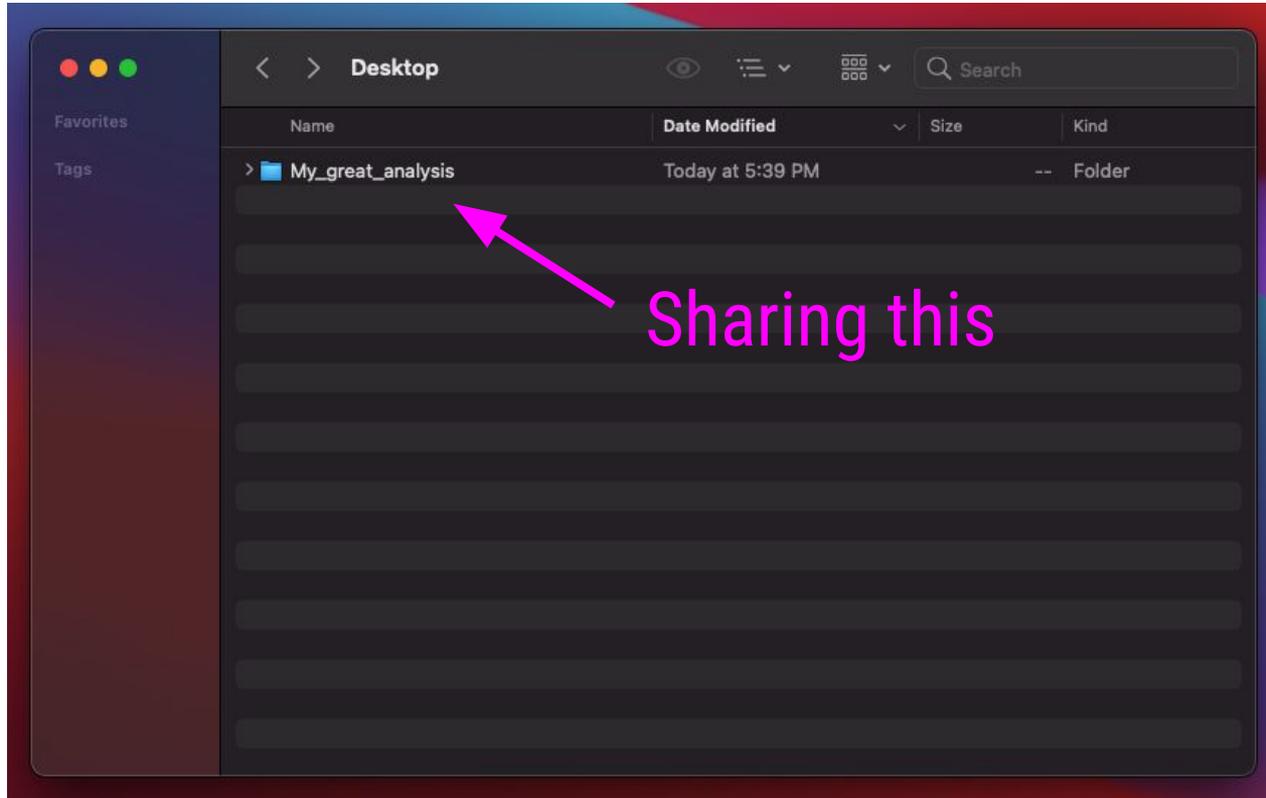
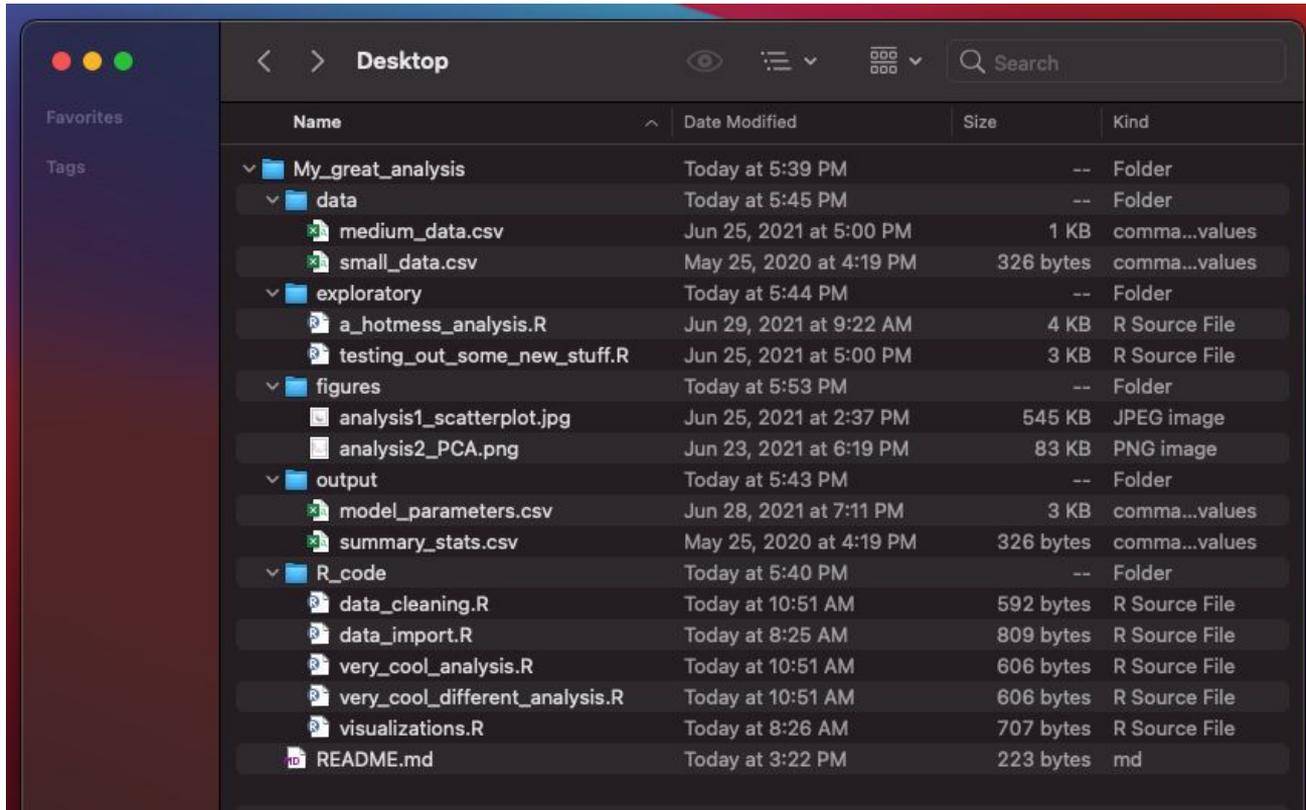


Version control with GitHub

What is the goal of making code?

