

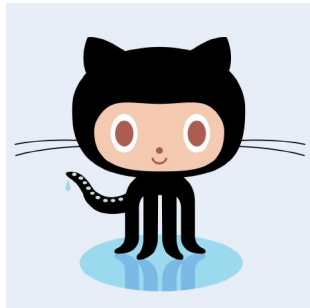
# Intro to GitHub

Collaborating with code

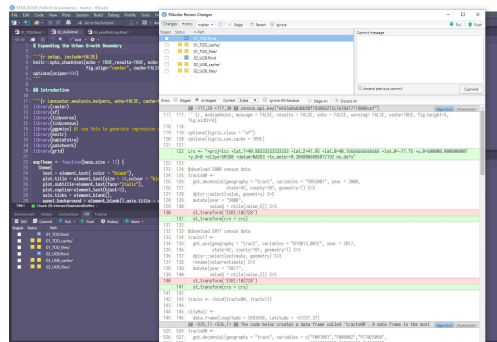
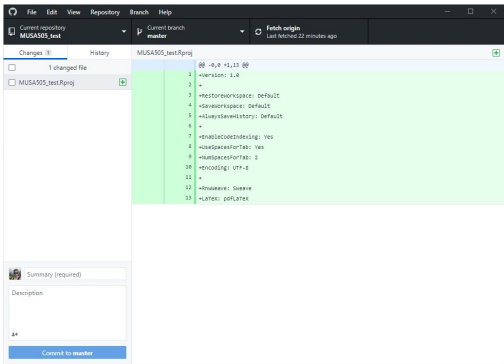




# What is GitHub?



- [www.github.com](https://www.github.com)
- text/code source control
- Uses the 'git' protocol to version code
- Social media like interaction around code
- Collaboration tools for working together on code
- Advanced tools for code integration and deployment





# Live view of Github Tools



# Git terminology - main vs. master

**cecilphillip**  
Personal settings

Profile

Account

Account security

Security log

Security & analysis

## Repository default branch

Choose the default branch for your new personal repositories. You might want to change the default name due to different workflows, or because your integrations still require “master” as the default branch name. You can always change the default branch name on individual repositories. [Learn more about default branches.](#)

## Repositories



# Git terminology

- Git - A command line program for versioning documents
- Repo - A repository where the code is kept, usually on GitHub in our case
- Fork - Copy a repo to your GitHub.com
- Clone - copy a repo from GitHub to your computer
- Pull - Sync new code/changes from the repo to your computer after you cloned a repo
- Commit - save the changes you made to your *local* git database
- Push - Send your new code/commits to the main repo
- Diff - A way of looking at files to see what has changed between them
- Branch - separate channel for working on code within a repo
- Pull Request - A way to offer your code to be added into another repo
- Merge - combining commits, branches, and pull requests into the main branch



# Walk-through for simple github project



# Prerequisites

1. An account on [www.github.com](https://www.github.com)
2. Download and install [Github Desktop](#)
3. From Github Desktop, install git.exe (see examples [here](#) and [here](#))
4. Have R and RStudio installed (directions on Piazza)
5. Configure RStudio to use git (see [here](#), specifically under Getting Started)





# Create a new repository on github.com


The screenshot shows the GitHub profile page for user 'mrecos'. The browser address bar shows 'github.com/mrecos'. The navigation bar includes links for Pull requests, Issues, Codespaces, Marketplace, and Explore. The user's profile section on the left features a custom avatar of a black cat-like creature and the name 'Matt Harris' with the handle '@mrecos'. Below the name is a bio: 'DCSA Data Science Lead @ AECOM', 'UPenn MUSA Instructor Anthropologist', 'Dad #stats, maps, viz, models, ML, Bayesian, fishing, and running.', and a link to 'Edit profile'. The main content area shows the 'README.md' file with the text 'Hi there 🐱' and a bio paragraph. A dropdown menu is open in the top right corner, with 'New repository' highlighted by a red rectangle. Other options in the menu are 'Import repository', 'New gist', 'New organization', and 'New project'. The 'Pinned' section at the bottom shows two repositories: 'klrfome' and 'CAA 2019 Raves CAR'.

github.com/mrecos

Search or jump to...

Pull requests Issues Codespaces Marketplace Explore

Overview Repositories 66 Projects Packages



**Matt Harris**  
mrecos

DCSA Data Science Lead @ AECOM  
UPenn MUSA Instructor Anthropologist  
Dad #stats, maps, viz, models, ML,  
Bayesian, fishing, and running.

