

All things Git

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Lecture Series: Day 2
The University of Oklahoma

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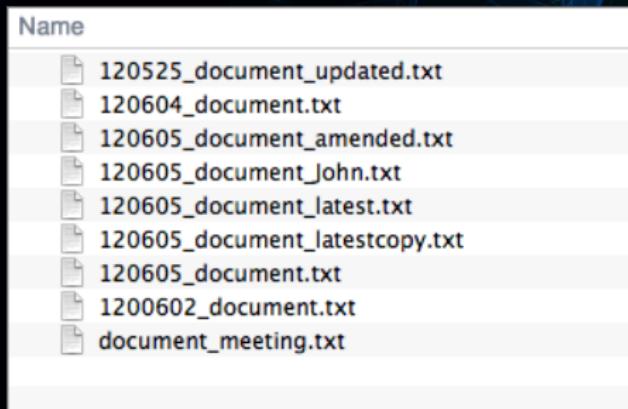
A complex, abstract network graph composed of numerous blue lines and glowing blue dots (nodes) against a dark background. The nodes are concentrated in several distinct clusters, suggesting a complex system of connections.

Motivations
Git
Commands
Typical Flow

Motivations

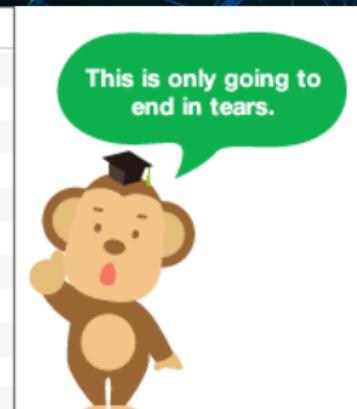
2 Major cases:

- 1 Writing a paper and keeping track of what edits you are making to it after each iteration with an easy way to revert back to any previous version (Without using CTRL-Z)
- 2 Version 1 of code works. Then you want to apply updates to it and collaborators making numerous edits at the same time. It breaks. At what change did it break, how can you quickly recover back?



A screenshot of a file list titled "Name". The list contains the following files:

- 120525_document_updated.txt
- 120604_document.txt
- 120605_document_amended.txt
- 120605_document_John.txt
- 120605_document_latest.txt
- 120605_document_latestcopy.txt
- 120605_document.txt
- 1200602_document.txt
- document_meeting.txt



A cartoon illustration of a brown monkey wearing a graduation cap. A green speech bubble above the monkey contains the text: "This is only going to end in tears."

Git

Early OS devs ran into this problem as collaborations grew

Git

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Linus again solved this problem and designed *Git*



- ➊ Ability to keep track of any file/directory
- ➋ Quickly revert back to any previous version
- ➌ Add comments to groups of changes to clarity
- ➍ Track changes made by different people
- ➎ Separate projects into (branches)

Git



Git ← DVCS



Github ← webservice

Gitlab ← “Enterprise” Github



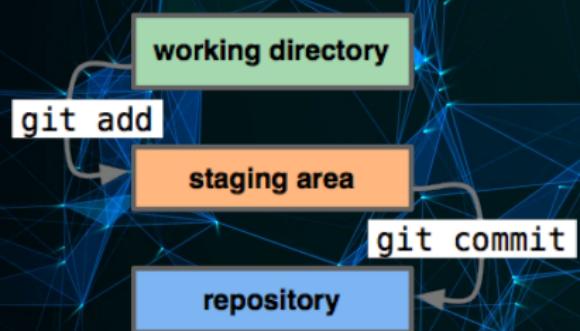
Git

Lots of companies use Git!!!

Commands

Top 3 most used:

add ← stage objects
commit ← commit them
status ← show current
status of HEAD



Git

That's most of git right there.

It's very easy at its core. It just has a lot of other features too

Commands cont...

Edit current branch:

log ← show history of branch

rebase ← (Be careful) Powerful command to modify
branch

checkout ← reset changes made to a file

revert ← revert a commit

reset ← reset HEAD to a previous state

Modify Branches:

branch ← list/create/delete branches

checkout ← move to another branch

merge ← merge change on another branch to HEAD

Modify Remote:

clone ← fully copy a remote repository

fetch ← grab remote and compare against HEAD

pull ← performs a fetch and merge

push ← push changes to remote

Commands cont...

