Git 101

OR: GIT FOR GITS

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What is Git?

- VCS (Version Control Software)
  - CVS, Mercurial, Git
- Keep track of changes
- Revert back to old changes
- Keep multiple versions of a project
- Merge versions
- Synchronize projects between machines
- Keep your project “in the cloud”

History of Git

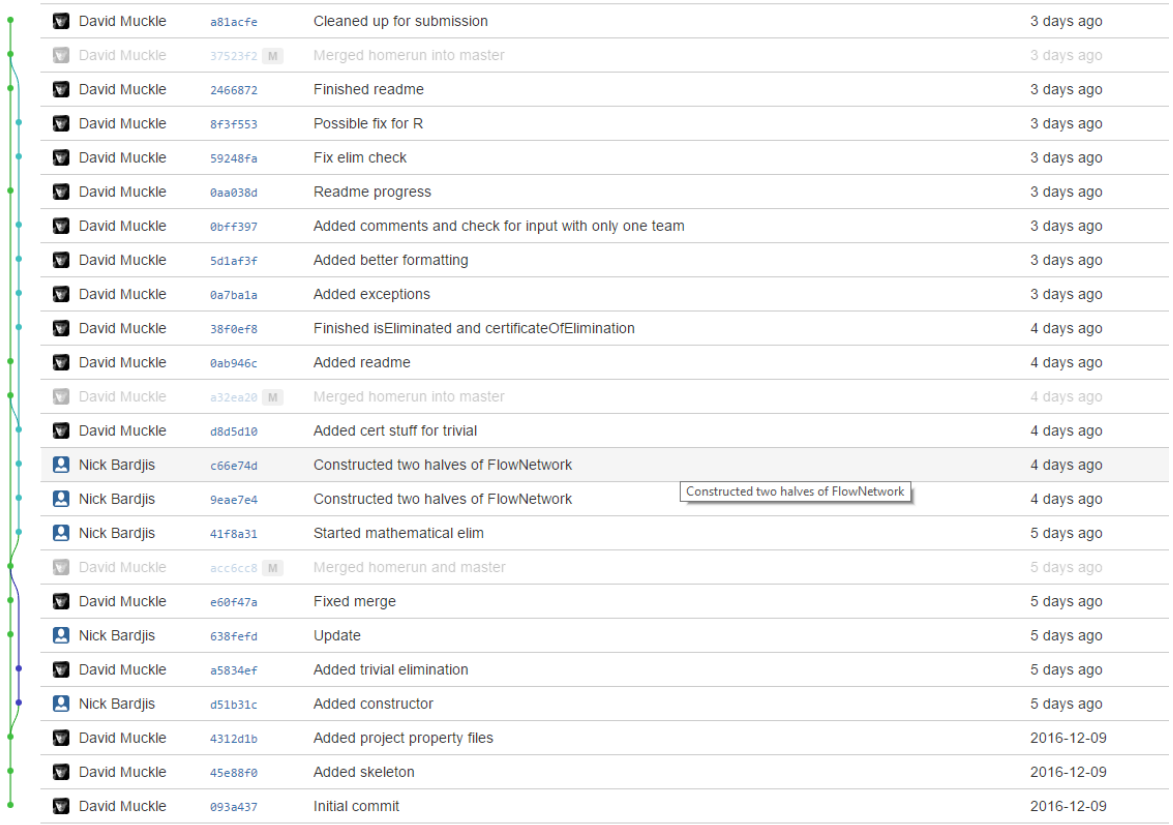
- Use in Linux development
  - Replacing BitKeeper
- Use online
  - GitHub, BitBucket

```
The name "git" was given by Linus Torvalds when he wrote the very
first version. He described the tool as "the stupid content tracker"
and the name as (depending on your way):

 - random three-letter combination that is pronounceable, and not
   actually used by any common UNIX command.  The fact that it is a
   mispronunciation of "get" may or may not be relevant.
 - stupid. contemptible and despicable. simple. Take your pick from the
   dictionary of slang.
 - "global information tracker": you're in a good mood, and it actually
   works for you. Angels sing, and a light suddenly fills the room.
 - "g*dd*mn idiotic truckload of sh*t": when it breaks
```

The Git Basics

- `git init`
  - `git clone {repo url}`
    - Use http or ssh
- `git add somefile.thing`
- `git status`
- `git commit {-m 'Comment'}`
- `git push`
- `git pull`
- `git branch branchname`
- `git checkout branchname`
- `git merge`

