



PROGRAMMING CLUB

INTRO TO GIT



Presented by Veer and Sujal

What is Git!?

Have you ever named your assignments like
final.pdf, final_final.pdf,
onelasttime_final_final.pdf

And of course ended up wasting storage and
your precious time

What is Git!?

This is where git comes in play

Definition - Git is a version control system

What is version control!?

What is Version Control!?

Version control is a system that keeps track of changes in your project files, like a smart history log. It remembers who changed what, when they changed it, and lets you go back to any previous version if needed.

What if!?

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GitHub



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That's where GitHub comes in. GitHub is like the cloud and collaboration layer built on top of Git. It lets us put our repositories online, so we can share, collaborate, review each other's work, and even automate workflows.

Git and GitHub

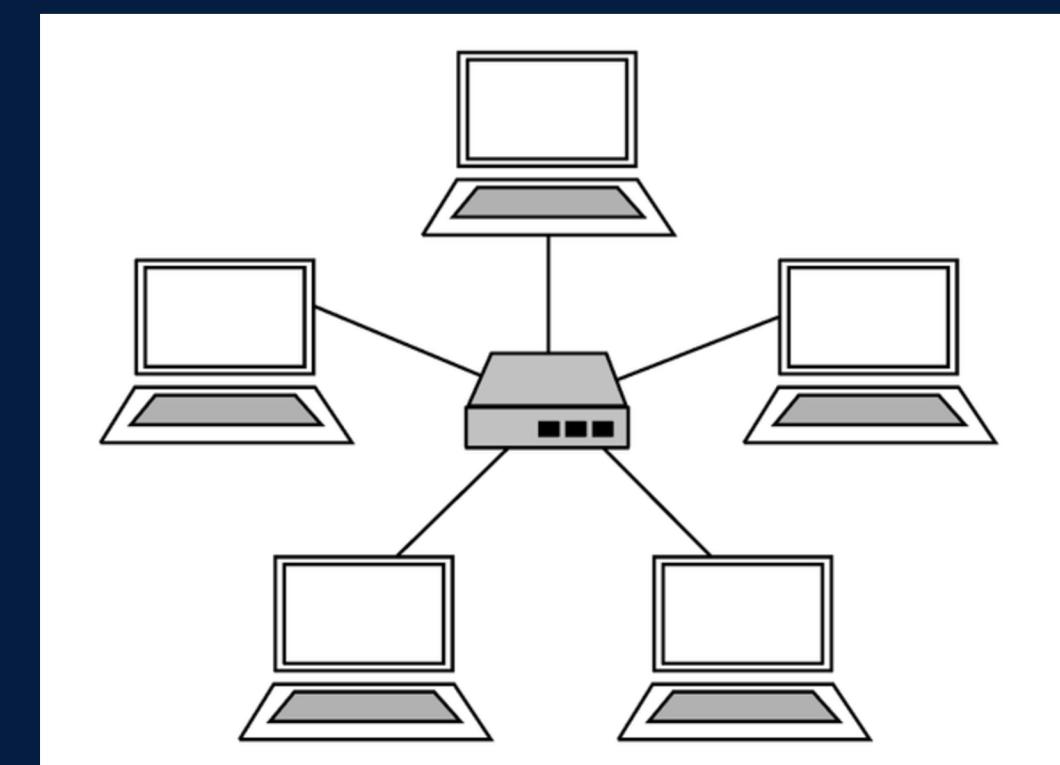
Imagine Git is your phone's Gallery app, which has all photos you clicked on your phone. Where you can add filters, crop and edit images

Now GitHub is basically your Google Photos, where you can upload, make changes, comment(resolving issues), share(forking a repo) and much more for the same photo, even downloading and editing them.