Maintain repos:

- init ← initialize a new git repo
- bare ← creates a “bare” repo
- blame ← better format to see who made what change
- rebase ← (careful) Powerful command to modify branch
- remote ← control various remote repo names
- config ← edit the configuration of git, globally or locally

Remote

Remote doesn't necessarily mean online. It just means something other than current repository (can be just another directory!)

Usage

Steps to begin:

Setup ← Existing or new? “git init” or “git clone”

“Server?” ← Want to make a “pullable”? “git init –bare”

Ignore ← Add file/dirs to ignore in “.gitignore”

Stage ← “git add –all .”

Commit ← “git commit -m “first commit””

Future ↑ repeat above steps as time goes on

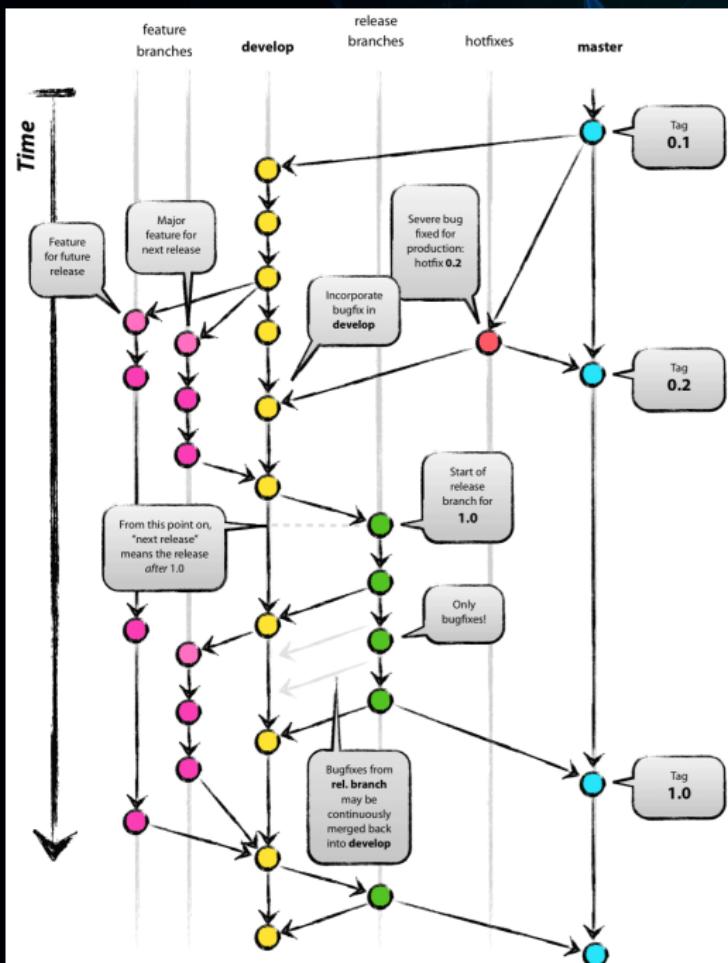
Collab ← “git branch” to setup branches for
collabs/features

Fixing ← “git log”

↑ Whodunit? “git blame”

