

How to use GitHub

28th June 2020

AppliedAIcourse.com

Showcase your work/portfolio [SDE, DS, MLS, ...]

- ① show the code → GitHub
- ② write about it → Blog → Medium
→ GitHub Pages
- ③ show a demo → webapp / mobile app
[recent live sessions]

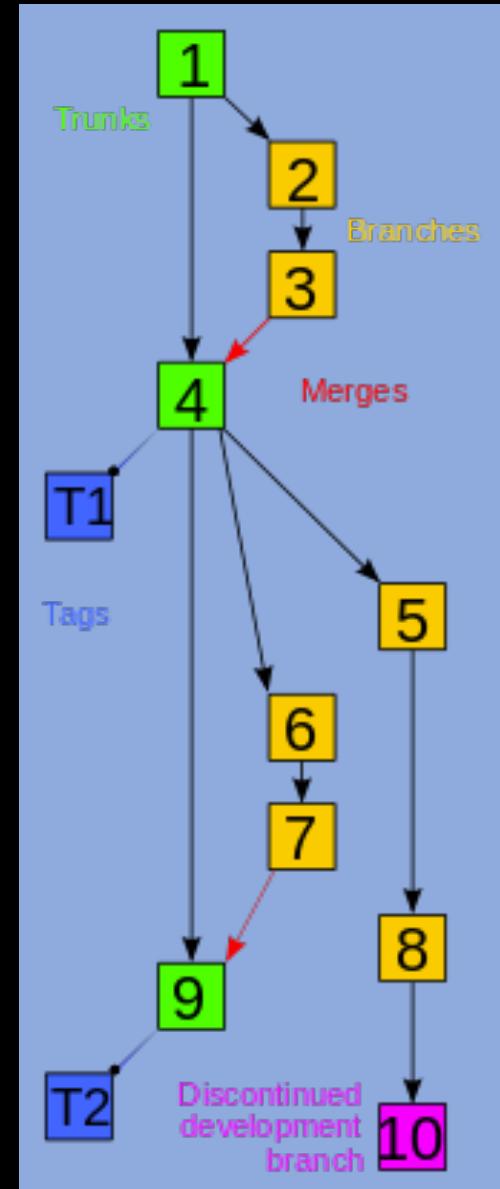
Agenda:

- Basics of DVC & Git
- "Showcase" your code using GitHub
- basic commands [not possible to cover advanced topics]
- resources to learn

