



Git & Git Hub



What is GitHub generally, and what is it mainly used for?

GitHub is a website and cloud-based service that helps developers store and manage their code, as well as track and control changes to their code. To understand exactly what GitHub is, you need to know two connected principles:

- Version control
- Git

What Is Version Control?

Version control helps developers track and manage changes to a software project's code. As a software project grows, version control becomes essential.

What Is Git?

Git is a **specific open-source version control system** created by **Linus Torvalds** in 2005.

Specifically, Git is a **distributed version control system**, which means that the entire codebase and history are available on every developer's computer, which allows for easy branching and merging.

So What Is GitHub, Then?

GitHub is a cloud-based Git repository hosting service. It makes it a lot easier for individuals and teams to use Git for version control and collaboration.

GitHub's interface is user-friendly enough so even novice coders can take advantage of Git. Without GitHub, using Git generally requires a bit more technical savvy and use of the command line.

GitHub is so user-friendly, though, that some people even use GitHub to manage other types of projects.

Additionally, anyone can sign up and host a public code repository for free, which makes GitHub especially popular with open-source projects.

Task-1 : Git Commands with Example

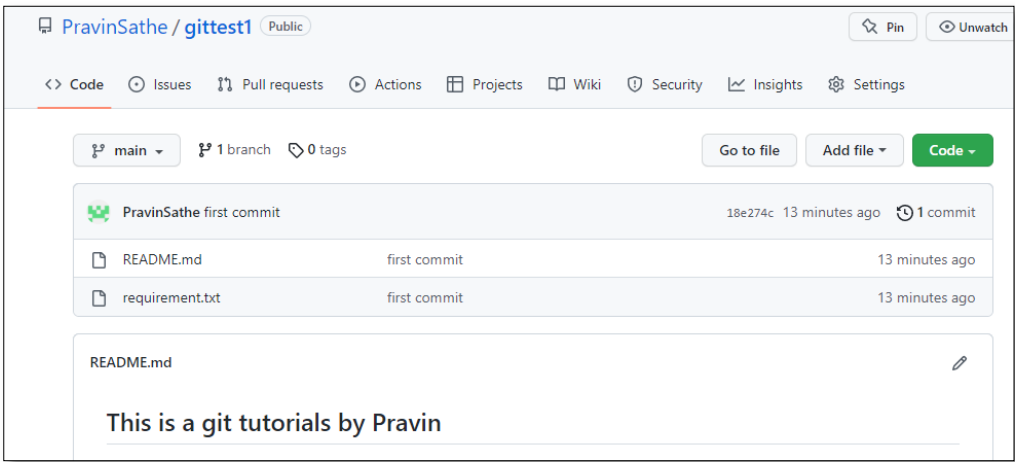
Sr. No	Command	Use	Example
1	git version		<pre>PS C:\Users\admin> git version git version 2.38.0.windows.1 PS C:\Users\admin> █</pre>
2	Git status	This command lists all the files that have to be committed	<pre>C:\Users\admin\Future\6Ineuron\1git&github>git status On branch master No commits yet Untracked files: (use "git add <file>..." to include in what will be committed) README.md</pre>
3	git config --global user.name "[name]"	This command sets the author name to be used with your commits.	<pre>C:\Users\admin\6Ineurongit>git config --global user.name"PravinSathe"</pre>
4	git config --global user.email "[email address]"	This command sets the email address	<pre>C:\Users\admin\6Ineurongit>git config --global user.email"dspravin@gmail.com"</pre>

		respectively to be used with your commits.	
5	git init [repository name]	This command is used to start a new repository.	<pre> C:\Users\admin\6Ineurongit>git init Reinitialized existing Git repository in C:/Users/admin/6Ineurongit/.git </pre>
6	git add [file]	This command adds a file to the staging area.	<pre> C:\Users\admin\Future\6Ineuron\1git&github>git add README.md C:\Users\admin\Future\6Ineuron\1git&github>git status On branch master No commits yet Changes to be committed: (use "git rm --cached <file>..." to unstage) new file: README.md </pre>
7	git add .	This command adds one or more to the staging area	<pre> C:\Users\admin\Future\6Ineuron\1git&github>git add . C:\Users\admin\Future\6Ineuron\1git&github>git status On branch master No commits yet Changes to be committed: (use "git rm --cached <file>..." to unstage) new file: README.md new file: requirement.txt </pre>

