Lecture 10
Dumpster Diving in Git: Reflogs

Sign in on the attendance sheet!

How to Undo Things

- Accidental Merge

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git merge feature1
Updating 1a843dc..f6e2f63
Fast-forward
 test | 0
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 test

Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git reset --hard HEAD@{1}
HEAD is now at 1a843dc Fixed Date time picker always displaying 12AM (#811)
```

How to Undo Things

- Fix messed up master

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working directory clean

Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git reset --hard origin/master
HEAD is now at 1a843dc Fixed Date time picker always displaying 12AM (#811)
```

How to Undo Things

- Made a commit on the wrong branch (master instead of my-feature)

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git reset --soft HEAD~

Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git status
On branch master
Your branch is up-to-date with 'origin/master'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   test


Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git stash
Saved working directory and index state WIP on master: 1a843dc Fixed Date time p
er always displaying 12AM (#811)
HEAD is now at 1a843dc Fixed Date time picker always displaying 12AM (#811)

Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git checkout my-feature
Switched to branch 'my-feature'

Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git stash pop
On branch my-feature
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   test

Dropped refs/stash@{0} (a406da3872234d29efd050a3a58d3874537f2d6e)

Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git commit -m "Add test file"
[my-feature dbf3045] Add test file
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 test
```

Reflogs

- An ordered list of all of the changes to branch tips (and other references) in the **local** repository.

- Also try `git log -g`

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (master)
$ git reflog
1a843dc HEAD@{0}: checkout: moving from my-feature to master
30384d8 HEAD@{1}: commit: Add test file
1a843dc HEAD@{2}: checkout: moving from master to my-feature
1a843dc HEAD@{3}: clone: from https://github.com/autolab/Autolab.git
```

Using The Reflog to Recover History


```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git log --pretty --oneline
30384d8 Add test file
1a843dc Fixed Date time picker always displaying 12AM (#811)
614f928 Patches for release v2.0.3 (#806)
cd65795 Hide custom submission form edit (#803)
834520d Autolab 2.0.1 Release (#782)
```

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git reset --hard HEAD@{1}
HEAD is now at 1a843dc Fixed Date time picker always displaying 12AM (#811)
```

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git log --pretty --oneline
1a843dc Fixed Date time picker always displaying 12AM (#811)
614f928 Patches for release v2.0.3 (#806)
cd65795 Hide custom submission form edit (#803)
```

Using The Reflog to Recover History

- The commit we made is now dangling

Using The Reflog to Recover History

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git reflog
1a843dc HEAD@{0}: reset: moving to HEAD@{1}
30384d8 HEAD@{1}: checkout: moving from master to my-feature
1a843dc HEAD@{2}: checkout: moving from my-feature to master
30384d8 HEAD@{3}: commit: Add test file
1a843dc HEAD@{4}: checkout: moving from master to my-feature
1a843dc HEAD@{5}: clone: from https://github.com/autolab/Autolab.git
```

Git Fsck

- What if the reflog is deleted or garbage collected?
- Stashes that got popped off with `git stash pop` or `git stash drop` appear here

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git fsck --no-reflogs
Checking object directories: 100% (256/256), done.
Checking objects: 100% (10997/10997), done.
dangling commit a406da3872234d29efd050a3a58d3874537f2d6e
dangling commit 0eea0c226eb9b992d9defce151e3b8f8eb400c36
dangling commit dbf3045dd532fa533e35f20f710e68fa2cfbcc42
```

Tags

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git tag
2.0.4
v1.0.0
v1.0.1
v1.0.2
v1.0.3
v1.0.4
v1.0.5
v1.1.0
v1.1.1
v1.2.0
v1.3.0
v1.4.0
v1.4.1
v1.5.0
v1.5.1
v1.6.0
```

Search for a Specific Tag

```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git tag -l "v1.0.*"
v1.0.0
v1.0.1
v1.0.2
v1.0.3
v1.0.4
v1.0.5
```

Creating and Sharing Tags


```
Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git tag -a v98.174 -m "My test tag"

Aaron@HELIOS ~/Dropbox/Dropbox Documents/98174/Autolab (my-feature)
$ git show v98.174
tag v98.174
Tagger: Aaron Perley <aaron.perley@gmail.com>
Date:   Tue Apr 4 17:43:22 2017 -0400

My test tag

commit 1a843dce25680281c809f6b842aababc308db1a2
Author: Aatish Nayak <aatishn@andrew.cmu.edu>
Date:   Tue Mar 21 15:50:35 2017 -0400

    Fixed Date time picker always displaying 12AM (#811)

diff --git a/app/assets/javascripts/initialize_datetimepickers_js b/app/assets/
```

`git push origin mytag` to share