



**ABES**  
Engineering College  
College Code-032



# GIT AND GIT HUB



# General Guideline



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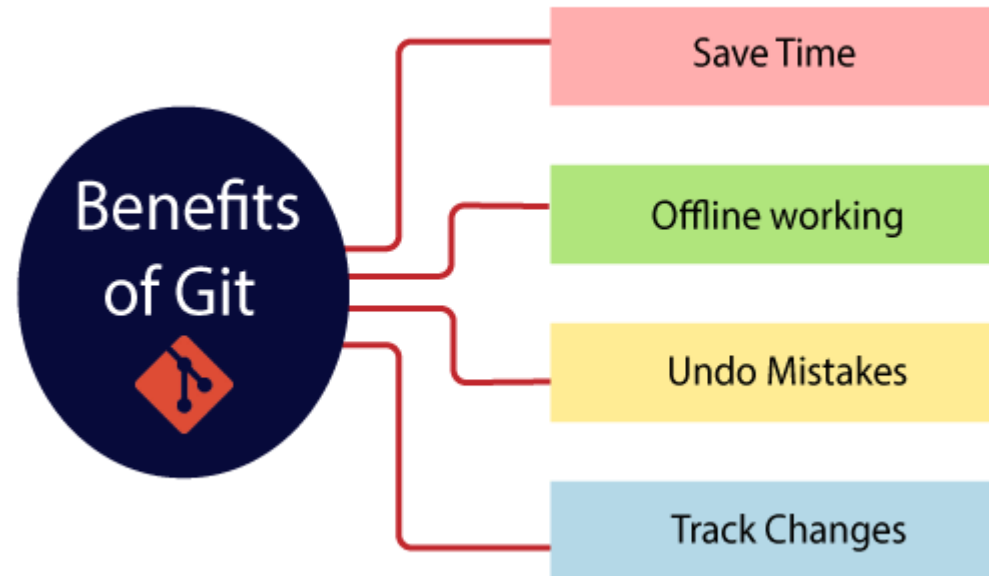
- Git Introduction
- Git Hub Introduction
- Git Setup
- Git Branching
- Git Stashing
- Git Merging

# About Git



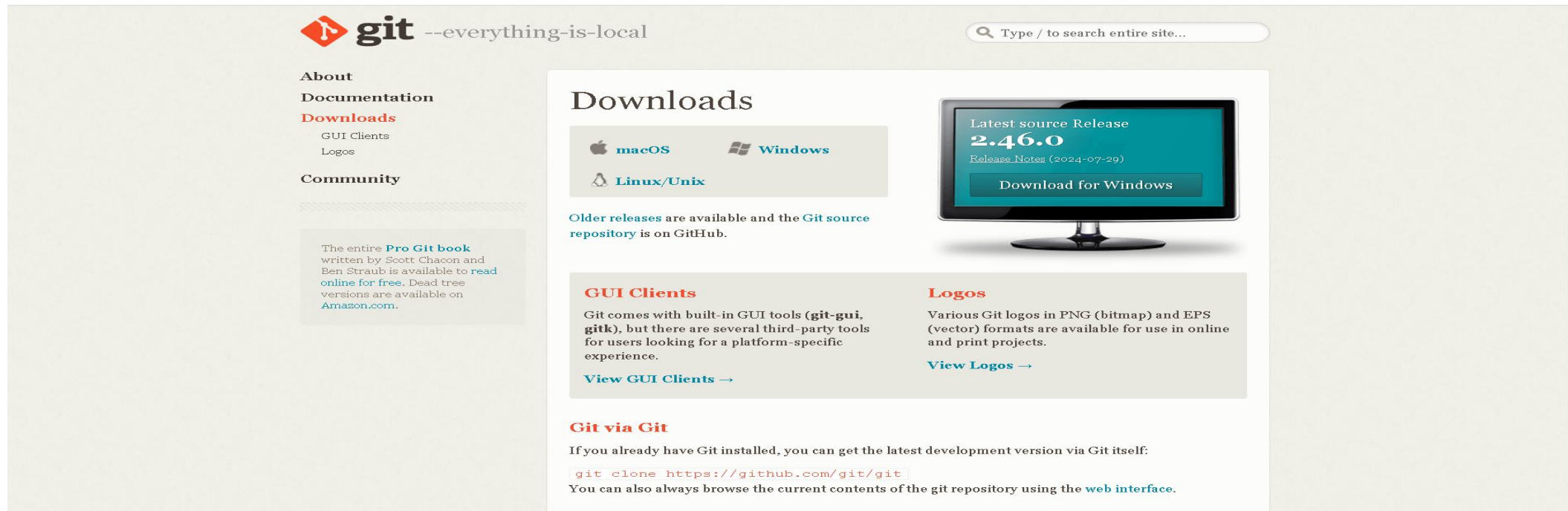
- git is a distributed version control system
- git was developed by the linux community in 2005 to help manage the development of linux itself
- Git is foundation of many services like **GitHub** and **GitLab**, but we can use Git without using any other Git services.
- Git can be used **privately** and **publicly**