Edit profile

mrecos / README.md [Send feedback](#) [Edit](#)

Hi there 🐱

My name is Matt and I write code to build tools and analysis that (hopefully) help others. I do this for work at a large engineering infrastructure company (AECOM), for students as an instructor in the PENN MUSA program, for NPOs at Mica Data Labs and along with UrbanSpatial, and for fun (when time allows).

Here are some ideas to get you started:

- 🔧 I'm currently working on CV19 related shiny apps, common data platforms, and the occasional ML pipeline. (mostly private repos)
- 📚 I'm currently learning shiny, shiny modules, and how much I don't know about JS
- 💬 Ask me about R or using Data Science in the Engineering & Construction Industry
- 📧 How to reach me: [matthew.d.harris@aecom.com](mailto:matthew.d.harris@aecom.com) or md\_harris on Twitter
- 🗣️ Pronouns: he/him, they/them

Pinned

[klrfome](#) [CAA 2019 Raves CAR](#)

Customize your pins

New repository  
Import repository  
New gist  
New organization  
New project



# Give the repo a name, desc, and README

[Pull requests](#) [Issues](#) [Codespaces](#) [Marketplace](#) [Explore](#)

## Create a new repository

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

Owner \*

 mrecos ▾

repository name

MY\_NEW\_REPO ✓

Great repository names are short and memorable. Need inspiration? How about solid-octo-dollop?

Description (optional)

GIVE A GOOD DESCRPTION

☒  **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.](#)

