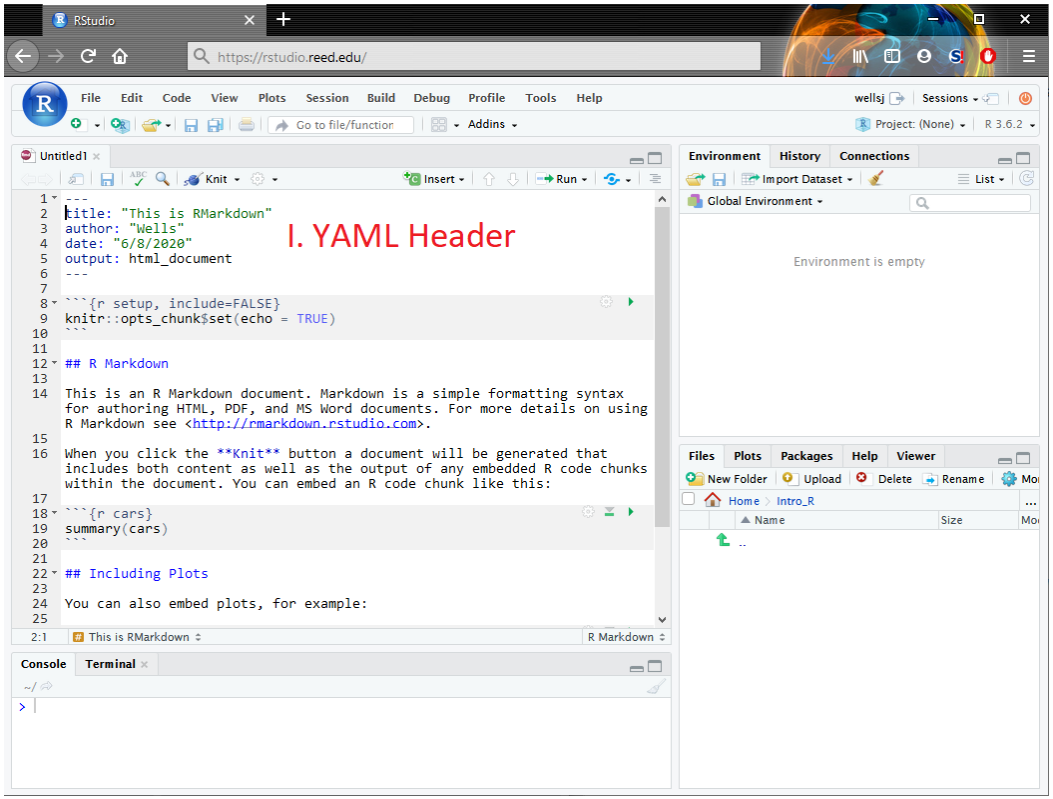

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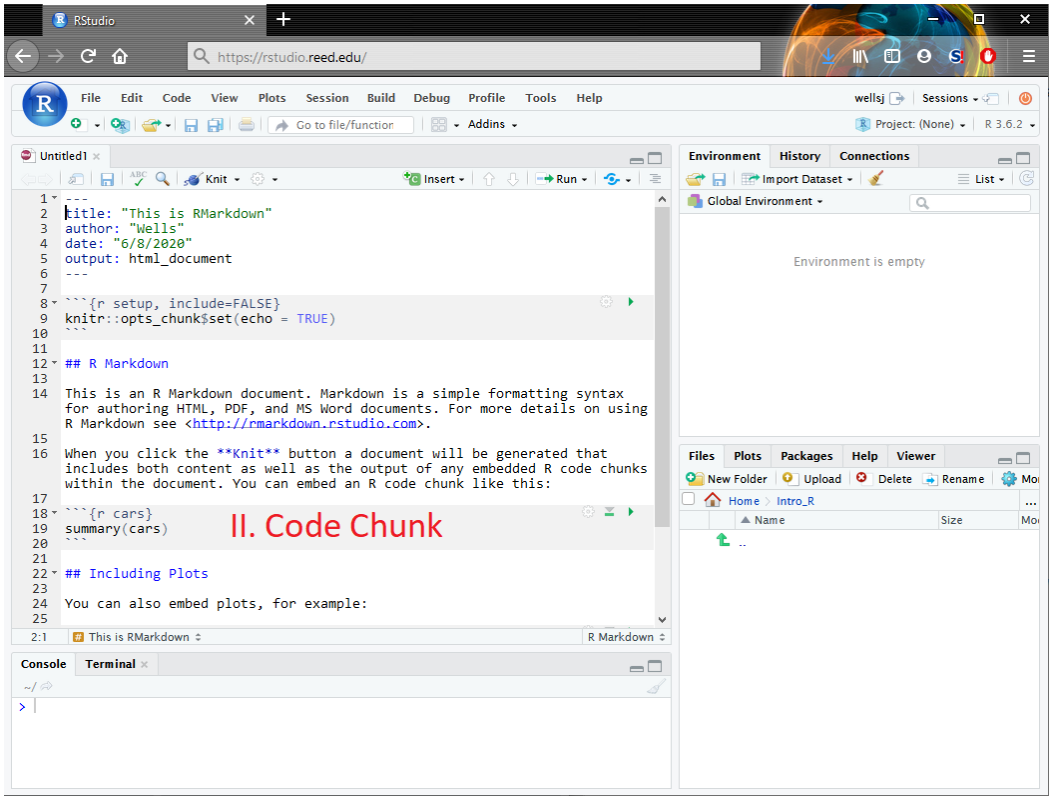
2. **Chunks** of R code surrounded by ```



