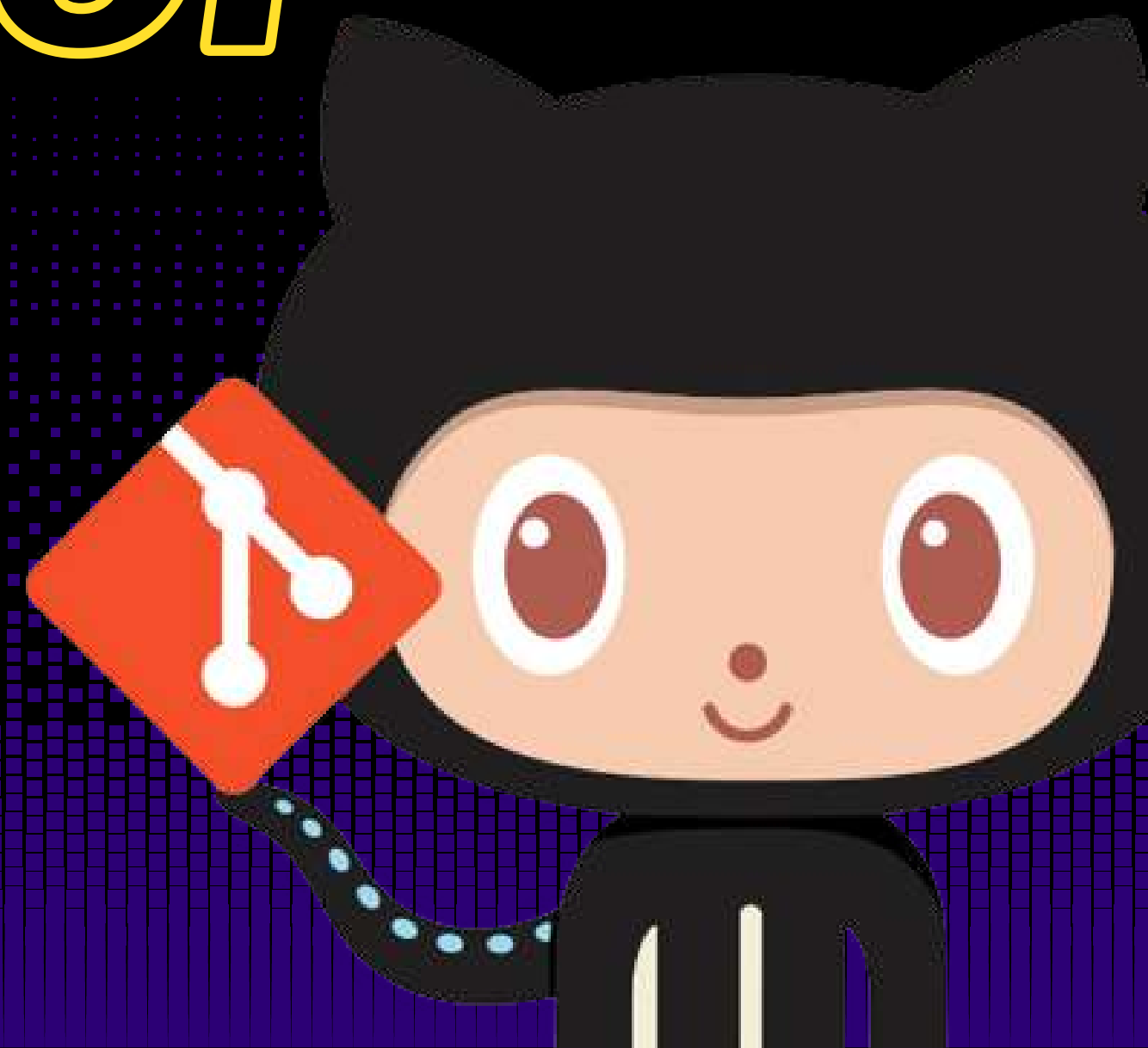
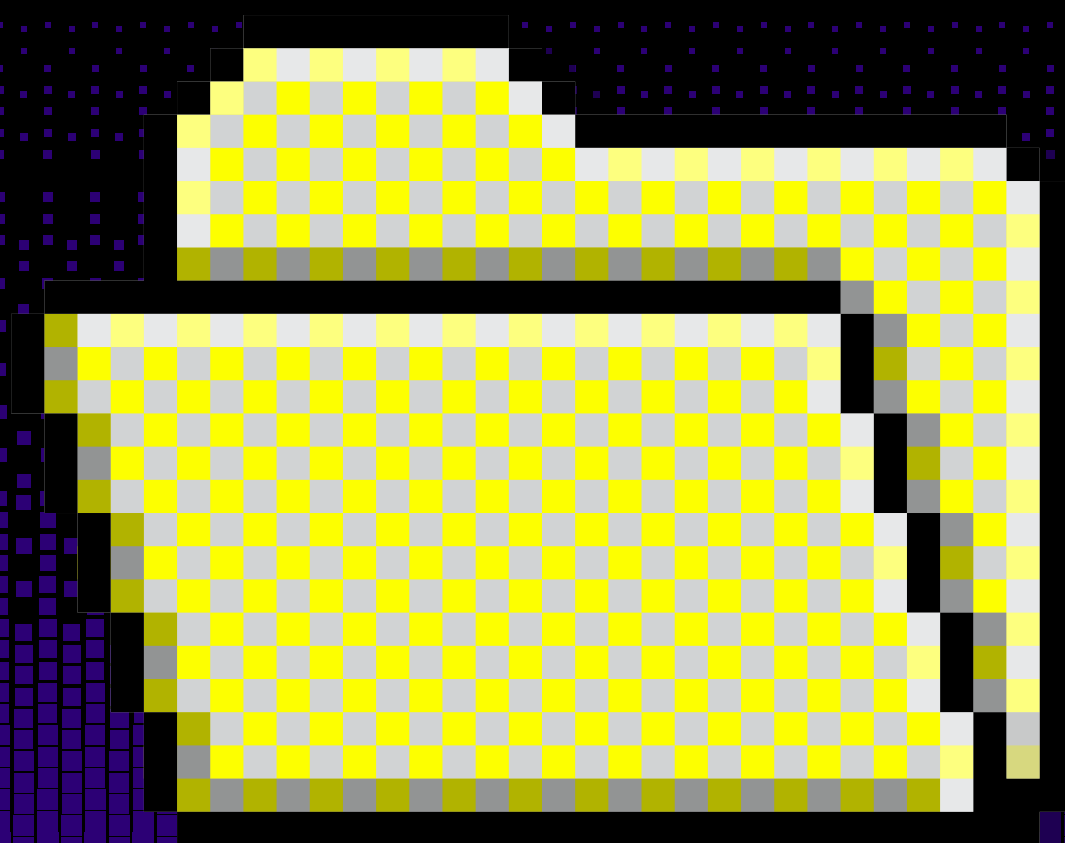




KHARAGPUR OPEN SOURCE SOCIETY



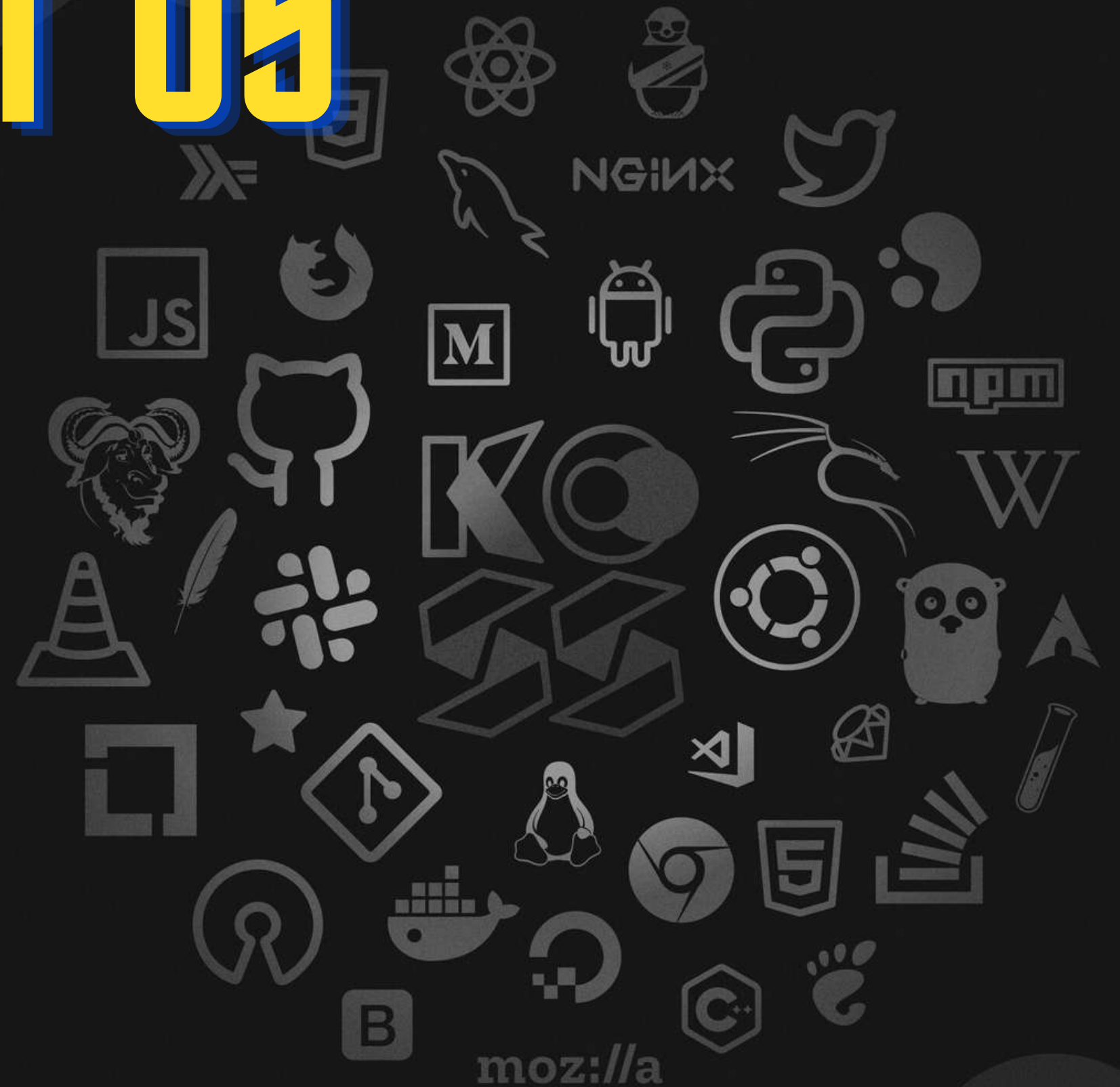
GIT & GITHUB ***WORKSHOP***



ABOUT US

We are a group of Open Source Enthusiasts who focus on something more preliminary and relevant, “A Love for Coding”.

Every year KOSS plans to hold events for familiarizing students with UNIX tools, Linux environment, Git Development Workflow, besides conducting workshops on GUI programming, Web development, Android application Development and Hackathons.