Two step process

You have a cloud (GitHub) and git on your local computer. You make visible changes on the cloud as two steps

- Update the version in the local computer
- Ask Github to make these changes which is currently stores in your laptop

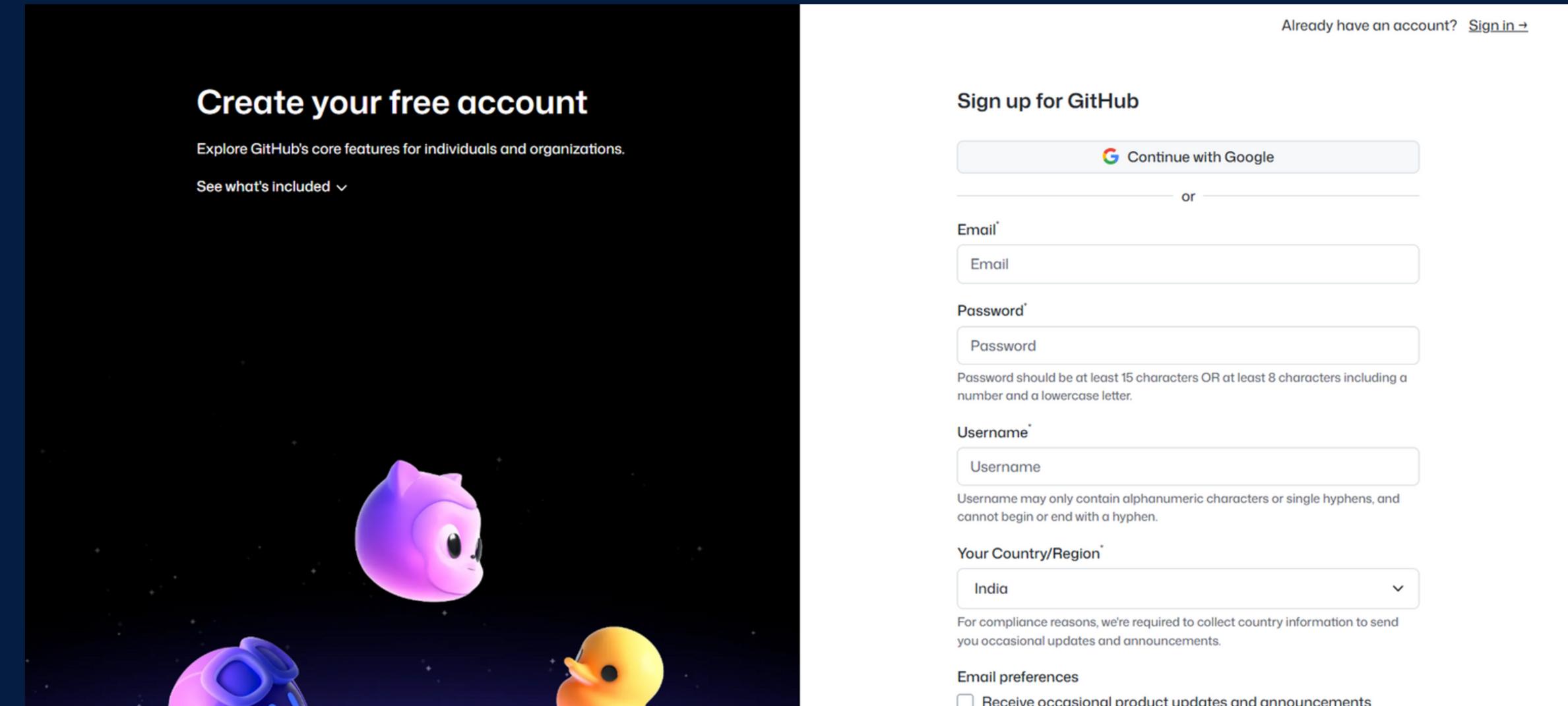


What is a repo

A GitHub repository (repo) is a centralised storage location which has bunch of folders and files
Managed by git version control system, it serves as the source of collaboration and development

OK, Cool Stuff

Please set up your GitHub accounts. Its a pretty simple and fast process and please choose a username that you would be ok with for your future purposes.