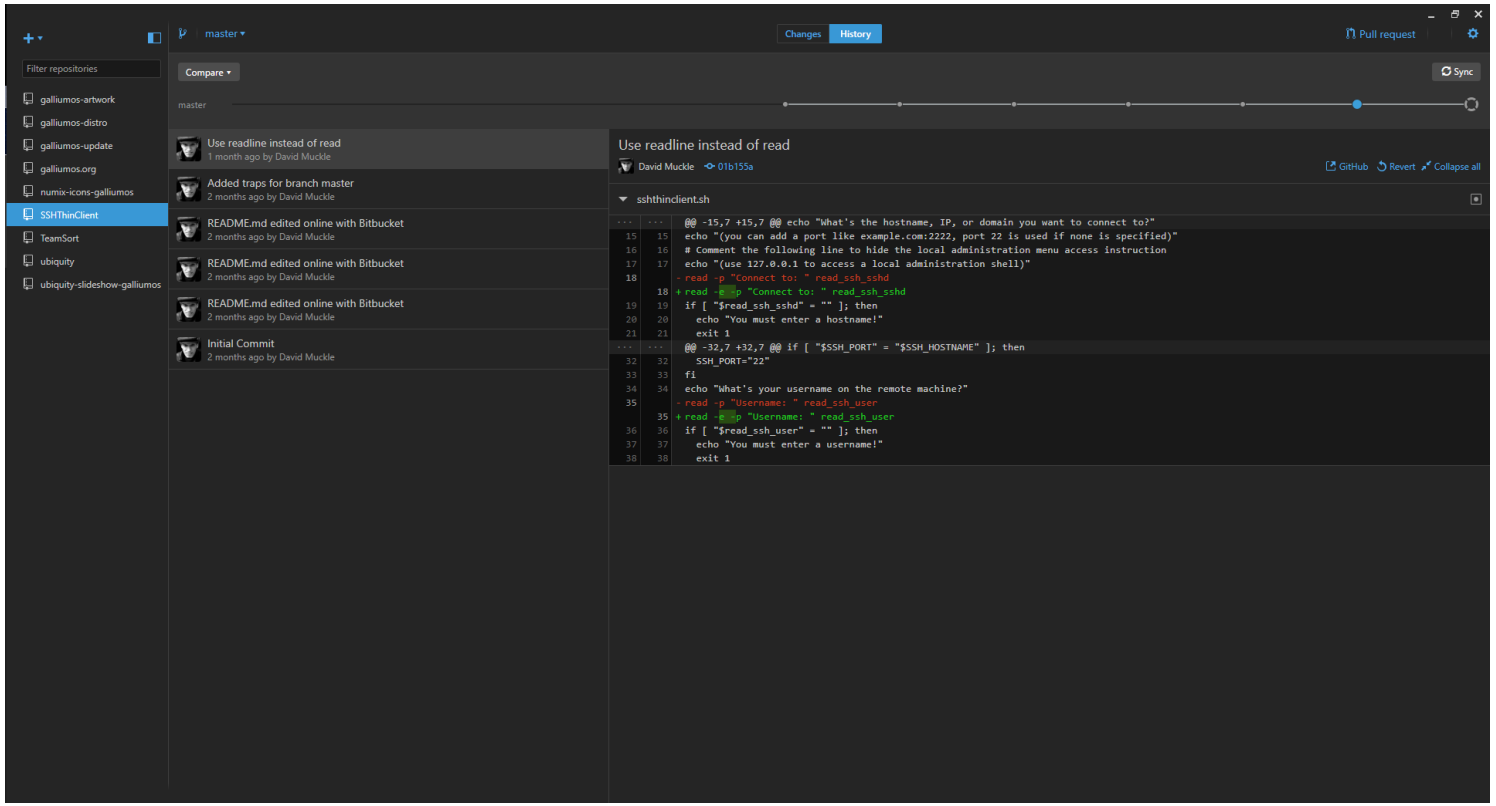


David Muckle	a81acfe	Cleaned up for submission	3 days ago
David Muckle	37523f2 M	Merged homerun into master	3 days ago
David Muckle	2466872	Finished readme	3 days ago
David Muckle	8f3f553	Possible fix for R	3 days ago
David Muckle	59248fa	Fix elim check	3 days ago
David Muckle	0aa038d	Readme progress	3 days ago
David Muckle	0bff397	Added comments and check for input with only one team	3 days ago
David Muckle	5d1af3f	Added better formatting	3 days ago
David Muckle	0a7ba1a	Added exceptions	3 days ago
David Muckle	38f0ef8	Finished isEliminated and certificateOfElimination	4 days ago
David Muckle	0ab946c	Added readme	4 days ago
David Muckle	a32ea20 M	Merged homerun into master	4 days ago
David Muckle	d8d5d10	Added cert stuff for trivial	4 days ago
Nick Bardjis	c66e74d	Constructed two halves of FlowNetwork	4 days ago
Nick Bardjis	9eae7e4	Constructed two halves of FlowNetwork	4 days ago
Nick Bardjis	41f8a31	Started mathematical elim	5 days ago
David Muckle	acc6cc8 M	Merged homerun and master	5 days ago
David Muckle	e60f47a	Fixed merge	5 days ago
Nick Bardjis	638fefd	Update	5 days ago
David Muckle	a5834ef	Added trivial elimination	5 days ago
Nick Bardjis	d51b31c	Added constructor	5 days ago
David Muckle	4312d1b	Added project property files	2016-12-09
David Muckle	45e88f0	Added skeleton	2016-12-09
David Muckle	093a437	Initial commit	2016-12-09