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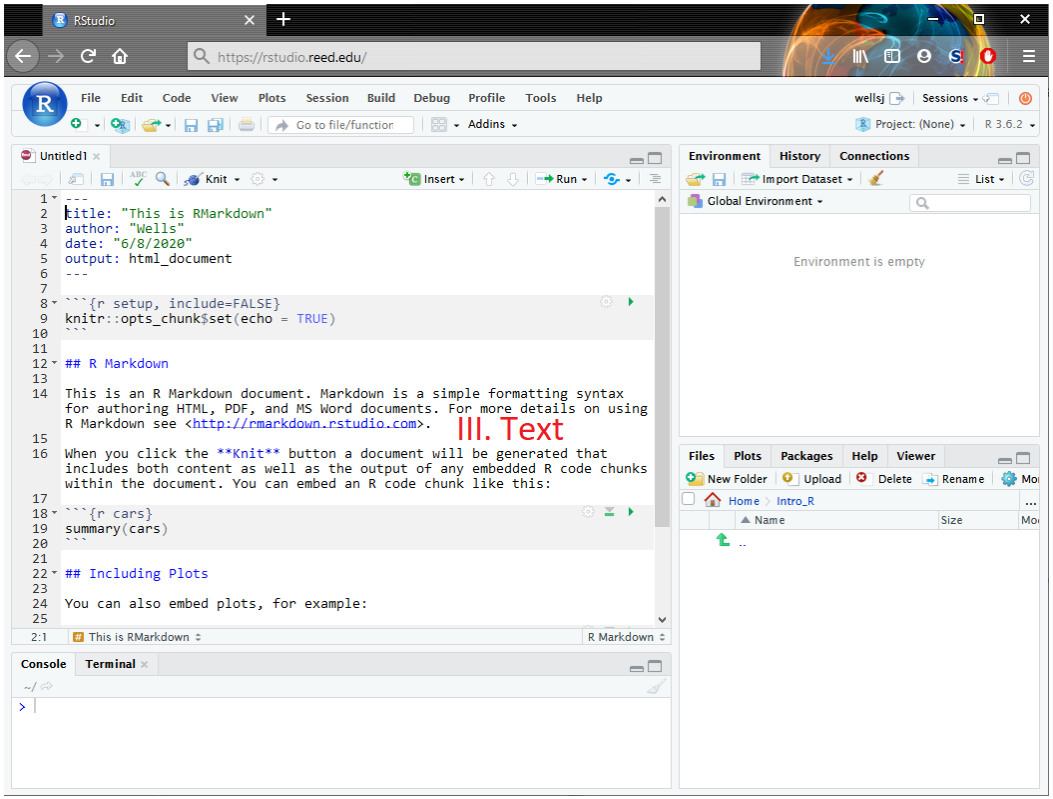
3. Text formatted with simple markdown syntax like `*italics*` or `**bold**`