.gitignore template: **R** ▾

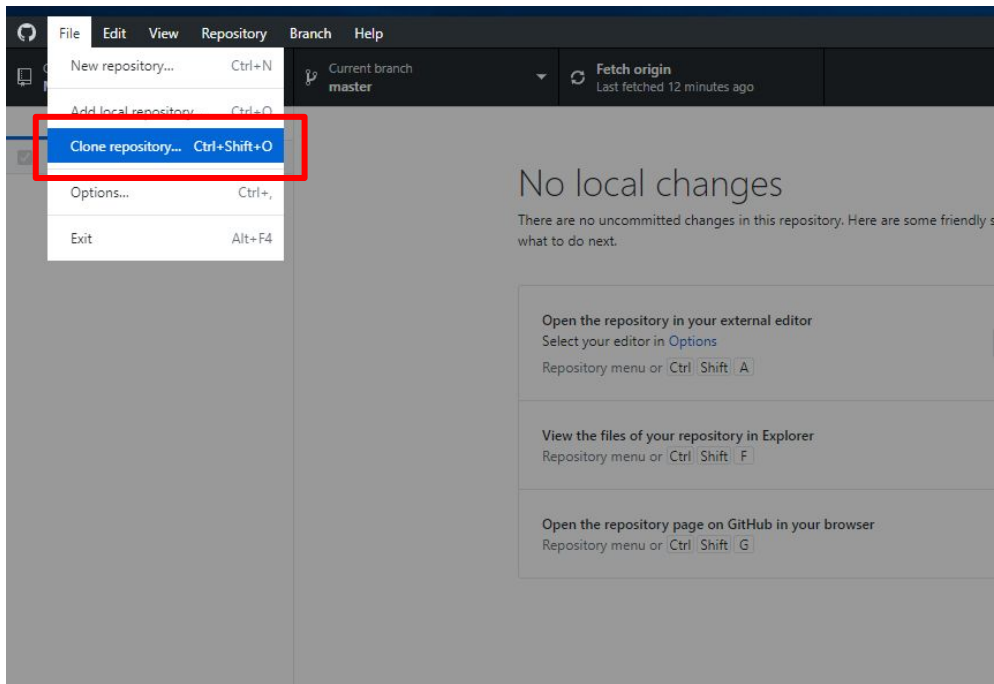
☐ **Choose a license**

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

# In GitHub Desktop, Clone you new repo



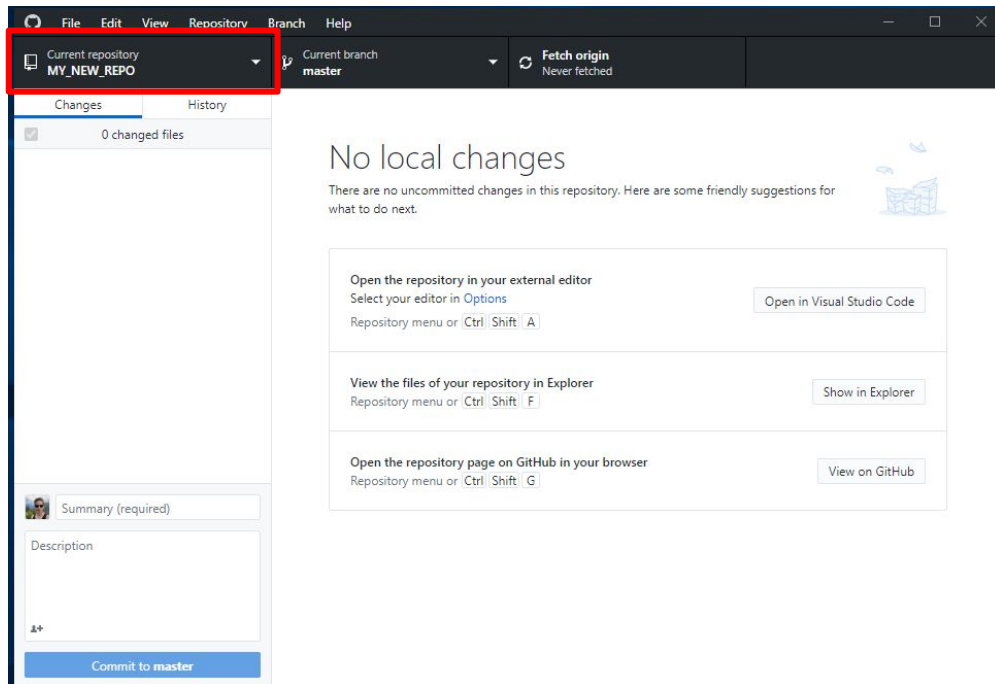
# Type in the Github.com repo as the username/reponame

Choose where to save on your computer. Remember this folder!

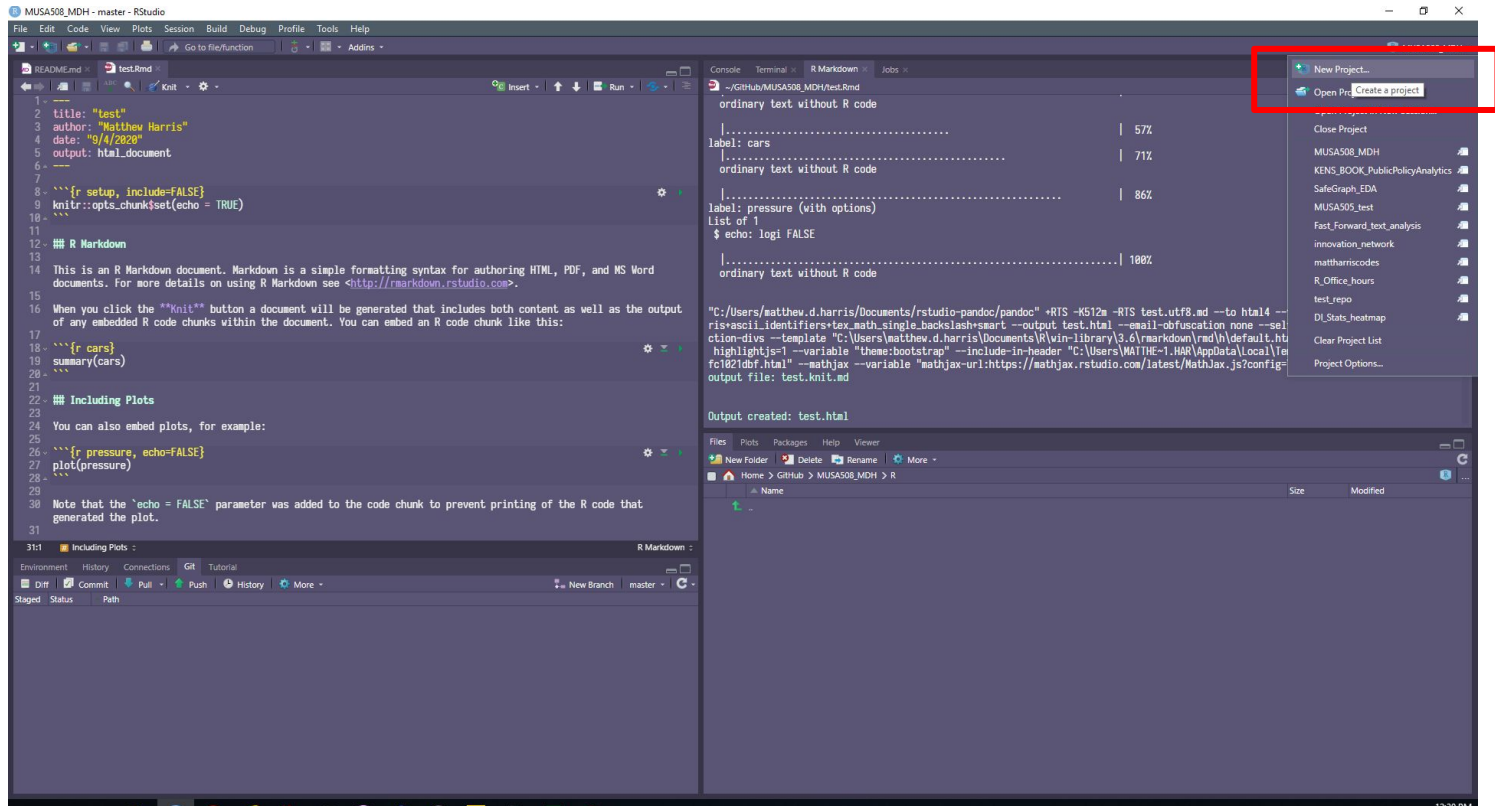
May have to hit 'refresh' and/or wait a few moments



