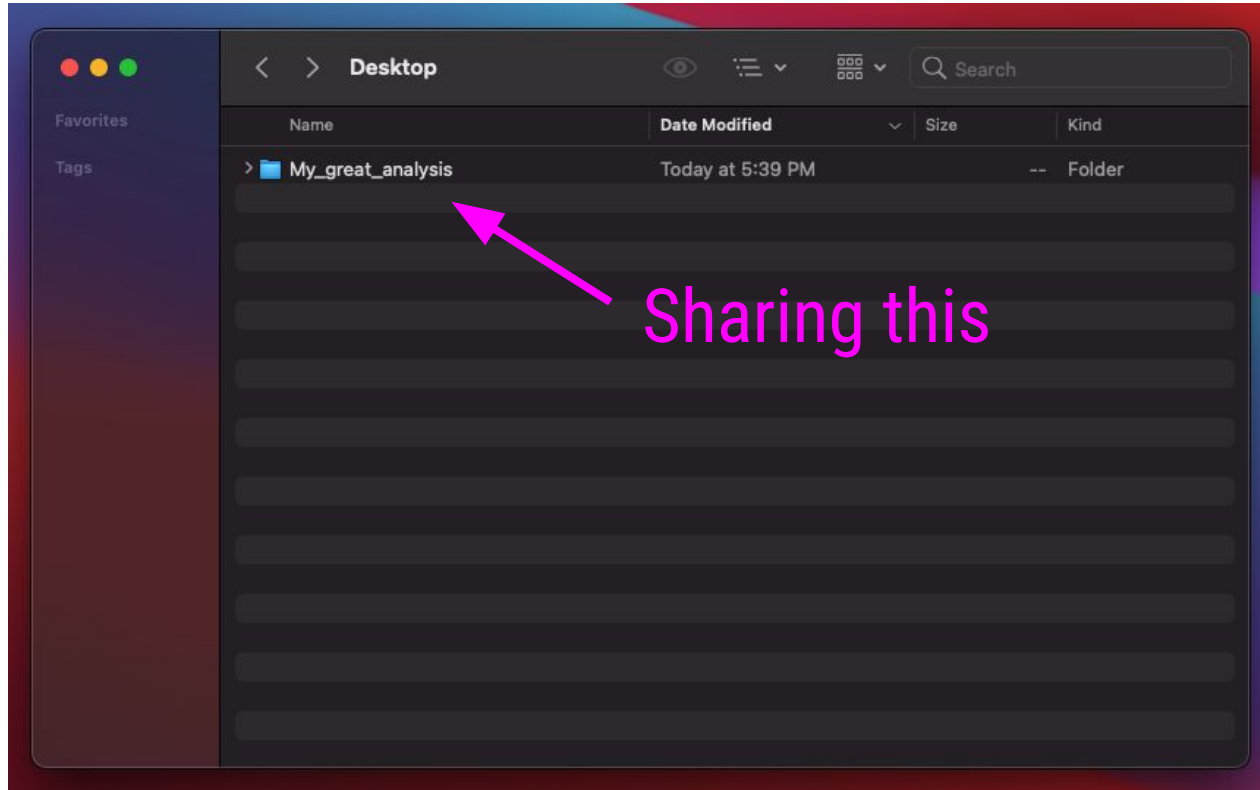
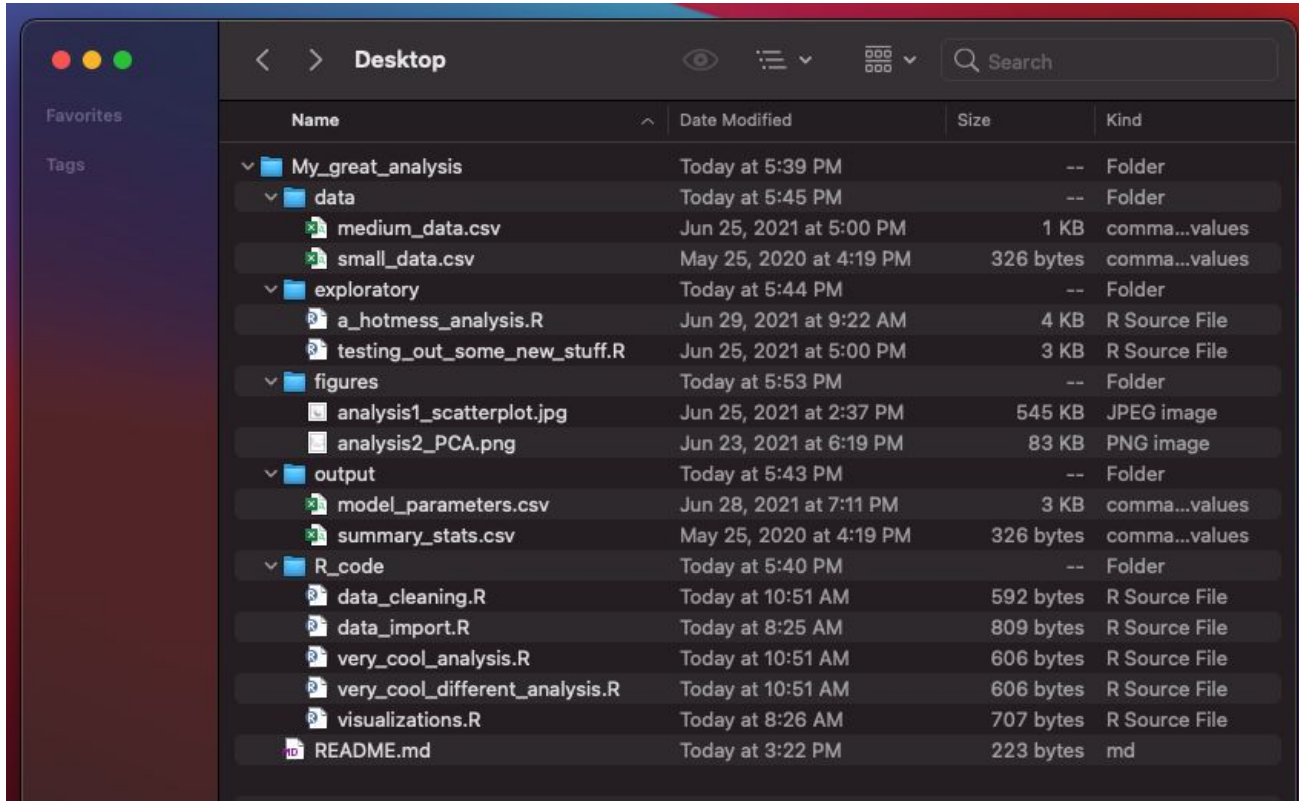


# Version control with GitHub

# What is the goal of making code?

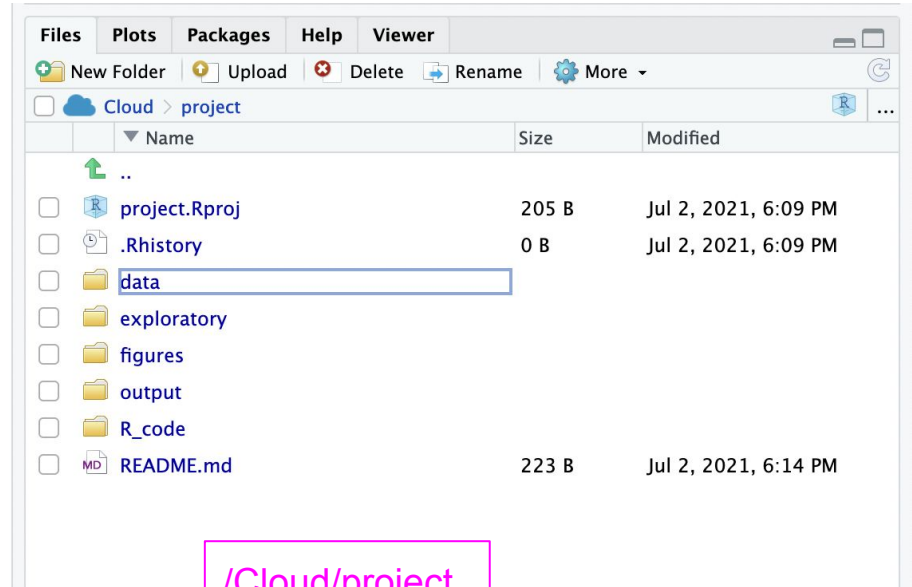
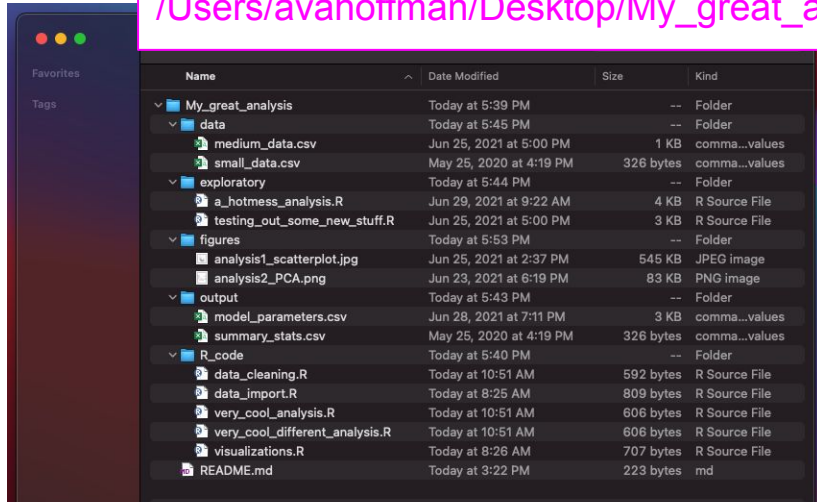