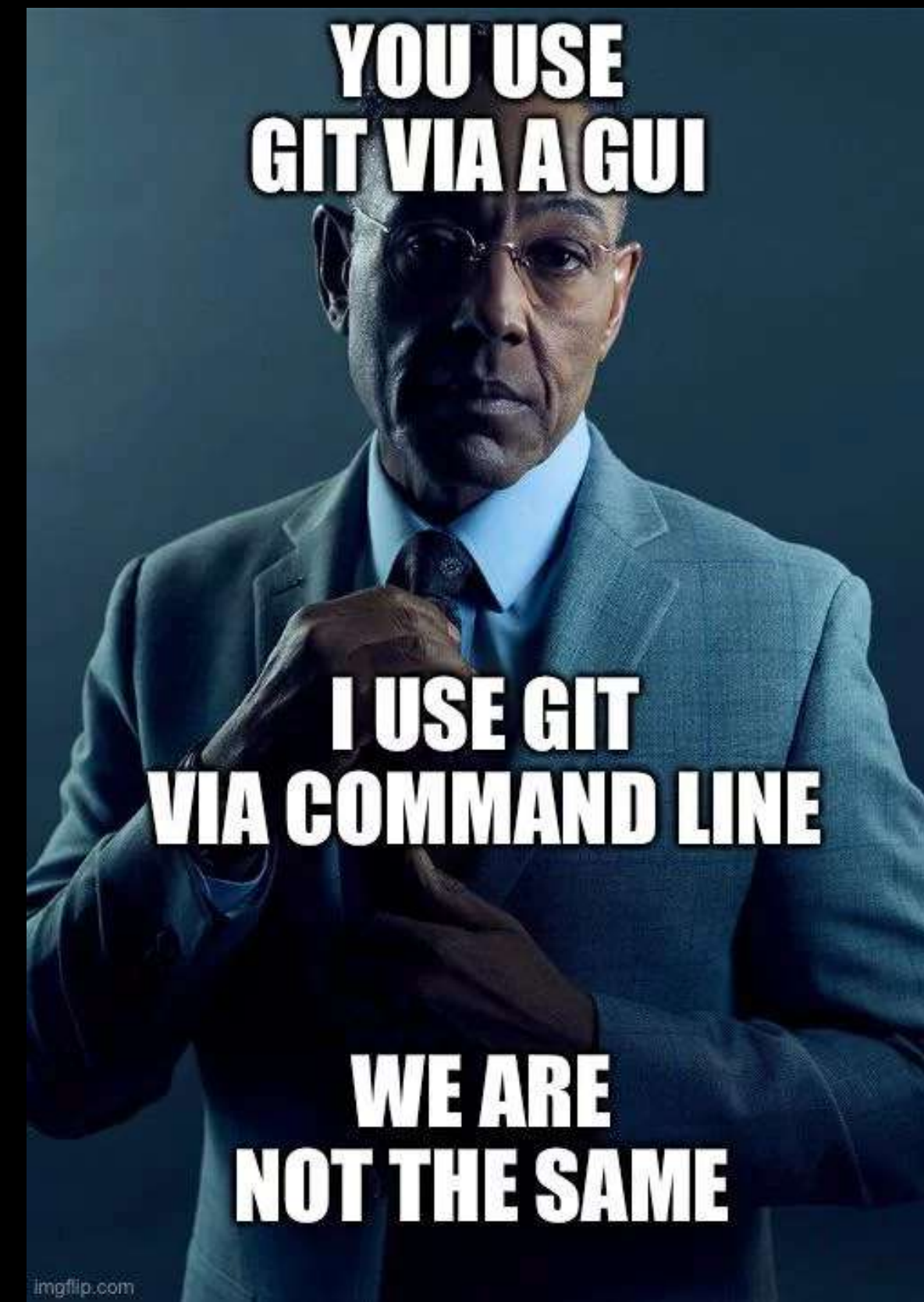
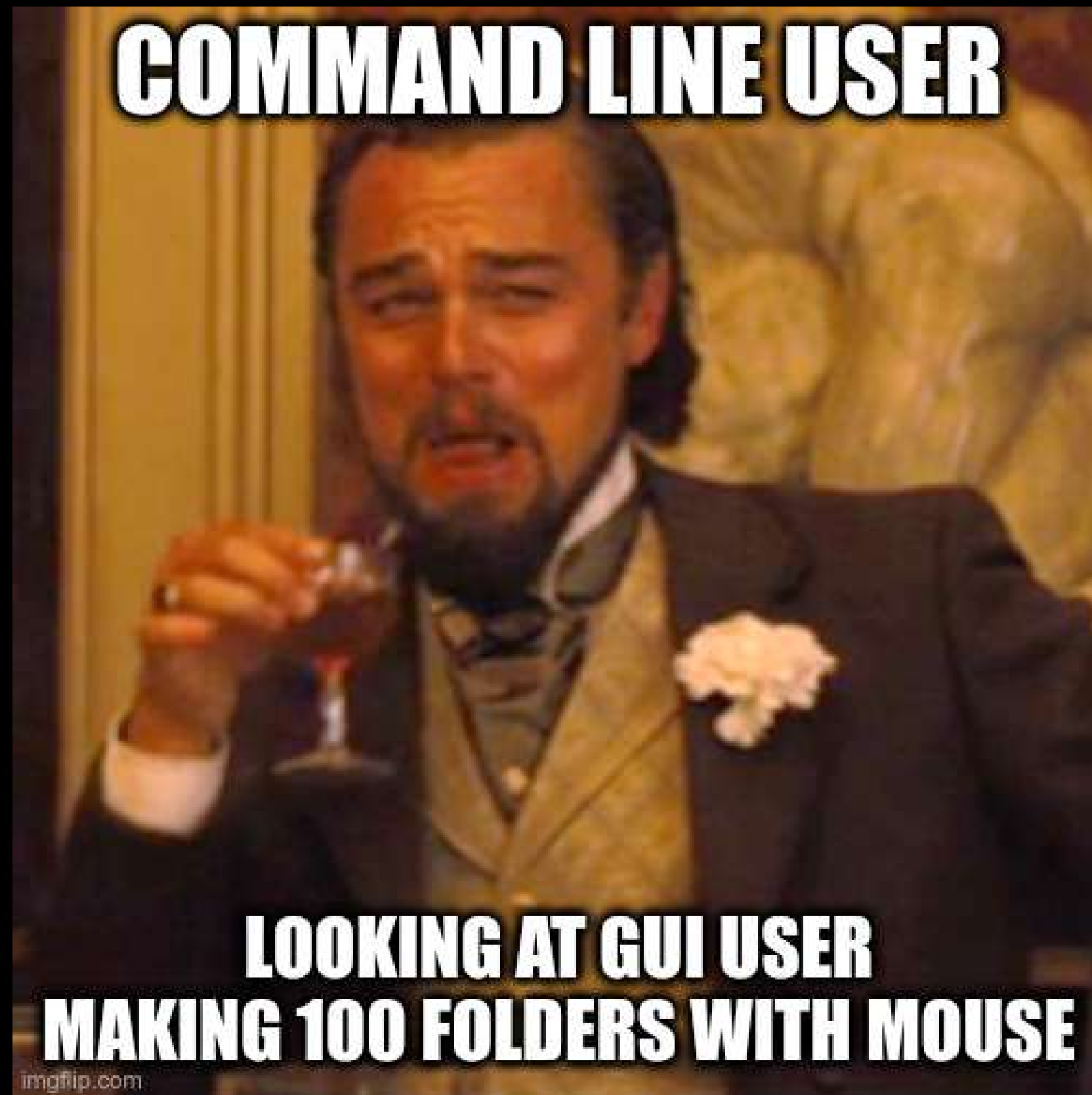
OVERVIEW

GIT WORKSHOP

- BASIC LINUX COMMANDS
- VERSION CONTROL SYSTEMS
- WHAT IS GIT?
- GIT WORKFLOW
- GIT COMMANDS
- GITHUB
- GIT VS GITHUB
- SENDING A PULL REQUEST

TERMINAL **COMMANDS**





TERMINAL COMMANDS



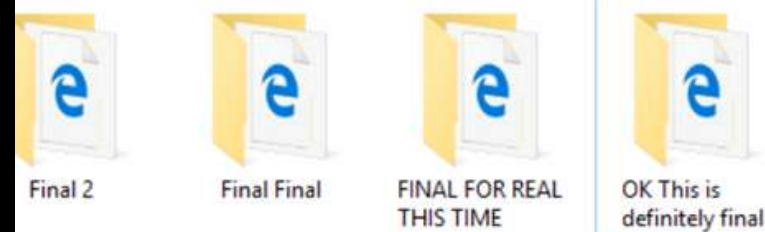
- `mkdir <directory-name>` - Makes a new directory at the current path
- `rmdir <directory-name>` - Deletes the given directory
- `cd <directory-name>` - Changes your location to given directory
- `pwd` - Gives the absolute path of the current directory
- `ls` - List the files/directories in the current folder
- `ls -a` - Gives the list of all the files/directories(including the hidden files/directories)
- `touch <filename>` - Create a new file in the directory
- `rm <filename>` - Deletes given file.
- `mv <filename> <target-directory>` - Change the location of a file/directory

VERSION CONTROL



VERSION CONTROL

Version control, also known as source control, is the practice of tracking and managing changes to software code. Version control systems are software tools that help software teams manage changes to source code over time.

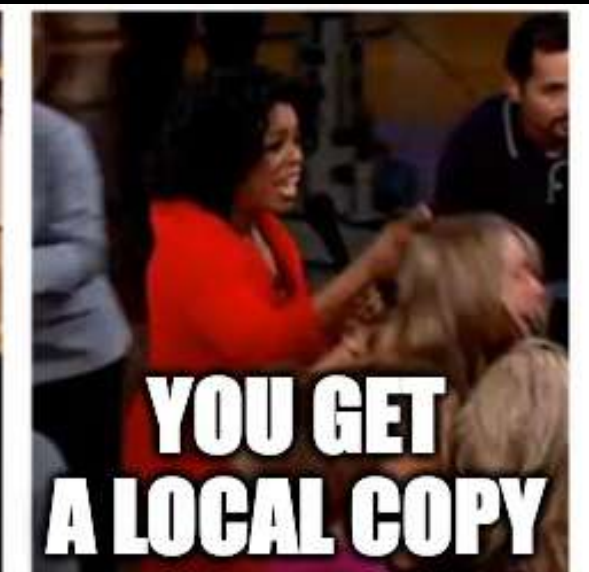
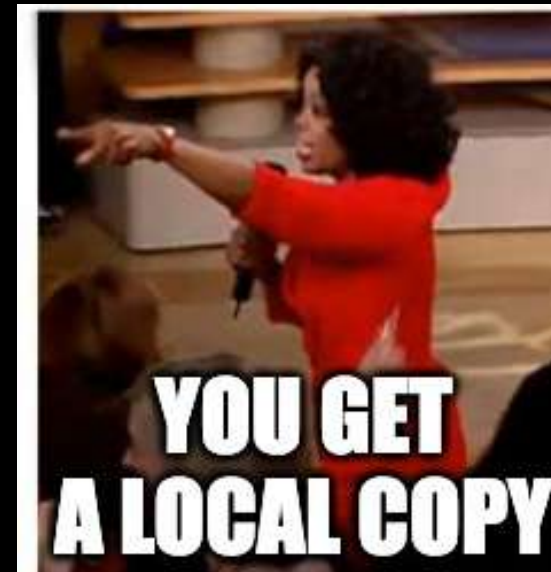
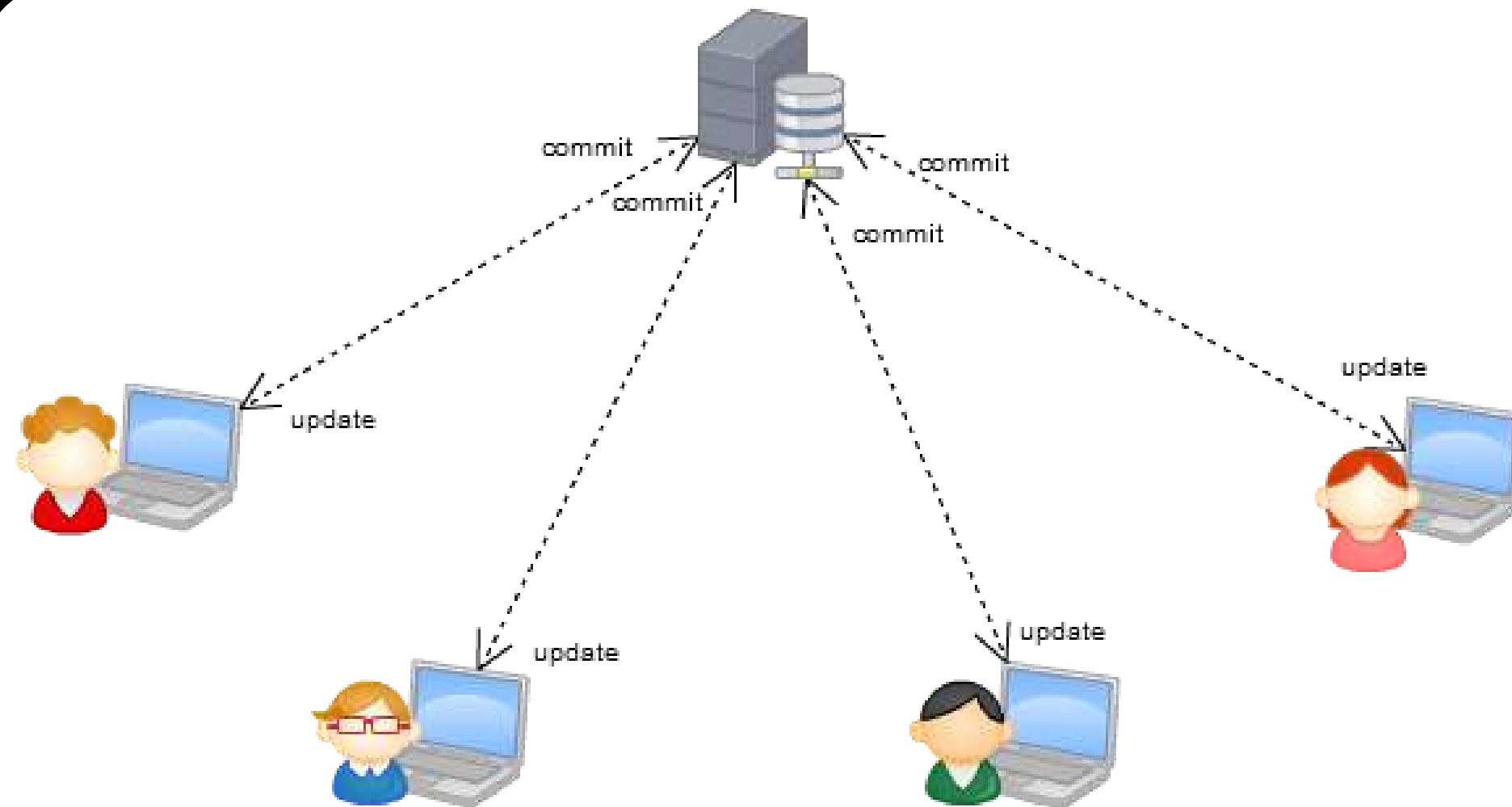