# Benefits of Git



# Download Git

- Download git from <https://git-scm.com>
- On Mac OS X: first install homebrew: Details at <http://brew.sh>



# Git bash



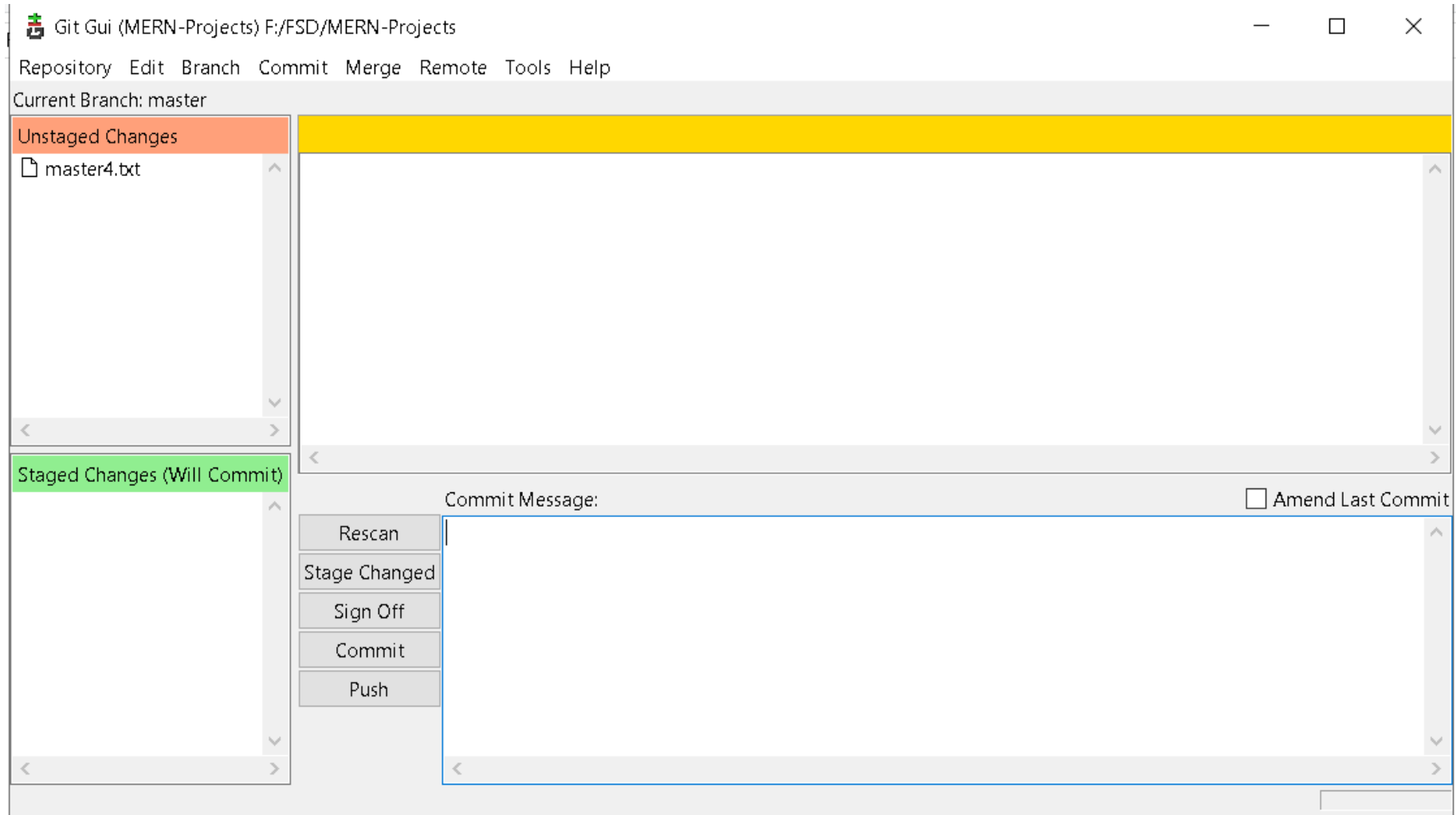
```
MINGW64:/f/FSD/MERN-Projects
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ |
```