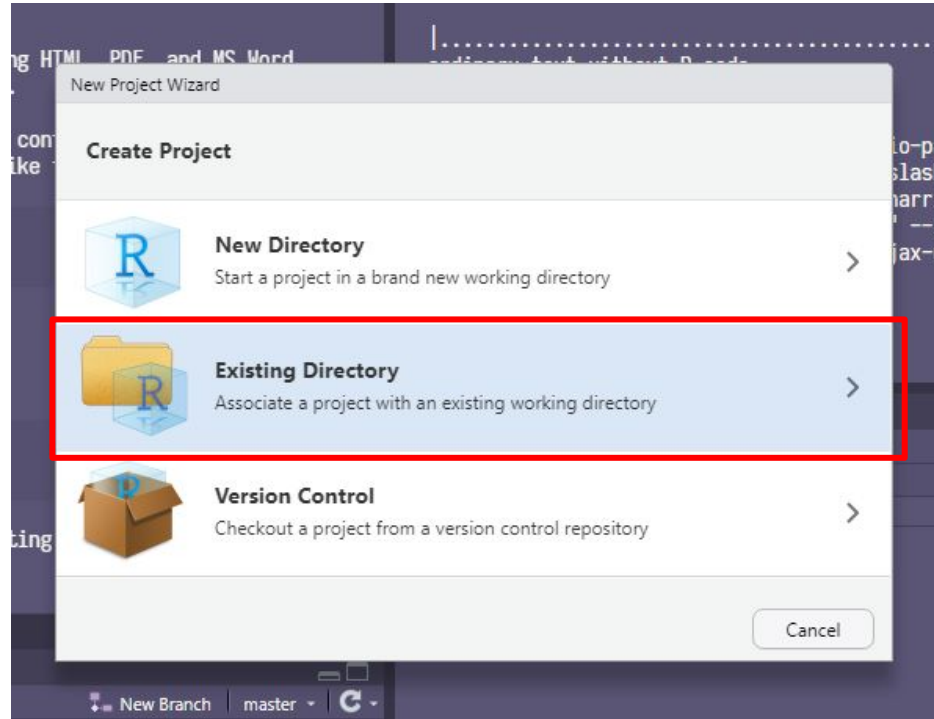
# If you see this with your repo name, it worked



