



Objectives

- Introduction to GitHub
- Hands-on
 - Repository Creation
 - Branching
 - Commits
 - Pull Requests
 - Collaboration

What is GitHub???

- Free web based public repository for collaboration
- Version Control System and Source Code Management based on '**git**'
- Coding in software development environments
- Resource sharing and management in any team/environment
- Created by Linus Torvalds (creator of Linux)

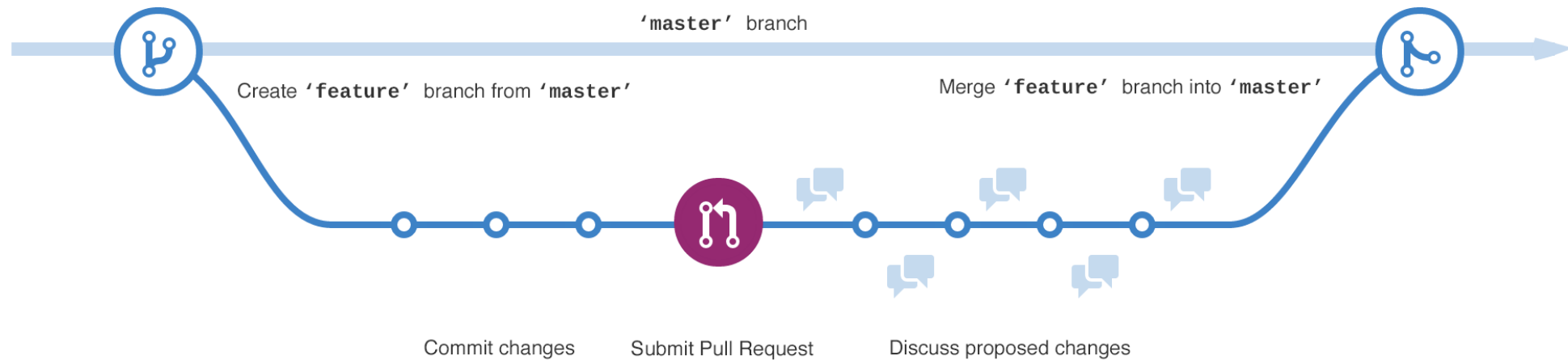
Version Control System

- Keeps record of changes - What, Why, When, Who
- Different users make changes to same shared documents at the same time
- Revert changes to previous states
- Restore accidentally deleted branches

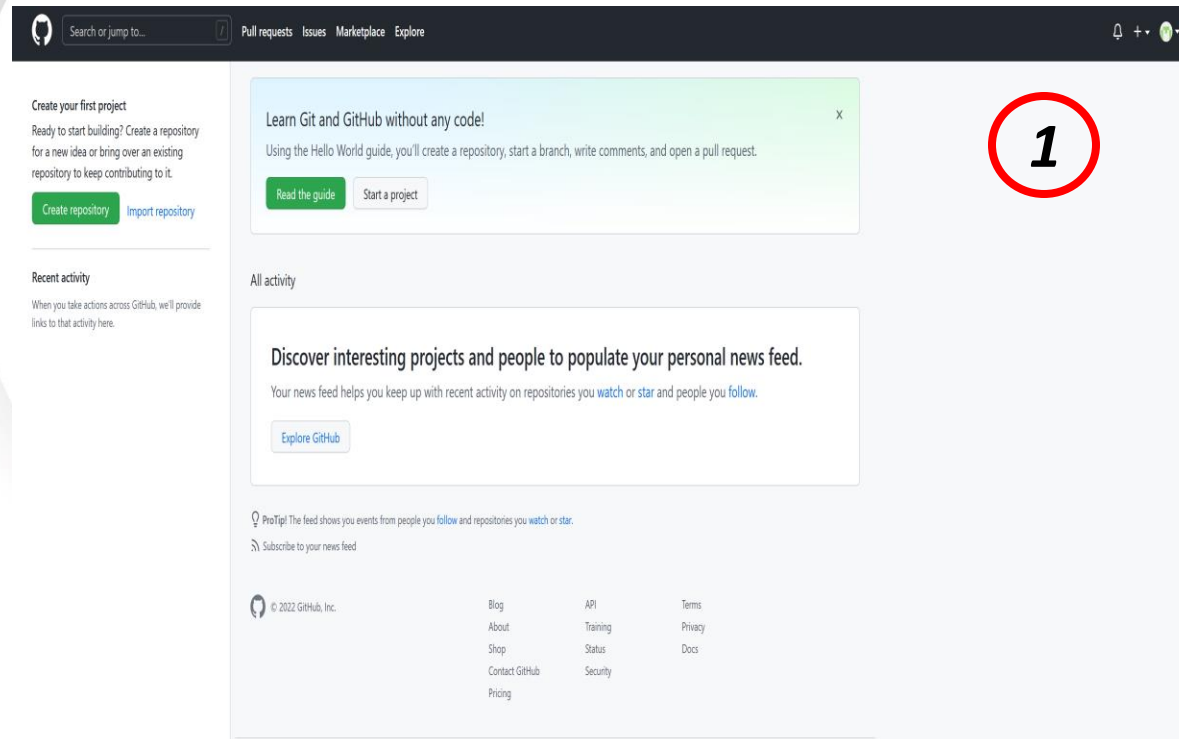
Why Learn GitHub?