# Git gui



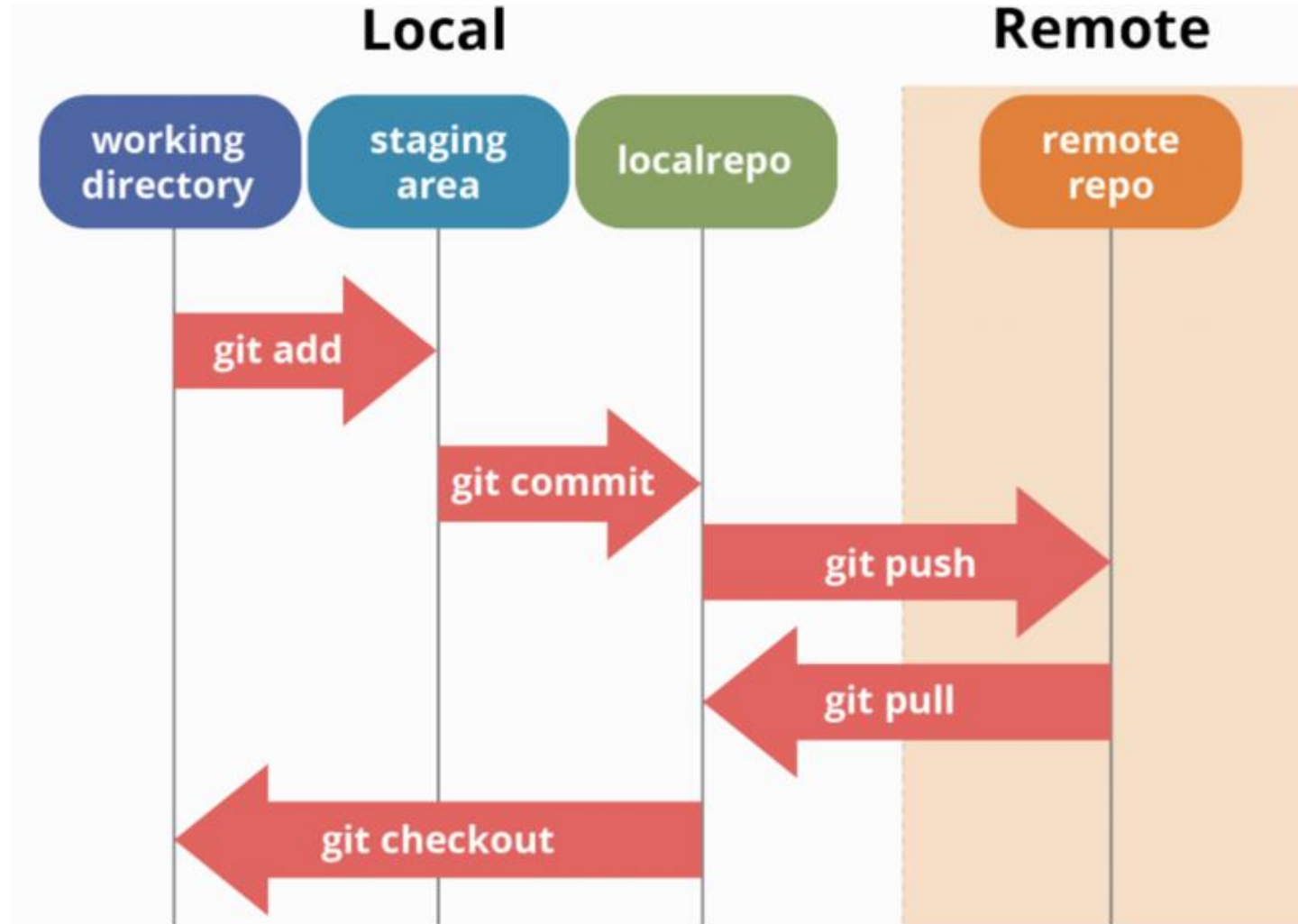
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- GitHub is a Git repository hosting service.
- It offers both distributed version control and source code management (SCM) functionality of Git.
- GitHub also facilitates with many of its features, such as access control and collaboration.
- It provides a Web-based graphical interface.