# What is the goal of making code?



# But first.. Where are we?

`/Users/avahoffman/Desktop/My_great_analysis`



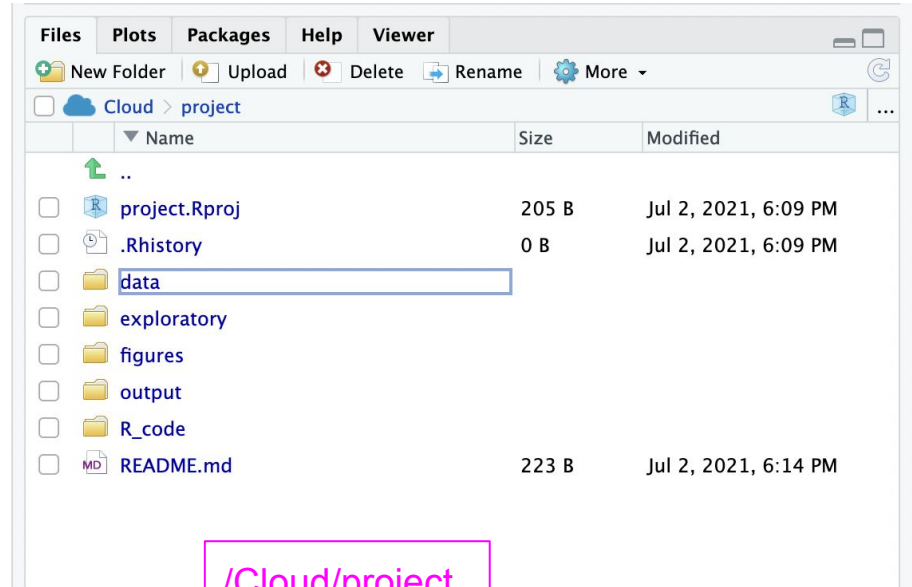
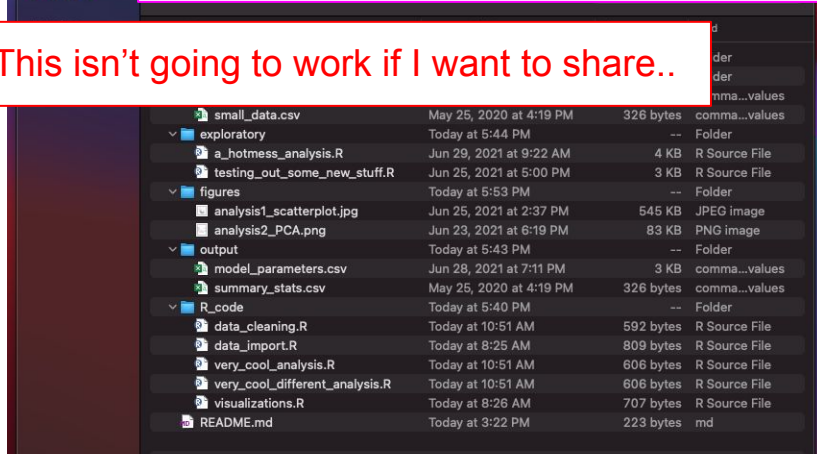
`/Cloud/project`

**Absolute path** Starts at  
the root directory: /

# But first.. Where are we?

`/Users/avahoffman/Desktop/My_great_analysis`

This isn't going to work if I want to share..

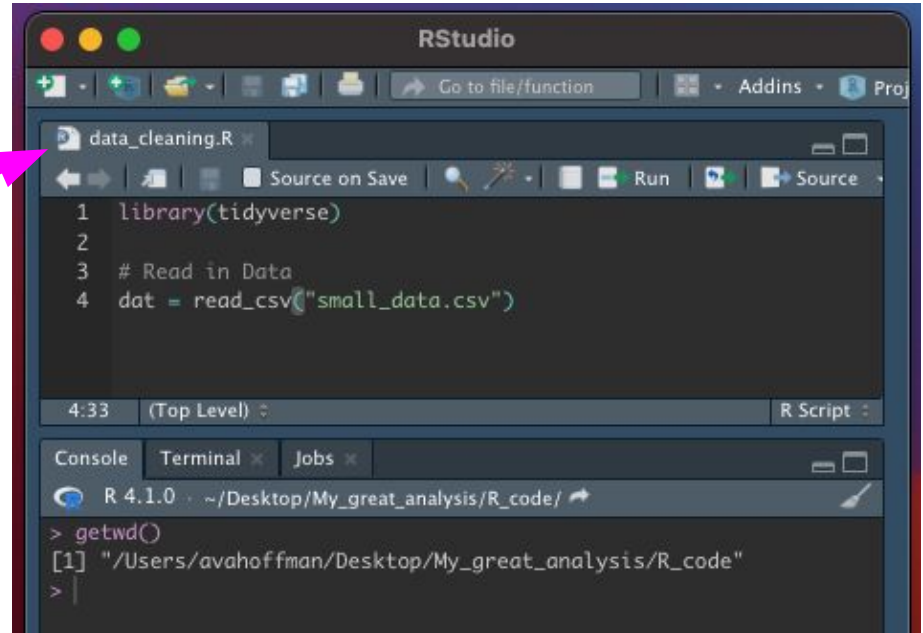
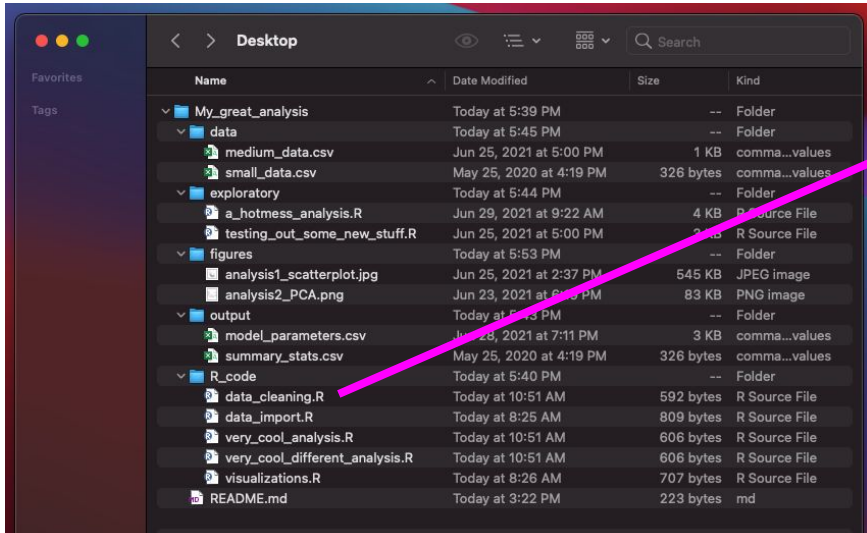


`/Cloud/project`

**Absolute path** Starts at the root directory: `/`

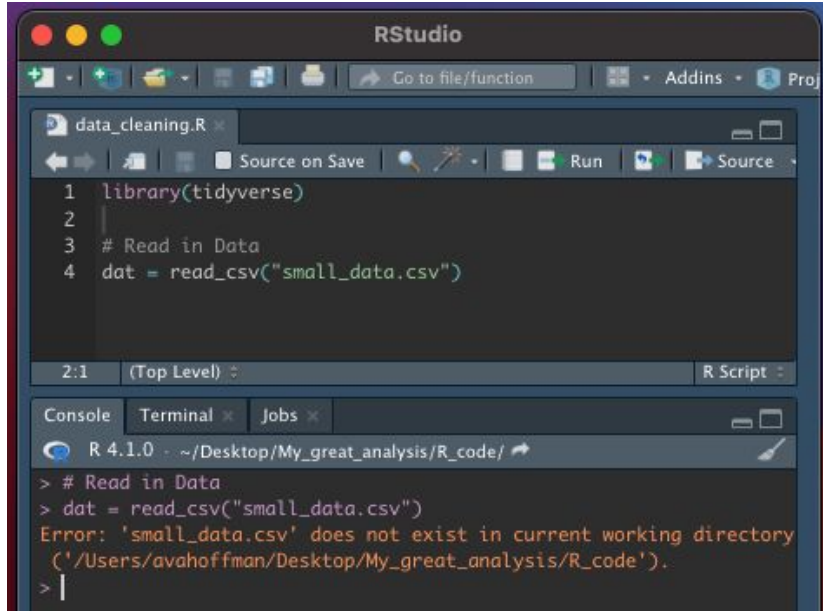
# Enter the *relative* path!

Launch "data\_cleaning.R"



R looks in /Users/avahoffman/Desktop/My\_great\_analysis/R\_code

# Enter the *relative* path!



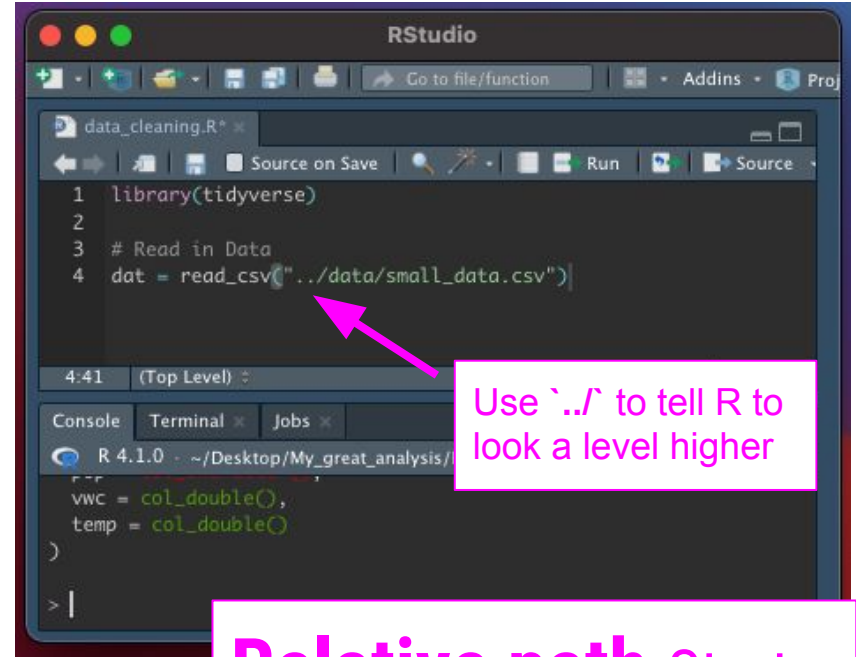
The screenshot shows the RStudio interface with a script editor containing the following code:

```
1 library(tidyverse)
2
3 # Read in Data
4 dat = read_csv("small_data.csv")
```

The console output shows the following error:

```
> # Read in Data
> dat = read_csv("small_data.csv")
Error: 'small_data.csv' does not exist in current working directory
('/Users/avahoffman/Desktop/My_great_analysis/R_code').
> |
```

The data isn't in  
/Users/avahoffman/Desktop/My\_great\_analysis/R\_code !