Already have an account? [Sign in →](#)

Sign up for GitHub

[Continue with Google](#)

or

Email*

Password*

Password should be at least 15 characters OR at least 8 characters including a number and a lowercase letter.

Username*

Username may only contain alphanumeric characters or single hyphens, and cannot begin or end with a hyphen.

Your Country/Region*

For compliance reasons, we're required to collect country information to send you occasional updates and announcements.

Email preferences

Receive occasional product updates and announcements

Git-Bash

Git, Please Download Git-Bash, follow
instructions for your respective OS.

Setting up

git config --global user.name "Your Name"

git config --global user.email "Your email"

Setting up

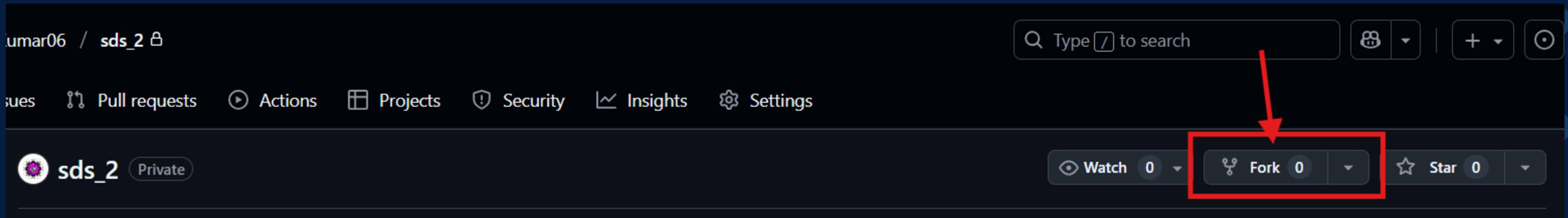
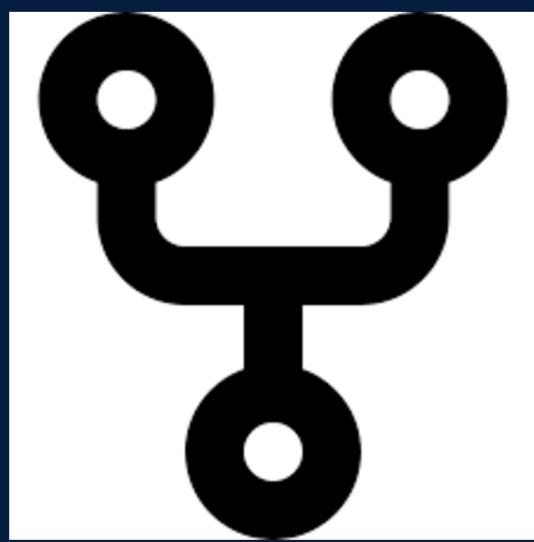
For Windows - It will ask you to set up things,
during your first push.