- Most popular online Git repo
- Gain access to open-source work
- Become an open-source contributor
- Very commonly used internally in industry

Workflow



New Repository



Search or jump to...

Pull requests Issues Marketplace Explore

Create your first project
Ready to start building? Create a repository for a new idea or bring over an existing repository to keep contributing to it.

Create repository Import repository

Recent activity
When you take actions across GitHub, we'll provide links to that activity here.

Learn Git and GitHub without any code!

Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.

Read the guide Start a project

All activity

Discover interesting projects and people to populate your personal news feed.

Your news feed helps you keep up with recent activity on repositories you watch or star and people you follow.

Explore GitHub

ProTip! The feed shows you events from people you follow and repositories you watch or star.

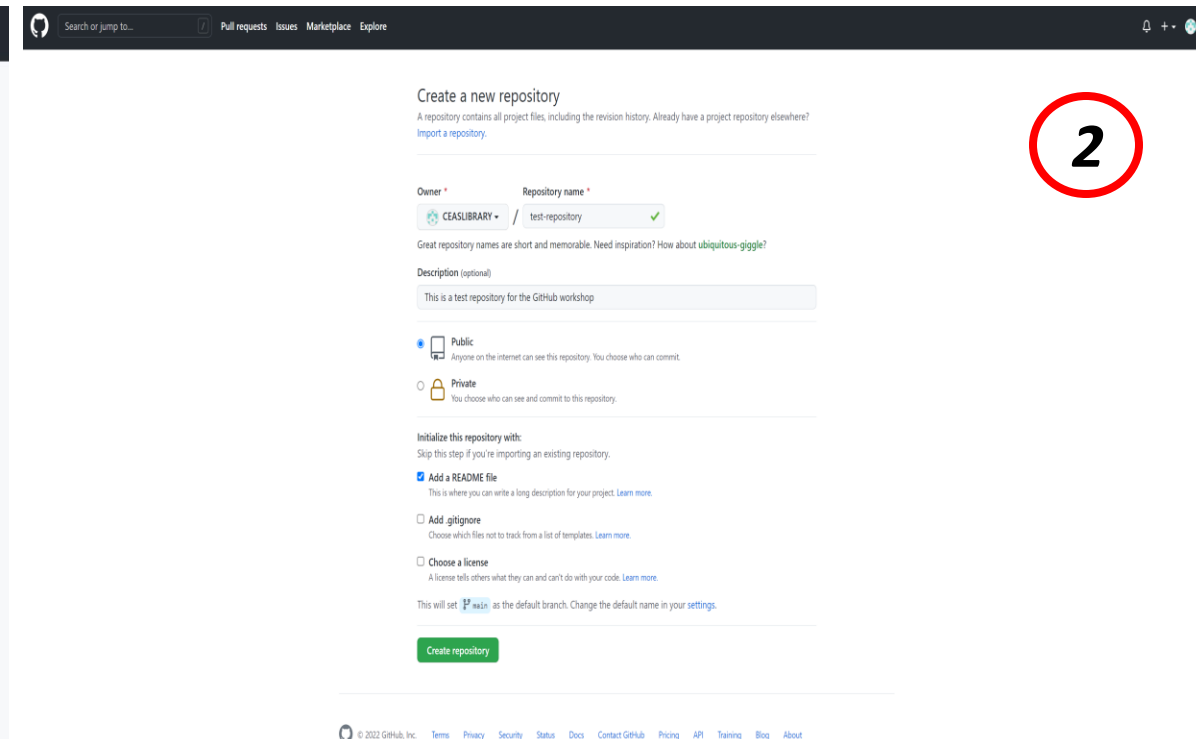
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Search or jump to...