↑ use “git rebase -i HEAD n” to fix

remote ← “git push” and “git pull” to send/receive



```
terminal ~ titan@saturn:~$ gitblame -s Reynolds/Star-dot
* 5652f0b - Fri, 17 Aug 2018 06:25:06 +0000 (2 months ago) HEAD => master, origin/master, origin/HEAD
| adding the jar file - nickalaskreynolds
* c703595 - Sun, 12 Aug 2018 16:59:38 +0000 (3 months ago)
| major update to Bot 1.0.1.1 defined under Milestone under the same name. Fixes quotes/macros, updates docs, and adds some new mod commands - nickalaskreynolds
* 5507485 - Fri, 17 Aug 2018 06:25:06 +0000 (2 months ago) (origin/feature)
| adding the jar file - nickalaskreynolds
* 6108832 - Fri, 17 Aug 2018 06:18:31 +0000 (2 months ago)
| fixing ranking of top 10, issue#11 - nickalaskreynolds
* f2335cf - Fri, 17 Aug 2018 06:18:31 +0000 (2 months ago)
| reorganizing and consolidating commands - nickalaskreynolds
* 5ff3bb0c - Fri, 17 Aug 2018 04:16:30 +0000 (2 months ago)
| adding ability for messages to self delete after some time. issue#21 - nickalaskreynolds
* 00f34cc - Fri, 17 Aug 2018 04:15:36 +0000 (2 months ago)
| add new clearchar command. feature issued#25 - nickalaskreynolds
* cf1a7e2 - Thu, 16 Aug 2018 07:55:58 +0000 (2 months ago)
| minor remove of excess space - nickalaskreynolds
* 17cef66 - Thu, 16 Aug 2018 07:55:32 +0000 (2 months ago)
| adding ability to override color perms - nickalaskreynolds
* c65067c - Thu, 16 Aug 2018 07:55:15 +0000 (2 months ago)
| fixing command parameters - issue#29, new processUtil.staggerArray - nickalaskreynolds
* 2210fb9 - Thu, 16 Aug 2018 04:57:43 +0000 (2 months ago)
| adding top quote to the stats command - nickalaskreynolds
* 664bc15 - Thu, 16 Aug 2018 04:56:40 +0000 (2 months ago)
| fixing the quote previous command, issue#8 - nickalaskreynolds
* 42276c0 - Wed, 15 Aug 2018 04:36:25 +0000 (3 months ago)
| adding ability for bot to alert dev on restart; - nickalaskreynolds
* 5569d1d - Wed, 15 Aug 2018 04:35:32 +0000 (3 months ago)
| adding features detailed in issue #7# guildhandling, which adds features to guildjoin and bot owner tools - nickalaskreynolds
* f024379 - Wed, 15 Aug 2018 04:34:23 +0000 (3 months ago)
| fixing the file directory entirely. Will include files manually - nickalaskreynolds
* d4a1ac3 - Wed, 15 Aug 2018 04:33:16 +0000 (3 months ago)
| the updated version - nickalaskreynolds
* d61bb41 - Wed, 15 Aug 2018 04:32:35 +0000 (3 months ago)
| added the features detailed in issue#8 - nickalaskreynolds
* 6790843 - Wed, 15 Aug 2018 04:31:10 +0000 (3 months ago)
| fixed reminde errors. issue#7 reminder - nickalaskreynolds
* 10c01c9 - Tue, 14 Aug 2018 16:22:17 +0000 (3 months ago)
| updated yr api - nickalaskreynolds
* 8961590 - Mon, 13 Aug 2018 07:34:00 +0000 (3 months ago)
| fixing doc - nickalaskreynolds
* 47652ed - Mon, 13 Aug 2018 07:33:31 +0000 (3 months ago)
| added better handle functionality - nickalaskreynolds
* b34c402 - Mon, 13 Aug 2018 07:33:16 +0000 (3 months ago)
| fully working kickself - nickalaskreynolds
* d3780a0 - Mon, 13 Aug 2018 07:32:59 +0000 (3 months ago)
| fixing git link - nickalaskreynolds
* 8b21bd9 - Sun, 12 Aug 2018 17:39:37 +0000 (3 months ago)
| adding features detailed in issue "quotef" - nickalaskreynolds
* 717825d - Sun, 12 Aug 2018 17:38:42 +0000 (3 months ago)
| added new kickself command for bot; - nickalaskreynolds
* 3b2c59f - Sun, 12 Aug 2018 16:59:38 +0000 (3 months ago)
| fixing error of macro
* 4d08557 - Thu, 9 Aug 2018 20:21:41 +0000 (3 months ago)
| fixed guild joining error and added messaging to server owner with instructions - nickalaskreynolds
* 9f2c0b0 - Mon, 6 Aug 2018 16:01:00 +0000 (3 months ago)
| fixed error in quote edit command - nickalaskreynolds
* b19e309 - Mon, 6 Aug 2018 08:43:46 +0000 (3 months ago)
[titan@saturn Star-Bot]$ 
```

```
terminal » titan@saturn:~$ git hub initnickalaskreynolds@lanbo