# In RStudio, create a new project

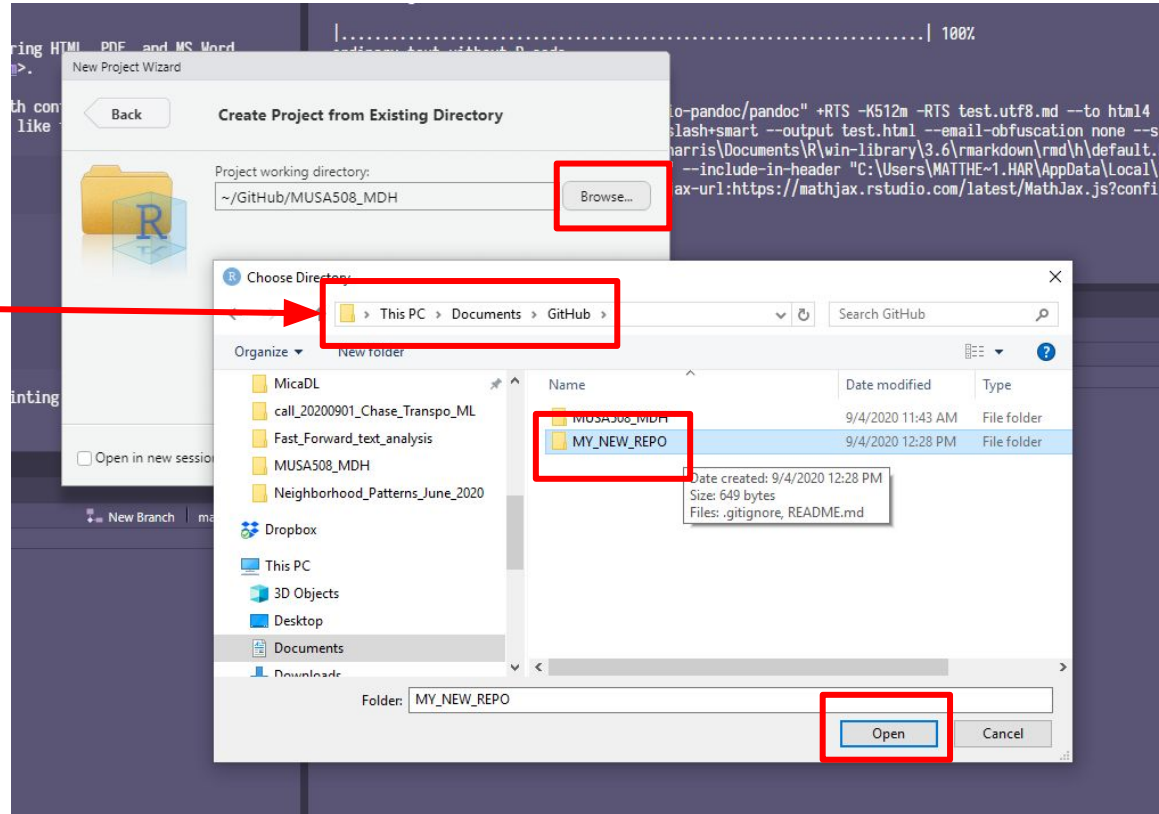


# Choose “Existing Directory” in RStudio



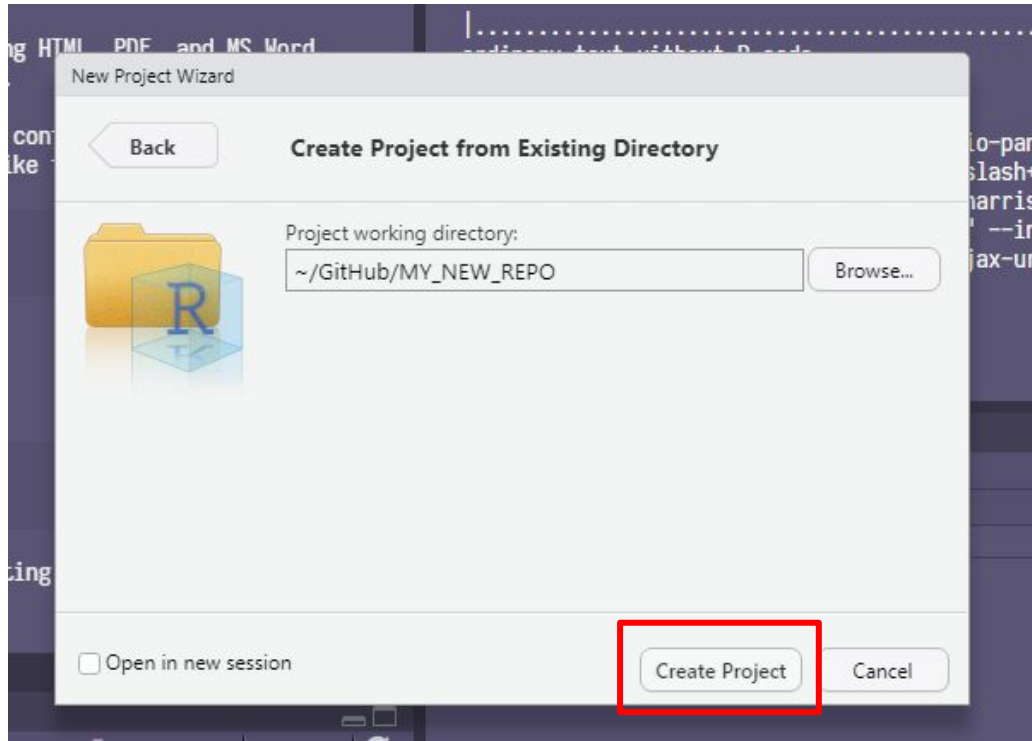
# Find directory where you cloned the repo to (from 4 slides ago)

You were told to remember this folder earlier. Try to keep all your cloned repos in a standard place on your computer