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Create a new repository

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

Owner * Repository name *

CEASLIBRARY / test-repository ✓

Great repository names are short and memorable. Need inspiration? How about ubiquitous-giggle?

Description (optional)

This is a test repository for the GitHub workshop

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.

Initialize this repository with:

Skip this step if you're importing an existing repository.

☒ Add a README file
This is where you can write a long description for your project. [Learn more.](#)

☐ Add .gitignore
Choose which files not to track from a list of templates. [Learn more.](#)

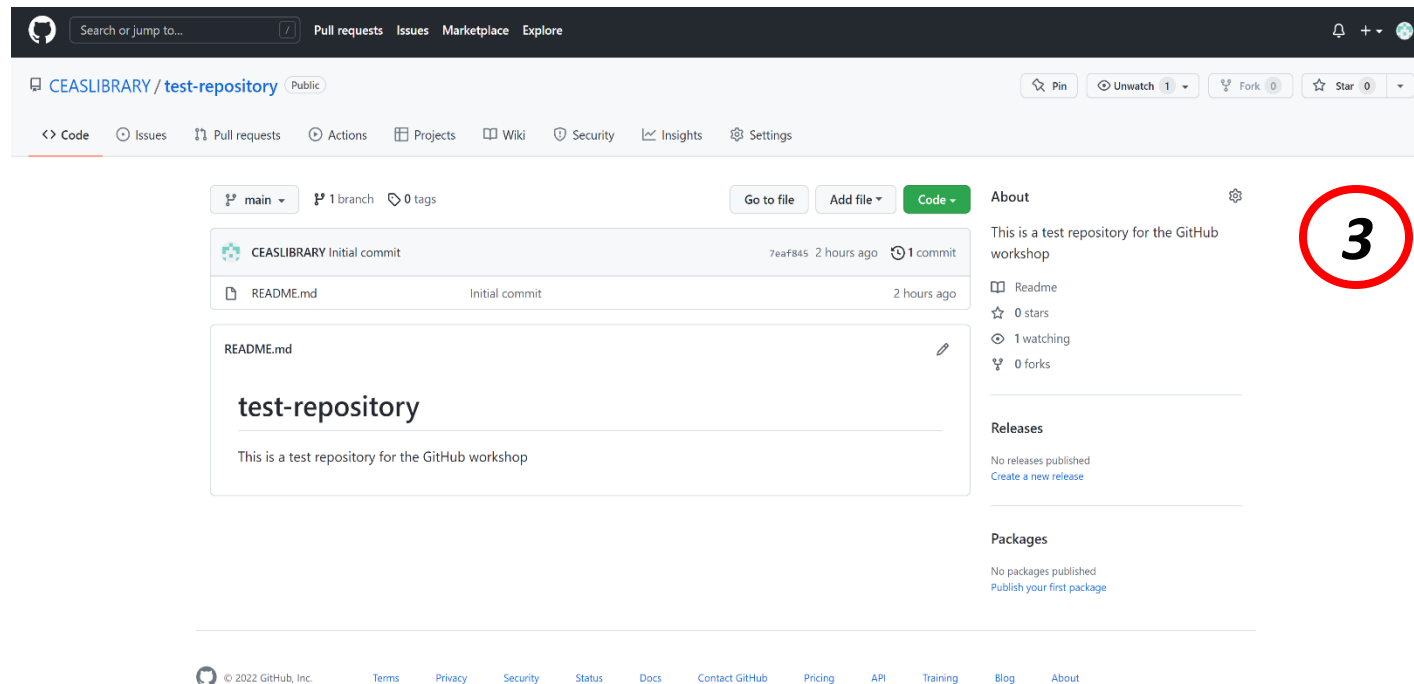
☐ Choose a license
A license tells others what they can and can't do with your code. [Learn more.](#)

