

Basic Idea of Version Control

- Centralization vs Decentralization

git

- distributed control
 - be free to commit and let merge solve problems
 - push and pull between users
 - all patches (commits) are identified by its hash code
 - in most cases people need a rendezvous point (e.g. github)
 - offline commit
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- Global setup
 - set up git
 - git config --global user.name "Jiwen Cai"
 - git config --global user.email jwcai@cs.ucla.edu
 - Clone a repository from remote
 - git clone git://github.com/goodcjh/cs35l.git
 - View change logs in a git repository
 - git log
 - View change logs in GUI (may not available for all systems)
 - gitk
 - View change logs for file with diffs
 - git log -p \$file
 - View changes to tracked files
 - git diff
 - git diff \$id1 \$id2
 - Find out who is responsible for a file (piece of code)
 - git blame \$file
 - View uncommitted changes
 - git status
 - Create a repository locally
 - git init
 - touch README
 - git add README
 - git commit -am'first commit'
 - Return to the last committed state
 - git reset --hard
 - Note: you cannot undo a hard reset, all changes will be lost
 - Move to a previous version
 - git checkout \$ID
 - Note: Like a "time machine"
 - Note: You can look around, make experimental changes and commit them, and you can discard any commits you make in this state without impacting any branches by performing another checkout.
 - List all branches
 - git branch
 - Switch to branch
 - git checkout \$BRANCHNAME
 - Merge with other branches or a commit
 - git merge \$BRANCHNAME
 - git merge \$ID

--Work with remote git server
git push
git pull
Note: We need to get access to a git server and configure remote server
Check this out:
<http://help.github.com/create-a-repo/>
--More reading
<http://www-cs-students.stanford.edu/~blynn/gitmagic/>
Focus on: push and pull, branch

SVN (aka subversion)

- centralized control
- one server, multiple users
- one chunk, multiple branches
- unique continuous version (revision) number
- commit to the server and update from the server
- need internet access to commit

--Work with remote svn server
svn checkout \$url
svn commit
svn update
--More reading
Command comparison between git and svn: <http://git.or.cz/course/svn.html>