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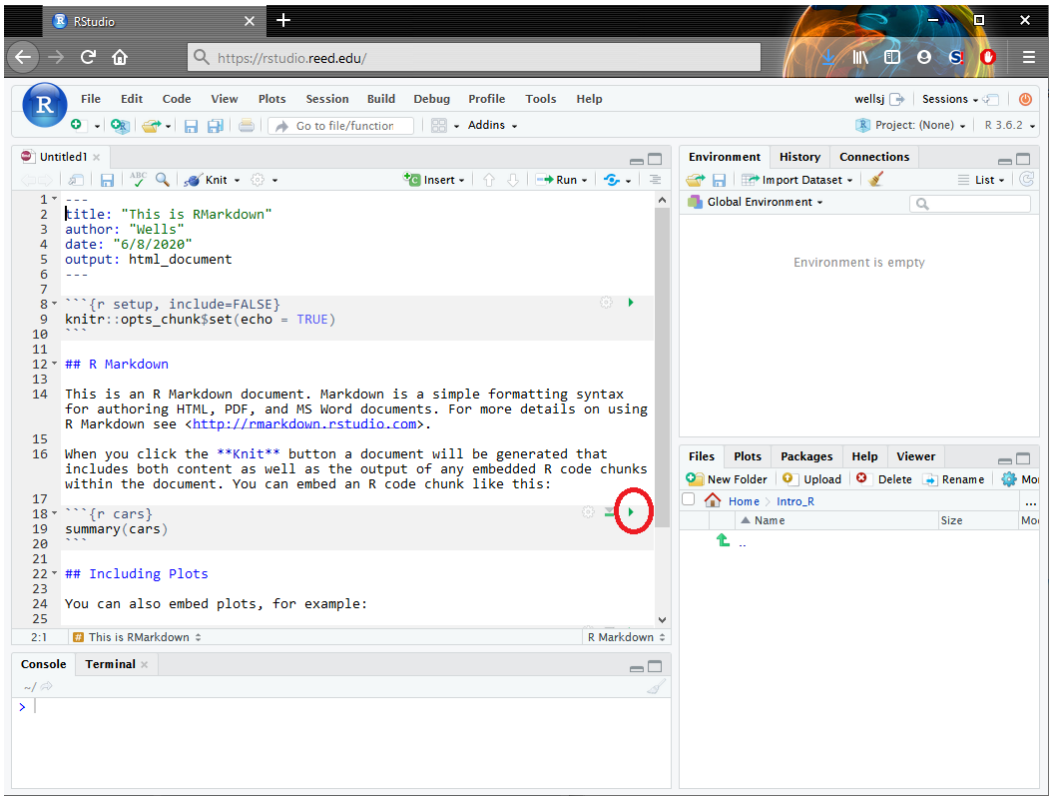

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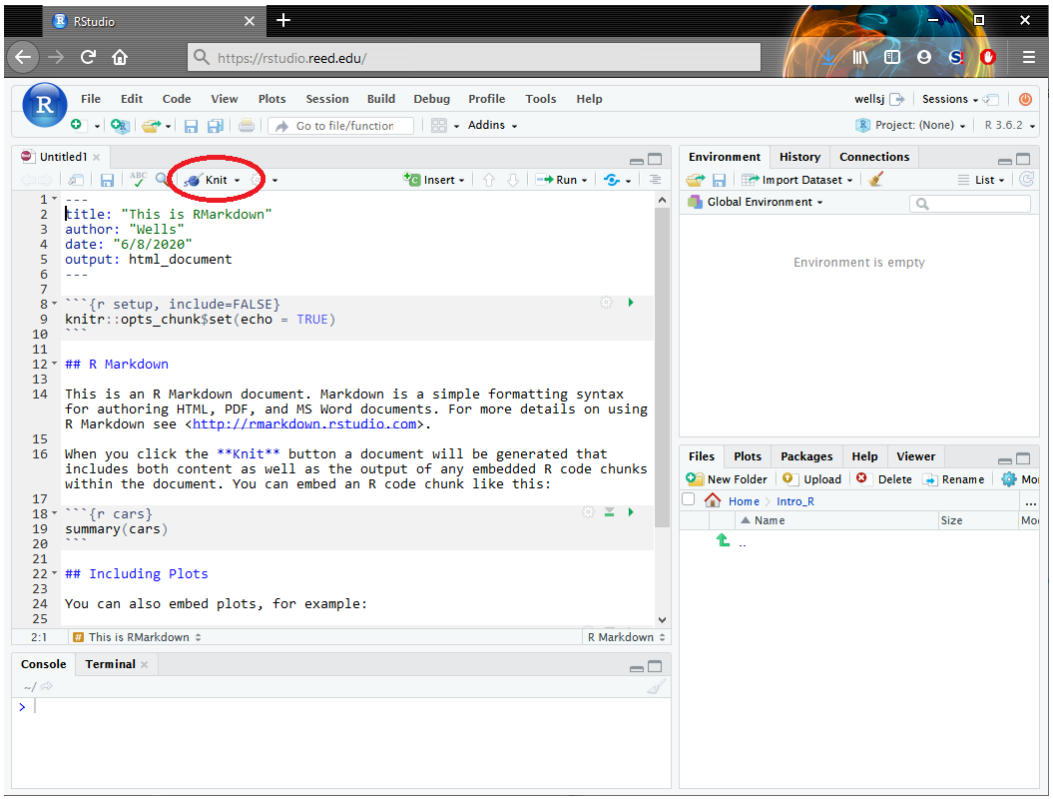