* fcbf8e8 - Tue, 16 Oct 2018 14:10:03 -0500 (12 days ago) (committed: Tue, 16 Oct 2018 14:10:03 -0500) HEAD -> nick_edits, nick.github/nick_edits, local/nick_edits
  fixing blacklist call to levels and adding embeds
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* e5b72cf - Tue, 16 Oct 2018 14:09:36 -0500 (12 days ago) (committed: Tue, 16 Oct 2018 14:09:36 -0500)
  and you get an embed
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 0194be0 - Tue, 16 Oct 2018 13:49:21 -0500 (12 days ago) (committed: Tue, 16 Oct 2018 13:49:21 -0500)
  cleaning rewards and adding color as per issue #14 and issue #10
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 10bb108 - Tue, 9 Oct 2018 22:12:36 -0700 (3 weeks ago) (committed: Tue, 9 Oct 2018 22:12:36 -0700) (origin/master, origin/HEAD, local/master, master)
  Merge pull request #7 from nickalaskreynolds/nick_fixRank
  - dashwav <dashwav@gmail.com> (committer: GitHub <noreply@github.com>)
* 493f166 - Tue, 9 Oct 2018 23:39:05 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 23:39:05 -0500) nick.github/nick_fixRank, local/fixRank, nick_fixRank
  linter
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 3491837 - Tue, 9 Oct 2018 22:47:05 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 22:47:05 -0500)
  Merge branch 'master' to testing/travisCI
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 5bccc38 - Tue, 9 Oct 2018 22:31:03 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 22:31:03 -0500)
  fixing my dumb function
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 67480a9 - Tue, 9 Oct 2018 17:51:03 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 17:51:03 -0500)
  adding ability to see other's ranks
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 3682c7e - Tue, 9 Oct 2018 22:08:46 -0700 (3 weeks ago) (committed: Tue, 9 Oct 2018 22:08:46 -0700)
  I just wanted a badge
  - dashwav <dashwav@gmail.com> (committer: GitHub <noreply@github.com>)
* 00bf5b2 - Tue, 9 Oct 2018 22:07:09 -0700 (3 weeks ago) (committed: Tue, 9 Oct 2018 22:07:09 -0700)
  Merge pull request #12 from nickalaskreynolds/nick_createHelp
  - dashwav <dashwav@gmail.com> (committer: GitHub <noreply@github.com>)
* 8bf8f1a - Tue, 9 Oct 2018 23:20:46 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 23:20:46 -0500) nick.github/nick_createHelp, local/nick_createHelp, nick_createHelp
  eslint + defaulting to inline instead of dn
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 61e54d1 - Tue, 9 Oct 2018 22:48:20 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 22:48:20 -0500)
  Merge branch 'master' to test/travisCI
    Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 195c350 - Tue, 9 Oct 2018 20:45:45 -0700 (3 weeks ago) (committed: Tue, 9 Oct 2018 20:45:45 -0700)
  Merge pull request #13 from Danbo-bot/travis-ci
  - dashwav <dashwav@gmail.com> (committer: GitHub <noreply@github.com>)
* 391b0fb - Tue, 9 Oct 2018 20:42:07 -0700 (3 weeks ago) (committed: Tue, 9 Oct 2018 20:42:07 -0700)
  Testing is hard
  - dashwav <dashwav@gmail.com> (committer: dashwav <dashwav@gmail.com>)
* cc3529b - Tue, 9 Oct 2018 20:39:37 -0700 (3 weeks ago) (committed: Tue, 9 Oct 2018 20:39:37 -0700)
  bump npm version
  - dashwav <dashwav@gmail.com> (committer: dashwav <dashwav@gmail.com>)
* ccd422c - Tue, 9 Oct 2018 20:33:32 -0700 (3 weeks ago) (committed: Tue, 9 Oct 2018 20:33:32 -0700)
  Implement travis-ci hopefully
  - dashwav <dashwav@gmail.com> (committer: dashwav <dashwav@gmail.com>)
* 0b3b2c4 - Tue, 9 Oct 2018 19:03:36 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 19:03:36 -0500)
  adding help function
  - Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
* 7506283 - Tue, 9 Oct 2018 18:53:07 -0500 (3 weeks ago) (committed: Tue, 9 Oct 2018 18:53:07 -0500)
  adding help command with a few options
  - Nickalas Reynolds <nickalaskreynolds@gmail.com> (committer: Nickalas Reynolds <nickalaskreynolds@gmail.com>)
```

Questions?