This will set main as the default branch. Change the default name in your settings.

Create repository

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New Repository



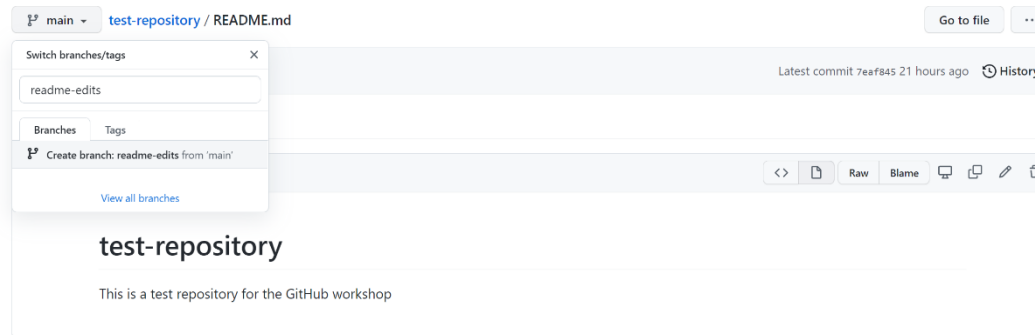
Branching

- Way to work on different versions of a repository at one time
- Default Branch – ***master/main***
- Copy or snapshot at that point in time
- Experiment, and make edits before ***committing/ merging*** to ***master/main***

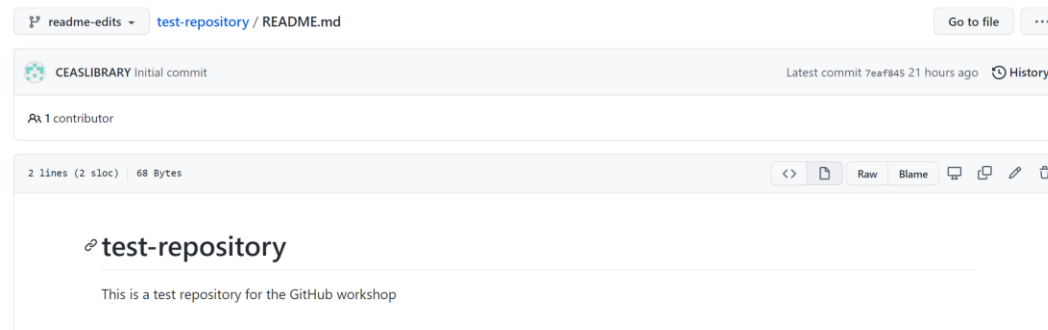
Branching



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Commits

- Changes to files can be made and saved by ***commits***
- A ***commit message*** can be associated with each commit
- Commit messages describe or explain reason for the change
- Commit messages capture the history of changes for later reference by other contributors

Commits

The screenshot displays a GitHub repository page for 'CEASLIBRARY / test-repository'. The repository is public and has a README.md file selected in the 'main' branch. The README content is as follows:

```
1 # test-repository
2 This is a test repository for the GitHub workshop
3 This is my first commit
```

Below the file editor, the 'Commit changes' section is visible. It includes a text area for the commit message, which currently contains 'My first commit on GitHub'. The commit options are set to 'Commit directly to the main branch'.

A red circle with the number '6' is overlaid on the right side of the image, highlighting the commit interface.