The screenshot shows the RStudio interface with the same script editor, but the code is updated to use a relative path:

```
1 library(tidyverse)
2
3 # Read in Data
4 dat = read_csv("../data/small_data.csv")
```

A pink arrow points to the relative path in the code. The console output shows the following code being executed:

```
4:41 (Top Level) :
vwc = col_double(),
temp = col_double()
)
> |
```

Use `../` to tell R to look a level higher

**Relative path** Starts  
*relative* to another file

# Enter the *relative* path + `.Rproj`

The screenshot shows the RStudio interface. The script editor on the left contains the following code:

```
1 library(tidyverse)
2
3 # Read in Data
4 dat = read_csv("/data/small_data.csv")
5
6
```

The console at the bottom shows the R prompt and the current working directory: `R 4.0.3 · /cloud/project/`.

The file explorer on the right shows the contents of the `project` directory:

Name	Size	Modified
..		
.Rhistory	0 B	
data		
exploratory		
figures		
output		
project.Rproj	205 B	Jul 2, 2021, 6:
R_code		
README.md		

A pink arrow points from the `project.Rproj` file in the file explorer to the `dat = read_csv("/data/small_data.csv")` line in the script.

When a project is open, R knows to look relative to the `.Rproj` file

Click **File > New Project...** on your local machine if you need one

**Relative path** Starts *relative* to another file



# Enter the *relative* path + `.Rproj`

The screenshot displays the RStudio interface. The top-left pane shows a script named `data_cleaning.R` with the following code:

```
1 library(tidyverse)
2 library(here)
3
4 here()
5
6 # Read in Data
7 dat = read_csv("/data/small_data.csv")
8
9
```

The bottom-left pane shows the console output for the `here()` function call:

```
R 4.0.3 - /cloud/project/
> here()
[1] "/cloud/project"
>
```

The right-hand pane shows the file explorer for the current project, listing files and folders:

Name	Size	Modified
..		
.Rhistory	0 B	Jul 2, 2021, 6:
data		
exploratory		
figures		
output		
project.Rproj	205 B	Jul 2, 2021, 6:
R_code		
README.md		

A pink arrow points from the `here()` call in the console to the `here()` call in the script editor.

here () defines your base directory to be the directory where you have a .Rproj file

**Relative path** Starts *relative* to another file

# Enter the *relative* path + .Rproj

The screenshot displays the RStudio environment with three main panels:

- Script Editor:** Contains the following R code:

```
1 library(tidyverse)
2 library(here)
3
4 small_dat_path = here("data", "small_data.csv")
5
6 # Read in Data
7 dat = read_csv(small_dat_path)
8
9
```
- Console:** Shows the execution of the code:

```
> small_dat_path = here("data", "small_data.csv")
> small_dat_path
[1] "/cloud/project/data/small_data.csv"
>
```
- Files Panel:** Shows the project structure:

Name	Size	Modified
..		
medium_data.csv	1.2 KB	Jul 2, 2021, 6:
small_data.csv	326 B	Jul 2, 2021, 6:

Two pink arrows point from the text boxes to the code and console output. The top box explains the use of `here()`, and the bottom box explains that the relative path starts relative to another file.

`here()` can then be used to create absolute paths to files

**Relative path** Starts *relative* to another file

## Absolute path

MAPQUEST.

Your house → Dinner → Movie Theater

- Very specific and helpful but only to **YOU**
- What happens if you move??



**.Rproj + here()**

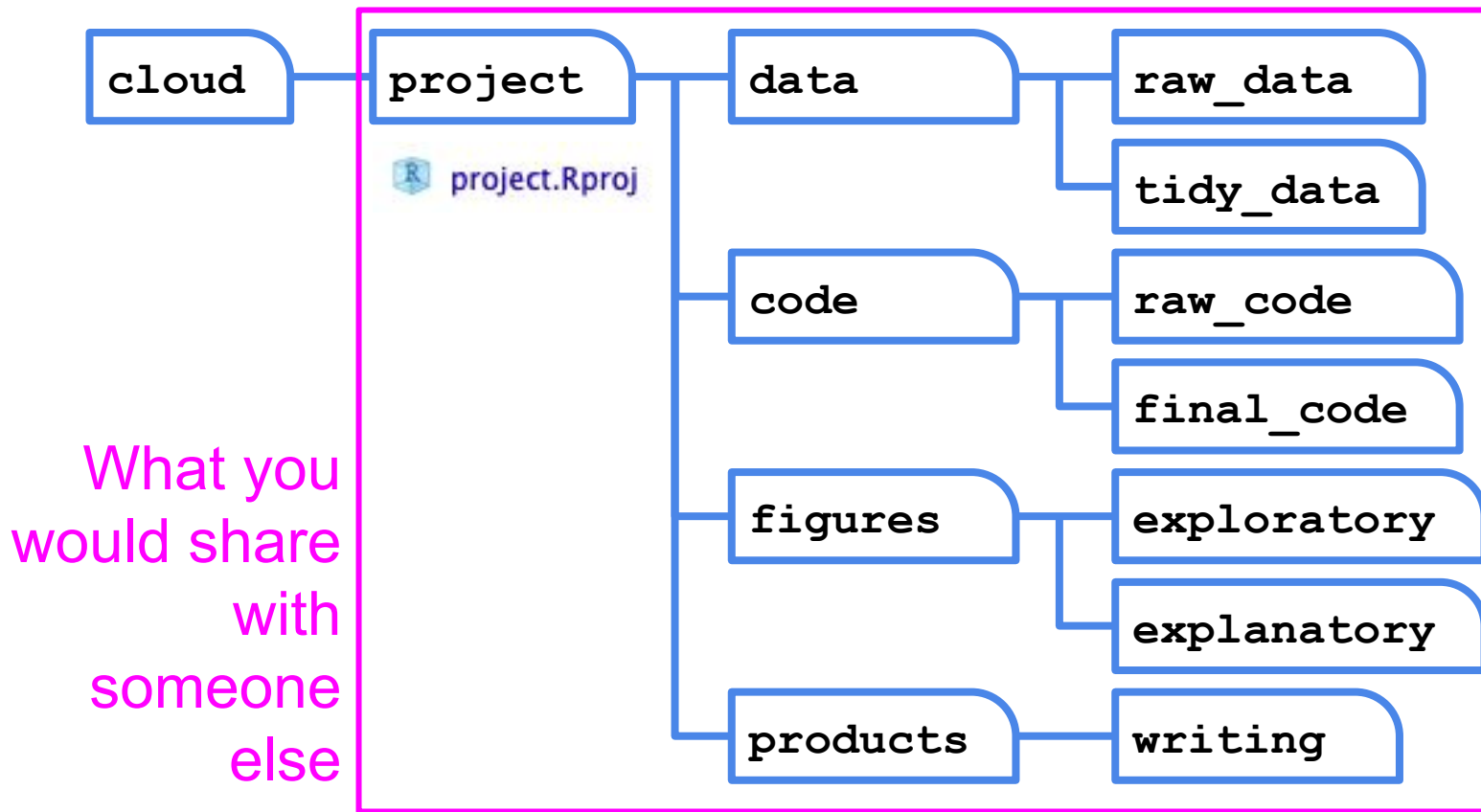
## Relative path

Dinner → Movie Theater

- Useful to many people
- But you need to know where you're starting

Your GPS!

- Navigate from your current location



What you would share with someone else

All paths in your code should be relative to `/cloud/project`

So how do you efficiently share projects or folders structured like this with other people?

GitHub!

# Unfortunate truth

<https://twitter.com/mtrc/status/617075570761965568>



**Michael Cook**

@mtrc



"Version control is a truly vital concept that has unfortunately been implemented by madmen." Amen.

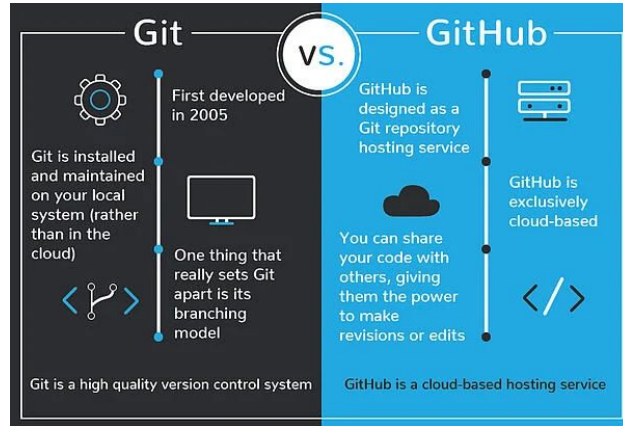
[twitter.com/Pentadact/stat...](https://twitter.com/Pentadact/status/617075570761965568)

5:00 PM - 3 Jul 2015

↩️ ↻ 9 ★ 11

Git commands have convenience  
in mind, not intuition

# What's the difference between Git and GitHub?

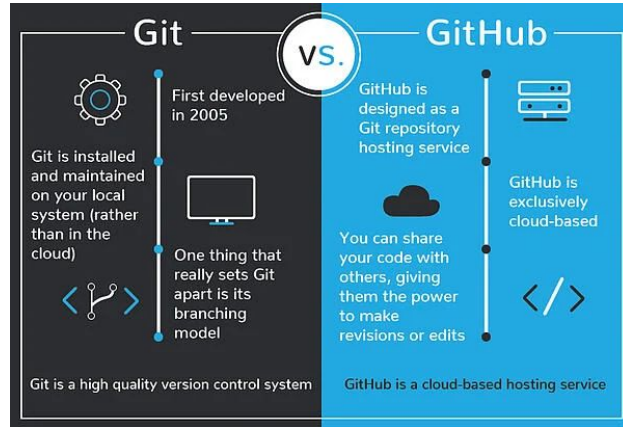


## In Simple Terms

**Git** is a version control system that lets you manage and keep track of your source code history

**Git Hub** is a cloud-based hosting service that lets you manage Git repositories

# What's the difference between Git and GitHub?



## In Simple Terms

**Git** is a version control system that lets you manage and keep track of your source code history

**Git Hub** is a cloud-based hosting service that lets you manage Git repositories

Git

Your entire work history

GitHub

LinkedIn



Git is a **free and open source** distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is **easy to learn** and has a **tiny footprint with lightning fast performance**. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like **cheap local branching**, convenient **staging areas**, and **multiple workflows**.



### About

The advantages of Git compared to other source control systems.



### Documentation

Command reference pages, Pro Git book content, videos and other material.