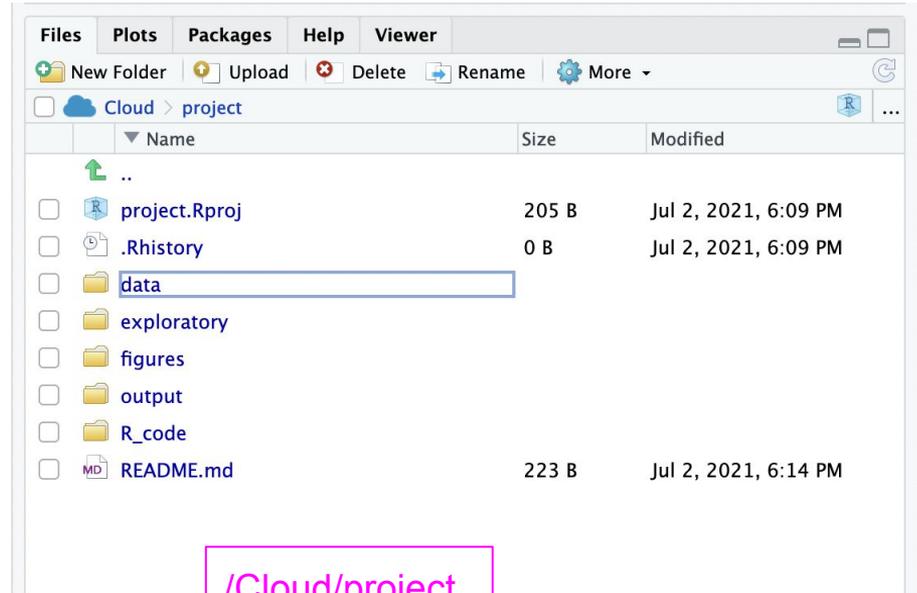
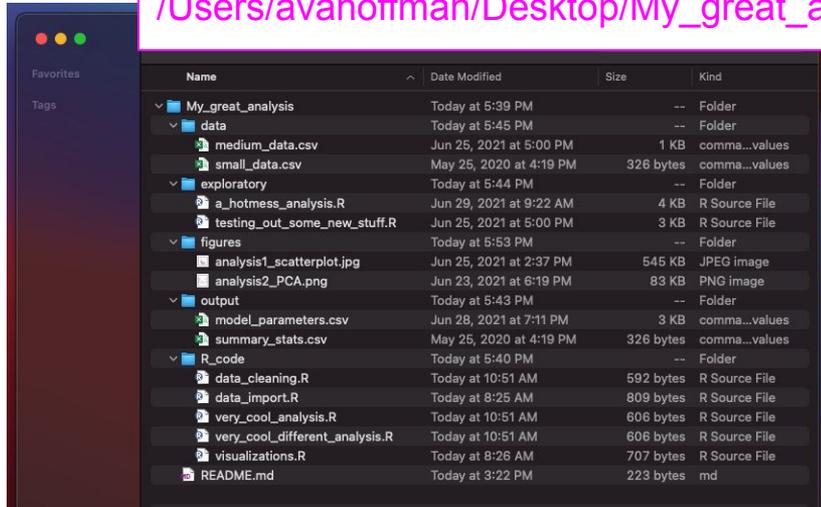


What is the goal of making code?



But first.. Where are we?

`/Users/avahoffman/Desktop/My_great_analysis`



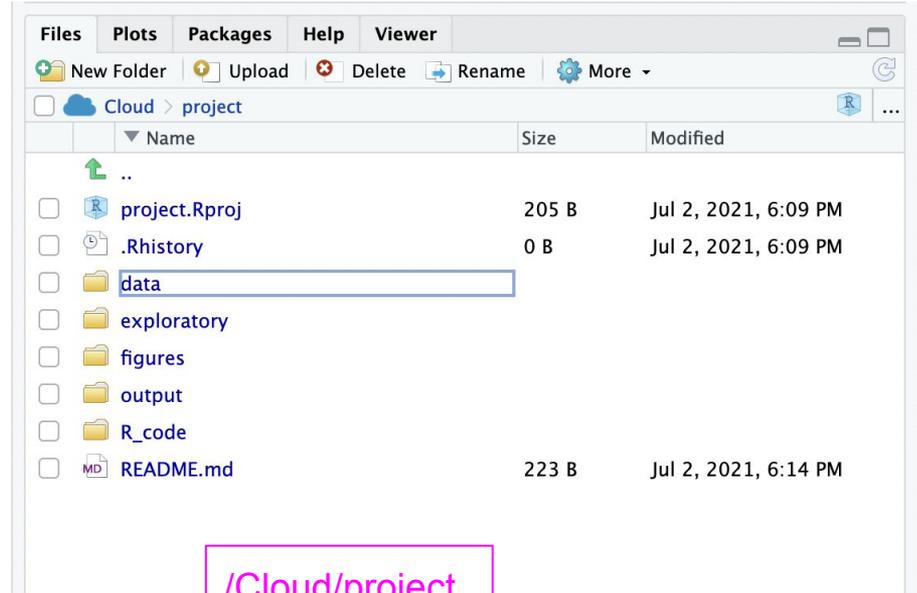
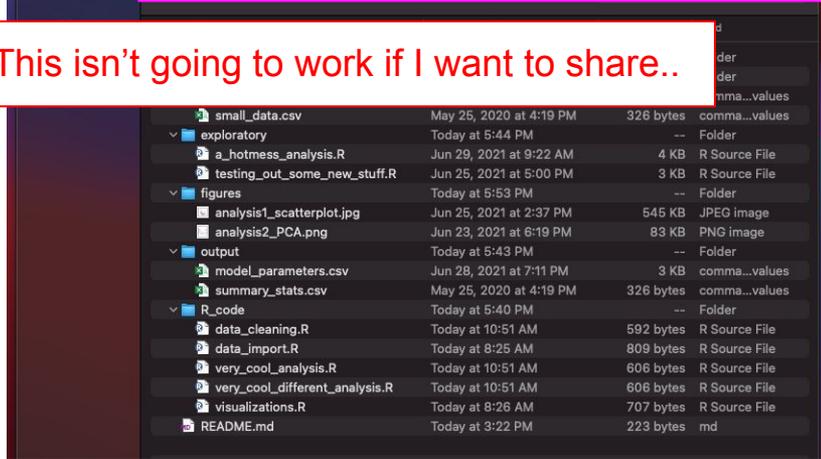
`/Cloud/project`

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..