Pull Requests

- Propose the changes
- Show differences (*diffs*) in the content between branches
- Additions and deletions are colored in green and red
- Request for peer reviews (feedback from specific team members)

Pull Requests

CEASLIBRARY / test-repository Public

<> Code Issues **Pull requests** Actions Projects Wiki Security Insights Settings

Label issues and pull requests for new contributors
Now, GitHub will help potential first-time contributors [discover issues](#) labeled with [good first issue](#)

Dismiss

Filters Labels 0 Milestones 0 [New pull request](#)

Welcome to pull requests!

Pull requests help you collaborate on code with other people. As pull requests are created, they'll appear here in a searchable and filterable list. To get started, you should [create a pull request](#).

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CEASLIBRARY / test-repository Public

<> Code Issues **Pull requests** Actions Projects Wiki Security Insights Settings

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

base: readme-edits ← compare: main ✓ Able to merge. These branches can be automatically merged.

Discuss and review the changes in this comparison with others. [Learn about pull requests](#) [Create pull request](#)

1 commit 1 file changed 1 contributor

Commits on Feb 10, 2022

First Commit [Verified](#) [839af3a](#) [CEASLIBRARY](#) committed 3 minutes ago

Showing 1 changed file with 1 addition and 0 deletions.

File	Changes
README.md	<div> <div>1</div> <div>test-repository</div> <div>This is a test repository for the GitHub workshop</div> </div> <div> <div>2</div> <div>test-repository</div> <div>This is a test repository for the GitHub workshop</div> </div> <div> <div>3</div> <div>test-repository</div> <div>+ This is my first commit</div> </div>

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Pull Requests

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: `readme-edits` ← compare: `main` ✓ **Able to merge.** These branches can be automatically merged.

First Commit

Write Preview H B I `≡` <> [🔗](#) [📄](#) [📋](#) [📧](#) [🔍](#) [🔖](#)

My first commit on GitHub

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

Create pull request

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

1 commit 1 file changed 1 contributor

Commits on Feb 10, 2022

First Commit Verified 839af3a <>

CEASLIBRARY committed 16 minutes ago

First Commit #1

Open CEASLIBRARY wants to merge 1 commit into `readme-edits` from `main`

Conversation 0 Commits 1 Checks 0 Files changed 1 +1 -0

CEASLIBRARY commented 8 minutes ago • edited Owner

My first commit on GitHub

First Commit Verified 839af3a

Add more commits by pushing to the `main` branch on CEASLIBRARY/test-repository.

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](#).

Write Preview H B I `≡` <> [🔗](#) [📄](#) [📋](#) [📧](#) [🔍](#) [🔖](#)

First Pull Request

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

Close with comment **Comment**

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

1 participant

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Pull Requests

First Commit #1

11

Open CEASLIBRARY wants to merge 1 commit into `main` from `readme-edits`

Conversation 0 Commits 1 Checks 0 Files changed 0 +0 -0

CEASLIBRARY commented 2 minutes ago • edited • Owner

My first commit on GitHub

Merge pull request #1 from CEASLIBRARY/main Verified 1a86a69

Add more commits by pushing to the `readme-edits` branch on CEASLIBRARY/test-repository.

Merge pull request #3 from CEASLIBRARY/readme-edits

First Commit

Confirm merge Cancel

Write Preview H B I `< >`

First Pull Request

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

Close with comment Comment

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

ProTip! Add comments to specific lines under [Files changed](#).

1 participant

Reviewers: No reviews

Assignees: No one—assign yourself

Labels: None yet

Projects: None yet

Milestone: No milestone

Linked issues: Successfully merging this pull request may close these issues. None yet

Notifications: You're receiving notifications because you're watching this repository. Unsubscribe

First Commit #1

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Merged CEASLIBRARY merged 1 commit into `main` from `readme-edits` 19 seconds ago

Conversation 0 Commits 1 Checks 0 Files changed 0 +0 -0

CEASLIBRARY commented 6 minutes ago • edited • Owner

My first commit on GitHub

Merge pull request #1 from CEASLIBRARY/main Verified 1a86a69

CEASLIBRARY merged commit `e46a7ea` into `main` 19 seconds ago Revert

Pull request successfully merged and closed
You're all set—the `readme-edits` branch can be safely deleted. Delete branch

Write Preview H B I `< >`

First Pull Request

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

Comment

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

ProTip! Add comments to specific lines under [Files changed](#).