For Linux (Ubuntu/Debian) - `sudo apt install gh`

For Mac - `brew install gh`

`gh auth login`

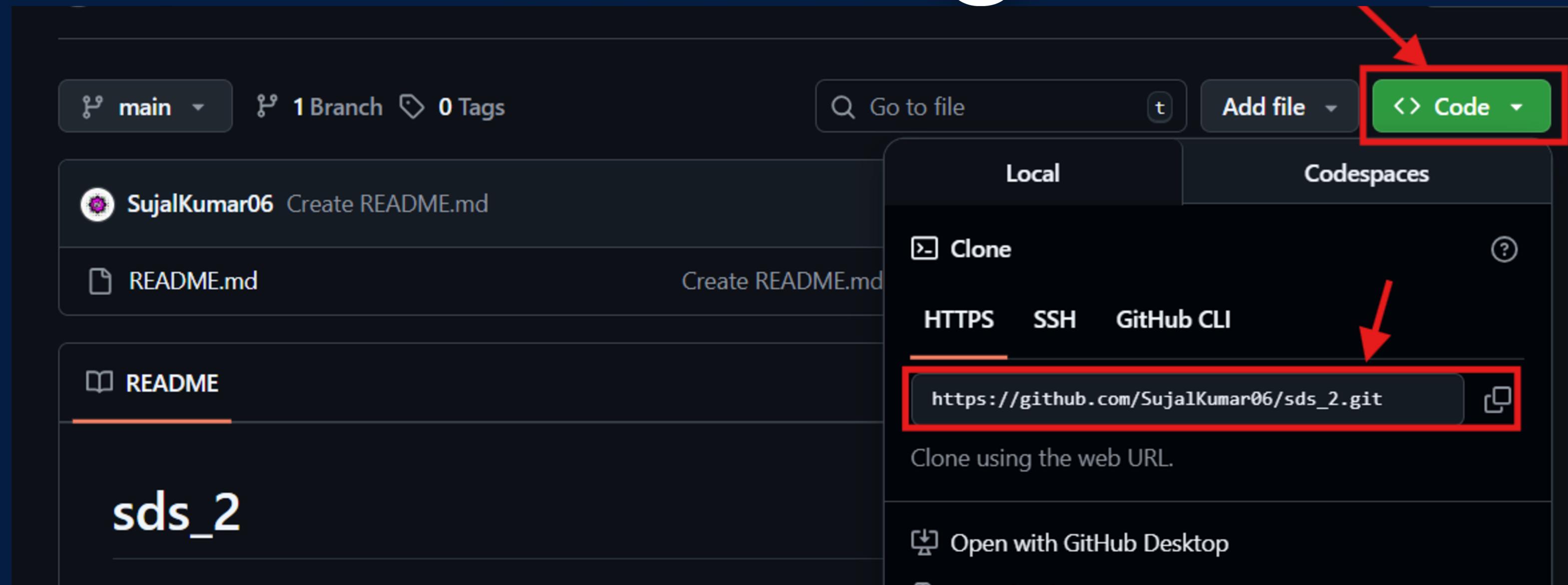
Forking



A fork is your personal copy of someone else's repo.

This copy allows you to freely make changes and experiment without affecting the original repo.

Cloning



git clone <link>

Making a local copy of your repo.

Opening your local repo

`cd sds_2` → opens the directory in your terminal

`code .` → Opens the current directory in VS Code



**DOUBLE CLICKING
VS CODE ICON**



**TYPING "CODE ." IN
THE TERMINAL
LIKE A PRO**

Fun Time

Go Ahead and write a Joke/~~Pickup Line~~/Guess
where Yoogi lives/Compliment about Veer

in the designated position in README.md

How to save these changes.

git diff → shows the changes that you have done

git add <filename> → Tells git which files or changes you want to keep track of.

git commit -m “commit mssg” → Records the changes that were staged and creates a new version in version history.

Note: **git add .** → This will stage all the files in the current directory

Now you want everyone to.
see the changes

git push → pushes all your commits to upstream

Now check your forked GitHub Repo, you would be
able to see the

What If!?