### Downloads

GUI clients and binary releases for all major platforms.



### Community

Get involved! Bug reporting, mailing list, chat, development and more.



**Pro Git** by Scott Chacon and Ben Straub is available to [read online for free](#). Dead tree versions are available on [Amazon.com](#).



Mac GUIs



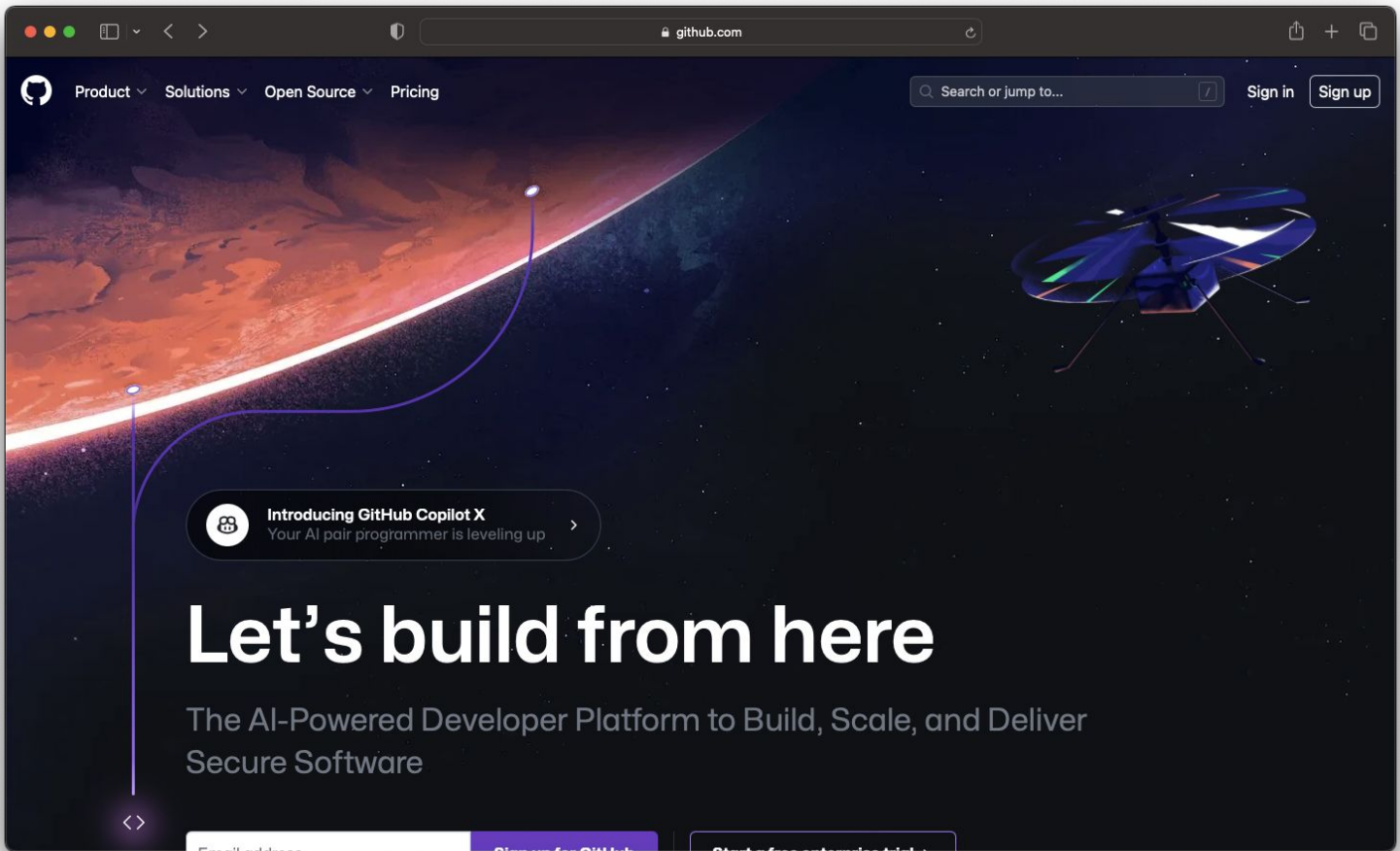
Tarballs



Windows Build



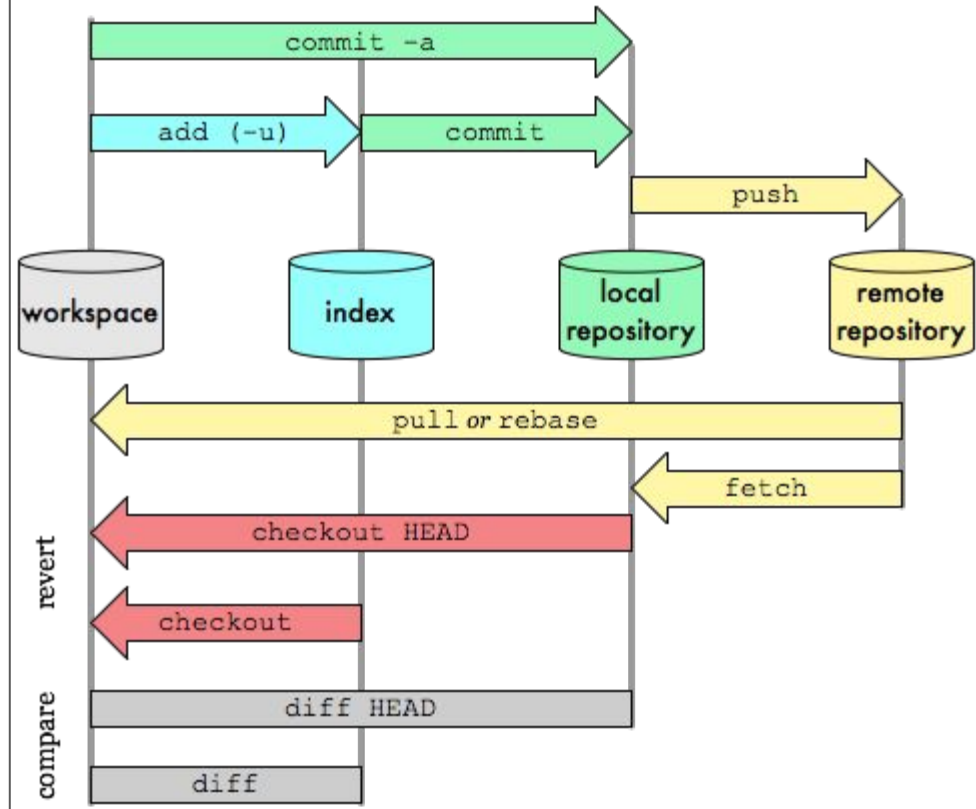
Source Code



<https://github.com/>

# Git Data Transport Commands

<http://osteele.com>



<http://gitready.com/beginner/2009/01/21/pushing-and-pulling.html>

# Basic use

- ▶ Change some files
- ▶ See what you've changed

```
git status  
git diff  
git log
```

- ▶ Indicate what changes to save

```
git add
```

- ▶ Commit to those changes

```
git commit
```

- ▶ Push the changes to GitHub

```
git push
```

- ▶ Pull changes from your collaborator

```
git pull
```

It's like a shared Dropbox folder that you have to sync yourself, on each of your computers, in specific orders

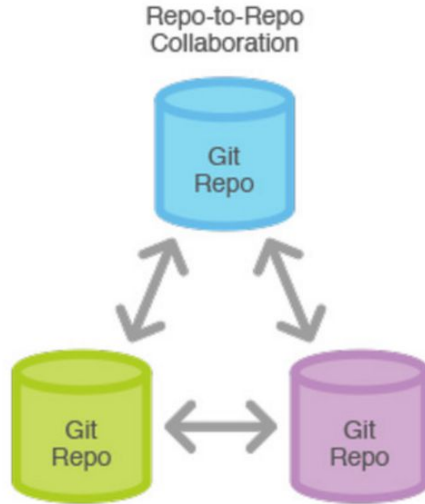
# Why not just use Dropbox?

The screenshot shows a web browser window displaying the commit history of a GitHub repository. The browser's address bar shows the URL `https://github.com/jtleek/jtleek.github.io/commits/master?page=2`. The page lists several commits, with pink arrows highlighting specific ones:

- A commit titled "Merge pull request #14 from hammer/patch-1" by jtleek, committed on May 4, 2015, with commit hash `5964f0c`.
- A commit titled "Fix typo on papers.md" by hammer, committed on May 4, 2015, with commit hash `83d1130`. A pink arrow points to the commit title, and another pink arrow points to the commit hash.
- A commit titled "region report paper" by jtleek, committed on May 1, 2015, with commit hash `613ec7f`. A pink arrow points to the commit title.
- A commit titled "added boosting lecture" by jtleek, committed on Apr 30, 2015, with commit hash `14de511`.
- A commit titled "polyester paper" by jtleek, committed on Apr 30, 2015, with commit hash `ae537a`.

The browser's taskbar at the top shows several open applications: Apps, Inbox, Simply Statistics, simplystats, Google Scholar, Google Music, datastyle, and Biostat-spreadsheet.

possible, in theory



more typical

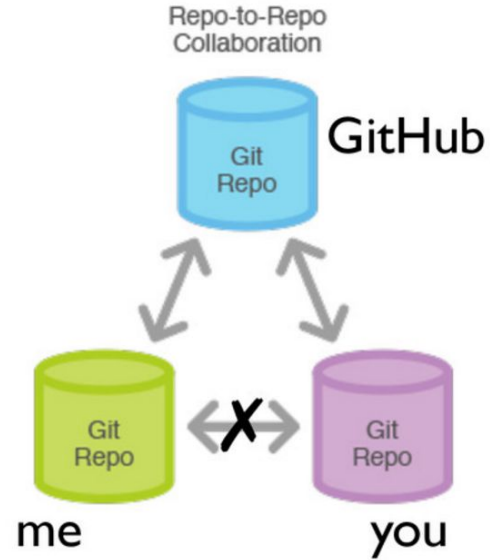


Image from <https://www.atlassian.com/git/tutorial/git-basics/#clone>

Jenny Bryan: <https://speakerdeck.com/jennybc/ubc-stat545-2015-cm001-intro-to-course>

### SISBID / Data-Wrangling

Unwatch 13 Star 51 Fork 76

Code Issues Pull requests Actions Projects Wiki Security Insights

gh-pages 11 branches 1 tag

Go to file Add file Code

carriewright11 Merge pull request #35 from SISBI... ✓ faef211 5 hours ago 338 commits

data	all pdfs may be created	12 months ago
labs	Merge pull request #36 from SISBID/data_cleaning	5 hours ago
lecture_notes	Merge pull request #36 from SISBID/data_cleaning	5 hours ago
.gitignore	addeed token	12 months ago
.nojekyll	updated license, added webpage	6 years ago
Google_Doc_Syll.url	updating data io lab	12 months ago
LICENSE	updated license, added webpage	6 years ago
Module1.Rproj	smaller repo	12 months ago
README.md	Update README.md	9 days ago
all_the_packages.txt	all the packages added	12 months ago
download_pdfs.R	updated index and the pdfs	12 months ago
index.Rmd	fixing links for subsetting lab from 2 to 1	2 days ago
index.html	fixing links for subsetting lab from 2 to 1	2 days ago
list_all_packages.R	all the packages added	12 months ago

### About

Teaching material for Summer Institute in Statistics for Big Data Module 1.

