

# Week 6

# Announcements

- HW4, ADV4 due by 11:59 PM on Feb 17 (Monday)
- HW5, ADV5 due by 11:59 PM on **Feb 26 (Wednesday)**

# Lecture 6: git gud

"Boy I sure do love creating a merge commit every time I pull!"

# Overview

- Review
- Rewriting history
  - Fixing mistakes
  - Cleaning up
- Stashing
- Understanding remotes
- Workflows
  - Overview
  - Centralized workflow
  - Merge conflicts

# Review

- `git init`
- `git status`
- `git add`
- `git reset`
- `git checkout` (`git restore`)
- `git commit`
- `git status`
- `git remote`
- `git push`
- `git pull`
- `git branch`
- `git checkout` (`git switch`)

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If you force the remote branch to take on the rewritten history, it'll cause the other peoples' local branches to be incoherent

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- `HEAD~1` specifies that we want the HEAD to take on the state of the commit that is 1 before the HEAD; we could provide the commit's hash instead.
- `git reset` has three major modes in this application:
  - `--soft`: undoes the commit, leaves the Working Directory untouched, and leaves the changed files **staged**
  - `--mixed`: default, undoes the commit, leaves the Working Directory untouched, and leaves the changed files **unstaged**

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## Scenario: typo in commit message

- `git commit --amend` with no staged files will just have you edit the commit message

# Cleaning up

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- `git rebase -i <base tip>` is the form you most likely will use
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- Playng back commits on top of another branch (more on this later)

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- `git stash apply` will do the same thing as `pop` but without the automatic entry deletion: useful in case the `pop` fails/has issues
- `git stash drop` will then delete the item at the top of the stash's stack

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  - Maybe we have totally borked our local branch **master**: maybe its history has been destroyed by a rebase and we just want to go back to something sane
  - This does a hard reset for **master** using **origin/master**'s commit as the target state

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  - **git branch -u origin/issue149** will cause the current local branch to track **origin/issue149** (i.e. setting the upstream)

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- As the project continues, each person is pushing tiny incremental commits.

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  - Read more about Workflows in the [Atlassian tutorials](#)

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- Now the user should be able to **push** (if they can't due to some other speedy user, they simply just have to do another **pull**)

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  - `git pull --rebase origin dev` will perform a rebase of your new commit on top of the commits fetched from `origin` instead of a merge, avoiding the merge commit
  - Local branch `dev` will be fast forwarded to `origin/dev`, and your new commits will be put on top of `dev`'s new up to date spot
- Now the user should be able to `push` (if they can't due to some other speedy user, they simply just have to do another `pull`)
- As a result, we now have a relatively clean history with meaningful commits free of "*superfluous*" merge commits

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  - One option at this point is to have a person responsible for bringing feature commits into the main branch

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  - **git status** will tell you the appropriate command to run to continue

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Now go forth!

You are officially dangerous with Git :)

Questions?