Git

→ 2005 by Linus Torvalds

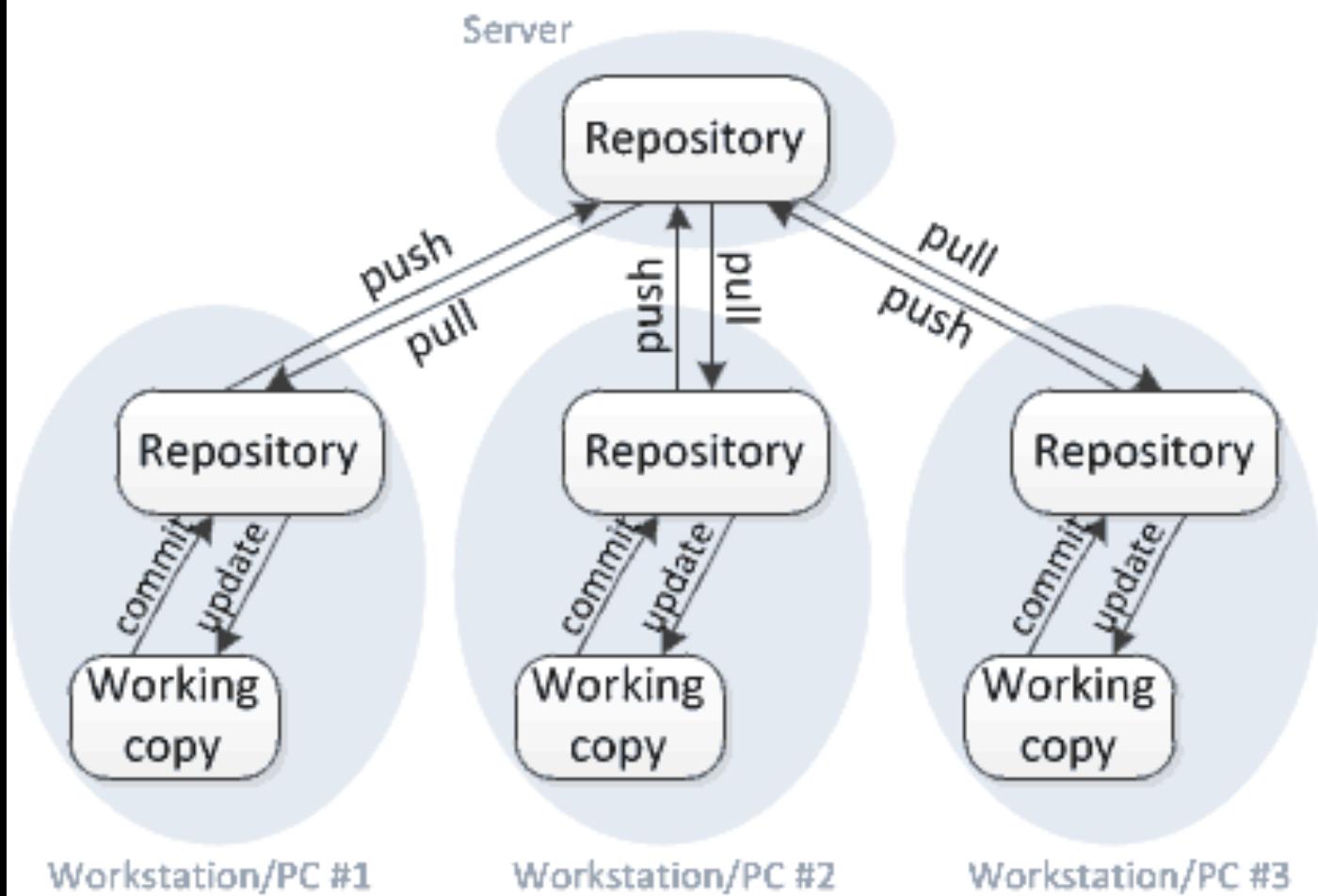
→ distributed Version control



DAG

Wiki

Distributed version control



version control in which the complete codebase, including its full history, is mirrored on every developer's computer.

- *WIKI*

<https://homes.cs.washington.edu/~mernst/advice/version-control.html>

Other version control systems:

- CVS (90's) Concurrent Versions System
- SVN (2000's) Subversion
- Git (Now)

GitHub (now owned by Microsoft)

- Git Repository hosting service
- cloud-based
- open-source projects
- public & private repos.

Using GitHub:

① GitHub Desktop <https://desktop.github.com/>

② Command Line tool

<https://git-scm.com/book/en/v2/Getting-Started-Installing-Git>

Step -by-step:

```
$ mkdir gitrepo
```

```
$ cd gitrepo
```

```
$ git init
```

```
Initialized empty Git repository in /Users/varma/gitrepo/.git/
```

```
$ touch file1.txt
```

```
$ ls -lrt
```

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git status  
On branch master  
  
No commits yet  
  
Untracked files:  
(use "git add <file>..." to include in what will be committed)  
    file1.txt  
  
nothing added to commit but untracked files present (use "git add" to track)
```

Staging & Commit

```
[base] Srikanths-MacBook-Pro:gitrepo varma$ git add .
[base] Srikanths-MacBook-Pro:gitrepo varma$ git status
On branch master
```

No commits yet

