Introduction To The Class Tools!

Outline

R and RStudio

R Markdown

Git and Github

Recap

R and RStudio

R is the language used in this course!

RStudio is an Integrated Development Environment (IDE) for R

R: Engine	RStudio: Dashboard
	

Credit: ModernDive

R and RStudio

There are many different ways to “run” R!

- Interactively through the R GUI
- Interactively through the command line
- Batching through the command line
- Probably others!
- RStudio! (The best!)

R and RStudio

RStudio is not the only other editor! (Here's a list of what someone thinks are the 11 best…)
https://www.dunebook.com/best-r-programming-ide/

But it is by far the best!!!

It has many features that make it convenient to program in R! (It could take me the whole course to get through all the things RStudio can do!)

Important features I will take time to mention:

- Panes/Basics
- Projects
- Snippets
- Fancy Features

R and RStudio

Demo!

R Markdown

R Markdown is a product/package made from the people at RStudio.

You can read about R Markdown's full capabilities here: https://rmarkdown.rstudio.com/

We will use R Markdown for pretty much everything in this course!

R Markdown Features

- Markup language that is easy to learn!
- Weave text / code / graphics all in one document (no more copy and paste into a Word document)
- Fully reproducible reports
- Multiple output types (pdf, html, Word doc, website, etc..)

Reproducible Research

The idea that data analyses, and more generally, scientific claims, are published with their data and software code so that others may verify the findings and build upon them (credit: Reproducible Research Coursera course)

Your work should be transparent:

- Should be able to recreate figures and graphics
- Code should be clear and concise
- Should be clear how and why decisions were made
- Ideally, code could be used for other data and other things

R Markdown

Demo!