I prefer the real version control

I said the *real* version control

Perfection

DISTRIBUTED VERSION CONTROL SYSTEM





WHAT IS GIT

ANYWAYS?

ONE DOES NOT SIMPLY



UNDERSTAND GIT

MemeHa



WHAT IS GIT?

ABOUT GIT

- Git is a distributed version control system used for source code management.
- A command line version control program
- Free and Open Source



git

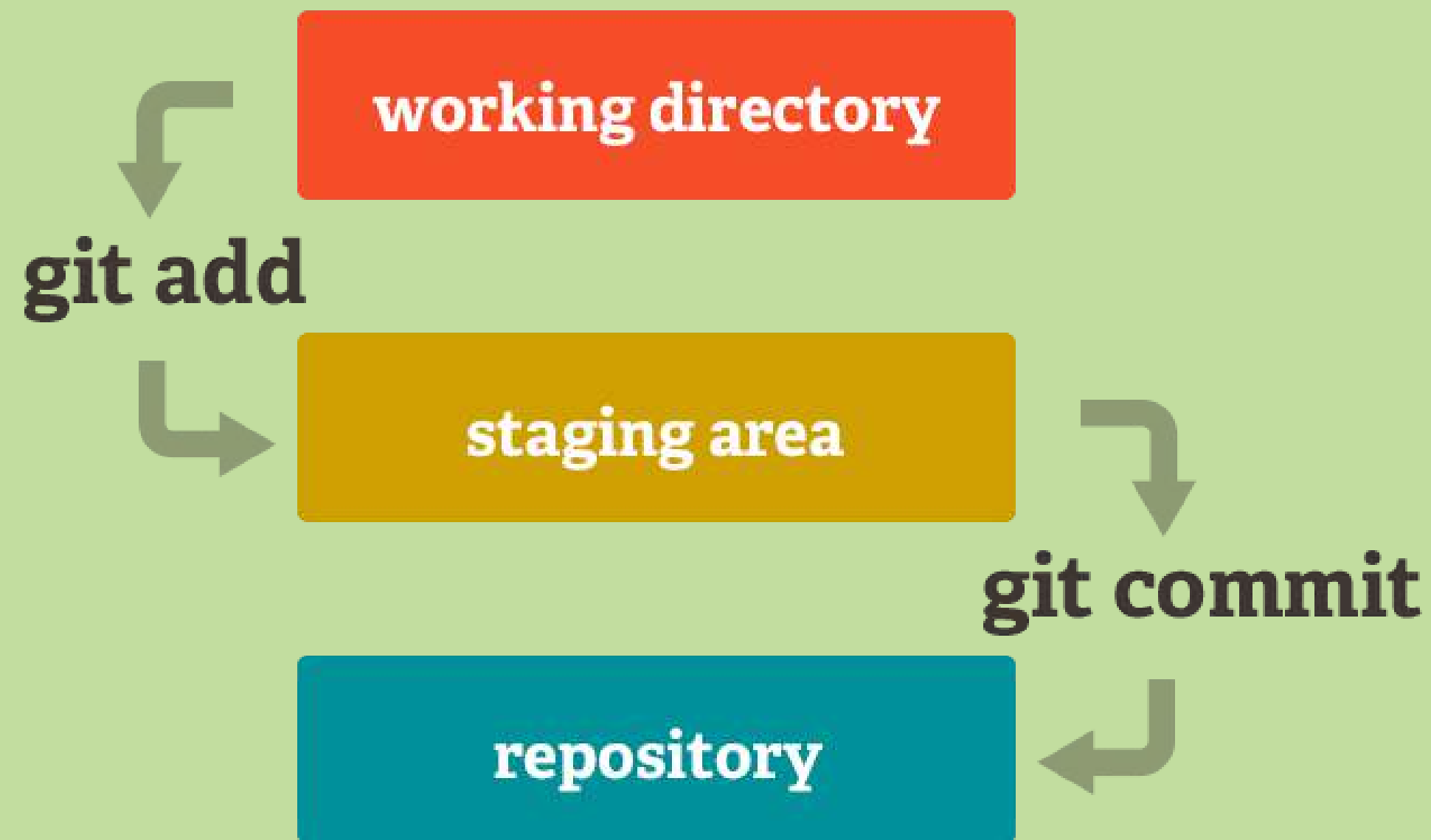
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GIT

WORKFLOW



GIT WORKFLOW



WORKING DIRECTORY

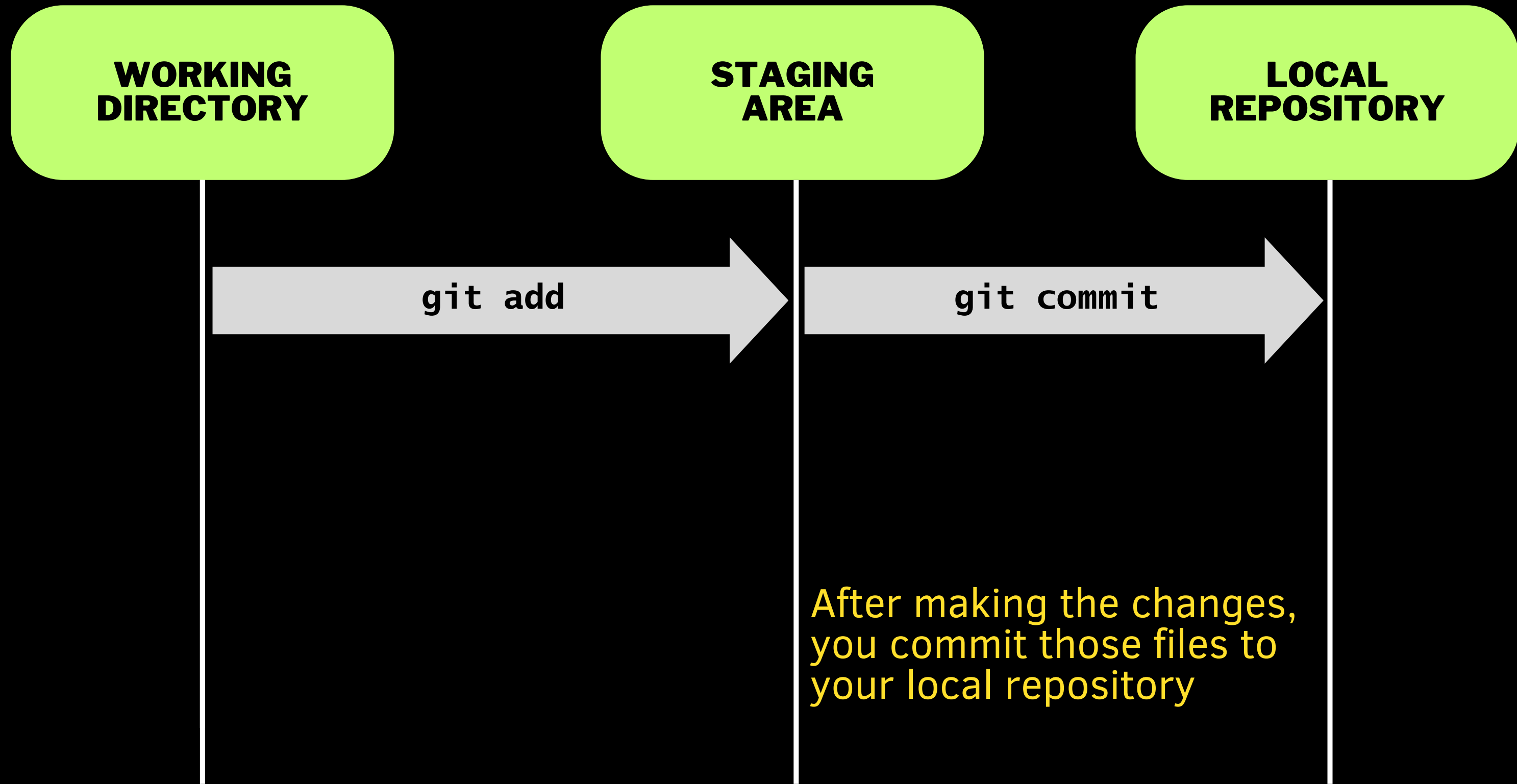
Working directory is the folder you are currently working in