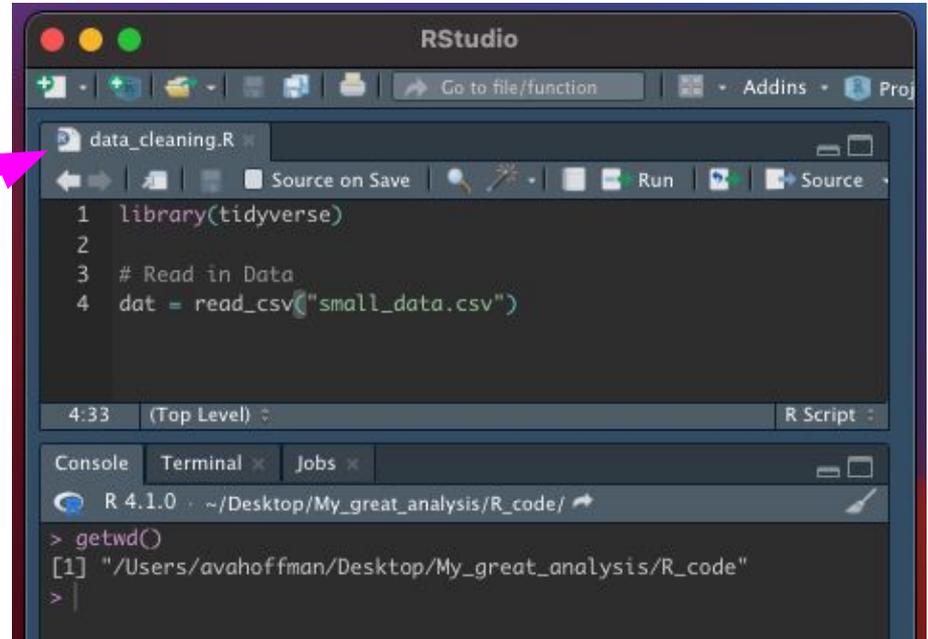
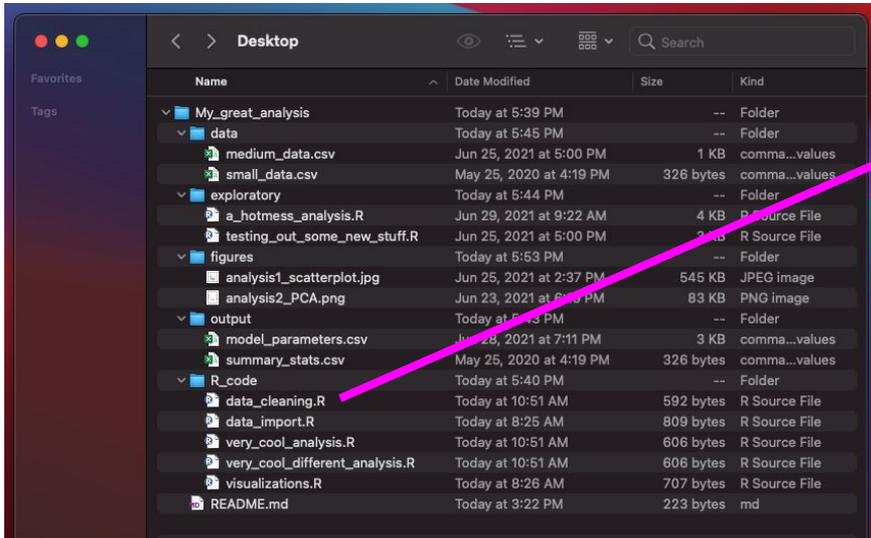


`/Cloud/project`

Absolute path Starts at
the root directory: /

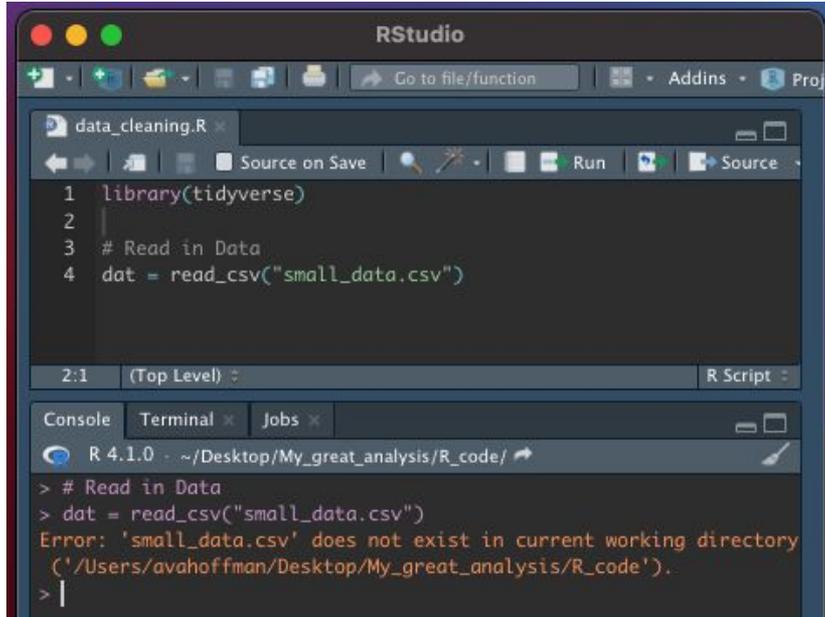
Enter the *relative* path!

Launch "data_cleaning.R"



R looks in /Users/avahoffman/Desktop/My_great_analysis/R_code

Enter the *relative* path!



