Git
(and some other stuff)
Recapping last week

Any lingering administrative issues?
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The readings
- Biculturalism
- Command-line "bullshittery"
What's version control?
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Why is it important?
And how might we build a version control system?
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Why is it important?

And how might we build a version control system?

Why doesn't everyone use version control for everything?
Git-ing started (I'm so sorry)

- first — init
- making commits — add, commit
- viewing work/history — status, log
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- first — init
- making commits — add, commit
- viewing work/history — status, log

Let's peek under the hood

- History is a linked list
- What's master, HEAD?
- Where's the old versions?
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Let's peek under the hood

- History is a linked list
- What's master, HEAD?
- Where's the old versions?

I'm lazy, let's make git st == git status

- git config --global --edit
  - (Fancy way of saying editor ~/.gitconfig)
  - (Fancy way of saying editor /home/ppannuto/.gitconfig)
  - (Fancy way of saying [nano/vim/emacs/...] /home/ppannuto/.gitconfig)

[alias]
st = status
Using git locally

Local Machine

- Staging Area
  - `git add my_file`
  - `git reset my_file`
  - `git reset --soft HEAD`
  - `git commit`

- Working Directory
  - `git commit my_file`
  - `git reset HEAD`

- Repository

`git add my_file`
`git reset my_file`
`git commit`
Collaborating with git

First, we have to talk just a little about branches
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Why is git cool?

Let's debug a real-world problem

**Phony** is a *ruby* library for pretty-printing phone numbers. It's used by a bunch of websites (AirBnB, ZenDesk, etc)

1. *git clone https://github.com/floere/phony*

```
# US phone number
ruby -e 'require "./lib/phony"' -e 'puts Phony.format("17345551212")'
+ 1 (734) 555-1212

# French phone number
ruby -e 'require "./lib/phony"' -e 'puts Phony.format("33123456789")'
+33 1 23 45 67 89

# Emergency phone number in the UK
ruby -e 'require "./lib/phony"' -e 'puts Phony.format("999")'
```

ruby -e 'require "./lib/phony"' -e 'puts Phony.format("999")'

- Go back in time to when you know it worked
  - `git checkout v1.9.0`
Go back in time to when you know it worked
  
  - `git checkout v1.9.0`

Search history for the problem
ruby -e 'require "./lib/phony"' -e 'puts Phony.format("999")'

- Go back in time to when you know it worked
  - `git checkout v1.9.0`
- Search history for the problem
  - The `git bisect` command will help keep track of progress
    - `git bisect start`
    - `git bisect good`
    - `git checkout master`
    - `git describe`
    - `git bisect bad`
    - (magic)
    - `git describe`
ruby -e 'require "./lib/phony"' -e 'puts Phony.format("999")'

- Go back in time to when you know it worked
  - git checkout v1.9.0
- Search history for the problem
  - The `git bisect` command will help keep track of progress
    - git bisect start
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- But I'm still lazy
Go back in time to when you know it worked

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But I'm still lazy

- `git bisect run ruby -e 'require "/lib/phony"' -e 'puts Phony.format("999")'`
ruby -e 'require "./lib/phony"' -e 'puts Phony.format("999")'

- Go back in time to when you know it worked
  - `git checkout v1.9.0`
- Search history for the problem
  - The `git bisect` command will help keep track of progress
    - `git bisect start`
    - `git bisect good`
    - `git checkout master`
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    - `git bisect bad`
    - (magic)
    - `git describe`
- But I'm *still* lazy
  - `git bisect run ruby -e 'require "./lib/phony"' -e 'puts Phony.normalize("+999")'`
- So what changed?
  - `git log -p` — or — `github.com/floere/phony/commit/9b4234....`
  - `https://github.com/floere/phony/issues/219`
Closing remarks

You must use git for something non-trivial this term

- You *should* use version control for all your class projects
  - And I don’t mean folder-copying
- Not in any programming classes?
  - Try using it for other homework
- Deadline for this is Week 5 — Git II (Feb 03)