- Readme
- View license

### Releases 1

2019 Final SISBID ... Latest on Jun 30, 2020

### Packages

No packages published Publish your first package

### Contributors 8





### SISBID / Data-Wrangling

Unwatch 13 Star 51 Fork 76

Code Issues Pull requests Actions Projects Wiki Security Insights

gh-pages 11 branches 1 tag

Go to file Add file Code

	carriewright11 Merge pull request #35 from SISBI...	faef211 5 hours ago	<b>338 commits</b>
data	all pdfs may be created		12 months ago
labs	Merge pull request #36 from SISBID/data_cleaning		5 hours ago
lecture_notes	Merge pull request #36 from SISBID/data_cleaning		5 hours ago
.gitignore	addeed token		12 months ago
.nojekyll	updated license, added webpage		6 years ago
Google_Doc_Syll.url	updating data io lab		12 months ago
LICENSE	updated license, added webpage		6 years ago
Module1.Rproj	smaller repo		12 months ago
README.md	Update README.md		9 days ago
all_the_packages.txt	all the packages added		12 months ago
download_pdfs.R	updated index and the pdfs		12 months ago
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### About

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No packages published Publish your first package

### Contributors 8





**Jenny Bryan**

@JennyBryan



Following

I have my own ideas about what makes a good commit message.



`.travis.yml`

if this works, it will be a miracle

RETWEETS

7

LIKES

28



2:54 AM - 11 Jul 2016



7



28



<https://twitter.com/JennyBryan/status/752440799149846528>

# Install Git/Github Locally (for later)

<http://happygitwithr.com/install-git.html>

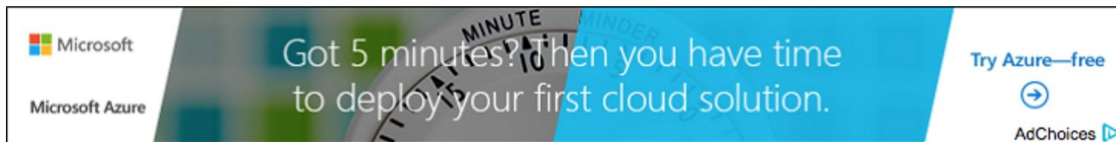
and

<https://try.github.io/levels/1/challenges/1>

Many cloud tools already have git installed!

How the pros use git/github

## How to keep the local file or the remote file during merge using Git and the command line?



I know how to merge modification using vimdiff, but, assuming I just know that the entire file is good to keep or to throw away, how do I do that?

75



I don't want to open vimdiff for each of them, I change want a command that says 'keep local' or 'keep remote'.



33

E.G: I got a merge with files marked as changed because somebody opened it under windows, changing the EOL, and then committed. When merging, I want to just keep my own version and discard his.

I'm also interested in the contrary: I screwed up big time and want to accept the remote file, discarding my changes.

[git](#) [merge](#) [local](#)

share improve this question

add a comment

asked Jul 11 '11 at 12:41



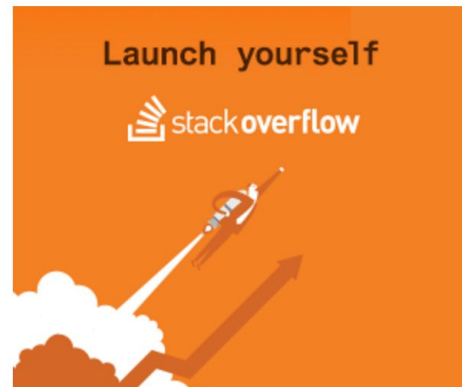
e-satis

238k ● 82 ● 228 ● 285

asked 5 years ago

viewed 31361 times

active 17 days ago



### Looking for a job?

**QA Engineer**  
InVenture Santa Monica, CA  
**\$90,000 - \$110,000** RELOCATION  
[android](#) [jenkins](#)

Reload th

4 Answers

active oldest votes

The amount of Git skillz  
necessary to fix a borked repo is  
an order of magnitude bigger  
than to bork it.

<https://github.com/jennybc/happy-git-and-github-for-the-user/blob/master/happy-git-and-github-for-the-user.pdf>



# **BURN IT ALL DOWN**

<https://github.com/jennybc/happy-git-and-github-for-the-user/blob/master/happy-git-and-github-for-the-user.pdf>

THIS IS GIT. IT TRACKS COLLABORATIVE WORK  
ON PROJECTS THROUGH A BEAUTIFUL  
DISTRIBUTED GRAPH THEORY TREE MODEL.

COOL. HOW DO WE USE IT?

NO IDEA. JUST MEMORIZE THESE SHELL  
COMMANDS AND TYPE THEM TO SYNC UP.  
IF YOU GET ERRORS, SAVE YOUR WORK  
ELSEWHERE, DELETE THE PROJECT,  
AND DOWNLOAD A FRESH COPY.



"If that doesn't fix it, git.txt contains the phone number of a friend of mine who understands git. Just wait through a few minutes of 'It's really pretty simple, just think of branches as...' and eventually you'll learn the commands that will fix everything."

<https://xkcd.com/1597/>



Step 1: New repo on GitHub

avahoffman ▾

Repositories

Find a repository...

- SISBID/Data-Wrangling
- jhudsl/AnVIL\_Book\_Getting\_Started
- avahoffman/blue-grama-gene-expression
- jhudsl/intro\_to\_r
- avahoffman/DESeq2-viz-demo
- jhudsl/jhudsl.github.io
- avahoffman/CV-and-resumes

Show more

Recent activity

Add Instructor checklist as...



All activity

- carriewright11 pushed to SISBID/Data-Wrangling** 5 hours ago
  - 6 commits to [gh-pages](#)
  - [98387ee](#) fixing links for subsetting lab from 2 to 1
  - [faef211](#) Merge pull request #35 from SISBID/subsetting\_part2
  - 4 more commits »
- carriewright11 pushed to SISBID/Data-Wrangling** 2 days ago
  - 1 commit to [subsetting\\_part2](#)
  - [98387ee](#) fixing links for subsetting lab from 2 to 1
- KatherineCox pushed to jhudsl/AnVIL\_Book\_Getting\_Started** 2 days ago
  - 1 commit to [main](#)
  - [00d7503](#) Render bookdown

The image shows a screenshot of the GitHub website. At the top, there is a navigation bar with the GitHub logo, a search bar, and links for 'Pulls', 'Issues', 'Marketplace', and 'Explore'. On the right side of the navigation bar, there is a notification bell icon, a plus sign icon, and a user profile icon. A pink box highlights the plus sign icon, and a pink arrow points from it to a dropdown menu. The dropdown menu contains the following options: 'New repository', 'Import repository', 'New gist', 'New organization', and 'New project'. The 'New repository' option is highlighted in blue. Below the navigation bar, the left sidebar shows the user's profile 'avahoffman' and a list of repositories. The main content area shows 'All activity' with a list of recent pushes to various repositories.

Search or jump to... / Pulls Issues Marketplace Explore

avahoffman ▾

Repositories New

Find a repository...

- [SISBID/Data-Wrangling](#)
- [jhudsl/AnVIL\\_Book\\_Getting\\_Started](#)
- [avahoffman/blue-grama-gene-expression](#)
- [jhudsl/intro\\_to\\_r](#)
- [avahoffman/DESeq2-viz-demo](#)
- [jhudsl/jhudsl.github.io](#)
- [avahoffman/CV-and-resumes](#)

Show more

Recent activity

- [Add Instructor checklist as...](#)

All activity

- carriewright11** pushed to [SISBID/Data-Wrangling](#) 5 hours ago
  - 6 commits to [gh-pages](#)
  - [98387ee](#) fixing links for subsetting lab from 2 to 1
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  - 4 more commits »
- carriewright11** pushed to [SISBID/Data-Wrangling](#) 2 days ago
  - 1 commit to [subsetting\\_part2](#)
  - [98387ee](#) fixing links for subsetting lab from 2 to 1
- KatherineCox** pushed to [jhudsl/AnVIL\\_Book\\_Getting\\_Started](#) 2 days ago
  - 1 commit to [main](#)
  - [00d7503](#) Render bookdown

<https://github.com/>

## Create a new repository


A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

### Repository template

Start your repository with a template repository's contents.

No template ▾

Owner \*

 avahoffman ▾

Repository name \*

my\_first\_project ✓

Great repository names are short and memorable. Need inspiration? How about [fuzzy-pancake](#)?

Description (optional)

My first project files



**Public**

Anyone on the internet can see this repository. You choose who can commit.



**Private**

You choose who can see and commit to this repository.

### Initialize this repository with:

Skip this step if you're importing an existing repository.



**Add a README file**

This is where you can write a long description for your project. [Learn more](#).



**Add .gitignore**

Choose which files not to track from a list of templates. [Learn more](#).



**Choose a license**

A license tells others what they can and can't do with your code. [Learn more](#).

This will set `main` as the default branch. Change the default name in your [settings](#).

Create repository

<https://github.com/new>



Search or jump to...

Pulls Issues Marketplace Explore



avahoffman / my\_first\_project

Unwatch 1

Star 0

Fork 0

Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights



main

Go to file

Add file

Code

About



avahoffman Initial commit



README.md

Initial commit

Clone



HTTPS SSH GitHub CLI

https://github.com/avahoffman/my\_first



Use Git or checkout with SVN using the web URL.