Section 2

Version Control

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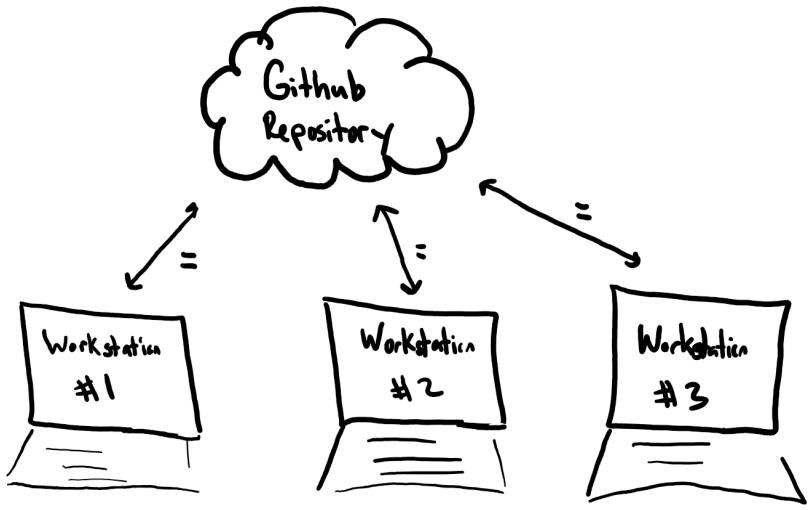
- Git tracks the evolution of a document (and its file system) through a series snapshots (called **commits**)
- These commits make it easier to save and compare different versions of a document, as well as to restore a previous version
- Collaborators work independently on their version of the document, and then sync regularly to a common version

Why version control?

There two main reasons you may want to use version control:

1. **Individual Use**. You have a document you will iterate on frequently, that references several other images and/or data sets, or that you want available on multiple devices



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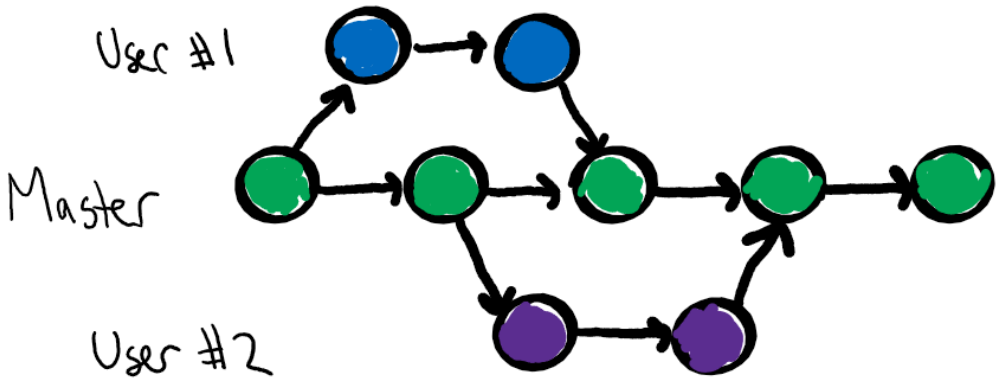
2. **Group Use**. You are collaborating with several other people on a common document, need to synthesize several versions of the document, and comment on changes.



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- Or they can interact with GitHub via a client, like RStudio or GitHub Desktop

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5. After making several commits (and especially when done working for the session), the user will **push** the commits to the GitHub repository.

Section 3

Practice

Working Solo

Follow the instructions on the Working Solo document found under today's class (Wed 9-1) on the schedule page of the course website.

Section 4

Homework

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6. You will receive feedback on the assignment via Pull Request (to be discussed later)