# How git works



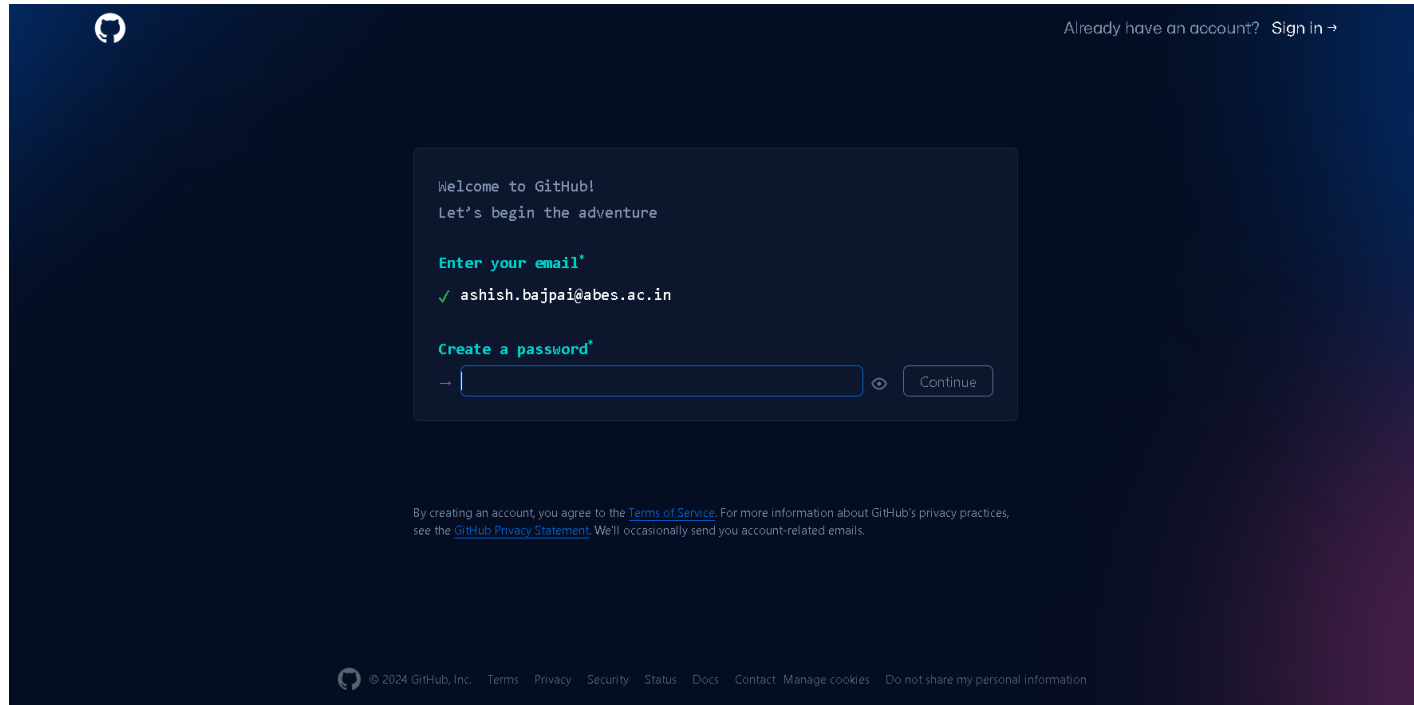
# Git Hub Features



- Collaboration
- Integrated issue and bug tracking
- Graphical representation of branches
- Git repositories hosting
- Project management
- Team management
- Code hosting
- Track and assign tasks

# Steps to create GitHub Account

- Step-1 Navigate to <https://github.com/>.
- Step-2 Click signup
- Step-3 verify your email address



The screenshot shows the GitHub account creation page. At the top left is the GitHub logo, and at the top right is the text "Already have an account? Sign in →". The main content area has a dark blue background. In the center, there is a white box containing the following text: "Welcome to GitHub! Let's begin the adventure". Below this, there is a section titled "Enter your email\*" with a green checkmark and the email address "ashish.bajpai@abes.ac.in". Underneath, there is a section titled "Create a password\*" with a red minus sign and a password input field. To the right of the input field is a "Continue" button. At the bottom of the white box, there is a small text block: "By creating an account, you agree to the [Terms of Service](#). For more information about GitHub's privacy practices, see the [GitHub Privacy Statement](#). We'll occasionally send you account-related emails." At the very bottom of the page, there is a footer with the GitHub logo, "© 2024 GitHub, Inc.", and links for "Terms", "Privacy", "Security", "Status", "Docs", "Contact", "Manage cookies", and "Do not share my personal information".

# Git Hub Account



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Sign in to GitHub

Username or email address

Password

[Forgot password?](#)

Sign in

[Sign in with a passkey](#)

New to GitHub? [Create an account](#)

[Terms](#) [Privacy](#) [Docs](#) [Contact GitHub Support](#) [Manage cookies](#) [Do not share my personal information](#)

# Git Hub Repositories



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Dashboard

Q Type to search

Top repositories

New

Find a repository...

ankurbhardwajacs/schoolerp

ashishvirgo/emsv1

ashishvirgo/shop-api

ashishvirgo/learn\_nodejs

ashishvirgo/jsproject

ashishvirgo/springbootproject1

ashishvirgo/myjavaproject

Show more

Home

Send feedback

Filter

Trending repositories · See more

OpenBMB/MiniCPM

MiniCPM3-4B: An edge-side LLM that surpasses GPT-3.5-Turbo.

Python 6.4k

RSSNext/Follow

Next generation information browser

TypeScript 5.8k

Latest changes

44 minutes ago

Copilot Chat in GitHub.com is now aware of common support scenarios and GitHub's...

16 hours ago

Push Rules are now generally available, and updates to custom properties

16 hours ago

GitHub Desktop 3.4.4 – Introducing Custom Editor and Shell Integration

Yesterday

Larger context window, improved test generation, and more in VS Code's Copilot...

View changelog →

Explore repositories

dotnet / runtime

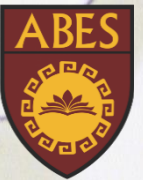
star

This repo is for experimentation and exploring new ideas that may or may not make it into the main dotnet/runtime repo.

1.4k



# Create New Repository



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  New repository

Q Type  to search

## Create a new repository

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



Required fields are marked with an asterisk (\*).