**WORKING
DIRECTORY**

**STAGING
AREA**

`git add`

You add your files to the staging
area before committing



STAGING AREA IN A NUTSHELL



**WORKING
DIRECTORY**



**STAGING
AREA**



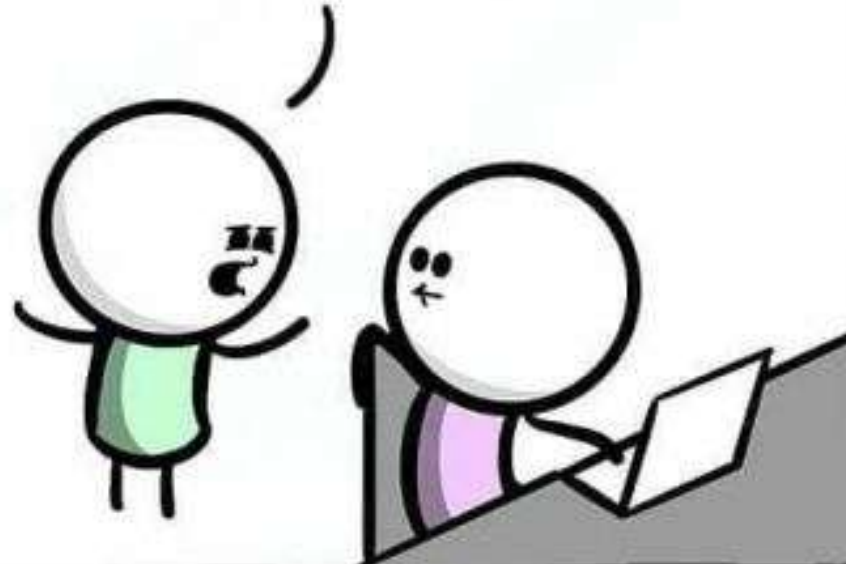
COMMIT

DEMO

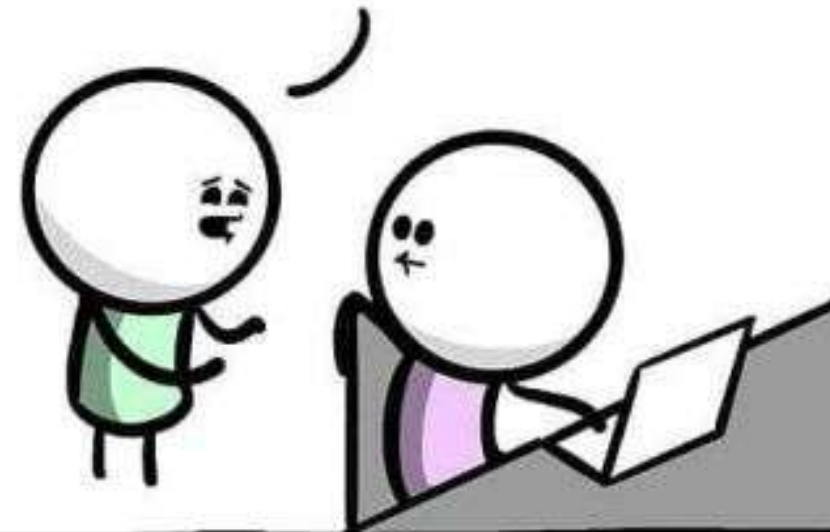


```
git init  
git add <filename>  
git commit -m "A nice commit message"
```


BOB, ALL YOUR
COMMIT MESSAGES SAY
"SMALL CHANGES"!



NEXT TIME, PLEASE
WRITE A MEANINGFUL
MESSAGE

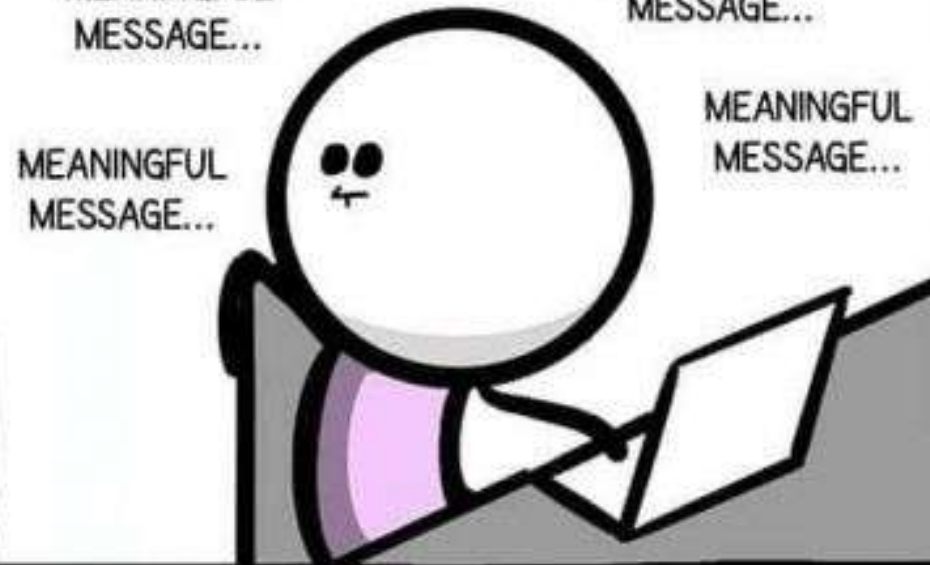


MEANINGFUL
MESSAGE...

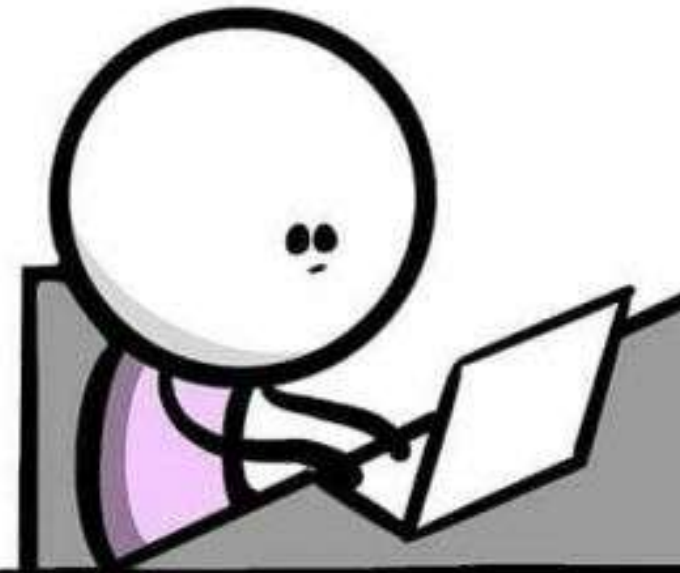
MEANINGFUL
MESSAGE...

MEANINGFUL
MESSAGE...

MEANINGFUL
MESSAGE...



GIT COMMIT -M "WHAT IS LIFE IF
FULL OF CARE. IF WE HAVE NO
TIME TO STAND AND STARE..."





THE EVIL CAT TRILOGY



CASE 1: UNDO CHANGES AFTER A COMMIT

Working tree is clean.

Cat comes up and adds rubbish files

You come back and check git status. It's too chaotic

You want to undo! Just do

```
>> git checkout .
```

And you have recovered your codebase



CASE 2: RESTORING CODE AFTER FILES ARE IN STAGING AREA

This time the cat plans to commit

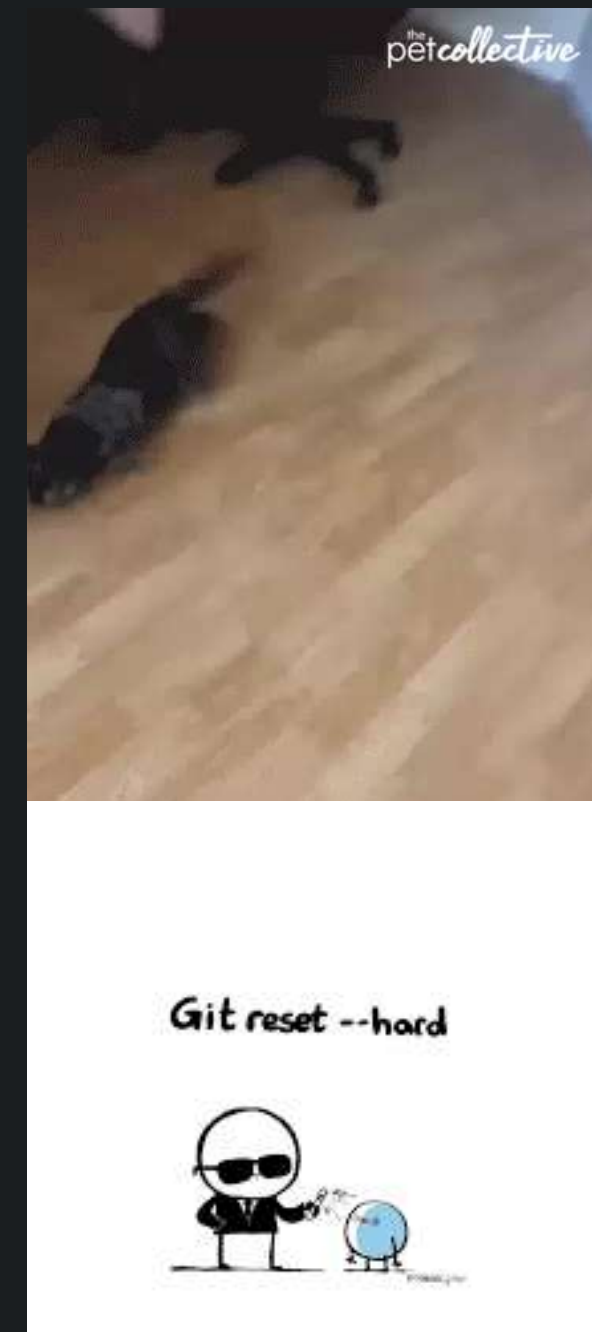
It adds rubbish files and rubbish content. It does

```
>> git add .
```

And luckily you come in time and it runs away

How do you unstage?

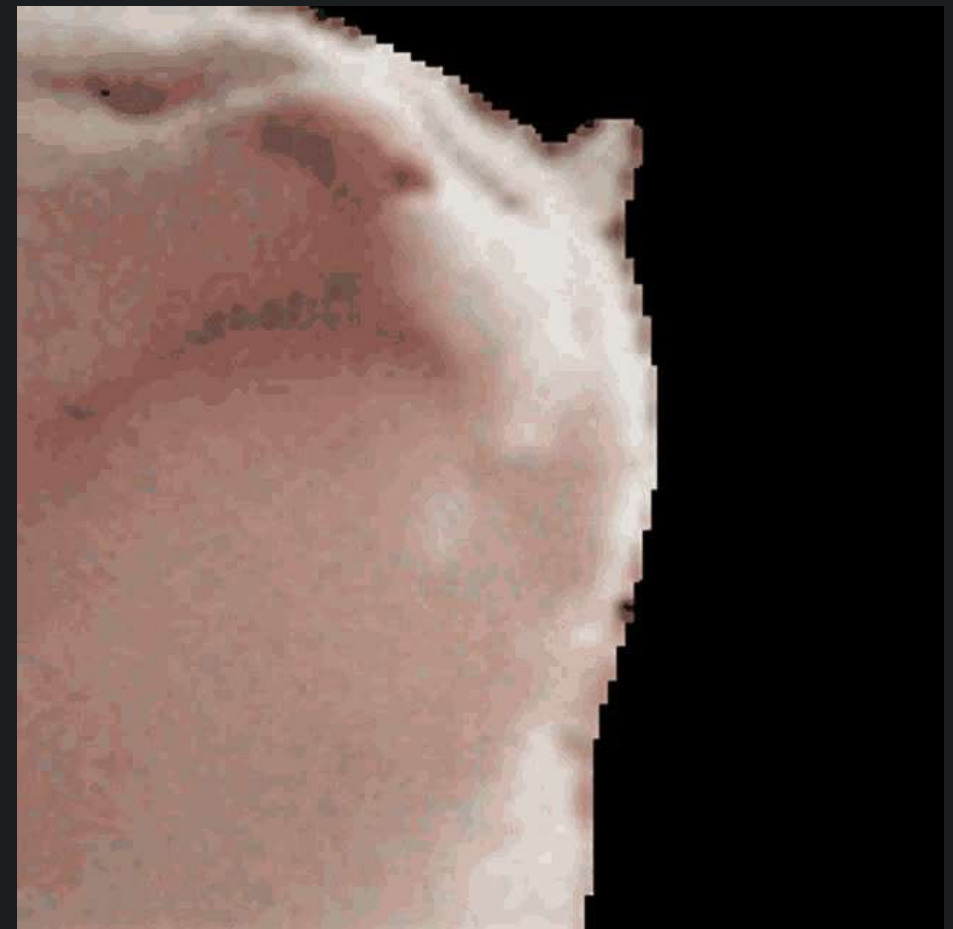
```
>> git reset --hard HEAD
```



CASE3 : GOING BACK TO A PREVIOUS COMMIT

This time the cat makes not 1 but 2 rubbish commits 😞

```
>> git reset --hard <commit_hash>
```



DOUBTS?