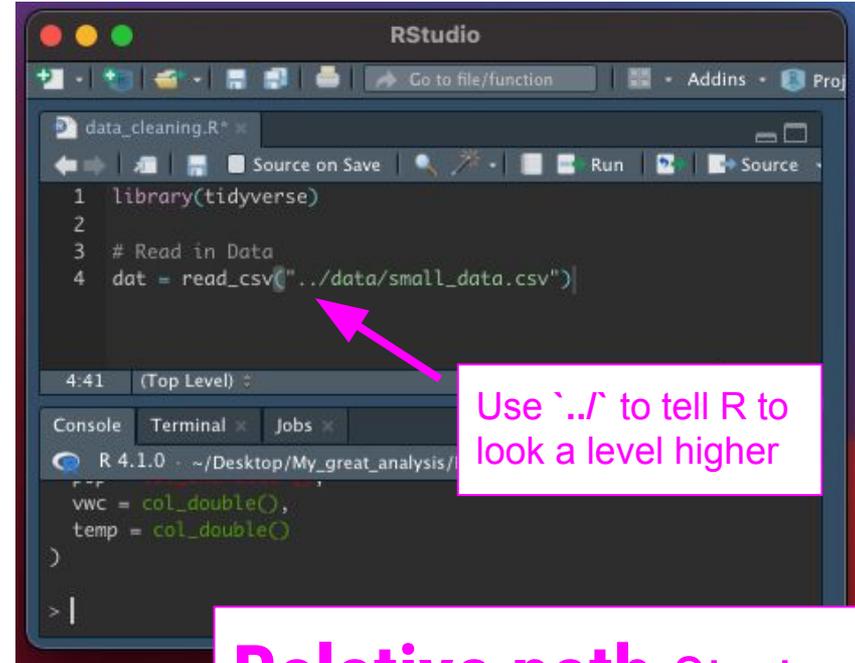
The screenshot shows the RStudio interface with a script editor and a console. The script editor contains the following code:

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

The console shows the following output:

```
> # 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 a script editor and a console. The script editor contains the following code:

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

A pink arrow points to the relative path `../data/small_data.csv` in the script editor. The console shows the following output:

```
R 4.1.0 - ~/Desktop/My_great_analysis/
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 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 R console with the following output:

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

The right-hand pane shows the file explorer with a table of files:

	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()' function call in the console to the 'here()' function call in the script.

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

```
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
```

Environment History Connections Tutorial

R Global Env

Values

Files Plots Pac

New Finder Upload Delete Rename More

Cloud > project > data

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

```
> small_dat_path = here("data", "small_data.csv")
> small_dat_path
[1] "/cloud/project/data/small_data.csv"
>
```

Console Terminal Jobs

R 4.0.3 · /cloud/project/

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()

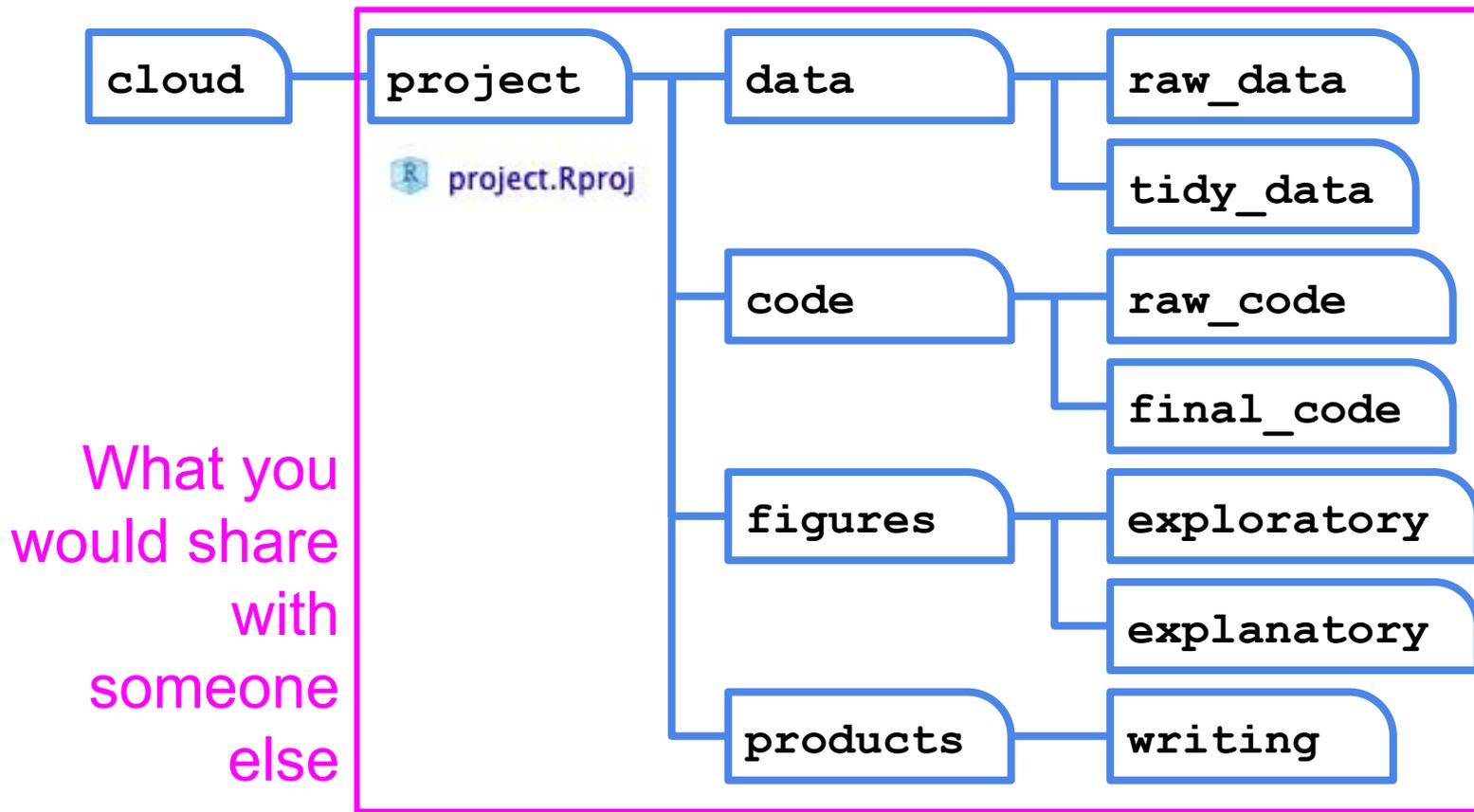
Relative path

Dinner → Movie Theater

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

Your GPS!

- Navigate from your current location



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.

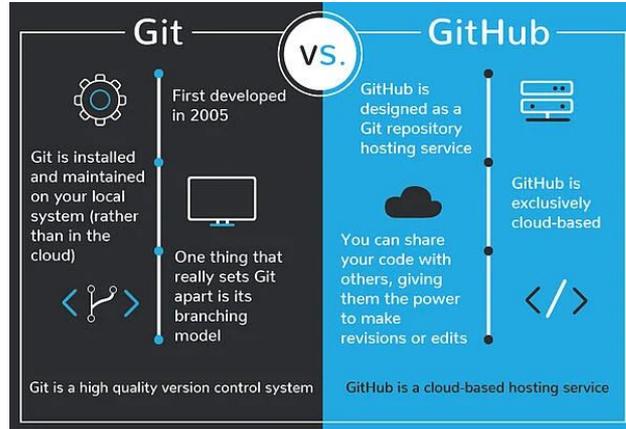
[twitter.com/Pentadact/stat...](https://twitter.com/Pentadact/status/617075570761965568)

5:00 PM - 3 Jul 2015

↩️ ↻ 9 ★ 11

Git commands have convenience
in mind, not intuition

What's the difference between Git and GitHub?

