Test Drive RStudio and GitHub

Step 1: Make a new repo on GitHub

* Go to [GitHub.com](https://www.github.com/) and login.
* Click the green “New Repository” button
  + Repository name: myrepo
  + Public
  + Check **Initialize this repository with a README**
  + Click the green “Create repository” button
* Copy the HTTPS clone URL to your clipboard via the green “Clone or Download” button.

Step 2: Clone the new GitHub repository to your computer via RStudio

In RStudio, start a new Project:

* *File > New Project > Version Control > Git*. In the “repository URL” paste the URL of your new GitHub repository. It will be something like https://github.com/bensoltoff/myrepo.git.
  + Do you NOT see an option to get the Project from Version Control? [Make sure RStudio can find Git.](https://cfss.uchicago.edu/setup/git-with-rstudio/#make-sure-rstudio-can-find-git)
* Decide where to store the local directory for the Project. Don’t scatter everything around your computer - have a central location, or some meaningful structure. For repositories you create in this course, you can setup a /cfss directory and clone all your repos there.
* I suggest you check “Open in new session”, as that’s what you’ll usually do in real life.
* Click “Create Project” to create a new sub-directory, which will be all of these things:
  + a directory on your computer
  + a Git repository, linked to a remote GitHub repository \*an RStudio Project
* **Whenever possible, this will be the preferred route for setting up your R projects.**

This should download the README.md file that we created on GitHub in the previous step. Look in RStudio’s file browser pane for the README.md file.

Why setup your R projects this way? There’s a big advantage to the “Github first, then RStudio”” workflow: the remote GitHub repo is now the “upstream” remote for your local repo. In essence, you are already setup to push and pull commits to GitHub. There is no need to set anything else up through the shell or a Git client.

Step 2 plan B: Connect a local RStudio project to a GitHub repo

Sometimes you cannot always setup the GitHub repo first, or you already have an RStudio project you need to connect to a GitHub repo. This workflow is the reverse of the above and cannot be executed from within RStudio.

* Create a new RStudio project: *File > New Project > New Directory > Empty Project*.
* Directory name: myrepo (or whatever you named the GitHub repo)
* Decide where to store the local directory for the Project.
* YES check “Create a git repository”.
  + Do you NOT see an option to get the Project from Version Control? [Make sure RStudio can find Git.](https://cfss.uchicago.edu/setup/git-with-rstudio/#make-sure-rstudio-can-find-git)
* I suggest you check “Open in new session”, as that’s what you’ll usually do in real life.
* Click “Create Project” to create a new sub-directory, which will be all of these things:
  + a directory on your computer
  + a Git repository, –linked to a remote GitHub repository– no, this isn’t automatic. We still need to link it up \*an RStudio Project
* Initiate the “upstream” or “tracking” relationship by adding a remote. Go to *Tools > Shell* and do this, substituting the HTTPS URL for your GitHub repo.

git remote add origin https://github.com/bensoltoff/myrepo.git

* Download all the files from the online GitHub repository (possibly just README.md, at this point).

git pull origin master

* Cement the tracking relationship between your GitHub repository and the local repo by pushing and setting the “upstream” remote:

git push -u origin master

* It is possible you will be challenged for username and password here; if so, you will want to [setup credential storing on your machine](https://cfss.uchicago.edu/setup/git-cache-credentials/).

Step 3: Make local changes, save, commit

**Do this every time you finish a valuable chunk of work, probably many times a day.**

* From RStudio, modify the README.md file by adding the line “This is a line from RStudio”. Save your changes.
* Commit these changes to your local repo. How?
* From RStudio:
  + Click the “Git” tab in the upper right pane.
  + Check the “Staged” box for any files whose existence or modifications you want to commit.
  + To see more detail on what’s changed in file since the last commit, click on “Diff” for a Git pop-up.
  + If you’re not already in the Git pop-up, click “Commit”
  + Type a message in “Commit message”. This should describe for a human what modifications you’ve made to the staged files.
  + Click “Commit”.

Step 4: Push your local changes online to GitHub

**Do this a few times a day, but possibly less often than you commit.**

You have new work in your local Git repository, but the changes are not online yet.

Before you *push* your changes to GitHub, first you should *pull* from GitHub. Why? If you make changes to the repo in the browser or from another machine or (one day) a collaborator has pushed, you will be happier if you pull those changes in before you attempt to push.

* Click the blue “Pull” button in the “Git” tab in RStudio. I doubt anything will happen, i.e. you’ll get the message “Already up-to-date”. This is just to establish a habit.
* Now click the green “Push” button to send your local changes to GitHub. You should see some message along these lines.
* [master dc671f0] blah
* 3 files changed, 22 insertions(+)
* **create** **mode** 100644 .gitignore
* **create** **mode** 100644 myrepo.Rproj

The end

Now just rinse and repeat. Do work somewhere. Commit it. Push it or pull it depending on where you did it, but get local and remote “synced up”.