

# git (in depth)

Danny McClanahan, 2016-11-01  
VandyApps Advanced Programming

# Recap: What is git?

- Git is a *vcs (version control system)*
  - Keeps track of code at any point in time
  - Records who made what change and when
  - Allows multiple timelines (branches)

# git terms and concepts

- *repository*
  - folder containing a *.git/* subdirectory which tracks changes to files within
- *staging area*
  - after changes made to files, they must be added to the staging area before they can be committed
- *commit*
  - a list of changes to files in the repository, along with the user who made the change and a timestamp
- *branch*
  - single timeline of changes from the initial commit
- *remote*
  - other repository located by url or file path

# common git operations

- git commands are in **bold**
- **add**
  - moves changes to “staging area”
- **commit**
  - takes changes in staging area and appends changes to timeline; clears staging area
- **push/pull**
  - if your timeline is strictly after a *remote*, **push** appends your commits to the *remote*
  - If a *remote* has changes strictly after yours, **pull** appends the *remote*’s changes to your timeline
- **clone/init**
  - both create new local repository
  - **clone** applies all commits from *remote* to your local repository

# example git workflow (clone)

- <https://github.com/VandyApps/intro-android>
  - we're going to download this repository, make some modifications, then push our changes
- **clone**
- edit
- **add**
- **commit**
- **push**
  - **pull** first!

# example git workflow (init)

- create new repository in existing folder with **init** and push to github
  - you would use this when starting a new project on github
- **init**
- edit
- **add**
- **commit**
- **push**
  - set upstream!

# Advanced: branching

- Working on two items at once
- Create branch for both
- Merge together at end!
  - Can have conflicts, but we won't discuss that here

***Questions?***