8	git help -a	Take help from github help section for different commands and other errors.	<pre> C:\Users\admin\6Ineurongit>git help -a See 'git help <command>' to read about a specific subcommand Main Porcelain Commands add Add file contents to the index am Apply a series of patches from a mailbox archive Create an archive of files from a named tree bisect Use binary search to find the commit that introduced a bug branch List, create, or delete branches bundle Move objects and refs by archive checkout Switch branches or restore working tree files cherry-pick Apply the changes introduced by some existing commits citool Graphical alternative to git-commit clean Remove untracked files from the working tree clone Clone a repository into a new directory commit Record changes to the repository describe Give an object a human readable name based on an available ref diff Show changes between commits, commit and working tree, etc fetch Download objects and refs from another repository format-patch Prepare patches for e-mail submission gc Cleanup unnecessary files and optimize the local repository gitk The Git repository browser grep Print lines matching a pattern </pre>
9	mkdir store	Create a directory if not created initially.	<pre> PS C:\Users\admin\6Ineurongit> mkdir gitproject Directory: C:\Users\admin\6Ineurongit Mode LastWriteTime Length Name ---- - d----- 16/10/2022 5:28 PM gitproject </pre>

10	cd store	To go inside the directory and work upon its contents.	<pre>PS C:\Users\admin\6Ineurongit> mkdir gitproject Directory: C:\Users\admin\6Ineurongit Mode LastWriteTime Length Name ---- - d----- 16/10/2022 5:28 PM gitproject PS C:\Users\admin\6Ineurongit> cd store PS C:\Users\admin\6Ineurongit\store> </pre>
11	git commit -m "first commit"	To commit our changes(taking a snapshot) and providing a message to remember for future reference.	<pre>C:\Users\admin\Future\6Ineuron\1git&github>git commit -m "first commit" [master (root-commit) 18e274c] first commit 2 files changed, 4 insertions(+) create mode 100644 README.md create mode 100644 requirement.txt</pre>
12	git branch	To see all the branches present and current branch that we are working on.	<pre>C:\Users\admin\Future\6Ineuron\1git&github>git branch * master</pre>

13	git branch -M main		<pre> C:\Users\admin\Future\6Ineuron\1git&github>git branch * master C:\Users\admin\Future\6Ineuron\1git&github>git branch -M main C:\Users\admin\Future\6Ineuron\1git&github>git branch * main </pre>
14	git remote add origin https://github.com/PravinSathe/gittest1.git		<pre> C:\Users\admin\Future\6Ineuron\1git&github>git remote add origin https://github.com/PravinSathe/gittest1.git </pre>
15	git remote -v		<pre> C:\Users\admin\Future\6Ineuron\1git&github>git remote -v origin https://github.com/PravinSathe/gittest1.git (fetch) origin https://github.com/PravinSathe/gittest1.git (push) </pre>
16	git push -u origin main		<pre> C:\Users\admin\Future\6Ineuron\1git&github>git push -u origin main Enumerating objects: 4, done. Counting objects: 100% (4/4), done. Delta compression using up to 4 threads Compressing objects: 100% (2/2), done. Writing objects: 100% (4/4), 310 bytes 155.00 KiB/s, done. Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 To https://github.com/PravinSathe/gittest1.git * [new branch] main -> main branch 'main' set up to track 'origin/main'. </pre>

			
17	git restore --staged .		<pre> Changes to be committed: (use "git restore --staged <file>..." to unstage) modified: README.md new file: app.py C:\Users\admin\Future\6Ineuron\1git&github>git restore --staged . C:\Users\admin\Future\6Ineuron\1git&github>git status On branch main Your branch is up to date with 'origin/main'. 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: README.md Untracked files: (use "git add <file>..." to include in what will be committed) app.py no changes added to commit (use "git add" and/or "git commit -a") C:\Users\admin\Future\6Ineuron\1git&github> </pre>