Open with GitHub Desktop



Download ZIP

README.md

# my\_first\_project

My first project files

My first project files

Readme

Releases

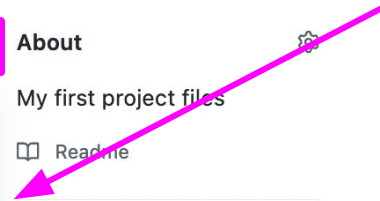
No releases published

[Create a new release](#)

Packages

No packages published

[Publish your first package](#)



**Step 2: Create “local” link**



File

Edit

Code

View

Plots

Session

Build

Debug

Profile

Tools

Help



Go to file/function



Addins

Console

Term

Create a project



R 4.2.0 · ~/

```
R version 4.2.0 (2022-04-22) -- "Vigorous Calisthenics"  
Copyright (C) 2022 The R Foundation for Statistical Computing  
Platform: x86_64-pc-linux-gnu (64-bit)
```

```
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.
```

### New Project Wizard

## Create Project



### New Directory

Start a project in a brand new working directory



### Existing Directory

Associate a project with an existing working directory



### Version Control

Checkout a project from a version control repository



Cancel

) -- "Vigorous Calisther  
undation for Statistical  
nu (64-bit)  
s with ABSOLUTELY NO WAR  
bute it under certain co  
e()' for distribution de  
but running in an Englis  
t with many contributors  
ore information and  
R or R packages in pub  
s, 'help()' for on-line  
browser interface to he

123 MiB

Environment is empty

Viewer

Upload Delete

Size



New Project Wizard

Back

## Create Project from Version Control



**Git**

Clone a project from a Git repository



**Subversion**

Checkout a project from a Subversion repository



Cancel

New Project Wizard

Back

## Clone Git Repository



Repository URL:

Project directory name:

Create project as subdirectory of:

Browse...

Create Project

Cancel

Environment

History

Connections

Build

Git

Tutorial

160 MiB

Environment is empty

Viewer



Upload



Delete



Renam

Size

741 B

499 B

2.2 KB

169 B

880.6 KB

8.7 KB

labs

lecture notes

**Step 3: Change stuff**

```
my-script.R x  
1 # My first script
```

Console Terminal Jobs  
R 4.2.0 · ~/my\_first\_project/

R version 4.2.0 (2022-04-22) -- "Vigorous Calisthenics"  
Copyright (C) 2022 The R Foundation for Statistical Computing  
Platform: x86\_64-pc-linux-gnu (64-bit)

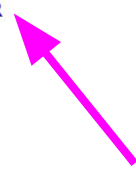
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.

Environment History Connections Git Tutorial  
Import Dataset 230 MiB  
R Global Environment  
Environment is empty

Files Plots Packages Help Viewer  
New Folder New Blank File Upload Delete Rename More

Home > my\_first\_project

	Name	Size	Modified
	..		
	.gitignore	40 B	Jul 24, 2022, 9:42 PM
	my_first_project.Rproj	205 B	Jul 24, 2022, 9:42 PM
	my-script.R	17 B	Jul 24, 2022, 9:43 PM



Environment History Connections Git Tutorial

Diff Commit [down arrow] [up arrow] [clock icon] [gear icon] main [refresh icon]

Staged	Status	Path
<input type="checkbox"/>	? ?	.gitignore
<input type="checkbox"/>	? ?	my-script
<input type="checkbox"/>	? ?	my_first_project.Rproj

1

2

Changes History main Stage Revert Ignore

Pull Push

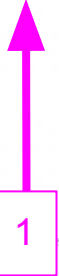
Staged	Status	Path
<input checked="" type="checkbox"/>	A	.gitignore
<input checked="" type="checkbox"/>	A	my-script.R
<input checked="" type="checkbox"/>	A	my_first_project.Rproj

Commit message 22 characters

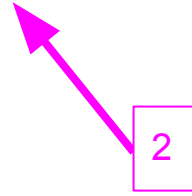
Created my script file

Amend previous commit

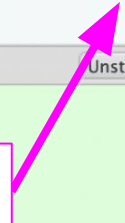
Commit



1



2



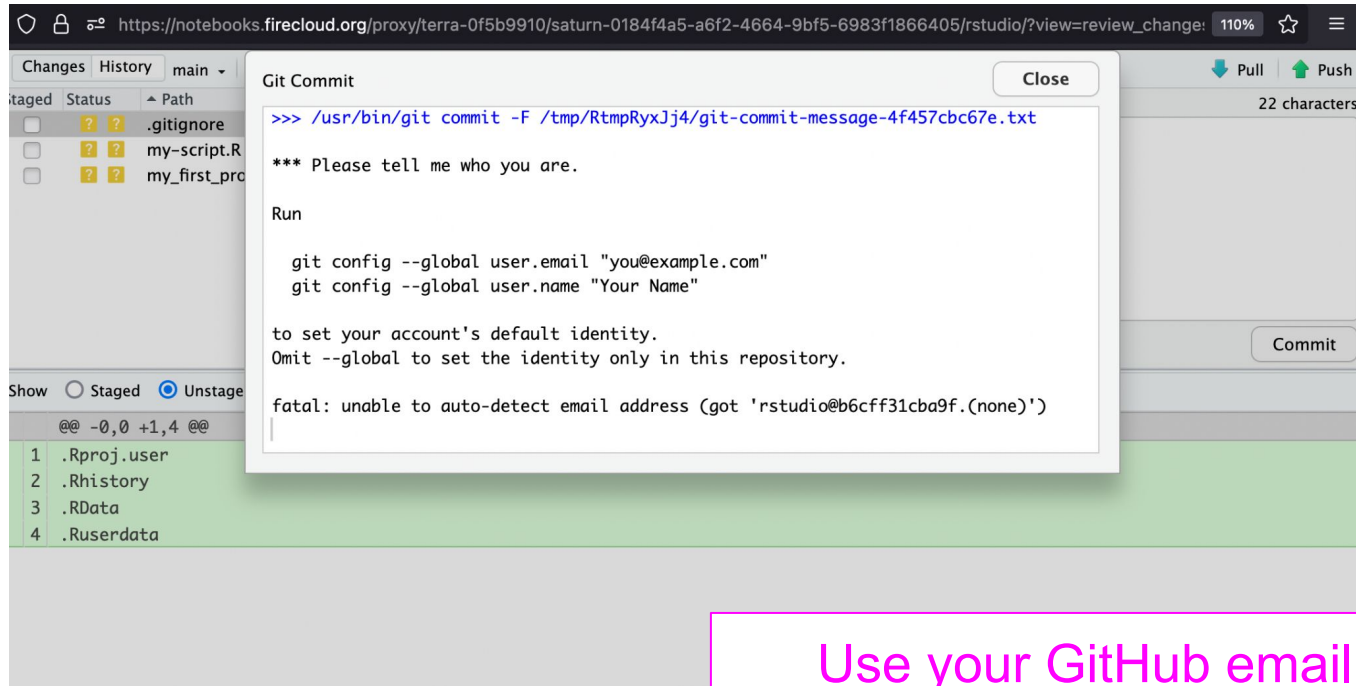
3

Staged Unstaged Context 5 lines Ignore Whitespace Unstage All

```
@@ -0,0 +1,4 @@  
1 .Rproj.user  
2 .Rhistory  
3 .RData  
4 .Ruserdata
```

Unstage chunk

# You might be prompted for more information



The screenshot shows a web-based Git interface. A modal window titled "Git Commit" is open, displaying the following text:

```
>>> /usr/bin/git commit -F /tmp/RtmpRyxJj4/git-commit-message-4f457cbc67e.txt
```

\*\*\* Please tell me who you are.

Run

```
git config --global user.email "you@example.com"
git config --global user.name "Your Name"
```

to set your account's default identity.  
Omit --global to set the identity only in this repository.

```
fatal: unable to auto-detect email address (got 'rstudio@b6cff31cba9f.(none)')
```

The background interface shows a file explorer with files like `.gitignore`, `my-script.R`, and `my_first_pro`. A "Commit" button is visible on the right side of the interface.

Use your GitHub email and display name

# You might be prompted for more information



The screenshot shows the RStudio interface with a terminal window open. The terminal title is 'Terminal 1' and the current directory is '/home/rstudio/my\_first\_project'. The terminal output shows three lines of commands and their results:

```
rstudio@b6cff31c1ba9f:~/my_first_project$ git config --global user.email "avamariehoffman@gmail.com"
rstudio@b6cff31c1ba9f:~/my_first_project$ git config --global user.name "AM Hoffman"
rstudio@b6cff31c1ba9f:~/my_first_project$
```

A pink arrow points from a pink-bordered box containing the text 'Use the RStudio Terminal' to the 'Terminal 1' tab in the RStudio interface.