Owner \*  
 ashishvirgo

Repository name \*

Great repository names are short and memorable. Need inspiration? How about [bug-free-engine](#) ?

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.

Initialize this repository with:

- ☐ **Add a README file**  
This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

.gitignore template: None

Choose which files not to track from a list of templates. [Learn more about ignoring files.](#)



# Add collaborators

 storeApp Private

Unwatch 1

Fork 0

Star 0



## Set up GitHub Copilot

Use GitHub's AI pair programmer to autocomplete suggestions as you code.

Get started with GitHub Copilot




## Add collaborators to this repository

Search for people using their GitHub username or email address.

Invite collaborators

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

 Set up in Desktop

or

HTTPS

SSH

git@github.com:ashishvirgo/storeApp.git



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

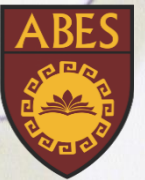
## ...or create a new repository on the command line

```
echo "# storeApp" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin git@github.com:ashishvirgo/storeApp.git
git push -u origin main
```



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

# Repository files



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The screenshot shows the GitHub interface for the WebKit repository. The top navigation bar includes links for Product, Team, Enterprise, Explore, Marketplace, and Pricing, along with a search bar and Sign in / Sign up buttons. The repository name 'WebKit / WebKit' is displayed, along with 'Public' status, Notifications, Fork (631), and Star (2.8k) counts. The main content area shows the 'Code' tab selected, with a list of files and folders. A commit by 'donny-dont' is highlighted, showing the commit message and timestamp. The right sidebar contains an 'About' section with a description of the WebKit project, a list of tags (javascript, macos, ios, gtk, browser, web, webkit), and sections for Releases and Packages.

Product Team Enterprise Explore Marketplace Pricing Search Sign in Sign up

WebKit / WebKit Public Notifications Fork 631 Star 2.8k

Code Pull requests 214 Actions Wiki Security Insights

main 554 branches 2,727 tags Go to file Code

**donny-dont** [Win] Add functions to access... e5946f5 15 minutes ago 253,925 commits

|                    |  |                |
|--------------------|--|----------------|
| .github            | Unreviewed. Adding myself as a code owner for We...    | 24 days ago    |
| Configurations     | Versioning.  | 3 hours ago    |
| JSTests            | Finish to/from methods for Temporal.PlainDate[Time]    | 2 days ago     |
| LayoutTests        | ReadableStream should fail at read-loop if non Uint... | 2 hours ago    |
| ManualTests        | Switch test results from Trac to Github links          | 2 months ago   |
| PerformanceTests   | [Xcode] Some projects do not have a scheme com...      | 26 days ago    |
| Source             | [Win] Add functions to access bundle resources         | 15 minutes ago |
| Tools              | [Win] Add functions to access bundle resources         | 15 minutes ago |
| WebDriverTests     | Eliminate changelogs                                   | 3 months ago   |
| WebKit.xcworkspace | Unify copies of SDKVariant.xcconfig                    | 3 days ago     |
| WebKitLibraries    | Eliminate changelogs                                   | 3 months ago   |
| Websites           | Updated Commits extention to not replace revision ...  | yesterday      |
| metadata           | Add myself as a committer                              | 3 days ago     |

**About**

Home of the WebKit project, the browser engine used by Safari, Mail, App Store and many other applications on macOS, iOS and Linux.

javascript macos ios gtk browser web webkit

Readme 2.8k stars 79 watching 631 forks



**Releases**

2,727 tags

**Packages**

No packages published

# Git vs GitHub

|  <b>git</b> |  <b>GitHub</b>                |
|--|--|
| 1. It is a software  | 1. It is a service   |
| 2. It is installed locally on the system   | 2. It is hosted on Web   |
| 3. It is a command line tool   | 3. It provides a graphical interface   |
| 4. It is a tool to manage different versions of edits, made to files in a git repository     | 4. It is a space to upload a copy of the <b>Git</b> repository   |
| 5. It provides functionalities like Version Control System Source Code Management            | 5. It provides functionalities of Git like VCS, Source Code Management as well as adding few of its own features |