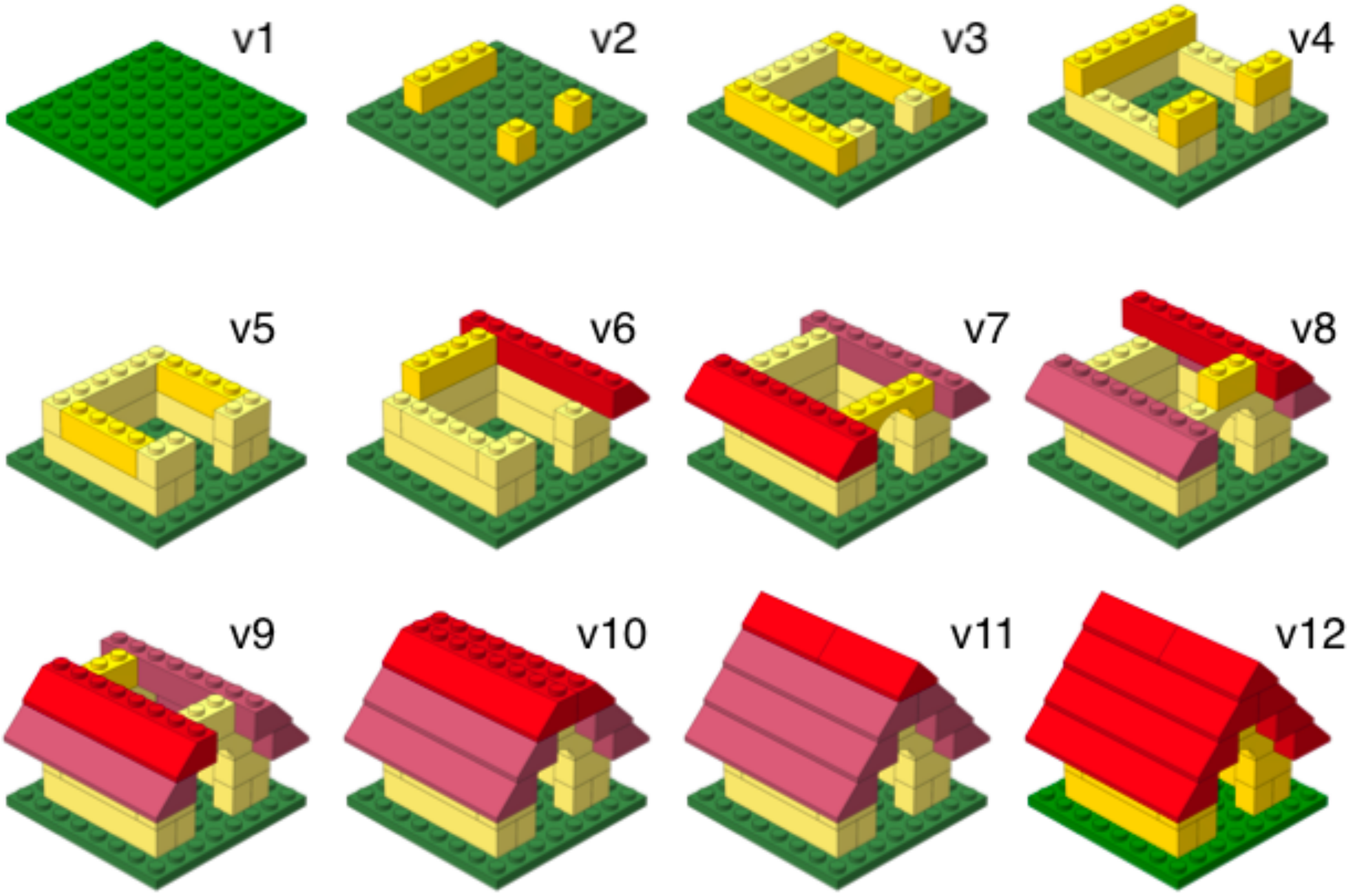
Git and GitHub

Git and GitHub are two tools that we will use in this course fairly frequently

They are both tools to facilitate version control

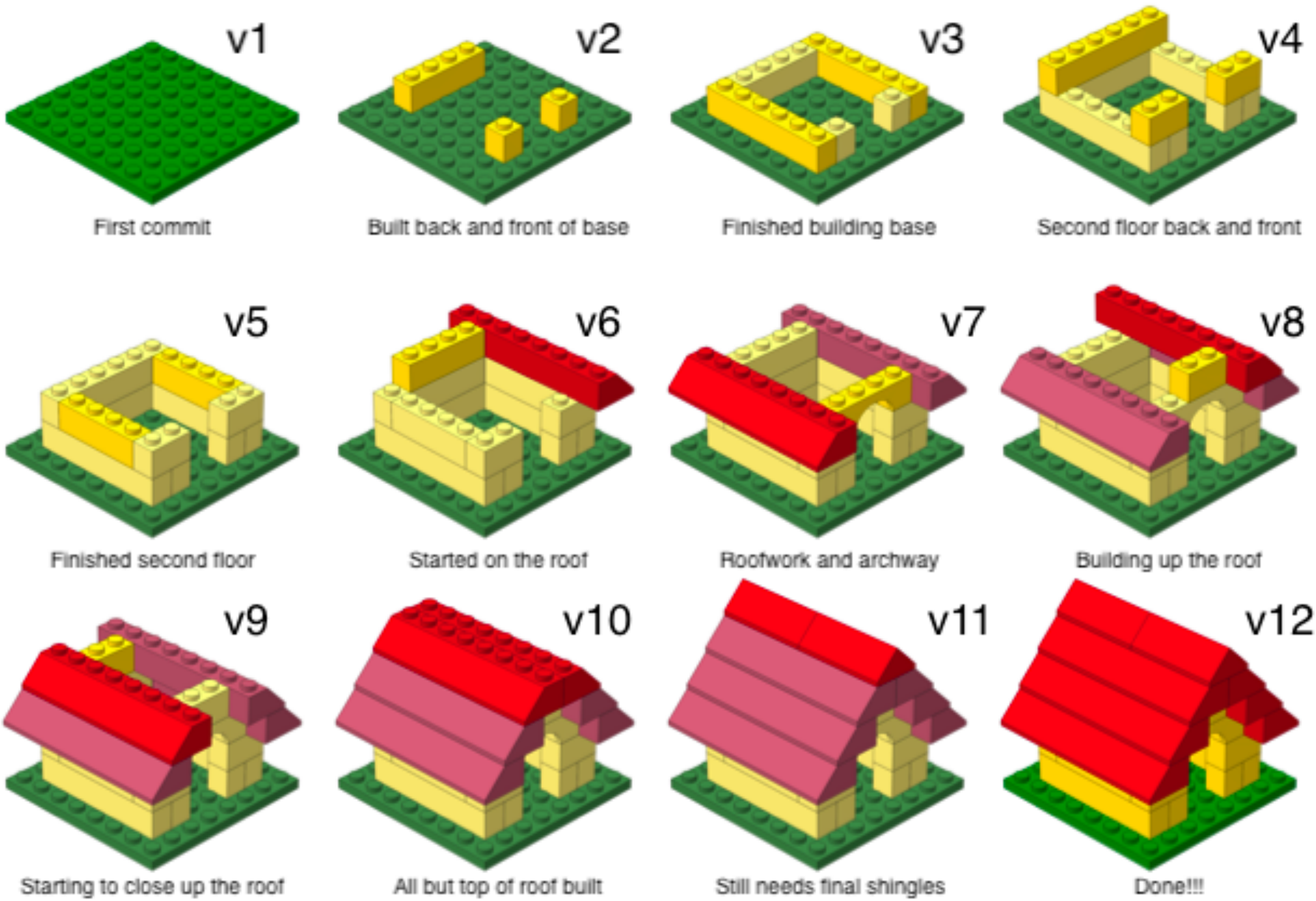
Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later (Credit: Pro-Git book)