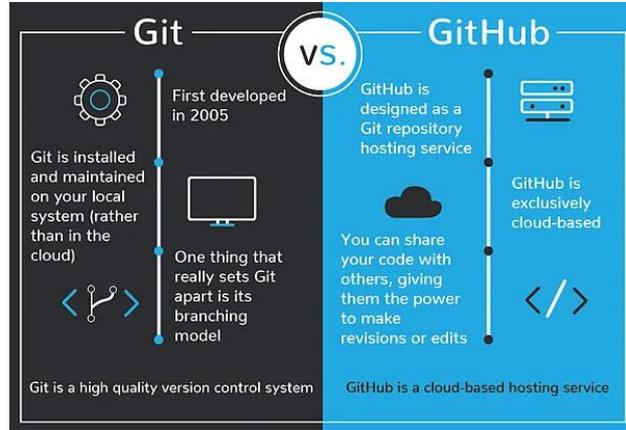


In Simple Terms

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

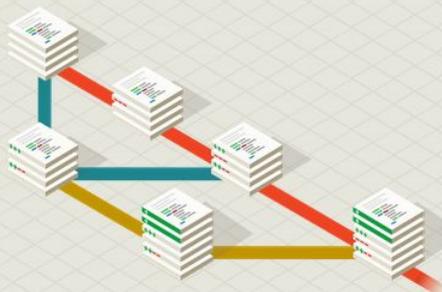
Your entire work history

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**

The image shows a browser window with the GitHub website. The browser's address bar displays "GitHub, Inc. [US] https://github.com". The page header includes the GitHub logo, a search bar, and navigation links for "Explore", "Features", "Enterprise", and "Blog". On the right side of the header, there are "Sign up" and "Sign in" buttons. The main content area has a dark background with the text "Build software better, together." in large white font. Below this, it says "Powerful collaboration, code review, and code management for open source and private projects. Need private repositories? Upgraded plans start at \$7/mo." To the right, there is a sign-up form with three input fields: "Pick a username", "Your email", and "Create a password". Below the password field, there is a note: "Use at least one lowercase letter, one numeral, and seven characters." A green "Sign up for GitHub" button is positioned below the form. At the bottom of the form area, there is a disclaimer: "By clicking 'Sign up for GitHub', you agree to our [terms of service](#) and [privacy policy](#). We will send you account related emails occasionally."

GitHub · Build software better, together

GitHub, Inc. [US] https://github.com

GitHub Search GitHub

Explore Features Enterprise Blog

Sign up Sign in

Build software better, together.

Powerful collaboration, code review, and code management for open source and private projects. Need private repositories? Upgraded plans start at \$7/mo.

Pick a username

Your email

Create a password

Use at least one lowercase letter, one numeral, and seven characters.

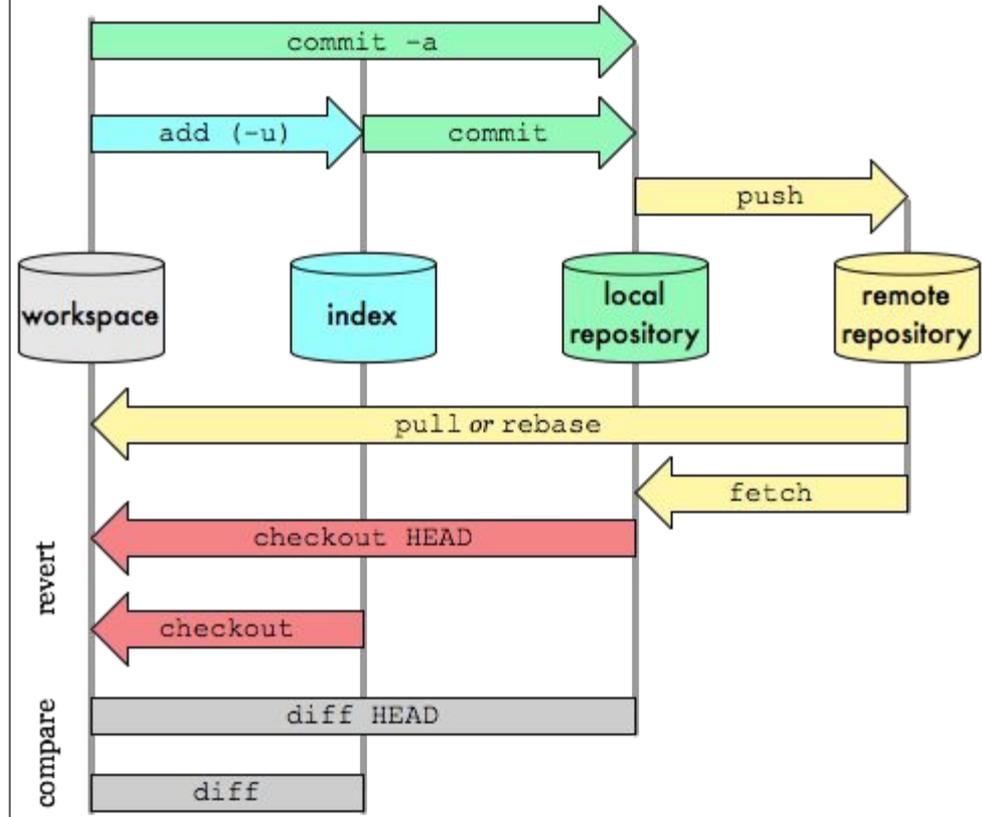
Sign up for GitHub

By clicking "Sign up for GitHub", you agree to our [terms of service](#) and [privacy policy](#). We will send you account related emails occasionally.