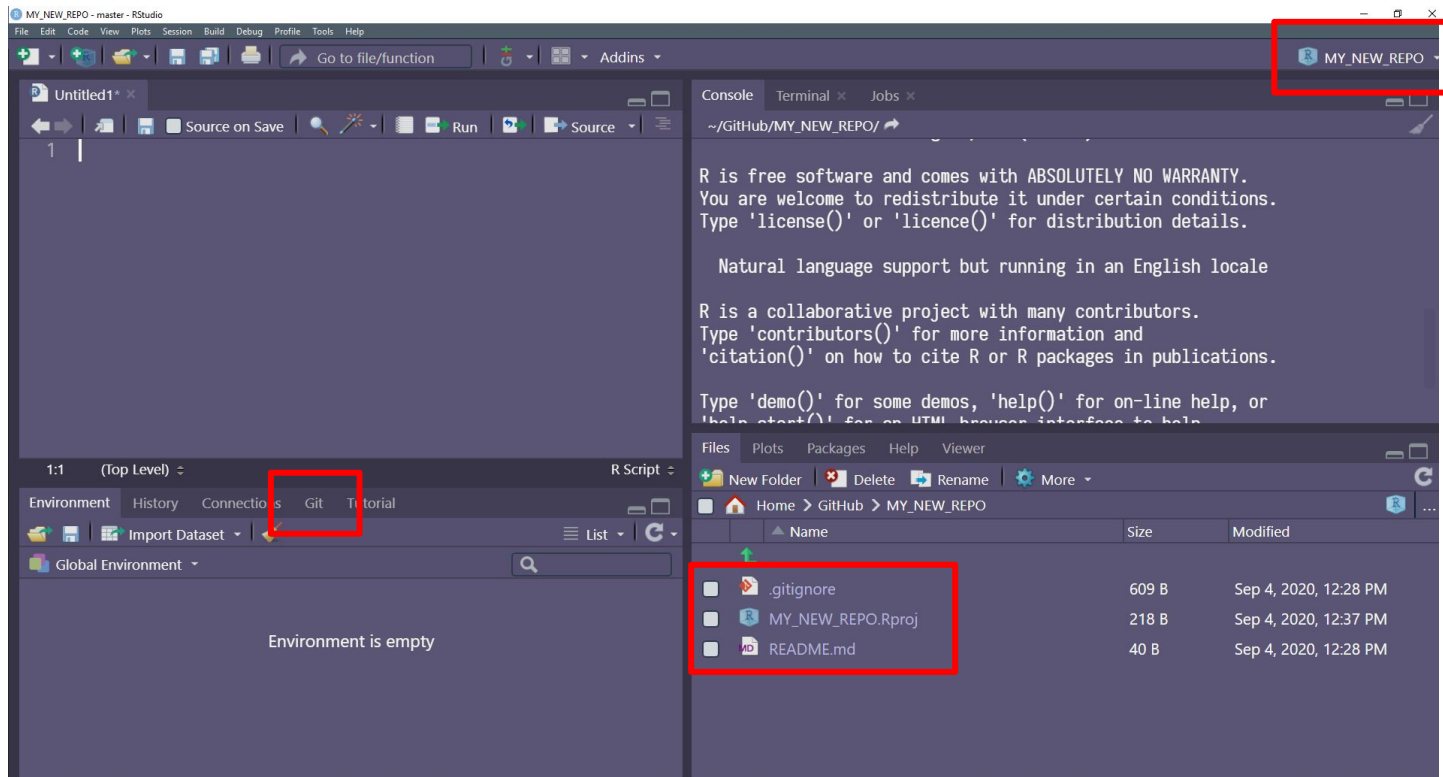




# Click “Create Project”

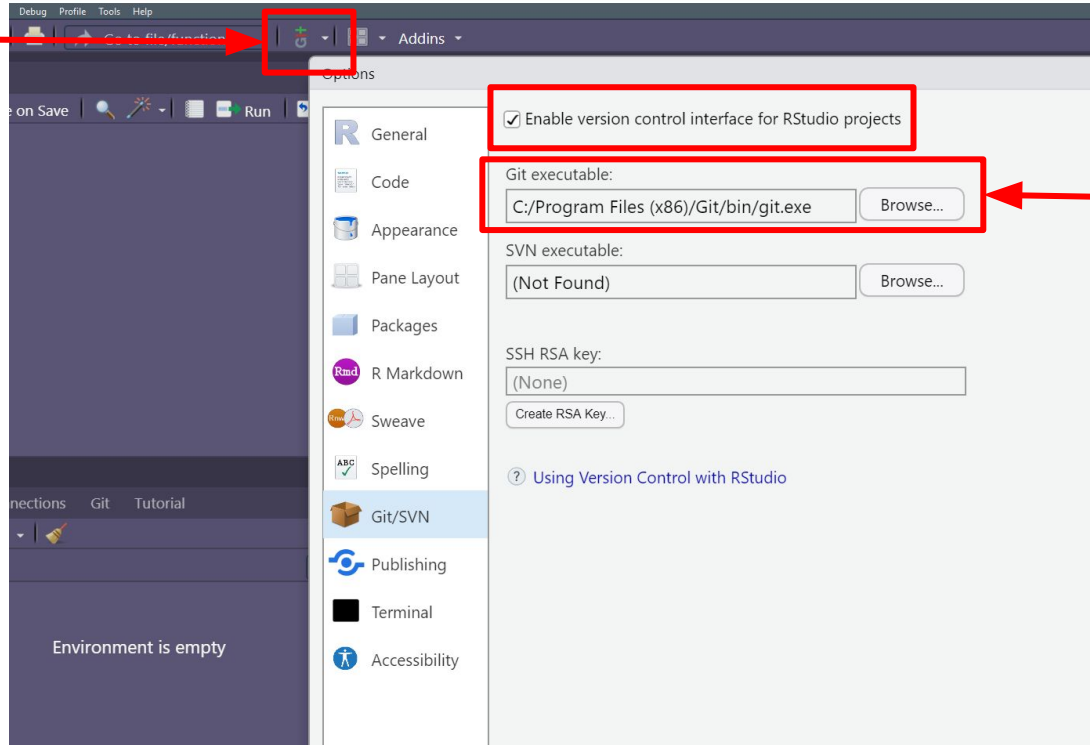


# If you see your repo is this, it worked...



# If not, make sure Tool >> Global Settings knows where to find git

This icon will be there when things are connected correctly



This location is where you originally installed git.exe either before or after GitHub desktop. See "Prerequisites" slide

# Make edits to README.md (or code) and save

Type in  
something  
new

The screenshot shows the RStudio IDE interface. The top-left pane displays the `README.md` file with the following content:

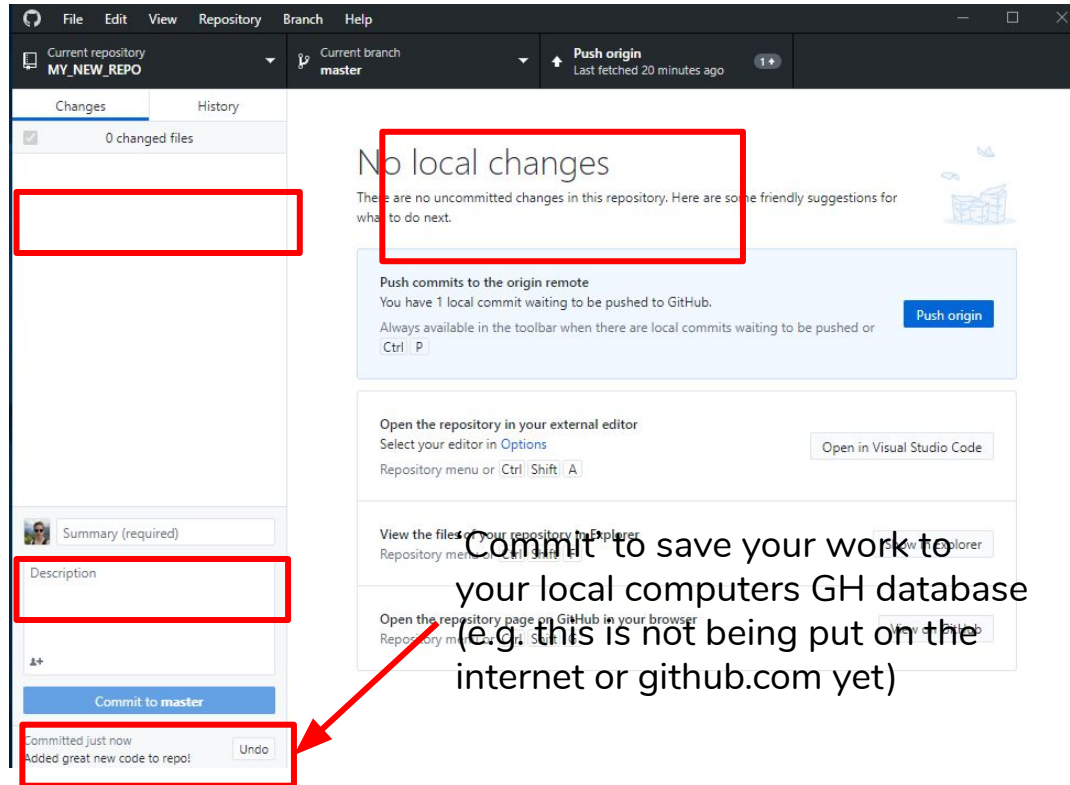
```
1 # MY_NEW_REPO
2 GIVE A GOOD DESCRIPTION
3
4 MY NEW CODE IS GREAT!!!!|
```

The text `MY NEW CODE IS GREAT!!!!|` is highlighted with a red box. The bottom-left pane shows the Git tab with the file `README.md` listed under the Staged section, also highlighted with a red box. The bottom-right pane shows the Files tab with the file `README.md` listed, highlighted with a red box. A red arrow points from the text 'Click this to open in editing (upper left)' to the `README.md` file in the Files tab.