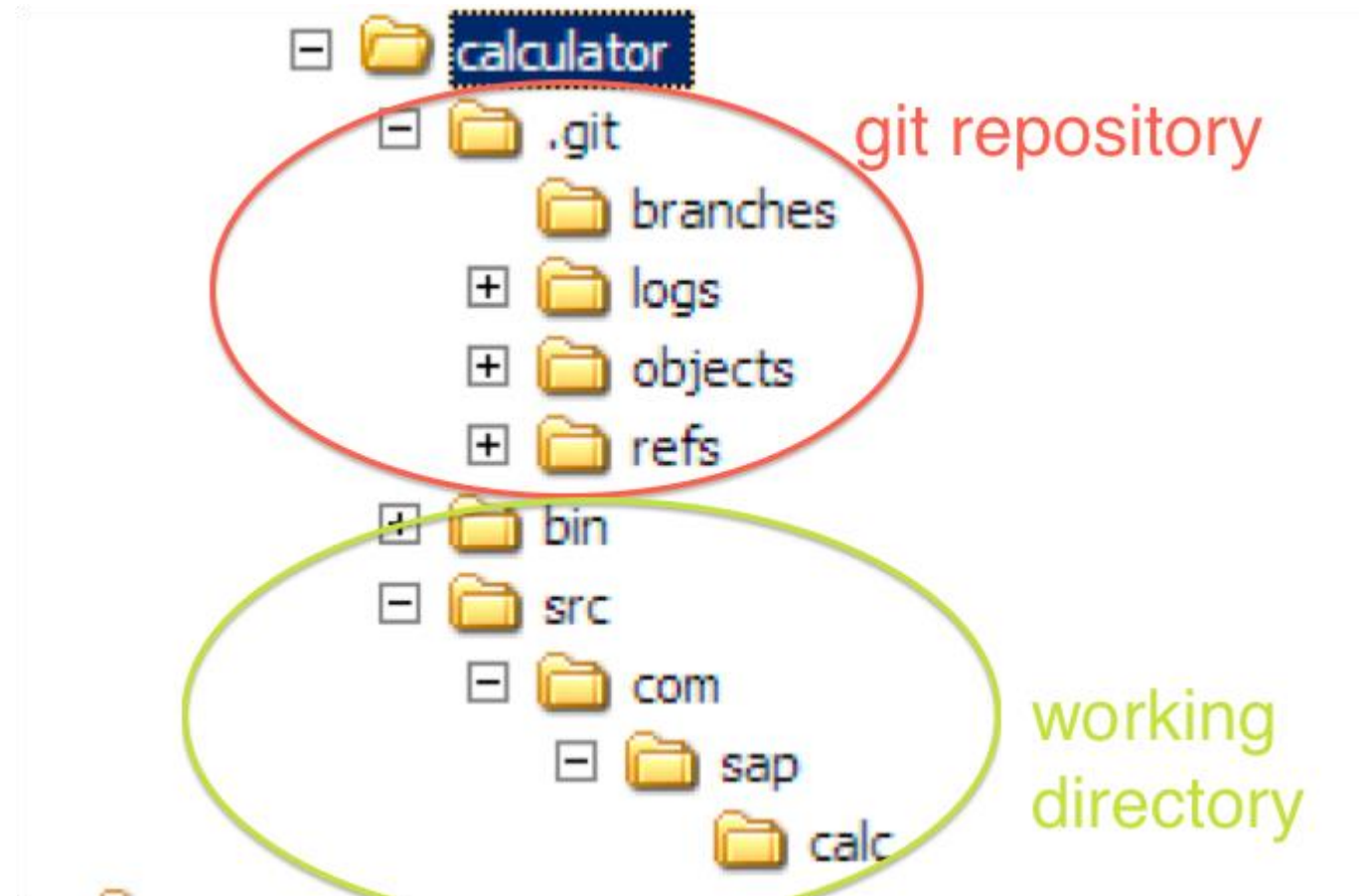
# Git Initialized

```
MINGW64:/f/FSD/MERN-Projects

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects
$ git init
Initialized empty Git repository in F:/FSD/MERN-Projects/.git/

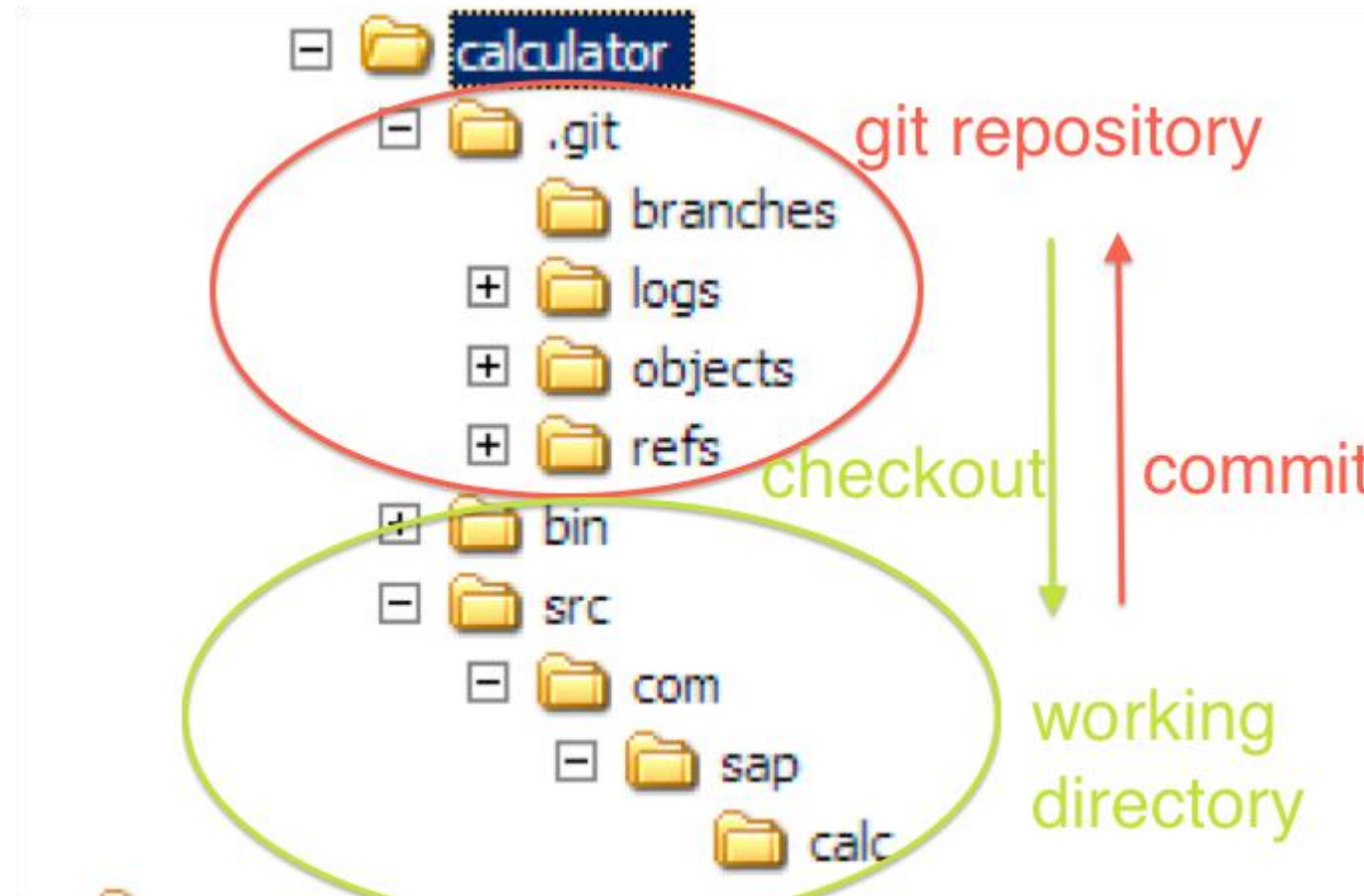
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ |
```