<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

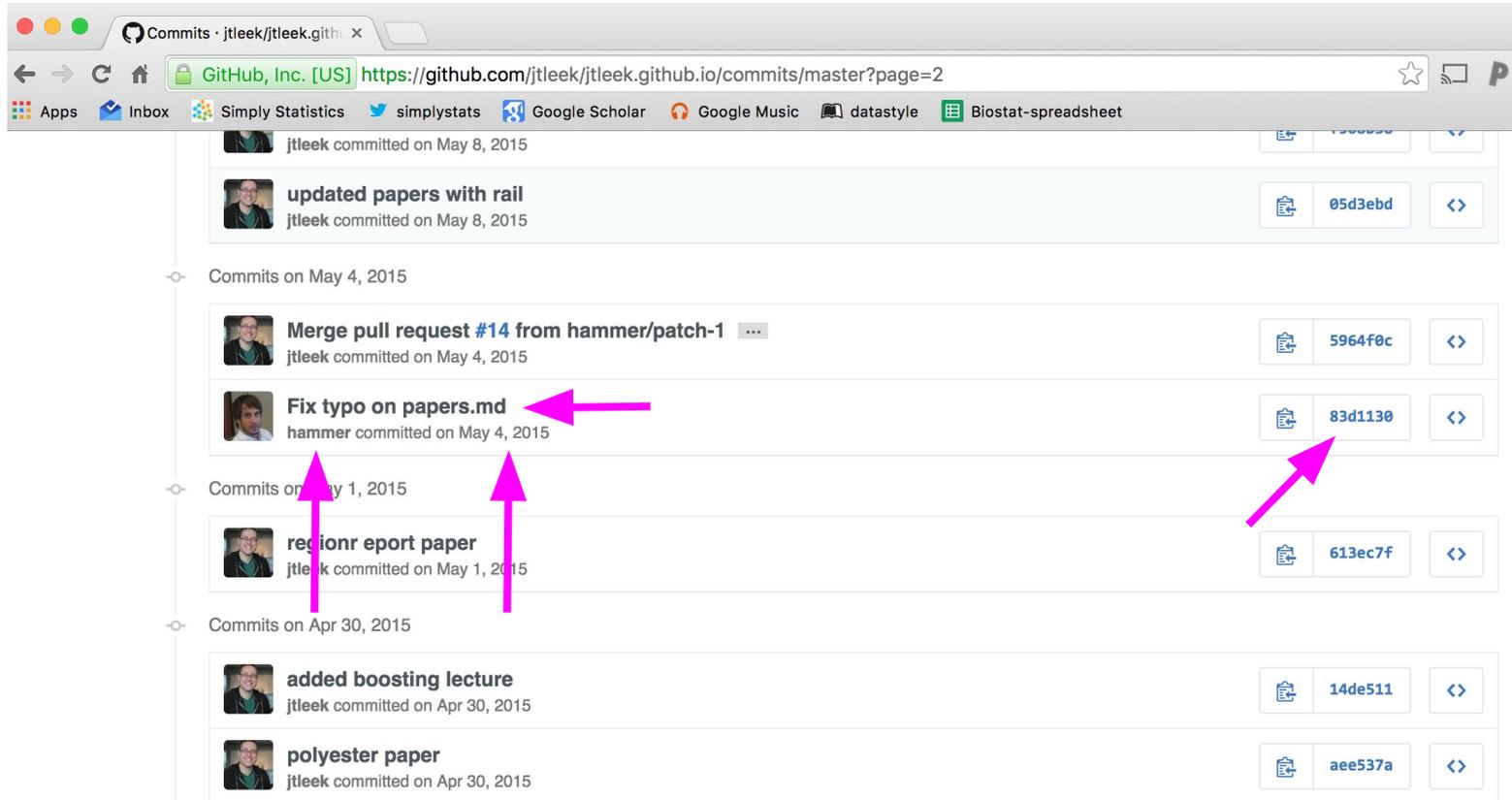
```
git push
```

- ▶ 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?



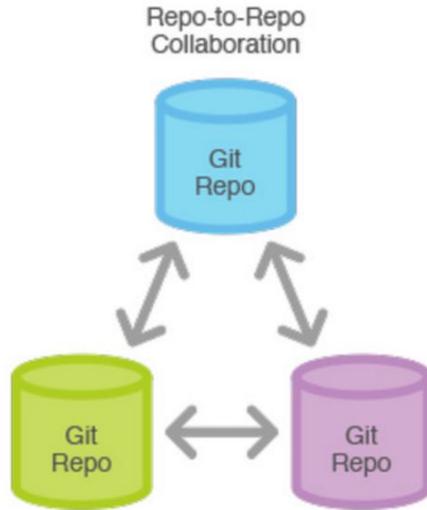
The screenshot shows a web browser window displaying the commit history of a GitHub repository. The browser's address bar shows the URL `https://github.com/jtleek/jtleek.github.io/commits/master?page=2`. The page lists several commits, each with a commit message, the author's name, and the commit date. Three pink arrows are drawn on the page to highlight specific commits:

- A vertical arrow points to the commit "region report paper" by jtleek, committed on May 1, 2015.
- A vertical arrow points to the commit "Fix typo on papers.md" by hammer, committed on May 4, 2015.
- A diagonal arrow points to the commit hash "83d1130" for the "Fix typo on papers.md" commit.

The commit history is organized by date, with sections for "Commits on May 8, 2015", "Commits on May 4, 2015", "Commits on May 1, 2015", and "Commits on Apr 30, 2015".

Commit Message	Author	Commit Date	Commit Hash
updated papers with rail	jtleek	May 8, 2015	05d3ebd
Merge pull request #14 from hammer/patch-1	jtleek	May 4, 2015	5964f0c
Fix typo on papers.md	hammer	May 4, 2015	83d1130
region report paper	jtleek	May 1, 2015	613ec7f
added boosting lecture	jtleek	Apr 30, 2015	14de511
polyester paper	jtleek	Apr 30, 2015	aee537a

possible, in theory



more typical

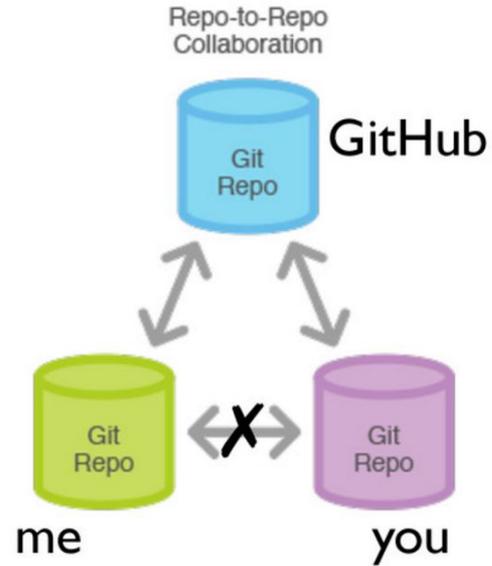


Image from <https://www.atlassian.com/git/tutorial/git-basics/#clone>

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

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data	all pdfs may be created		12 months ago
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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
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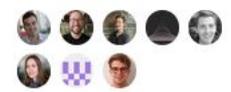
Releases 1

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

Packages

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>

RStudio Cloud already has Git
installed.