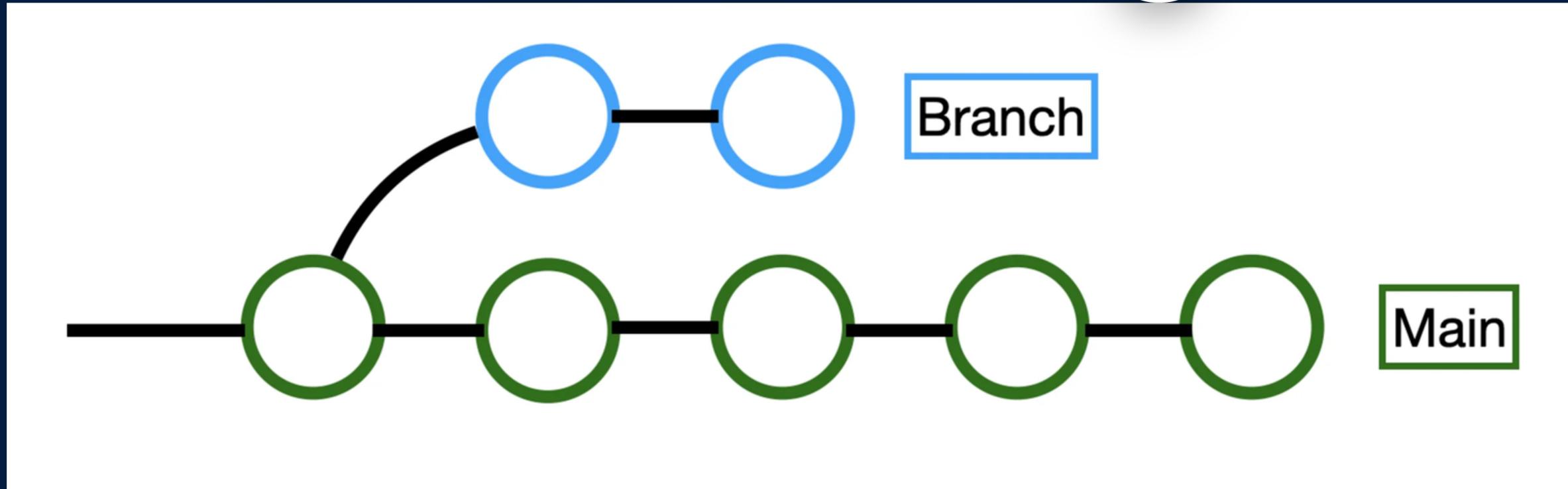
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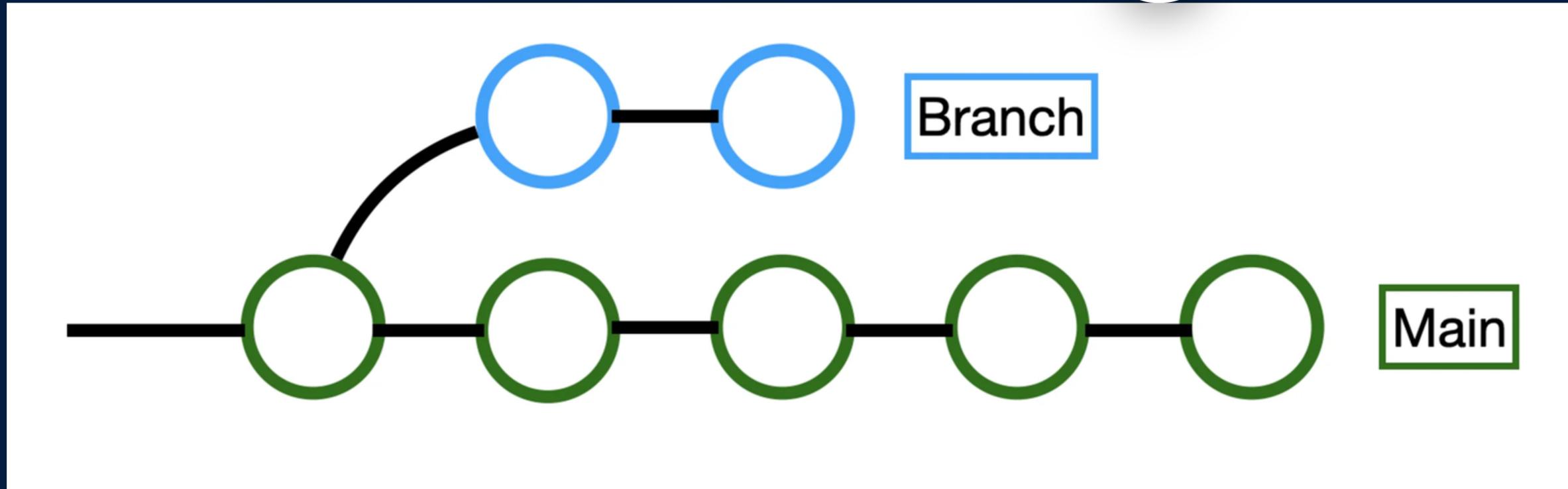
Here is where **branching** comes into play