Click this to  
open in  
editing  
(upper left)

Once edits  
are saved, the  
file will pop  
here in the Git  
tab

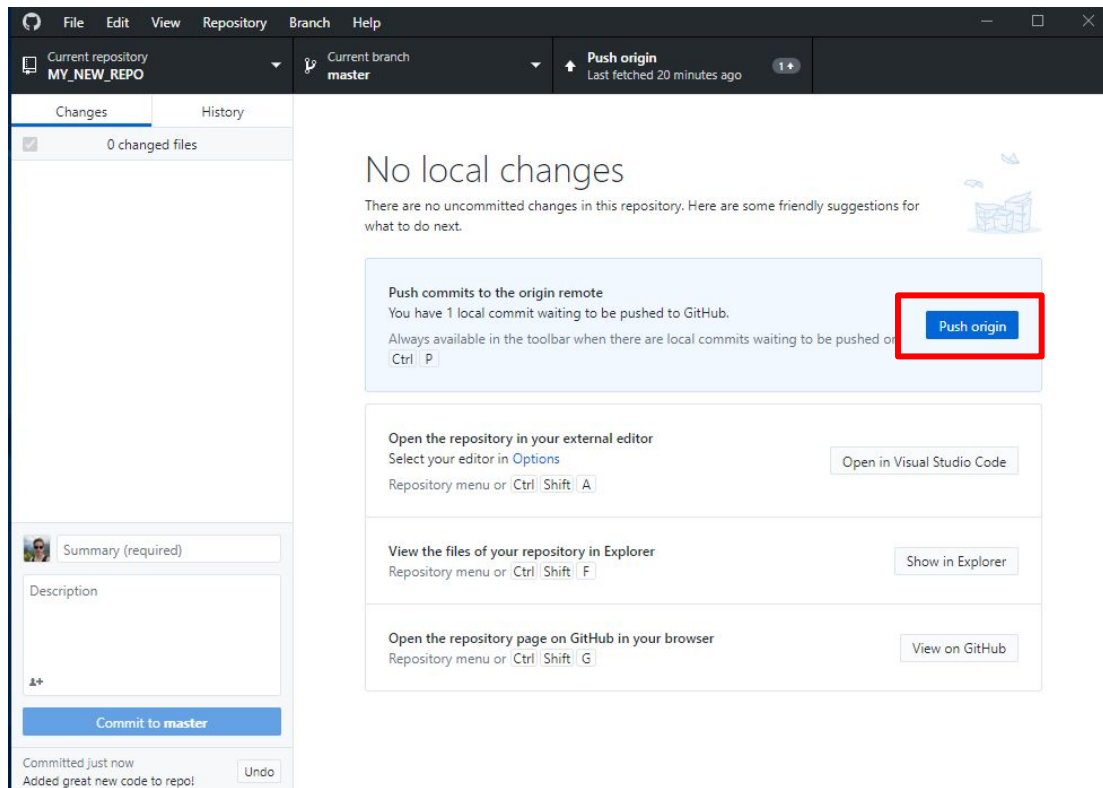
# Edits show up as a “Diff” in GH Desktop, time to ‘Commit’



Add a message explaining what you did

Commit to save your work to your local computers GH database (e.g. this is not being put on the internet or github.com yet)

# Push Commits to main repo on Github.com



‘Push’ sends all of your local commits (your files version history) to the main repository on github.com

# Github.com repo now shows changes you made in Rstudio

The screenshot shows the GitHub interface for a repository named 'MY\_NEW\_REPO' by user 'mrecos'. The top navigation bar includes links for Pull requests, Issues, Codespaces, Marketplace, and Explore. Below the repository name, there are tabs for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The main content area displays the commit history for the 'master' branch. A red box highlights the commit entry for '4e12ae8 4 minutes ago' with '2 commits'. Below this, the README file is shown, and a red box highlights the commit message 'MY NEW CODE IS GREAT!!!!'.

File	Commit Message	Time
.gitignore	Initial commit	38 minutes ago
MY_NEW_REPO.Rproj	Added great new code to repo!	4 minutes ago
README.md	Added great new code to repo!	4 minutes ago

README.md

MY\_NEW\_REPO

GIVE A GOOD DESCRIPTION

MY NEW CODE IS GREAT!!!!

Here is our code edits

Here is the commit history to explore

# Follow that cycle and develop your code repo!