Install Git/Github Locally
(for later)

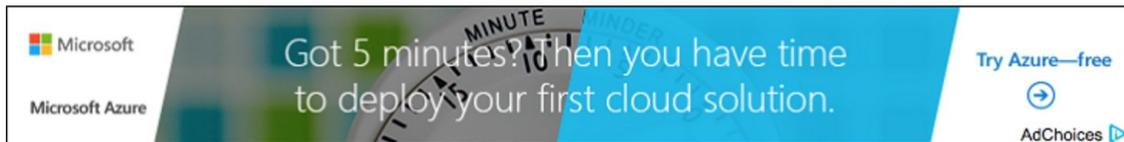
<http://happygitwithr.com/install-git.html>

and

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

How the pros use git/github

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



asked 5 years ago
viewed 31361 times
active 17 days ago



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

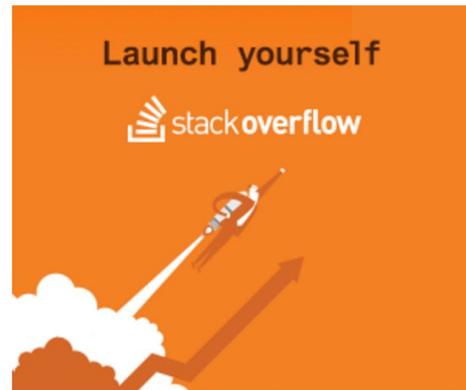
add a comment

asked Jul 11 '11 at 12:41



e-satis

238k 82 228 285



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

GitHub navigation bar: Search or jump to... / Pulls Issues Marketplace Explore

Profile: avahoffman

Repositories: [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](#)

Recent activity: Add Instructor checklist as...

All activity:

- carriewright11 pushed to SISBID/Data-Wrangling 5 hours ago
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 - 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

Dropdown menu (highlighted in pink):

- New repository
- Import repository
- New gist
- New organization
- New project

<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

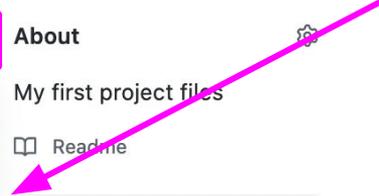
No releases published

[Create a new release](#)

Packages

No packages published

[Publish your first package](#)



Step 2: Create “local” link



Spaces

Your Workspace

+ New Space

Info

Learn

Feedback and Questions

Terms and Conditions

Your Projects

No Projects



New Project



+ New Project

New Project from Git Repo





Spaces

Your Workspace

+ New Space

Learn

Guide

! What's New

Primers

Cheat Sheets

Help

Current System Status

RStudio Community

Info

Your Projects

Sort

Data-Wrangling

Created Jul 8, 2021 4:32 PM

New Project from Git Repository



URL of your Git Repository

OK

Step 3: Change stuff



File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

R 3.4.4

README.md

Preview

Insert Run

```
1 # my_first_project
2 My first project files
3
```

Environment History Connections Git

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help Viewer

New Folder Upload Delete Rename More

cloud > project

	Name	Size	Modified
<input type="checkbox"/>	.gitignore	40 B	May 11, 2018, 2:34 PM
<input type="checkbox"/>	.Rhistory	0 B	May 11, 2018, 2:34 PM
<input type="checkbox"/>	project.Rproj	205 B	May 11, 2018, 2:34 PM
<input type="checkbox"/>	README.md	42 B	May 11, 2018, 2:34 PM

Console Terminal

/cloud/project/

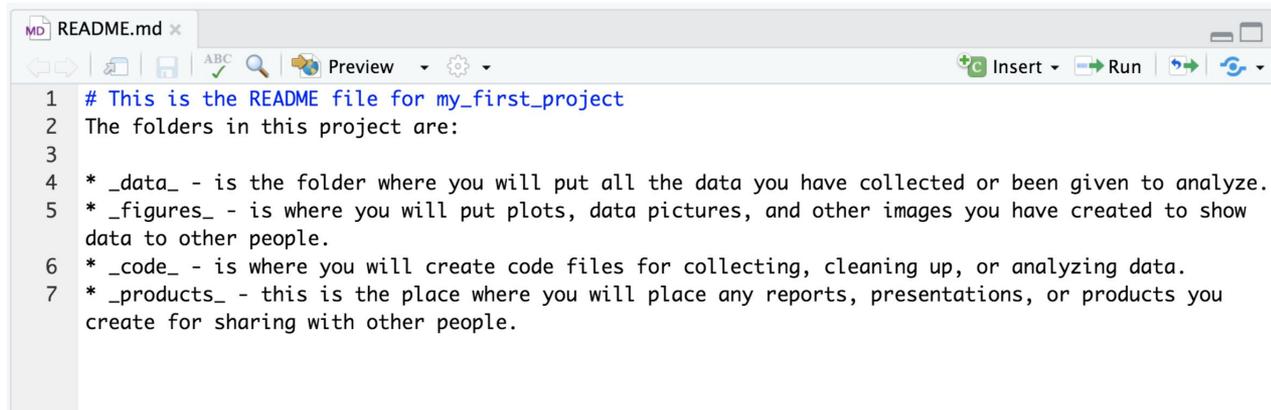
```
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> |
```

Make some changes...



The image shows a screenshot of a code editor window titled "README.md". The editor has a toolbar at the top with various icons for navigation and editing. The main content area contains a list of project folders and their descriptions, numbered 1 through 7. The text is as follows:

```
1 # This is the README file for my_first_project
2 The folders in this project are:
3
4 * _data_ - is the folder where you will put all the data you have collected or been given to analyze.
5 * _figures_ - is where you will put plots, data pictures, and other images you have created to show
  data to other people.
6 * _code_ - is where you will create code files for collecting, cleaning up, or analyzing data.
7 * _products_ - this is the place where you will place any reports, presentations, or products you
  create for sharing with other people.
```

```
1 git add .  
2 git commit -m "changed readme file"  
3 git push
```

You might be prompted for more information

```
/cloud/project$ git commit -m "Update Readme file"
```

```
*** 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-user@application-4375491-deployment-10694007-tknc5.(none)')  
/cloud/project$ git config user.email "avamariehoffman@gmail.com"  
/cloud/project$ git config user.name "Ava Hoffman"
```

Use your GitHub email and
display name

```
/cloud/project$ git push
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 16 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 552 bytes | 552.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0)
To https://github.com/avahoffman/my_first_project.git
   3e0caa0..5f96028  main -> main
/cloud/project$
```

 .gitignore	sdkfjsldf	22 hours ago
 README.md	new changes	22 seconds ago
 project.Rproj	sdkfjsldf	22 hours ago

README.md

This is the README file for my_first_project

The folders in this project are:

- *data* - is the folder where you will put all the data you have collected or been given to analyze.
- *figures* - is where you will put plots, data pictures, and other images you have created to show data to other people.
- *code* - is where you will create code files for collecting, cleaning up, or analyzing data.
- *products* - this is the place where you will place any reports, presentations, or products you create for sharing with other people.