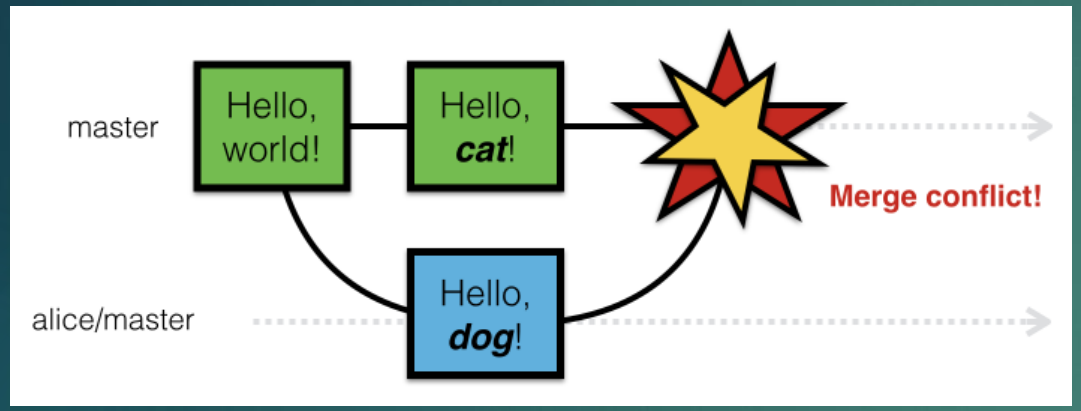
Constructed two halves of FlowNetwork

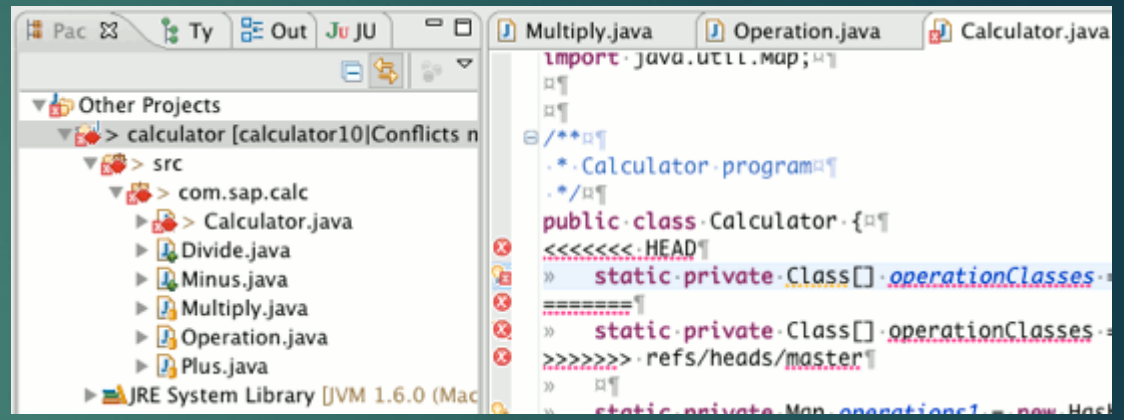
Graphical Clients

- Integration with IDEs
  - Eclipse, Netbeans, IntelliJ
- Standalone Clients
  - GitHub Client, Atlassian SourceTree, Git GUI



What to do if Git breaks






```
1   <<<<<<< HEAD
2
3   Here is the original change.
4   =======
5   Here is the modified change.
6   >>>>>>> 58326c301d09b58f3ac23d616e73f7b478424cc5
7
```

DON'T
PANIC

Resolving Merge Conflicts

- Stay calm
- Read the marked changes
- Talk with your partner(s)
- Figure out what to keep
- Edit accordingly
- Push changes

Using with your Clark CS Account

- Create a repository on system
- Commit changes
- On local computer, `git clone ssh://username@csgateway.clarku.edu/home/username/pathtorepo`
- Won't work with pair programming

Suggested Setup for Pair Programming

- Use BitBucket
- Create repository with private access
- Add members to repository

OR

- Create team with partner
- Create repository under team

Can I use Git for other things?

- Absolutely!
- Essays
- Cover letters
- Image editing
- Recipes
- Program settings (dotfiles)
- This PowerPoint

Other Git Resources

- Oh Shit, git! http://ohshitgit.com
- Gitless http://gitless.com/
- Github

Go forth and Commit!