IN CASE OF



git commit



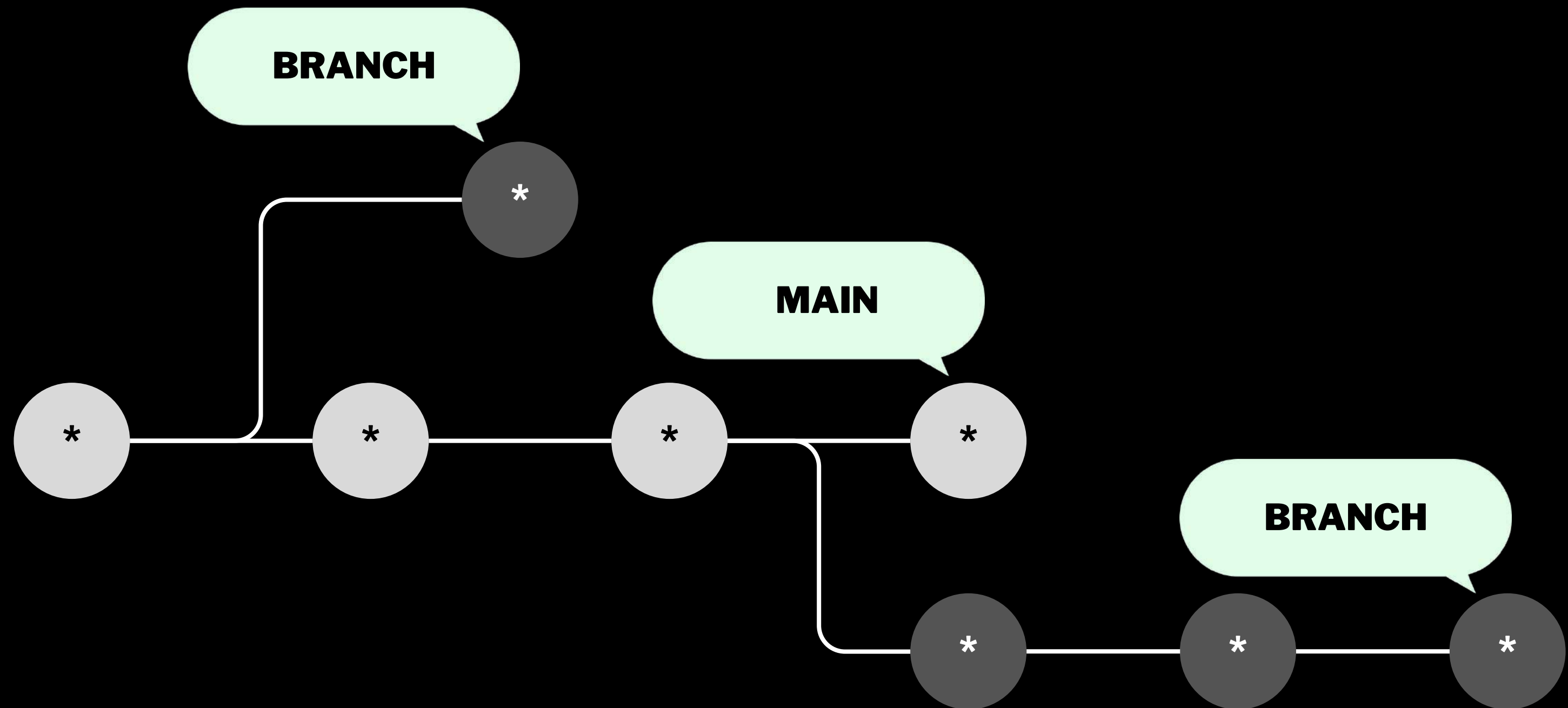
git push



exit building

BRANCHING





MERGING

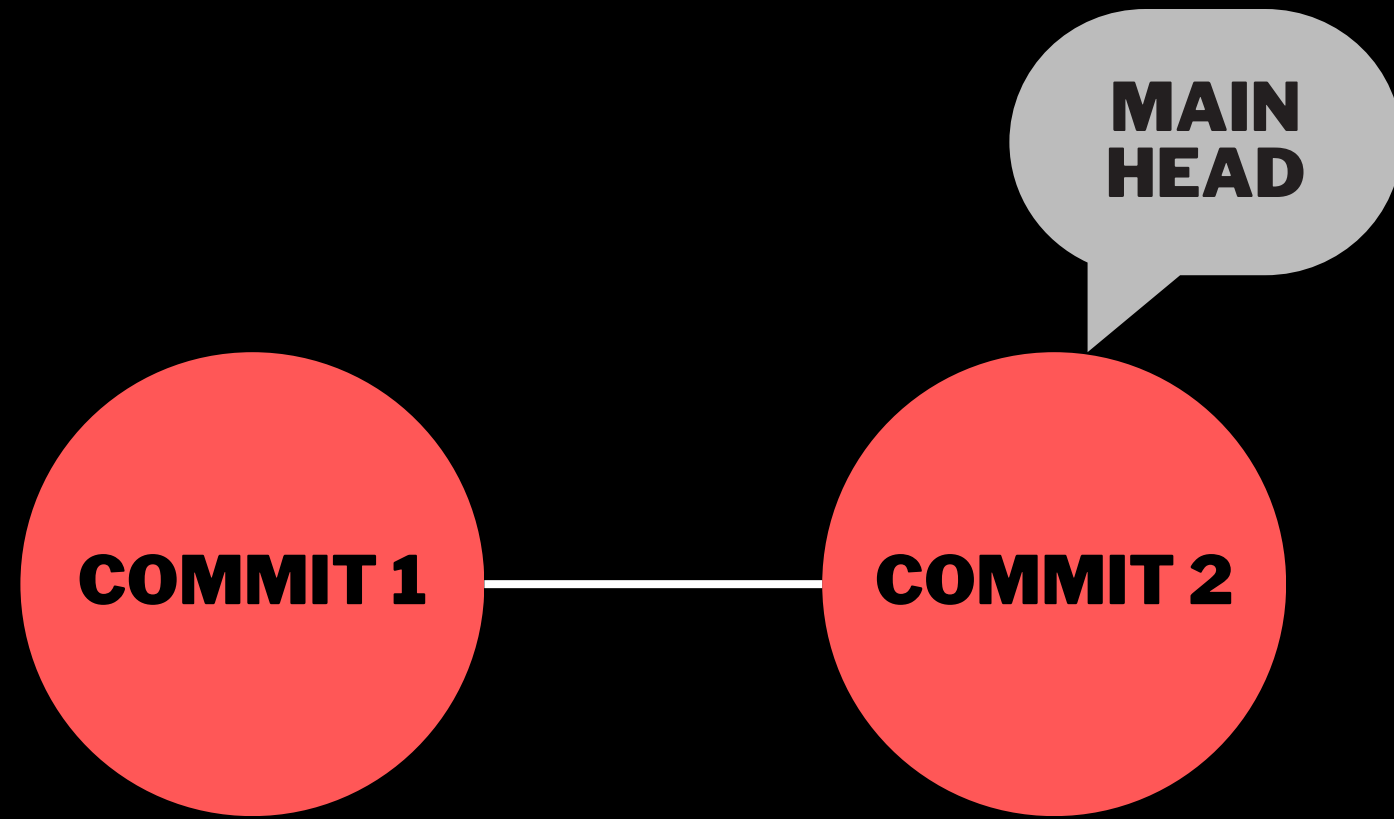


**MAIN
HEAD**

COMMIT 1

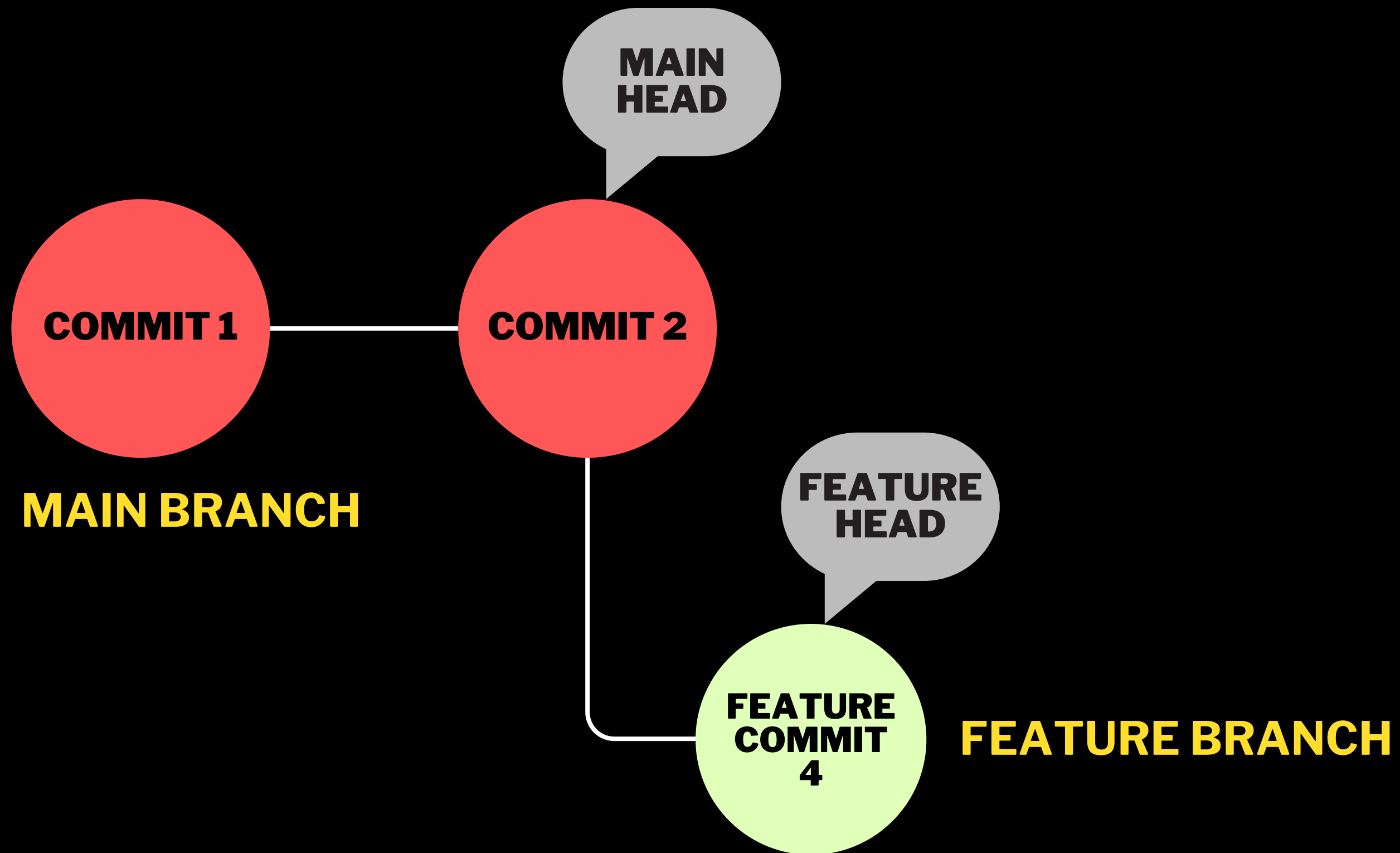
MAIN BRANCH