```
Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   file1.txt
```

Documentation: <https://git-scm.com/docs/git-add>

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git commit -m "first commit"
[master (root-commit) 1f3b8f5] first commit
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 file1.txt
```

not yet on GitHub

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git status
On branch master
nothing to commit, working tree clean
```

GitHub → + → New Repo ↓

An Intro to Git and GitHub for Beginners (Tutorial) | Git - git-add Documentation | Create a New Repository

Search or jump to... / Pull requests Issues Marketplace Explore

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner * cskvarma / Repository name * githubRepo ✓

Great repository names are short and memorable. Need inspiration? How about [miniature-octo-happiness](#)?

Description (optional)

Public
Anyone on the internet can see this repository. You choose who can commit.

Private
You choose who can see and commit to this repository.

Quick setup — if you've done this kind of thing before

 Set up in Desktop

or   HTTPS

SSH

<https://github.com/cskvarma/githubRepo.git>



Get started by [creating a new file](#) or [uploading an existing file](#). We recommend every repository include a [README](#), [LICENSE](#), and [.gitignore](#).

...or create a new repository on the command line

```
echo "# githubRepo" >> README.md
git init
git add README.md
git commit -m "first commit"
git remote add origin https://github.com/cskvarma/githubRepo.git
git push -u origin master
```



...or push an existing repository from the command line

```
git remote add origin https://github.com/cskvarma/githubRepo.git
git push -u origin master
```



...or import code from another repository

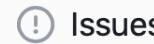
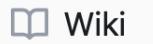
You can initialize this repository with code from a Subversion, Mercurial, or TFS project.

[Import code](#)

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git remote add origin https://github.com/cskvarma/githubRepo.git
(base) Srikanths-MacBook-Pro:gitrepo varma$ git push -u origin master
Username for 'https://github.com': cskvarma
Password for 'https://cskvarma@github.com':
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 207 bytes | 207.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/cskvarma/githubRepo.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
(base) Srikanths-MacBook-Pro:gitrepo varma$
```

 cskvarma / **githubRepo**

 Unwatch

 **Code**  **Issues**  **Pull requests**  **Actions**  **Projects**  **Wiki**  **Security**  **Insights**

 Branch: master ▾

 Go to file

 Add file ▾

 **Clone** ▾



cskvarma committed 1f3b8f5 7 minutes ago ...

 1 commits  1 branch  0 tags

 file1.txt

first commit

7 minutes ago

Help people interested in this repository understand your project by adding a README.

 Add a README

```
[base] Srikanths-MacBook-Pro:gitrepo varma$ touch file2.txt  
[base] Srikanths-MacBook-Pro:gitrepo varma$ git push  
Enumerating objects: 3, done.  
Counting objects: 100% (3/3), done.  
Delta compression using up to 12 threads  
Compressing objects: 100% (2/2), done.  
Writing objects: 100% (2/2), 235 bytes | 235.00 KiB/s, done.  
Total 2 (delta 0), reused 0 (delta 0)  
To https://github.com/cskvarma/githubRepo.git  
  1f3b8f5..1d21ff6 master -> master  
(base) Srikanths-MacBook-Pro:gitrepo varma$ █
```

OR

git push origin master

alias to remote repo

main branch

```
git push git@github.com:git/git master
```

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git remote -v  
origin https://github.com/cskvarma/githubRepo.git (fetch)  
origin https://github.com/cskvarma/githubRepo.git (push)
```

for pulling/fetching data

Branching: makes changes but not to the mainline

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git fetch  
(base) Srikanths-MacBook-Pro:gitrepo varma$ git checkout -b mybranch  
Switched to a new branch 'mybranch'  
(base) Srikanths-MacBook-Pro:gitrepo varma$ git branch  
  master  
* mybranch
```

