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 =can= .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 6https://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