Version Control: Git and GitHub

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Introduction to Programming for Public Policy

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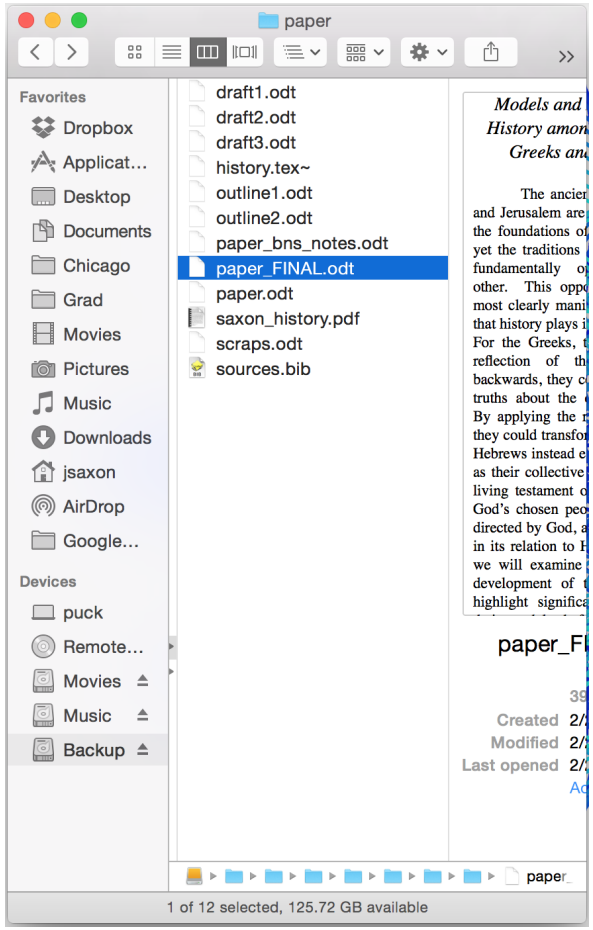
What is version control? Why use it?

- Perhaps a familiar story, for paper drafts. $\Longrightarrow$
- What if several people need to be able to edit simultaneously.
- What if there are many different files that depend on eachother being at a specific version, all of which may be changed?

Version Control Systems maintain a history and facilitate collaborative editing.

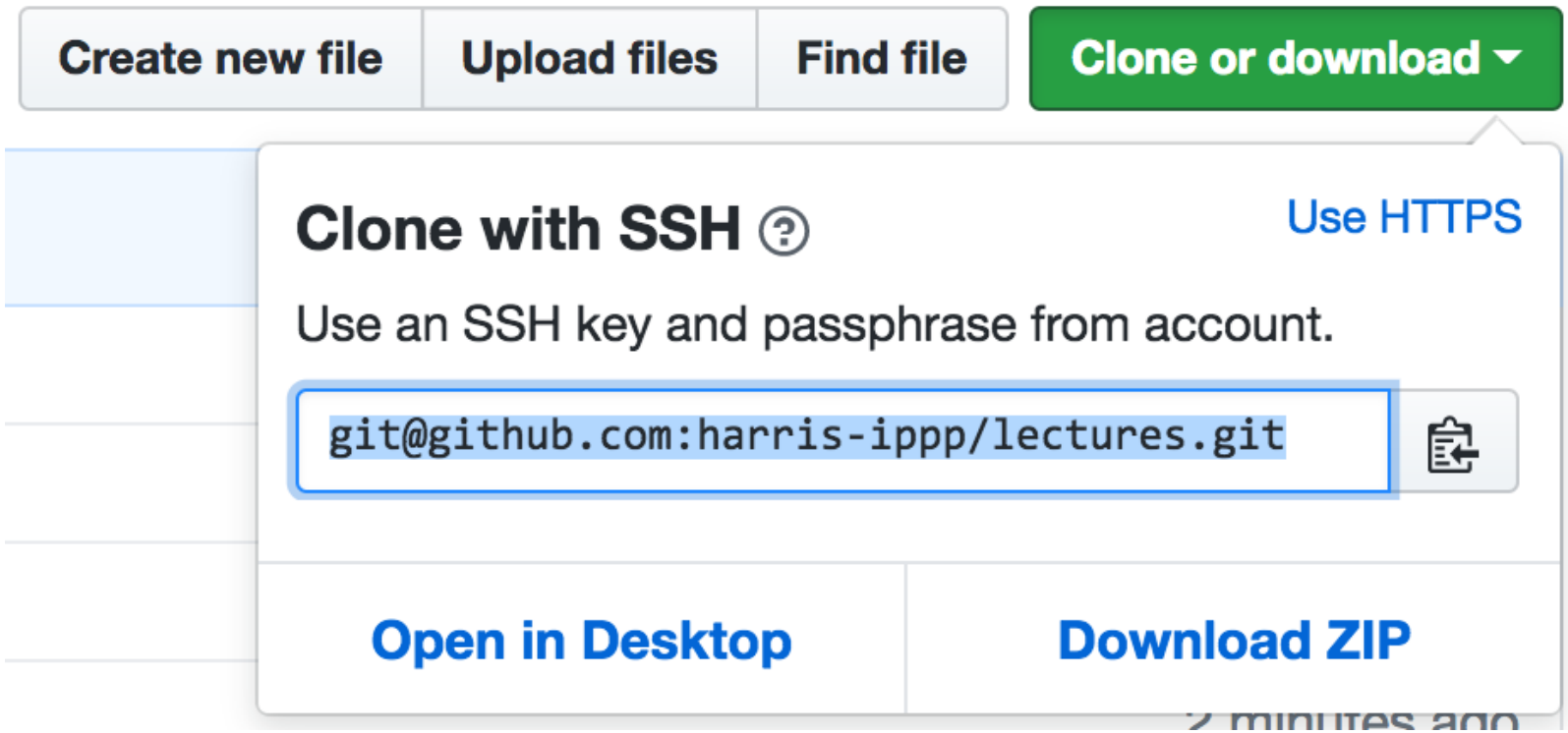


What is git? GitHub?

- Git is the modern VCS, designed by Linus Torvalds (creator of Linux).
- Git maintains a history of meaningful 'commits.'
  - It is tremendously flexible ('branches').
- Git is distributed: everyone has a copy of the entire history.
- However, it is often useful to maintain a master copy on a server where anyone can access it or 'push' their changes: GitHub.
- GitHub is a nice **server** for hosting repositories.

Field Trip!

github.com/harris-ippp/lectures



Git Commands

You'll use these regularly:

- **git clone**: download repository
- **git init**: create a repository in this directory
- **git add**: add a file to 'staging' area
- **git status**: view status of all files
- **git commit**: commit staged files to history
- **git push**: upload all changes to a remote server
- **git log**: show the history

A Standard Sequence

Do in Terminal.

Start with a single user and a single thread of edits:

1. Download your homework skeleton:
   - `git clone git@github.com:harris-ippp/01-welcome.git`
2. Make your edits with Atom or vim.
3. Add files to the 'staging' area, and commit them; check the status and log to see that it worked:
   - `git add q1.py`
   - `git status # is everything there?`
   - `git commit -m "started question 1"`
   - `git log # now all part of the commit history?`
4. Upload it to the server:
   - `git push`

Repeat steps 2-4 as you work.

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Repeat steps 2-4 as you work. Do this now with a test repo.

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A Standard Sequence: Atom

The (A) staging, (B) commit, and (C) push can all be done from Atom!