

Version control with git

Objective

- Understand the concept and motivation of version control
- Set up git on their machine (email address linked to their GH account; `--global` config)
- Understand that repos == folders == `.Rproj`.
- Initialize a git repo associated with an RStudio project called `pilot-analyses`.
- Understand the modify-add-commit progression. Apply this by making modifications to some R code and then committing it to the `pilot-analyses` repo (git commands: `status`, `log`, `diff`, `add`, `commit`)
- Use `.gitignore` to selectively exclude files from git.

Lesson outline

- Review of last week
 - Ask folks to share the diagram of their file system
 - Warm-up with review question from the slide deck
- Slides/lecture: Intro to version control with git
 - What is version control?
 - Why should I learn this? When will I need it?
- Live coding: git config
 - SW Carpentry Git lesson 2 <https://swcarpentry.github.io/git-novice/02-setup>
 - Setting up git using git config
 - Make sure participants use their GH email/intended GH email
 - `git verb options`
 - `git config --global core.editor "vim"`
 - `git verb --help`
- Live coding: git init
 - SW Carpentry Git lesson 3 <https://swcarpentry.github.io/git-novice/03-create.html>
 - Introduce the concept of a repository
 - Go over 3 ways to init a git repo and when to use each
 - Break to all create a project + repo called `pilot-analyses`
- Live coding: git status
 - Use git status to check that git init worked
 - Talk about git status as a bridge to tracking changes.
- Live coding: Tracking changes
 - SW Carpentry Git lesson 4 <https://swcarpentry.github.io/git-novice/04-changes>
 - Visualize in slides
 - Create a blank R file (using RStudio point and click)
 - Make comments/pseudocode changes.

- git status
- Go through git add/commit cycle
- Repeat with additional changes, use git diff
- Repeat with multiple files
- Undo saved changes to a file using git restore
- Use git reset HEAD~ to undo the git add and git commit commands
- Live coding: .gitignore
 - SW Carpentry Git lesson 6 <https://swcarpentry.github.io/git-novice/06-ignore>
 - .gitignore:
 - DS_Store
 - Create a file and then ignore it.
- (Time permitting): SW Carpentry Git lesson 5
 - <https://swcarpentry.github.io/git-novice/05-history>
 - Navigating git history
- Homework:
 - Create a GitHub account if you don't have one.
 - (Optional) identify an existing folder and turn it into a repository.

Installation & materials

1. Slides
2. Software Carpentry Version Control with Git episode #2
3. Software Carpentry Version Control with Git episode #3
4. Software Carpentry Version Control with Git episode #4
5. Software Carpentry Version Control with Git episode #6
6. (optional) Software Carpentry Version Control with Git episode #5