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git push origin mybranch
Total 0 (delta 0), reused 0 (delta 0)
remote:
remote: Create a pull request for 'mybranch' on GitHub by visiting:
remote:     https://github.com/cskvarma/githubRepo/pull/new/mybranch
remote:
To https://github.com/cskvarma/githubRepo.git
 * [new branch]      mybranch -> mybranch
```

The screenshot shows a GitHub repository page for 'cskvarma / githubRepo'. The 'Code' tab is selected. A dropdown menu is open under the 'Branch: master' button, showing options to 'Switch branches/tags' and 'Find or create a branch...'. The 'mybranch' option is highlighted with a red circle and an orange arrow pointing from the bottom left. The main repository area shows 2 commits, 2 branches, and 0 tags. There is a note to 'Understand your project by adding a README.' and a 'Add a README' button.

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ cat file2.txt  
modified in mybranch  
(base) Srikanths-MacBook-Pro:gitrepo varma$ git status  
On branch mybranch  
Changes not staged for commit:  
(use "git add <file>..." to update what will be committed)  
(use "git restore <file>..." to discard changes in working directory)  
modified:   file2.txt
```

Makes changes,

```
no changes added to commit (use "git add" and/or "git commit -a")  
(base) Srikanths-MacBook-Pro:gitrepo varma$ git commit -m "file2 modified"  
On branch mybranch  
Changes not staged for commit:  
modified:   file2.txt
```

```
no changes added to commit  
(base) Srikanths-MacBook-Pro:gitrepo varma$ git add .  
(base) Srikanths-MacBook-Pro:gitrepo varma$ git commit -m "file2 modified"  
[mybranch cd15912] file2 modified  
1 file changed, 1 insertion(+)
```

Staging

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git push origin mybranch  
Enumerating objects: 5, done.
```

commit

```
Counting objects: 100% (5/5), done.  
Delta compression using up to 12 threads  
Compressing objects: 100% (2/2), done.  
Writing objects: 100% (3/3), 287 bytes | 287.00 KiB/s, done.  
Total 3 (delta 0), reused 0 (delta 0)  
To https://github.com/cskvarma/githubRepo.git  
1d21ff6..cd15912 mybranch -> mybranch
```

push to mybranch

cskvarma / **githubRepo**

 **Code**

 **Issues**

 **Pull requests**

 **Actions**

 **Projects**

 **Branch: mybranch** ▾

githubRepo / file2.txt



cskvarma file2 modified

 **1 contributor**

1 lines (1 sloc) | 21 Bytes

1 modified in mybranch

Pull Request :

cskvarma / githubRepo

Unwatch 1 Star 0 Fork 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

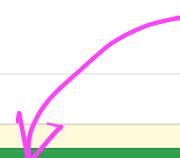
Label issues and pull requests for new contributors Dismiss

Now, GitHub will help potential first-time contributors [discover issues](#) labeled with [good first issue](#)

mybranch had recent pushes 3 minutes ago

Compare & pull request

Filters is:pr is:open Labels 9 Milestones 0 New pull request



Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.

base: master ▾



compare: mybranch ▾

✓ **Able to merge.** These branches can be automatically merged.



file2 modified

Write

Preview

H

B

I

三

2

3

1
2

2

←

[Leave a comment](#)

ANSWER The first two terms of the sequence are 1 and 2. The third term is 1 + 2 = 3. The fourth term is 2 + 3 = 5. The fifth term is 3 + 5 = 8. The sixth term is 5 + 8 = 13. The seventh term is 8 + 13 = 21.

Attach files by dragging & dropping, selecting or pasting them.

Create pull request



 Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

file2 modified #1

 Open

cskvarma wants to merge 1 commit into [master](#) from [mybranch](#) 

 Conversation 0

 Commits 1

 Checks 0

 Files changed 1



cskvarma commented now

Owner



...

No description provided.

 file2 modified

cd15912

Add more commits by pushing to the [mybranch](#) branch on [cskvarma/githubRepo](#).



Continuous integration has not been set up

[GitHub Actions](#) and [several other apps](#) can be used to automatically catch bugs and enforce style.



This branch has no conflicts with the base branch

Merging can be performed automatically.

Merge pull request

You can also [open this in GitHub Desktop](#) or view [command line instructions](#).



cskvarma / githubRepo

Code

Issues

Pull requests

Actions

Projects

Branch: master ▾

githubRepo / file2.txt

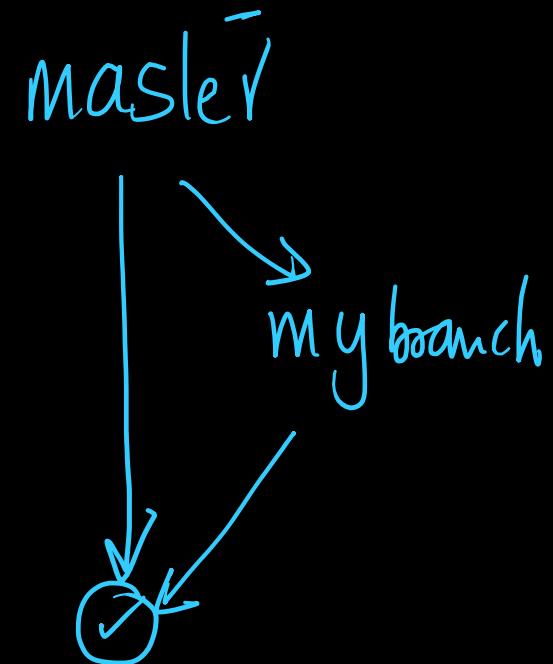


cskvarma file2 modified

1 contributor

1 lines (1 sloc) | 21 Bytes

1 modified in mybranch