Branching



Branching is the creation of a separate line of development that allows changes to be made without affecting the main codebase.

Branching



git branch -c "new_branch" → creates a new branch named "new_branch"

git branch → shows the branches and which branch you are on

git switch new_branch → switches to the new_branch

Shoutout time!?

**So everyone has written something, now
you want to tell us what you have written.
How do we do that!?**

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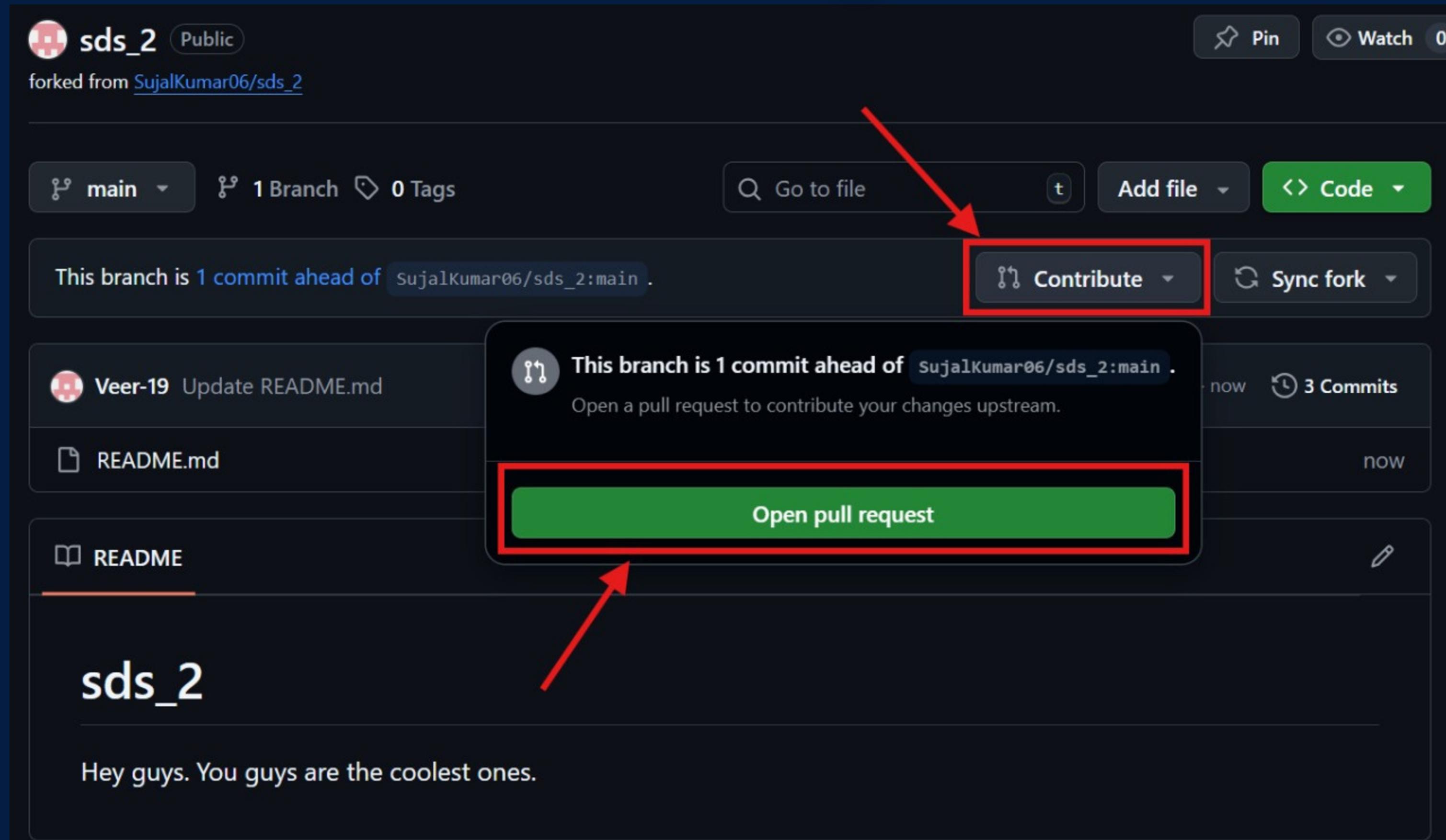
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Here is where **pull request** comes into play