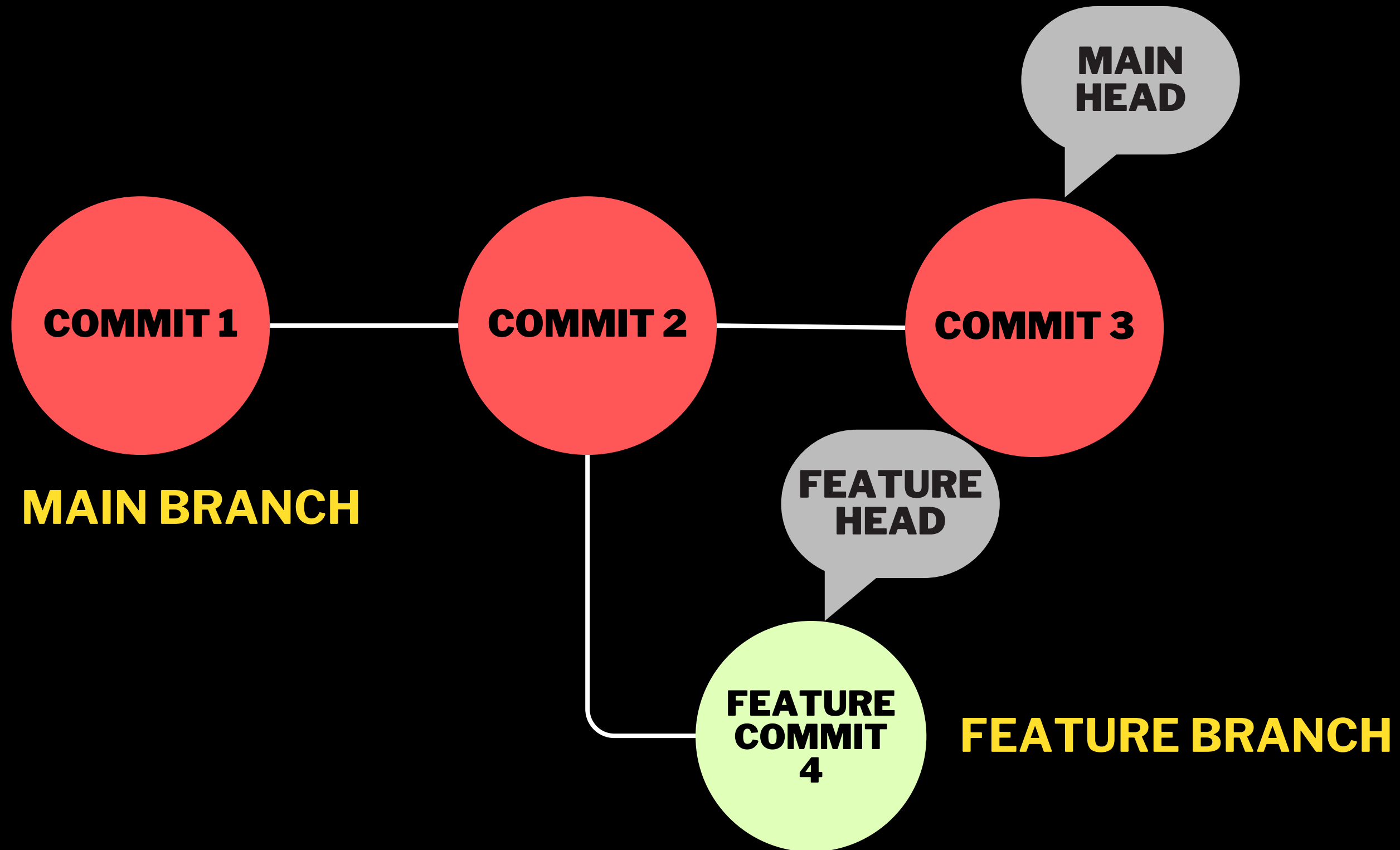


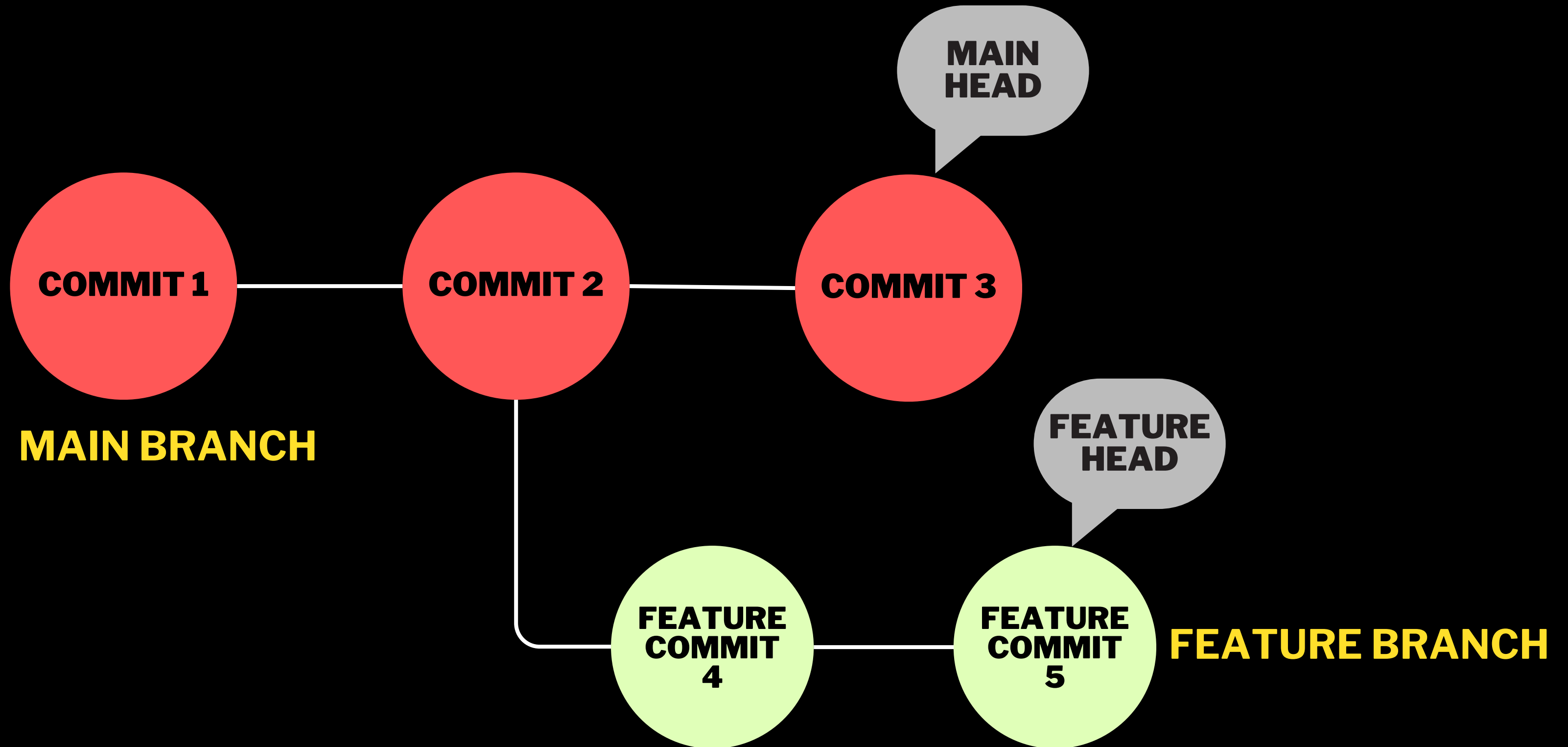


MAIN BRANCH

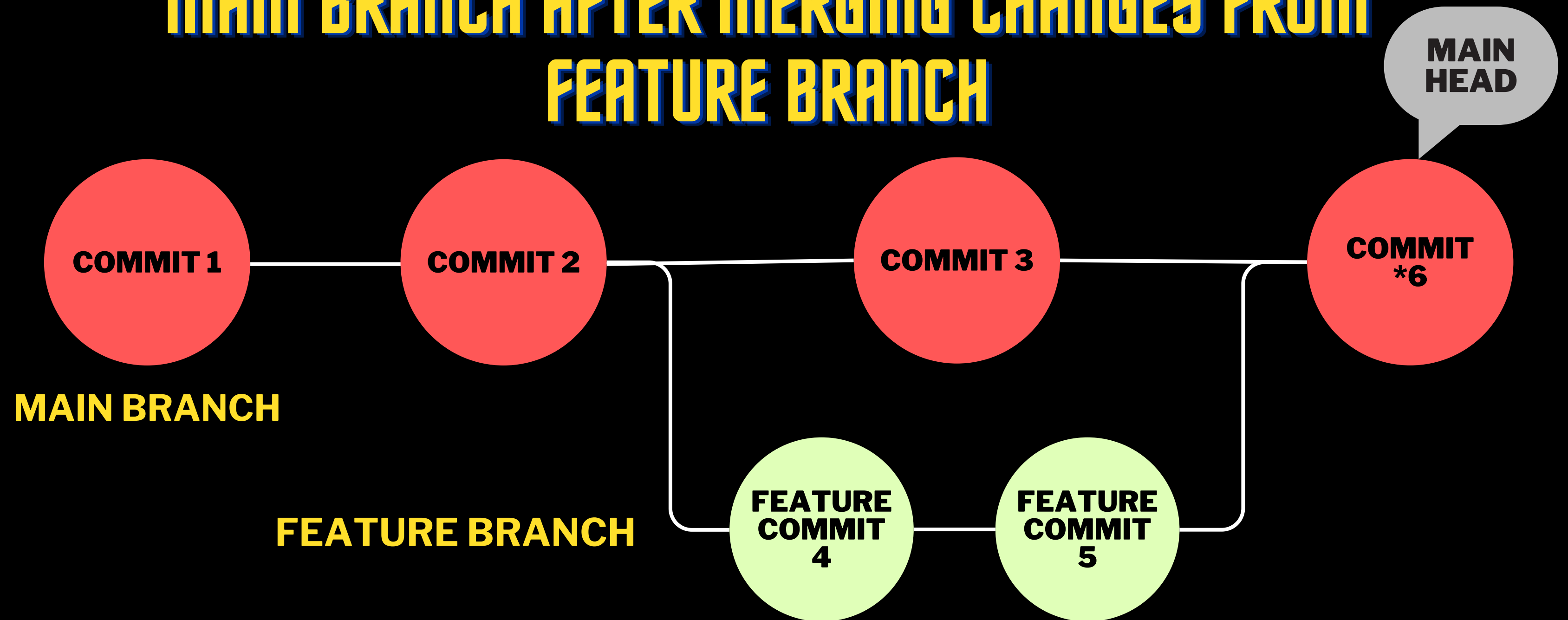








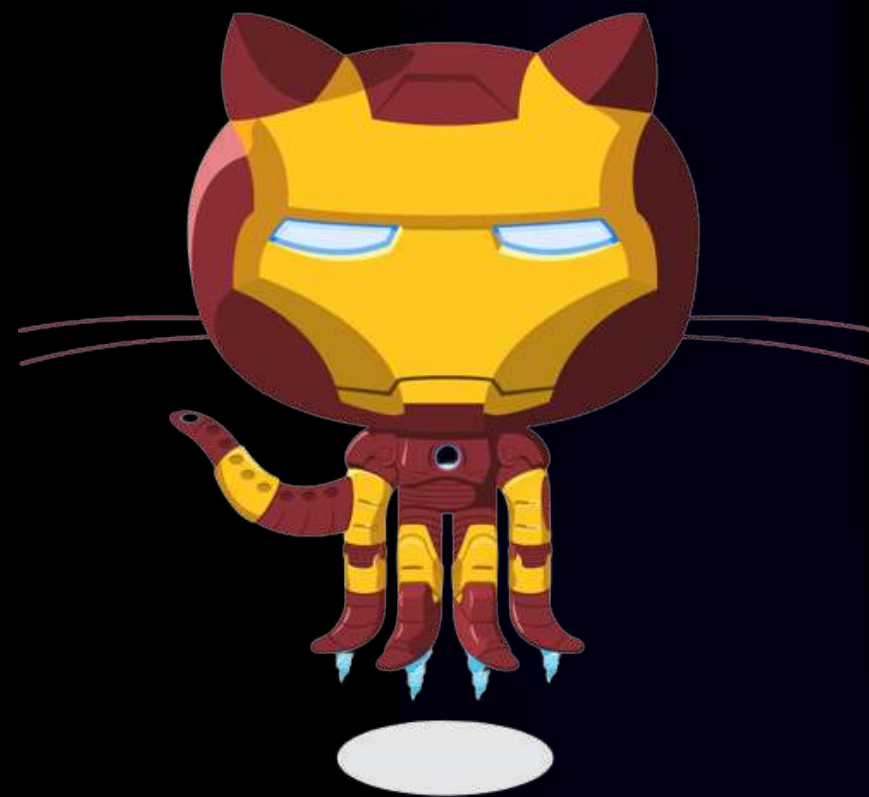
MAIN BRANCH AFTER MERGING CHANGES FROM FEATURE BRANCH