# Git Concept: Storage





# Git Concept: Storage



# Git Setup



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MINGW64:/f/FSD/MERN-Projects

```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects
$ git config --global user.name "Ashish Bajpai"

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects
$ git config --global user.email "ashish.bajpai@abes.ac.in"

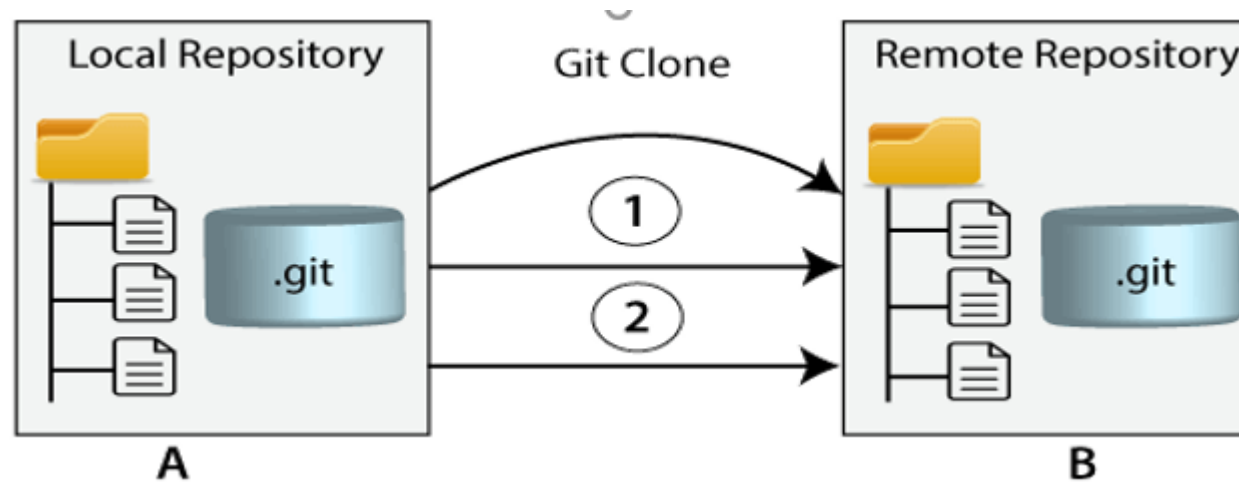
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects
$ git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=openssl
http.sslcainfo=C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
core.autocrlf=true
core.fscache=true
core.symlinks=false
pull.rebase=false
credential.helper=manager-core
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.email=ashish.bajpai@abes.ac.in
user.name=Ashish Bajpai
core.editor=code --wait

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects
$
```