Use the RStudio Terminal



ory main ▾

is ahead of 'orig

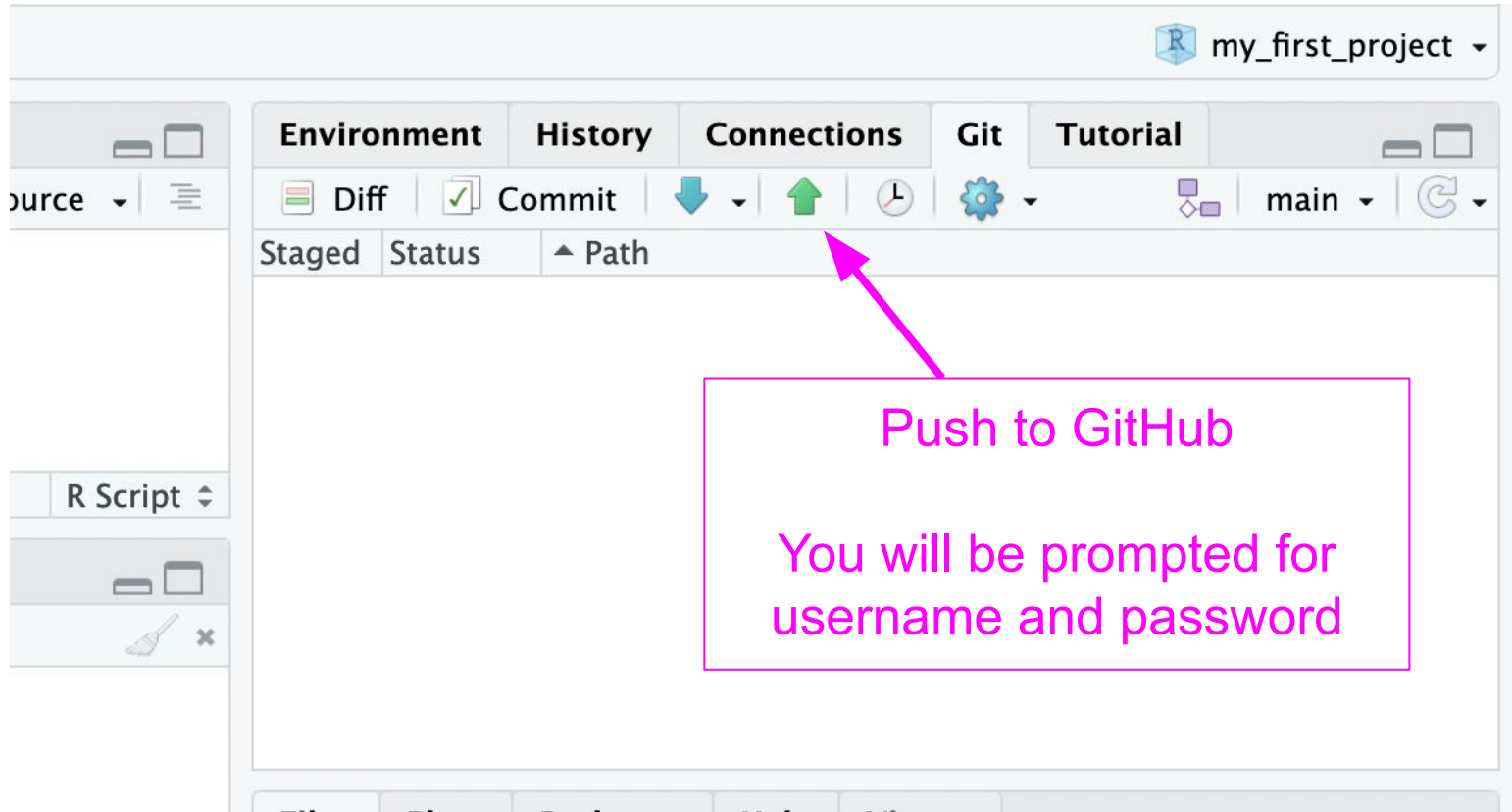
▲ Path

d  Unstage

### Git Commit

Close

```
>>> /usr/bin/git commit -F /tmp/RtmpRyxJj4/git-commit-message-4f4261ceab0.txt
[main 0e67afd] Created my script file
3 files changed, 18 insertions(+)
create mode 100644 .gitignore
create mode 100644 my-script.R
create mode 100644 my_first_project.Rproj
```








Push to GitHub

You will be prompted for  
username and password

main 2 branches 0 tags

Go to file Add file Code

 avahoffman Update README.md	0bf19d7 now	5 commits
 .gitignore	Created my script file	4 minutes ago
 README.md	Update README.md	now
 my-script.R	Created my script file	4 minutes ago
 my_first_project.Rproj	Created my script file	4 minutes ago

README.md

```
my_ Success!
```



### About

#### My first project files

- Readme
- 0 stars
- 1 watching
- 0 forks

### Releases

No releases published  
[Create a new release](#)

### Packages

No packages published  
[Publish your first package](#)

### Languages



# Review

- You add/edit files in your project on your personal computer / cloud (your local repository).
- You publish/share these changes to a remote repository (GitHub) so that others may see them/incorporate them into their own work.
- Git commands
  - `git status`
  - `git add .`
  - `git commit -m "A message here"`
  - `git push`

# Staging files and folders with git add

<code>git add file_or_folder</code>	stages <b>specified file or folder</b>
<code>git add .</code>	stages <b>new and modified</b> files
<code>git add -u</code>	stages <b>modified and deleted</b> files
<code>git add -A</code>	stages <b>new, modified, and deleted</b> files
<code>git add *.csv</code>	Stages <b>any files with .csv extension</b>
<code>git add *</code>	Use with caution: stages everything

**Step 4: Incorporate changes  
made by others**

&lt;&gt; Edit file

Preview

 Show diff

# my\_first\_project

Here is a description of the project.

Updating the readme on remote  
(on GitHub) - simulates changes  
made by others



## Commit changes

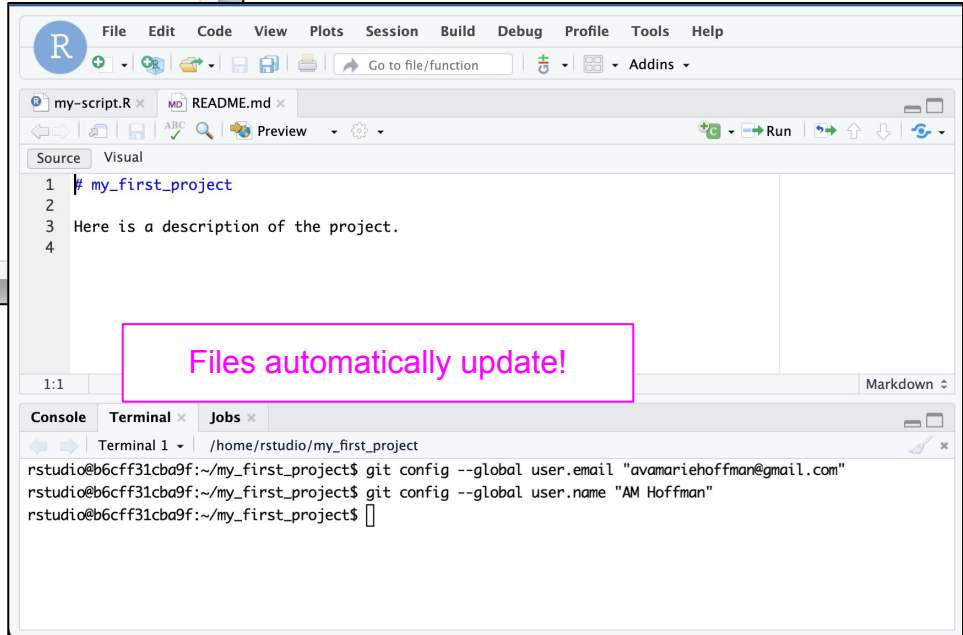
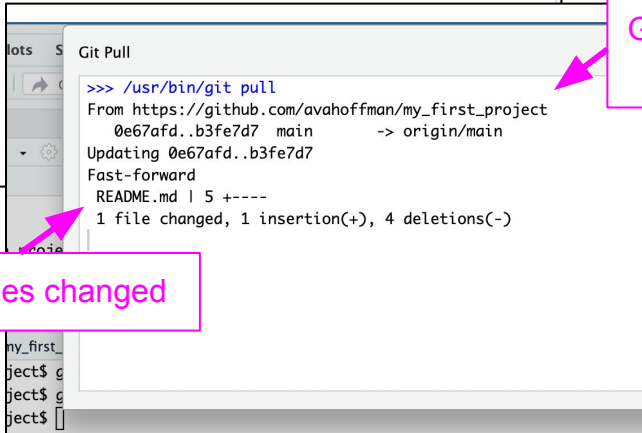
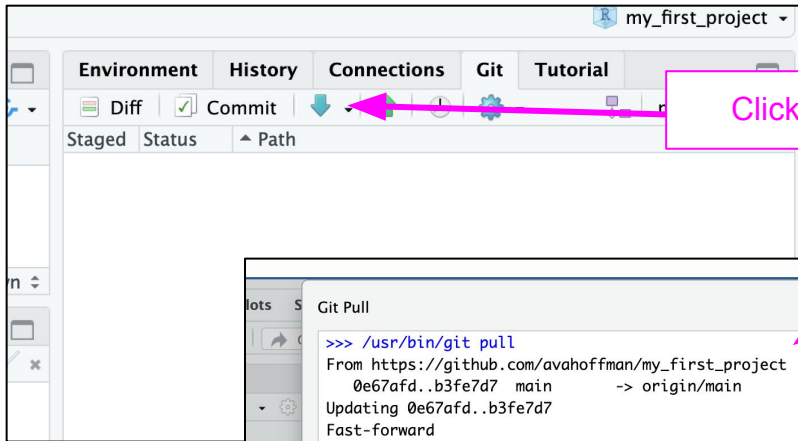
Update README.md

Add an optional extended description...

- Commit directly to the `main` branch.
- Create a **new branch** for this commit and start a pull request. [Learn more about pull requests.](#)

Commit changes

Cancel





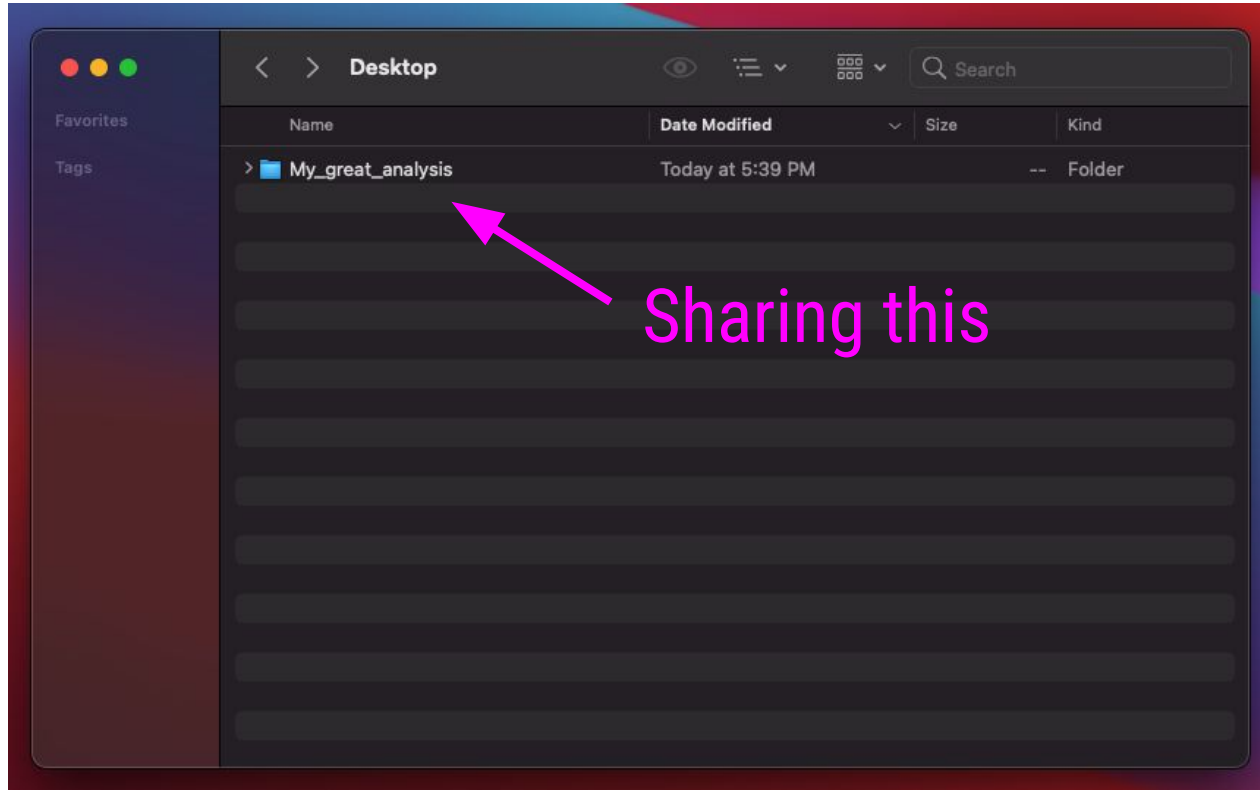
# Pulling

- Others have pushed changes to the remote repository.
- You want to incorporate those changes into your local repository.
- Git commands
  - `git pull`