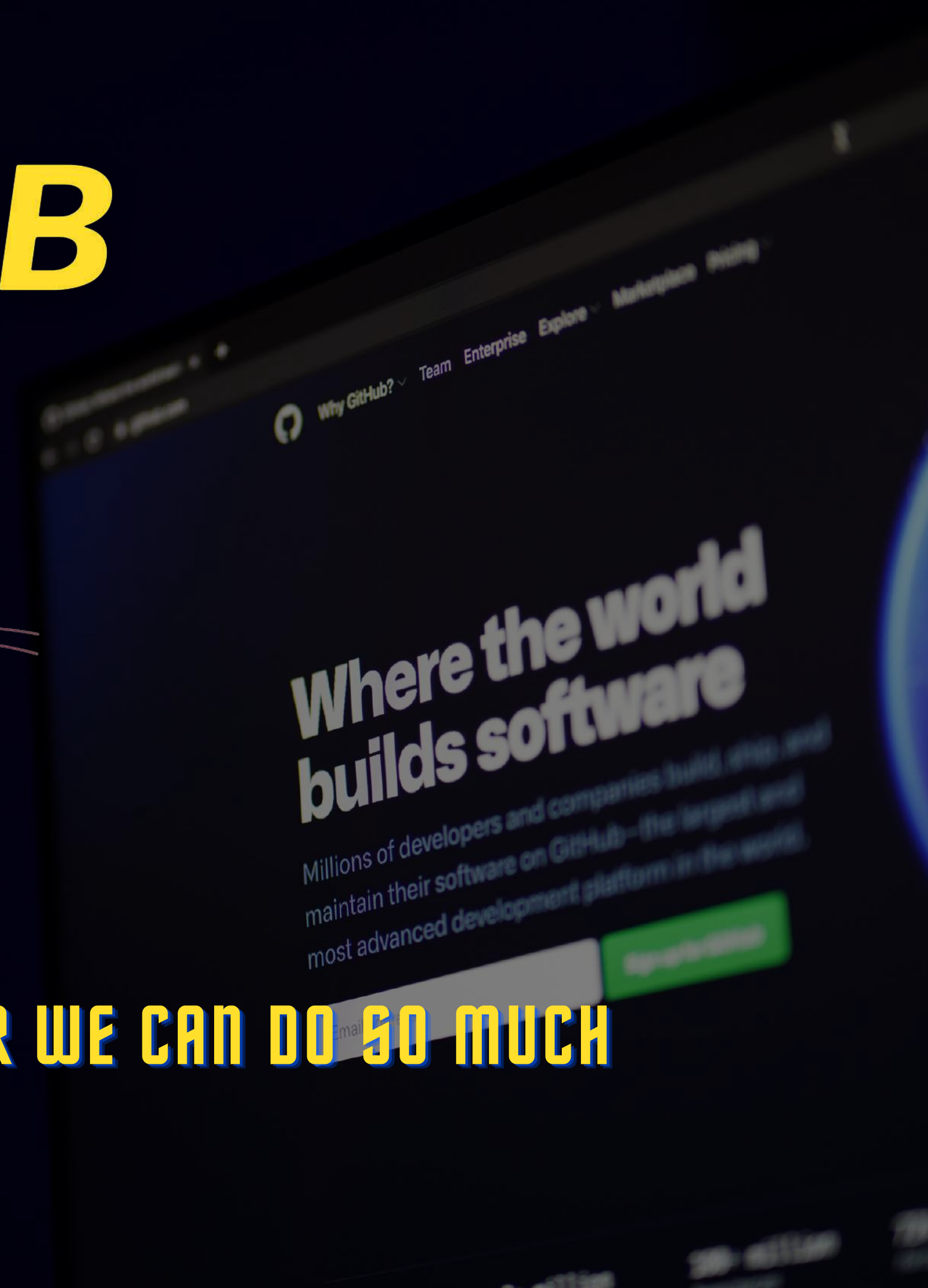
DOUBTS?



GITHUB



ALONE WE CAN DO SO LITTLE, TOGETHER WE CAN DO SO MUCH
-HELEN KELLER



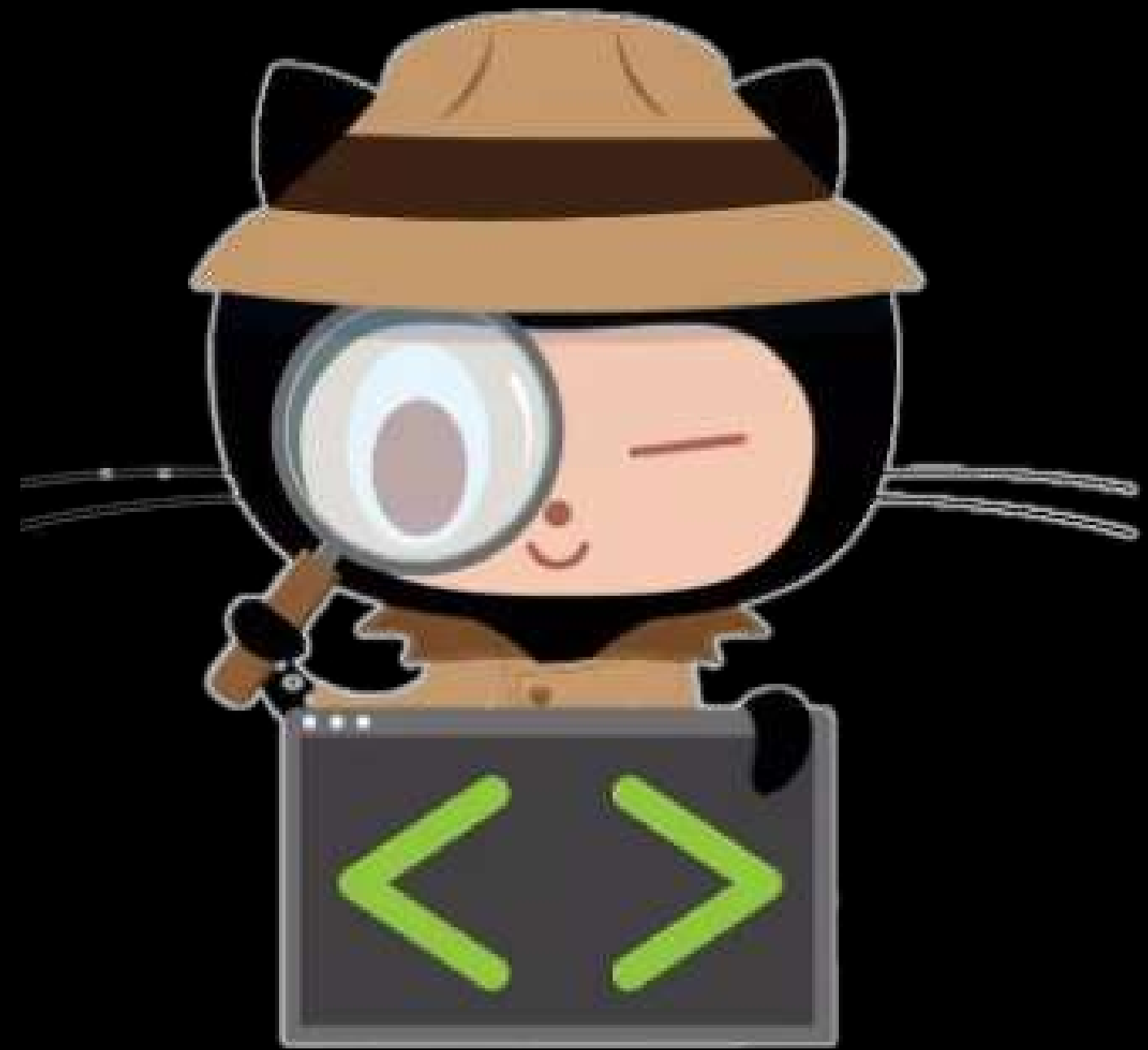
NEED FOR GITHUB?

- Developers need a web/cloud based hosting platform
- Useful for version control
- Enables efficient collaboration
- Easy evaluation of each others work



WHAT IS GITHUB?

- Largest web-based git repository hosting website
- GitHub makes git social
- Allows developers to collaborate on a project from anywhere



MAINE OFFICE KE 1ST DAY
GIT AUR **GITHUB** KO EK BOLDIYA



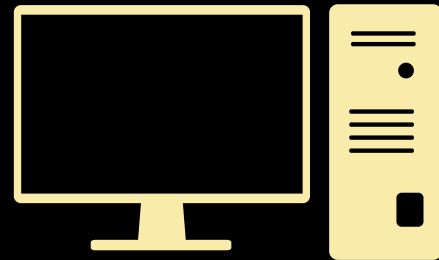
GIT VS GITHUB : WHAT'S THE DIFFERENCE



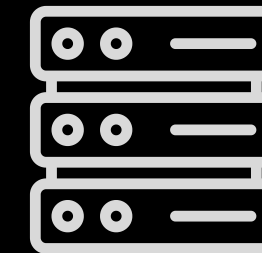
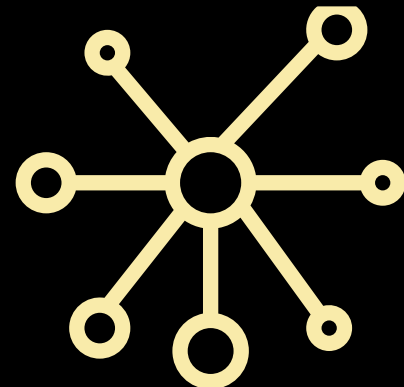
USED FOR
VERSION
CONTROL