Git and GitHub



Credit: DataScienceInABox

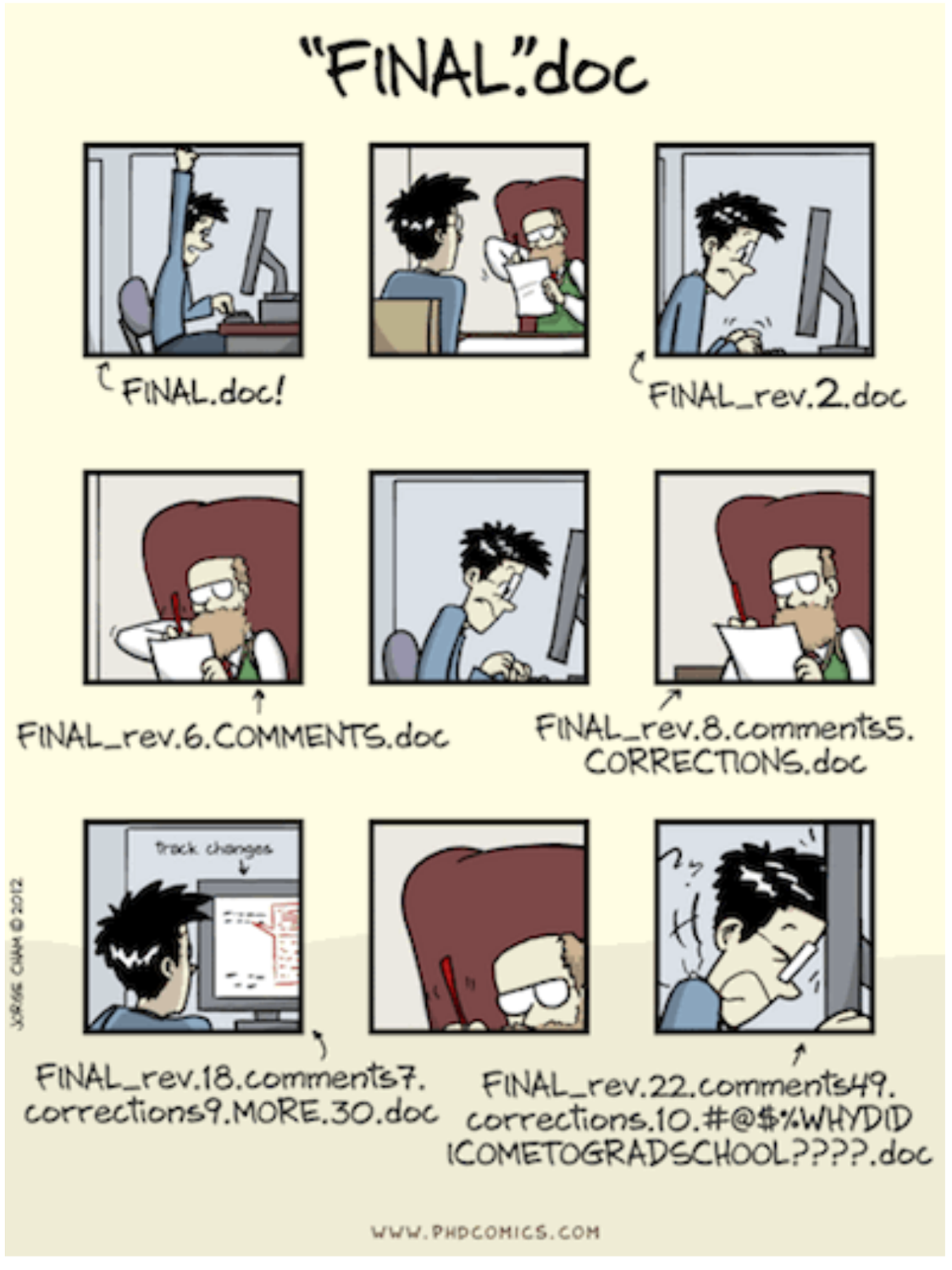
Git and GitHub



Credit: DataScienceInABox

Git and GitHub

Why do we need version control?



Git and GitHub

Git is a version control system that you use locally.
Git is like Track Changes from Word but much better

GitHub is a remote home for all of your git version-controlled projects! It's like Dropbox but again much much better

The learning curve for Git can be steep if you want to learn all of it (There are a lot of git commands!!), but the basics are easy to learn

The basic commands are:

- git add
- git commit
- git push
- git pull

Git and GitHub

Demo!

Recap

R and RStudio for programming!

R Markdown for reproducible research!

Git and Github for version control and teamwork!