Pull Request

A pull request is like asking to add your changes into the main repo. Other people review it, give feedback and approve before the code is merged

Pull Request



A screenshot of a GitHub fork repository for 'sds_2'. The repository is public and forked from 'SujalKumar06/sds_2'. The main branch is selected. The repository has 1 branch and 0 tags. A message indicates that the branch is 1 commit ahead of the upstream 'main' branch. The 'Contribute' button and the 'Open pull request' button are highlighted with red boxes and arrows. The repository contains a single commit by 'Veer-19' that updated the README.md file. The README file contains the text: 'Hey guys. You guys are the coolest ones.'

sds_2 Public

forked from [SujalKumar06/sds_2](#)

main 1 Branch 0 Tags

Go to file

Add file

Code

This branch is 1 commit ahead of [SujalKumar06/sds_2:main](#).

Contribute

Sync fork

Veer-19 Update README.md

README.md

README

Open pull request

This branch is 1 commit ahead of [SujalKumar06/sds_2:main](#).

Open a pull request to contribute your changes upstream.

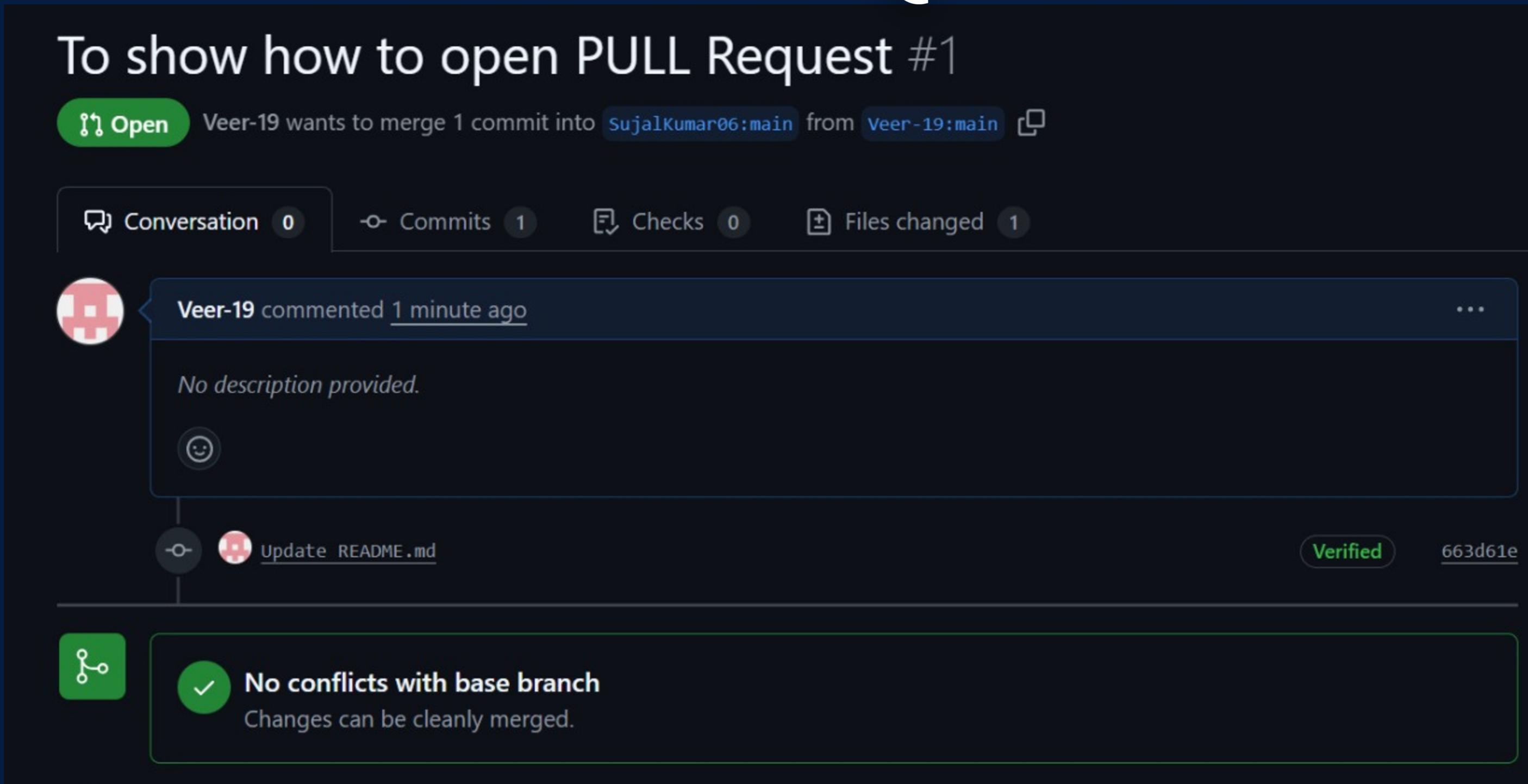
now 3 Commits

now

Hey guys. You guys are the coolest ones.

Pull Request

To show how to open PULL Request #1



Open Veer-19 wants to merge 1 commit into `SujalKumar06:main` from `Veer-19:main` ⚙️

Conversation 0 Commits 1 Checks 0 Files changed 1

Veer-19 commented 1 minute ago

No description provided.

Update README.md

Verified 663d61e

No conflicts with base branch

Changes can be cleanly merged.

This is how it will look at your screen