**Pro tip:** pull  
before you start  
working on new  
local changes!

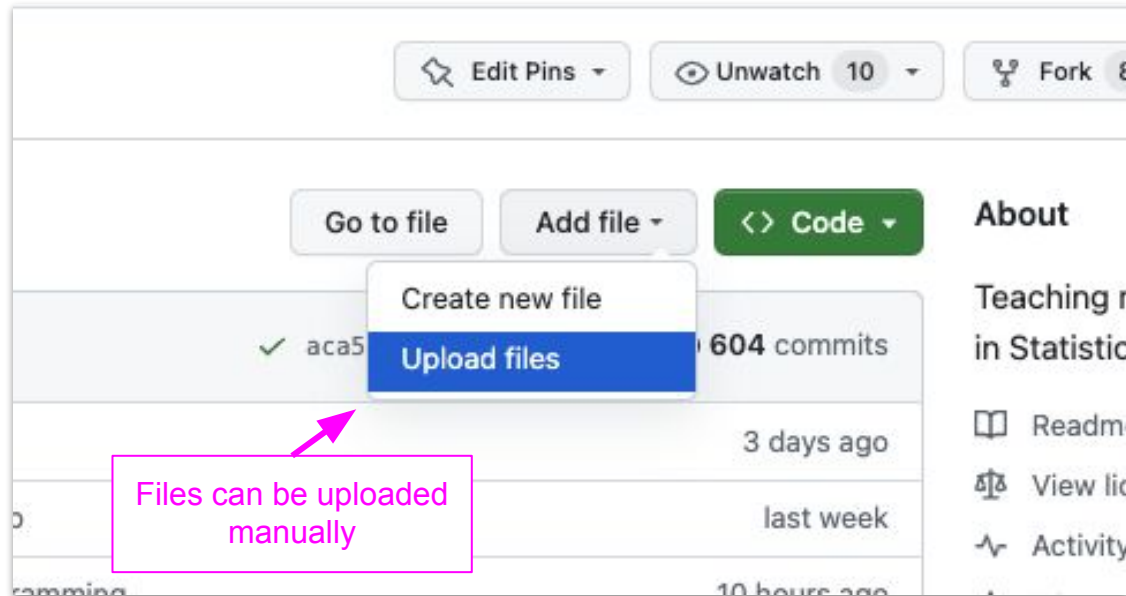
When working with others, you should create **branches** so you don't overwrite work by others. Let us know if you want to learn more about this!

# What is the goal of making code?



# If nothing else...

Use github as a place to store and share your code!



# Danger-free commands

<https://git-school.github.io/visualizing-git/>

# git - the simple guide

<https://rogerdudler.github.io/git-guide/>

# git cheat sheet

learn more about git the simple way at [rogerdudler.github.io/git-guide/](https://rogerdudler.github.io/git-guide/)  
client sheet created by N.ra. | [www.ninjabits.com](https://www.ninjabits.com)

## create & clone

**create new repository** `git init`  
**clone local repository** `git clone /path/to/repository`  
**clone remote repository** `git clone username@host:/path/to/repository`

## add & remove

**add changes to INDEX** `git add <filename>`  
**add all changes to INDEX** `git add *`  
**remove/delete** `git rm <filename>`

## commit & synchronize

**commit changes** `git commit -m "Commit message"`  
**push changes to remote repository** `git push origin master`  
**connect local repository to remote repository** `git remote add origin <server>`  
**update local repository with remote changes** `git pull`

## branches

**create new branch** `git checkout -b <branch>`  
*e.g. `git checkout -b feature_x`*  
**switch to master branch** `git checkout master`  
**delete branch** `git branch -d <branch>`  
**push branch to remote repository** `git push origin <branch>`

## merge

**merge changes from another branch** `git merge <branch>`  
**view changes between two branches** `git diff <source_branch> <target_branch>`  
*e.g. `git diff master_x feature_y`*

## tagging

**create tag** `git tag <tag> <commit ID>`  
*e.g. `git tag 1.0.0 1b2e1663ff`*  
**get commit IDs** `git log`

## restore

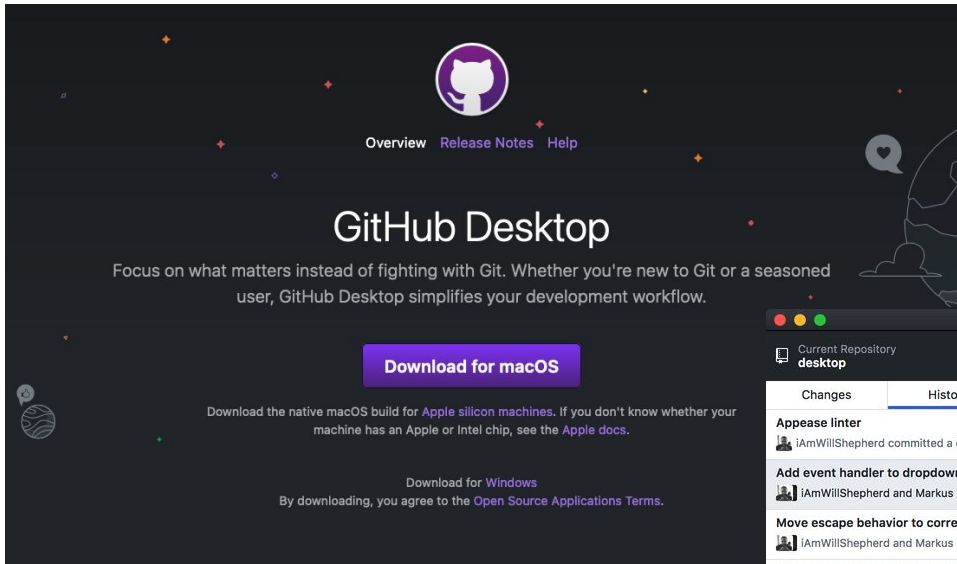
**replace working copy with latest from HEAD** `git checkout -- <filename>`



### Tip

Want a simple but powerful  
git-client for your mac?  
Try Tower: [www.git-tower.com/](http://www.git-tower.com/)

[https://rogerdudler.github.io/git-guide/files/git\\_cheat\\_sheet.pdf](https://rogerdudler.github.io/git-guide/files/git_cheat_sheet.pdf)



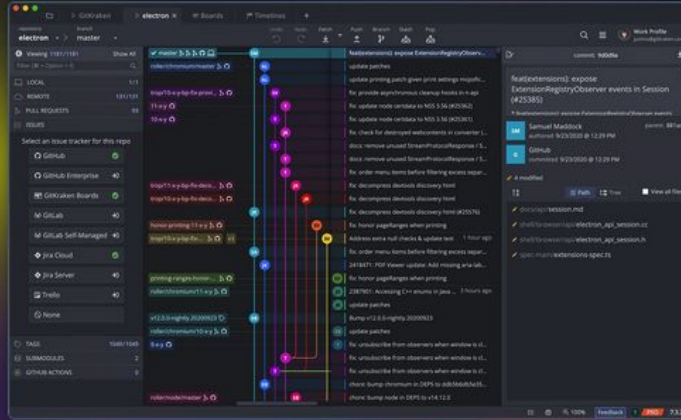
Changes	History	Diff
<b>Add event handler to dropdown component</b> iAmWillShepherd and Markus Olsson committed - c79e71c 1 changed file		
Co-Authored-By: Markus Olsson <nrik@users.noreply.github.com>		
app/src/ui/t.../dropdown.tsx		
145	145	<code>this.state = { clientRect: null }</code>
146	146	<code>}</code>
147	147	
148	148	<code>+ private get isOpen() {</code>
149	149	<code>+ return this.props.dropdownState === 'open'</code>
150	150	<code>+ }</code>
151	151	<code>+ }</code>
148	152	<code>private dropdownIcon(state: DropdownState): OcticonSym</code>
149	153	<code>bol {</code>
150	154	<code>  // @TODO: Remake triangle octicon in a 12px version,</code>
		<code>  // right now it's scaled badly on normal dpi monitor</code>
		<code>s.</code>
		<code>@@ -249,6 +253,13 @@ export class ToolbarDropdown extends</code>
		<code>React.Component&lt;</code>
249	253	<code>  }</code>
250	254	<code>  }</code>
251	255	<code>}</code>
		<code>+ private onFoldoutKeyDown = (event:</code>
		<code>React.KeyboardEvent&lt;HTMLInputElement&gt;) =&gt; {</code>
257	257	<code>+ if (!event.defaultPrevented &amp;&amp; this.isOpen &amp;&amp;</code>
		<code>event.key === 'Escape') {</code>
		<code>  event.preventDefault()</code>

<https://desktop.github.com/>





Legendary Git GUI client for Windows, Mac & Linux



 Download the #1 Free Git GUI

Other Platforms

See Features →

<https://www.gitkraken.com/>

# Nice practice

<https://www.katacoda.com/courses/git>