# Git Push

- Git push origin <branch\_name>



git remote add origin <repo\_link>

```
$ git remote add origin git@github.com:ashishvirgo/mernApp.git
fatal: not a git repository (or any of the parent directories): .git

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-PROJECTS
$ cd MernApp/

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-PROJECTS/MernApp
$ git init
Initialized empty Git repository in F:/FSD/MERN-PROJECTS/MernApp/.git/

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-PROJECTS/MernApp (master)
$ git remote add origin git@github.com:ashishvirgo/mernApp.git

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-PROJECTS/MernApp (master)
$ git remote
origin

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-PROJECTS/MernApp (master)
$ git remote -v
origin  git@github.com:ashishvirgo/mernApp.git (fetch)
origin  git@github.com:ashishvirgo/mernApp.git (push)
```

- Pull is a combination of two different commands  
fetch and merge  
`git pull origin <branch_name>`

## Git Fetch

fetch gets all the change history of a tracked branch/repo.  
on your local Git, fetch updates to see what has changed on GitHub

# Git Status

MINGW64:/f/FSD/MERN-Projects

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)

\$ git status

on branch master

No commits yet

Changes to be committed:

(use "git rm --cached <file>..." to unstage)

new file: README.txt

Untracked files:

(use "git add <file>..." to include in what will be committed)

file1.txt

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)

\$ |

# Add file from work area to staging area

```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git add file1.txt

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git status
On branch master

No commits yet

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

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$
```

# Git commit and log



```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git commit -m "my first commit"
[master (root-commit) bd5f57c] my first commit
2 files changed, 1 insertion(+)
create mode 100644 Readme.txt
create mode 100644 file1.txt

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git log
commit bd5f57c7979ce66c2717834eec225ec1f7c255bb (HEAD -> master)
Author: Ashish Bajpai <ashish.bajpai@abes.ac.in>
Date: Tue Sep 10 09:46:17 2024 +0530

    my first commit
```

# Git Branching



View branch list

```
git branch
```

Create New Branch

```
git branch <new_branch_name>
```

Switch Branch

```
git checkout <old_branch_name>
```

Create a Branch and Switch to it

```
git checkout -b <new_branch_name>
```

Delete Branch

```
git branch -d <branch_name> ( if it has already been fully merged in its  
upstream branch)
```

```
git branch -D <branch_name>
```



# Git Branching(cont ...)

MINGW64:/f/FSD/MERN-Projects

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)

```
$ git branch dev
```

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)

```
$ git branch
```

```
dev
```

```
* master
```

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)

```
$ git branch -a
```

```
dev
```

```
* master
```

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)

```
$ git checkout dev
```

```
Switched to branch 'dev'
```

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)

```
$ git branch
```

```
* dev
```

```
master
```

# Delete branch

```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)
$ git branch
* dev
  master

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)
$ git branch -d dev
error: Cannot delete branch 'dev' checked out at 'F:/FSD/MERN-Projects'

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)
$ git checkout master
Switched to branch 'master'

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git branch -d dev
Deleted branch dev (was bd5f57c).

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git branch
* master
```

# Git merging



➤ Git merge <branch\_name>

After merge push code on remote repo

```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git merge dev1
Merge made by the 'ort' strategy.
 dev1_file1.txt | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 dev1_file1.txt
```

# Conflict



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file1.txt - Notepad

File Edit Format View Help

<<<<<<< HEAD

my new master

my Dev

=====

dev1

>>>>>>> dev1

# Resolve conflict manually

file1.txt - Notepad

File Edit Format View Help

my new master  
my Dev  
dev1

```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev1)
$ git checkout master
Switched to branch 'master'

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git merge dev1
Auto-merging file1.txt
CONFLICT (content): Merge conflict in file1.txt
Automatic merge failed; fix conflicts and then commit the result.

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master|MERGING)
$ git add file1.txt

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master|MERGING)
$ git commit -m "updated file1.txt"
[master d6bc9d4] updated file1.txt

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$
```

# Git Stashing

git stash

git stash list

git stash pop

git stash apply stash@{n}

```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)
$ git stash
Saved working directory and index state WIP on dev: 1ca2162 added two new files

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)
$ git status
On branch dev
nothing to commit, working tree clean

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)
$ git stash list
stash@{0}: WIP on dev: 1ca2162 added two new files

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (dev)
$ git stash apply stash@{0}
On branch dev
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   dev3.txt
```

# Discard changes in working directory

```
Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git status
on branch master
Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        deleted:      Readme.txt
        deleted:      dev1.txt
        deleted:      dev2.txt
        deleted:      dev3.txt
        modified:     file1.txt
        deleted:      master1.txt
        deleted:      master2.txt

no changes added to commit (use "git add" and/or "git commit -a")

Dipti Bajpai@LAPTOP-9IRUKSTN MINGW64 /f/FSD/MERN-Projects (master)
$ git restore .
```



# Reference

GitHub Docs(<https://docs.github.com/en/get-started>)

# Thank You

---