Review

- You add/edit files in your RStudio cloud project or personal computer (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 specified file or folder
<code>git add .</code>	stages new and modified files
<code>git add -u</code>	stages modified and deleted files
<code>git add -A</code>	stages new, modified, and deleted files
<code>git add *.csv</code>	Stages any files with .csv extension
<code>git add *</code>	Use with caution: stages everything

Step 4: Incorporate other's
changes

avahoffman / my_first_project

Unwatch 1 Star 0 Fork 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

my_first_project / README.md in main

Cancel changes

Edit file Preview

Spaces 2 Soft wrap

my_first_project
My first project files
Description of the analysis will go here

Attach files by dragging & dropping, selecting or pasting them.



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.

Commit changes Cancel

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

The screenshot shows the RStudio IDE interface. The main editor window displays a README.md file with the following content:

```
1 # my_first_project
2 My first project files
3
4 Description of the analysis will go here
5
```

A pink arrow points from the text "Changes are immediately visible" to the text in the README.md file.

The terminal window at the bottom shows the output of a `git pull` command:

```
/cloud/project$ git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 756 bytes | 756.00 KiB/s, done.
From https://github.com/avahoffman/my_first_project
 5f96028..b9ee40c main -> origin/main
Updating 5f96028..b9ee40c
Fast-forward
 README.md | 3 ++-
 1 file changed, 2 insertions(+), 1 deletion(-)
/cloud/project$
```

A pink arrow points from the text "Shows files changed" to the output of the `git pull` command in the terminal.

The file explorer on the right shows the project structure:

Name	Size
..	
.gignore	40 B
.Rhistory	0 B
project.Rproj	205 B
README.md	84 B

Pulling

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

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/
client sheet created by N.ra. | [eschke of ningszilf.com](https://www.linkedin.com/in/ningszilf/)

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

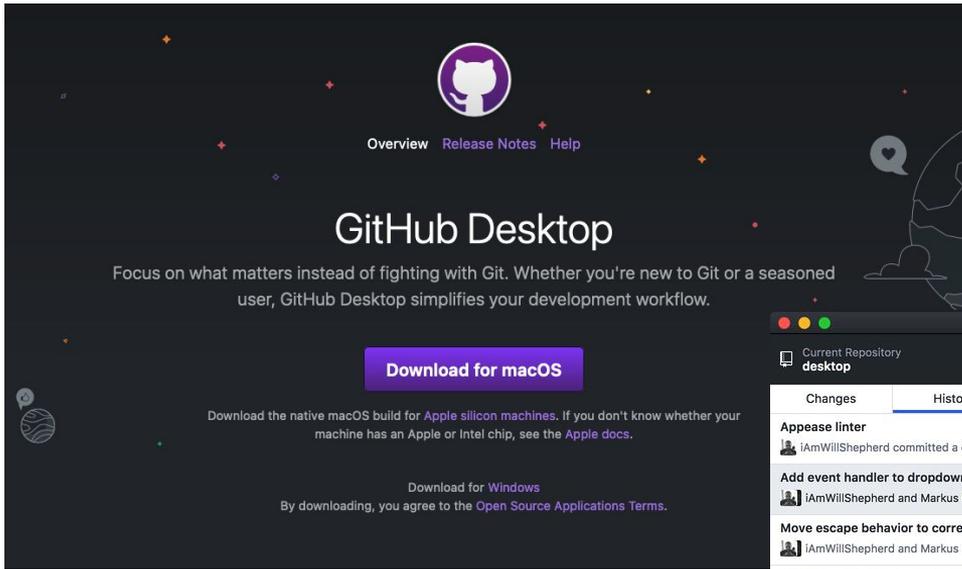
replace working copy with latest from HEAD `git checkout -- <filename>`



Tip

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

https://rogerdudler.github.io/git-guide/files/git_cheat_sheet.pdf



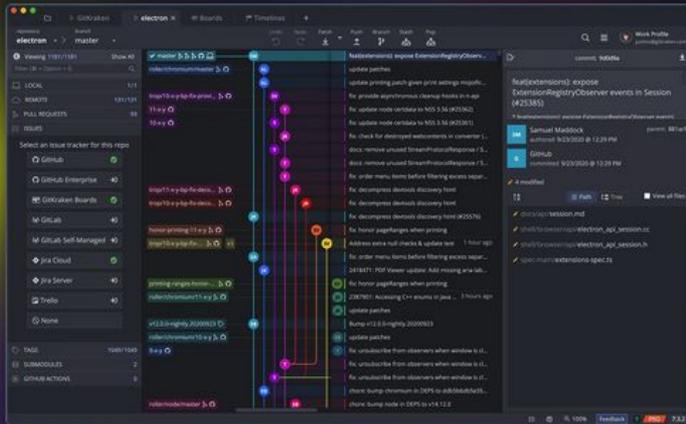
Changes	History	Diff
Add event handler to dropdown component iAmWillShepherd and Markus Olsson committed - c79e71c 1 changed file		
Co-Authored-By: Markus Olsson <nrik@users.noreply.github.com>		
app/src/ui/t.../dropdown.tsx		
		@@ -145,6 +145,10 @@ export class ToolbarDropdown extends React.Component<
	145	145 this.state = { clientRect: null }
	146	146 }
	147	147 }
	148	148 + private get isOpen() {
	149	149 + return this.props.dropdownState === 'open'
	150	150 + }
	151	151 + }
	148	152 private dropdownIcon(state: DropdownState): OcticonSym
	149	153 bol {
	150	154 // @TODO: Remake triangle octicon in a 12px version,
		155 // right now it's scaled badly on normal dpi monitor
		156 s.
		@@ -249,6 +253,13 @@ export class ToolbarDropdown extends
		React.Component<
	249	253 }
	250	254 }
	251	255 }
	256	256 + private onFoldoutKeyDown = (event:
		257 React.KeyboardEvent<HTMLInputElement>) => {
	257	257 + if (!event.defaultPrevented && this.isOpen &&
		258 event.key === 'Escape') {
		259 + event.preventDefault()

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



GitKraken

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>