COMMAND
LINE TOOL
INSTALLED
LOCALLY ON
COMPUTER

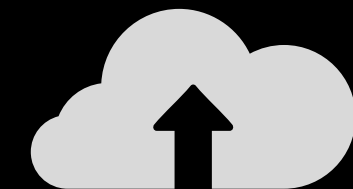


TRACKS AND
STORES
CHANGES MADE
TO FILES

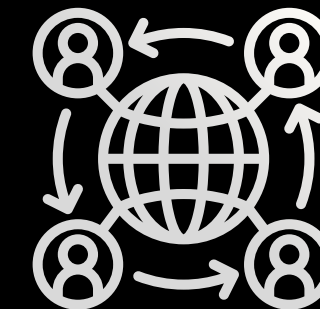


USED FOR
HOSTING GIT
REPOSITORIES

GITHUB IS
EXCLUSIVELY
CLOUD BASED

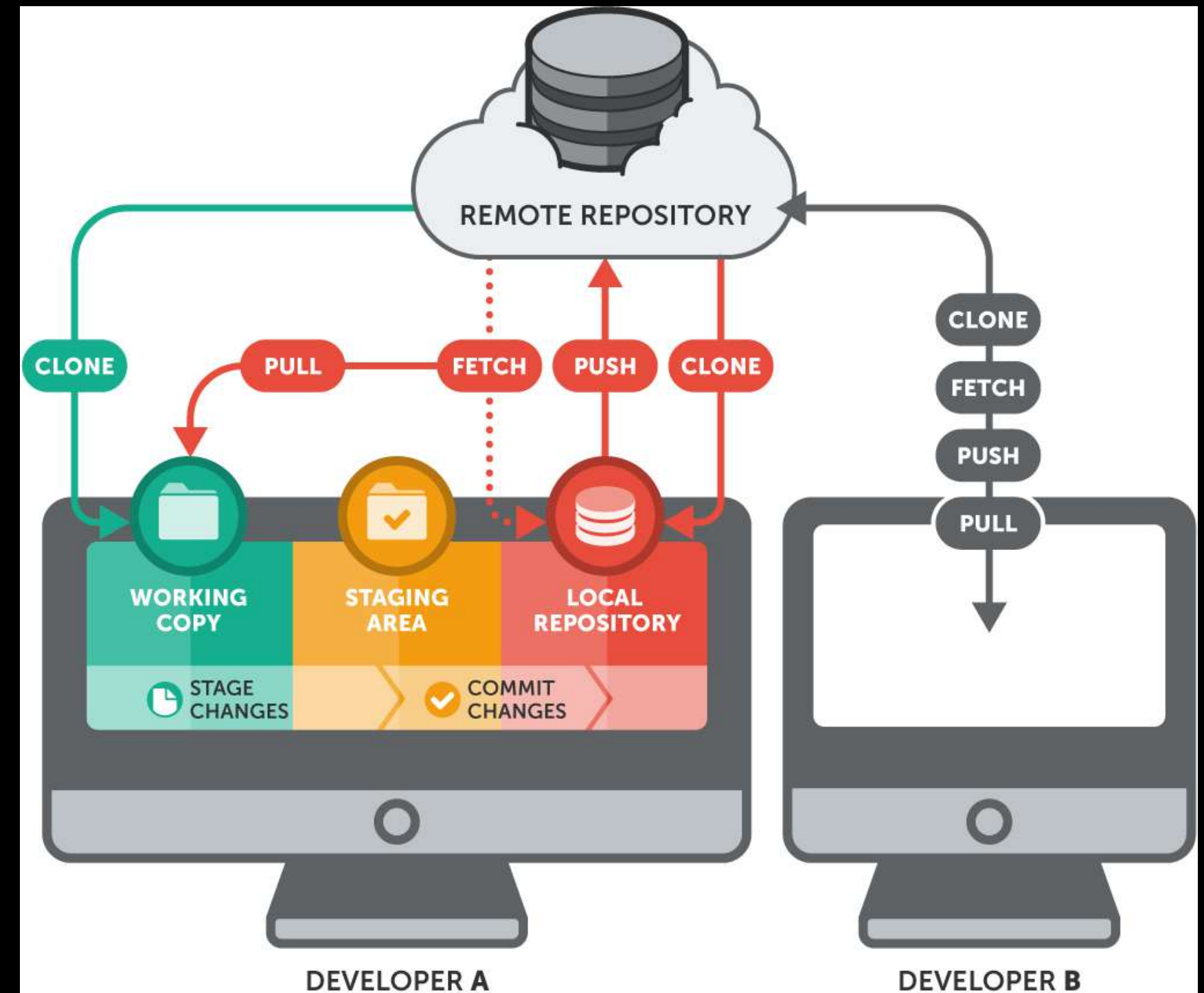


PROVIDES WEB
INTERFACE,
ALLOWS
SHARING CODE
WITH OTHERS



REMOTE REPOSITORY

A remote repository is a server-based storage location for code and project files, used in version control systems like Git. It allows multiple developers to collaborate by sharing, updating, and synchronizing their work, enabling efficient teamwork and code management.



PUSH AND PULL





PUSH \$ PULL

GIT PUSH

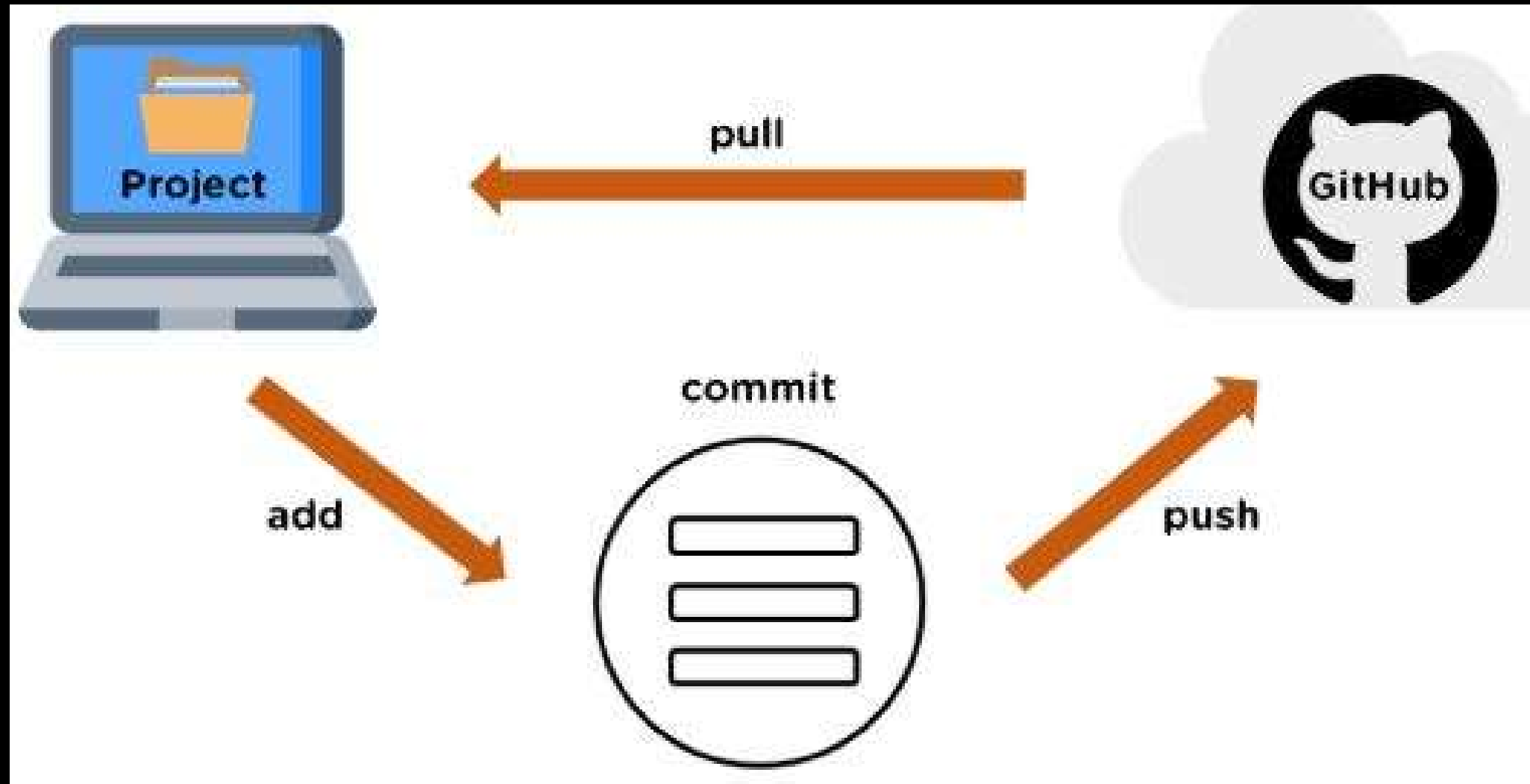
The "push" command in git is used to upload or send the committed changes from a local repository to a remote repository, allowing those changes to be shared and stored centrally for collaboration and synchronization among team members

```
>> git push
```

GIT PULL

The "pull" command in Git is used to fetch and integrate the latest changes from a remote repository into the local repository. This ensures that your local copy is up-to-date with the most recent developments made by other contributors

```
>> git pull
```



I KILLED A MAN REWORKED OLD MEME



I manually upload files
to github instead of using git



DEMO: SEND A PR

STEPS TO MAKE A PR

- FORK
- CLONE
- NEW BRANCH
- COMMIT
- PUSH
- PULL REQUEST (ON GITHUB)

WORKFLOW - CONTRIBUTING TO A REPOSITORY ON GITHUB



[kossiitkgp/codebase](#)



I CAN FIX
THIS

Diljit

WORKFLOW - CONTRIBUTING TO A REPOSITORY ON GITHUB



kossiitkgp/codebase

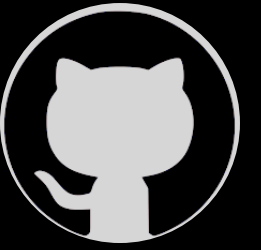


fork



diljit's/codebase

WORKFLOW - CONTRIBUTING TO A REPOSITORY ON GITHUB



diljit's/codebase

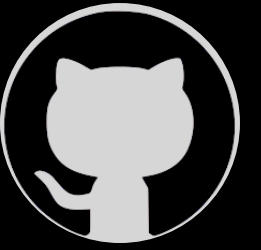


push

**DILJIT WORKS
HARD AND
FIXES THE BUG
AND HE
PUSHES**



WORKFLOW - CONTRIBUTING TO A REPOSITORY ON GITHUB



kossiitkgp/codebase

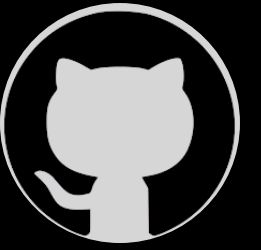


PULL REQUEST



diljit's/codebase

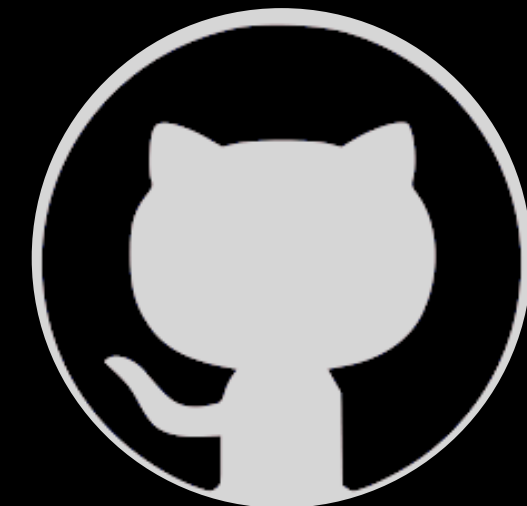
WORKFLOW - CONTRIBUTING TO A REPOSITORY ON GITHUB



[kossiitkgp/codebase](https://github.com/kossiitkgp/codebase)

AFTER MERGING THE PULL
REQUEST, THE CODEBASE IS FREE
OF BUGS!

WE WANT YOU TO SEND A PR!



SOME GOOD PLACES TO TRY OUT

try new
things

- Checkout metakgp repositories
- Issues with label **<good-first-issue>**
- Participate in KWOC-2023 (Keep following KOSS on facebook for updates)
- < <https://goodfirstissue.dev/> >

WE WANT YOUR FEEDBACK



<https://shorturl.at/cv147>

DOUBTS?

you can
do it