(contributor's end)

Pull Request

The screenshot shows a GitHub pull request page for a repository. The pull request is from the user 'Veer-19' and is merged into the 'main' branch. The pull request has 1 commit and 1 file changed. A comment from 'Veer-19' is visible, stating 'No description provided.' and 'Update README.md'. The pull request is marked as 'Verified' and has a commit hash of '663d61e'. A green button at the bottom left says 'Merge pull request'. A note at the bottom right says 'You can also merge this with the command line. [View command line instructions.](#)'

This is how it will look at our screen
(collaborator's end)

Pull Request

**We have some cool graphs to show you how
these works and looks
Open Insights tab in the original repo and
go to Network.**

Pull

Now all of you have opened a pull request to get your joke merged in the repo by the owner but the owner have to choose the best one, so now your local repo has your joke ,not the one which the owner merged in the repo so to keep your local copy in sync with cloud repo(upstream), we use git pull

git pull → Syncs your local repo with your upstream

Are we done!?

No, git has a endless list of functionalities that you can look upon. We just touched upon the most important ones

Though are you excited to see one last thing!?

MERGE CONFLICT!!!!

~~Parijat has given us clear instructions to tell you, if you ever encounter this, DELETE THE WHOLE REPO!!~~



Jokes Aside.

We will just demonstrate what a merge conflict is.



Any Doubts!?

THANK YOU!!!