```
(base) Srikanths-MacBook-Pro:gitrepo varma$ git log
commit cd15912a10872ae52896f27ab2784928803878e8 (HEAD -> mybranch, origin/mybranch)
Author: cskvarma <csk.varma@gmail.com>
Date:   Sun Jun 28 17:54:37 2020 +0530

    file2 modified

commit 1d21ff6055f4530e0aa018b6c1c97028f89c726d (origin/master, master)
Author: cskvarma <csk.varma@gmail.com>
Date:   Sun Jun 28 17:19:39 2020 +0530

    second commit

commit 1f3b8f55bf6de4cedf67c2b85c608cb66f84d154
Author: cskvarma <csk.varma@gmail.com>
Date:   Sun Jun 28 17:11:43 2020 +0530

    first commit
(base) Srikanths-MacBook-Pro:gitrepo varma$
```

Cloning

```
(base) Srikanths-MacBook-Pro:gitrepo varma$ cd ../
(base) Srikanths-MacBook-Pro:~ varma$ git clone https://github.com/cskvarma/aurux.git
Cloning into 'aurux'...
remote: Enumerating objects: 1210, done.
remote: Total 1210 (delta 0), reused 0 (delta 0), pack-reused 1210
Receiving objects: 100% (1210/1210), 160.96 MiB | 2.41 MiB/s, done.
Resolving deltas: 100% (394/394), done.
(base) Srikanths-MacBook-Pro:~ varma$ cd aurux/
(base) Srikanths-MacBook-Pro:aurux varma$ ls -lrt
total 3840
-rwxr-xr-x  1 varma  staff  1911441 Jun 28 18:04 AURUX_10KPitch.pptx
drwxr-xr-x  7 varma  staff    224 Jun 28 18:04 AWS
drwxr-xr-x 12 varma  staff    384 Jun 28 18:04 AndroidAudioRecording
drwxr-xr-x 14 varma  staff    448 Jun 28 18:04 BluetoothReciever
-rw-r--r--  1 varma  staff   34867 Jun 28 18:04 Product-Market Space.xlsx
drwxr-xr-x  6 varma  staff    192 Jun 28 18:04 SNR_EXP
drwxr-xr-x 20 varma  staff    640 Jun 28 18:04 buildQueryForExpt
drwxr-xr-x 13 varma  staff    416 Jun 28 18:04 captureStreams
drwxr-xr-x 20 varma  staff    640 Jun 28 18:04 computeFP
```

<https://github.com/facebookresearch/faiss>

README.md

GitHub Pages → Web pages for repos.

Learning:

<https://git-scm.com/book/en/v2> ← Book [free]

Just Google it → StackOverflow

Documentation / ref: <https://git-scm.com/docs>