1 participant

Reviewers: No reviews

Assignees: No one—assign yourself

Labels: None yet

Projects: None yet

Milestone: No milestone

Linked issues: Successfully merging this pull request may close these issues. None yet

Notifications: You're receiving notifications because you're watching this repository. Unsubscribe

Git CLI

- CLI: Command Line Interface
- A developer won't be using the GitHub website on its own to make commits, branches, etc.
- A developer clones a repo from GitHub, makes changes locally, then pushes the changes back to the remote repo

<https://git-scm.com/downloads>

Downloads



Older releases are available and the [Git source repository](#) is on GitHub.



Add identity

```
[baruyogesh@barus-mbp repos % git config --global user.name BaruYogesh  
[baruyogesh@barus-mbp repos % git config --global user.email bhargav.yogesh@gmail.com
```

Clone Repo

```
[baruyogesh@barus-mbp repos % git clone https://github.com/BaruYogesh/test-repository.git
Cloning into 'test-repository'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
baruyogesh@barus-mbp repos %
```

Change Directory and Make New Branch

```
[baruyogesh@barus-mbp repos % cd test-repository  
[baruyogesh@barus-mbp test-repository % git branch new-feature  
[baruyogesh@barus-mbp test-repository % git branch  
* main  
  new-feature  
[baruyogesh@barus-mbp test-repository % git checkout new-feature  
Switched to branch 'new-feature'  
[baruyogesh@barus-mbp test-repository % git branch  
  main  
* new-feature  
baruyogesh@barus-mbp test-repository %
```

Add a file


```
[baruyogesh@barus-mbp test-repository % touch feature.txt  
[baruyogesh@barus-mbp test-repository % echo 'new-feature' >> feature.txt  
[baruyogesh@barus-mbp test-repository % tail feature.txt  
new-feature  
baruyogesh@barus-mbp test-repository %
```

Add change to repo, commit, and push

```
[baruyogesh@barus-mbp test-repository % git add feature.txt  
[baruyogesh@barus-mbp test-repository % git commit -m 'new feature'  
[new-feature 67a8c5f] new feature  
1 file changed, 1 insertion(+)  
create mode 100644 feature.txt
```

```
[baruyogesh@barus-mbp test-repository % git push --set-upstream origin new-feature  
Enumerating objects: 4, done.  
Counting objects: 100% (4/4), done.  
Delta compression using up to 10 threads  
Compressing objects: 100% (2/2), done.  
Writing objects: 100% (3/3), 294 bytes | 294.00 KiB/s, done.  
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0  
remote:  
remote: Create a pull request for 'new-feature' on GitHub by visiting:  
remote:      https://github.com/BaruYogesh/test-repository/pull/new/new-feature  
remote:  
To https://github.com/BaruYogesh/test-repository.git  
 * [new branch]      new-feature -> new-feature  
branch 'new-feature' set up to track 'origin/new-feature'.  
baruyogesh@barus-mbp test-repository %
```

On GitHub, there will be a prompt to make a PR with your new branch

 **new-feature** had recent pushes 2 minutes ago

Compare & pull request

Collaboration

- Search for the **user/project**
- Fork the project
- Do commits
- Submit a Pull Request – Compare across all the forks
- Merge changes upon approval

Postface

- Git is a *very* big piece of software
 - Merge
 - Stash
 - Pull
 - Etc.
- UI tools are often used as a wrapper for Git
 - VS Code
 - IDEA
- Using Git is an effective way to collaborate on a project
- Organization of your repo is vital

Online Resources

- [GitHub On Demand Training](#)
- [GitHub Guides](#)
- [Lynda.com](#)
- [Working with GitHub at UC](#)