18	git branch [developer1]		<pre> C:\Users\admin\Future\6Ineuron\1git&github>git branch * main C:\Users\admin\Future\6Ineuron\1git&github>Git branch developer1 C:\Users\admin\Future\6Ineuron\1git&github>git branch developer1 * main </pre>
19	git checkout [developer1]		<pre> C:\Users\admin\Future\6Ineuron\1git&github>Git checkout developer1 Switched to branch 'developer1' C:\Users\admin\Future\6Ineuron\1git&github>git branch * developer1 main </pre>
20	git merge [developer1]		<pre> C:\Users\admin\Future\6Ineuron\1git&github>git branch developer1 * main C:\Users\admin\Future\6Ineuron\1git&github>git merge developer1 Updating 685f77f..c9b54ef Fast-forward README.md 2 +- 1 file changed, 1 insertion(+), 1 deletion(-) C:\Users\admin\Future\6Ineuron\1git&github> </pre>

```

C:\Users\admin\Future\6Ineuron\1git&github>git merge developer1
Updating 685f77f..c9b54ef
Fast-forward
 README.md | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)

C:\Users\admin\Future\6Ineuron\1git&github>git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

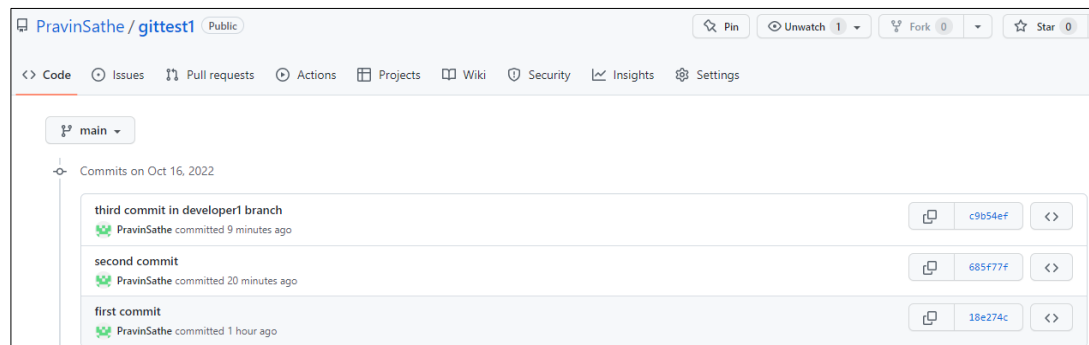
C:\Users\admin\Future\6Ineuron\1git&github>git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 399 bytes | 199.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/PravinSathe/gittest1.git
 685f77f..c9b54ef  main -> main

C:\Users\admin\Future\6Ineuron\1git&github>git status
On branch main
Your branch is up to date with 'origin/main'.

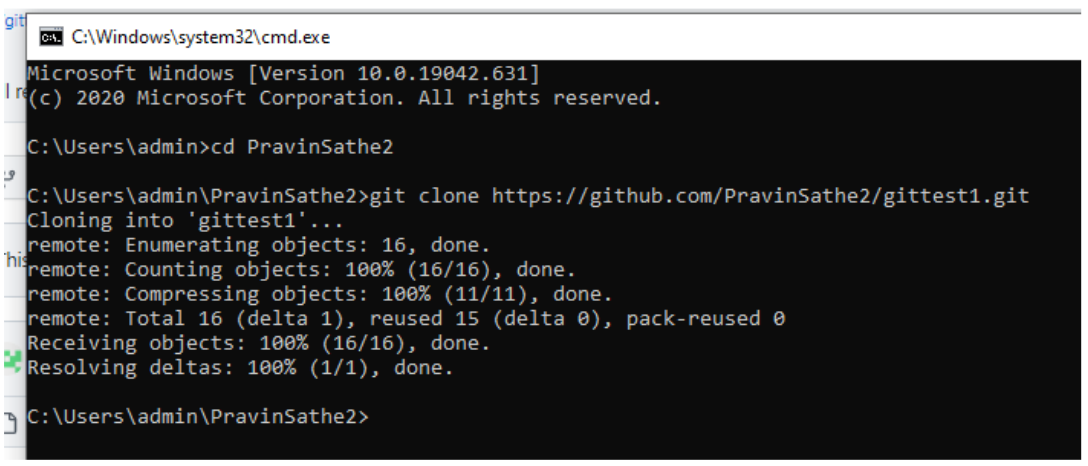
nothing to commit, working tree clean

C:\Users\admin\Future\6Ineuron\1git&github>

```



21	git logs		<pre> C:\Users\admin\Future\6Ineuron\1git&github>git log commit 36f654dc32cf9a74f9d4da30ffb1342fd7adbefd (HEAD -> main, origin/main, developer2) Author: PravinSathe <dspravin@gmail.com> Date: Sun Oct 16 19:48:51 2022 +0530 forth commit by developer2 commit c9b54ef6807e936eb1d1d238b66186eb5c27d38a (developer1) Author: PravinSathe <dspravin@gmail.com> Date: Sun Oct 16 19:33:21 2022 +0530 </pre>
22	git log -p	Git log helps you see the past commits which helps to see who did what in Git and the repository.	[Screenshot not available]
23	git branch [-d developer1]		<pre> C:\Users\admin\Future\6Ineuron\1git&github>Git branch -d developer1 Deleted branch developer1 (was c9b54ef). C:\Users\admin\Future\6Ineuron\1git&github>Git branch -d developer2 Deleted branch developer2 (was 36f654d). C:\Users\admin\Future\6Ineuron\1git&github>git branch * main C:\Users\admin\Future\6Ineuron\1git&github> </pre>

24	git clone [https://github.com/ PravinSathe2/gittest 1.git]		 <pre> C:\Windows\system32\cmd.exe Microsoft Windows [Version 10.0.19042.631] (c) 2020 Microsoft Corporation. All rights reserved. C:\Users\admin>cd PravinSathe2 C:\Users\admin\PravinSathe2>git clone https://github.com/PravinSathe2/gittest1.git Cloning into 'gittest1'... remote: Enumerating objects: 16, done. remote: Counting objects: 100% (16/16), done. remote: Compressing objects: 100% (11/11), done. remote: Total 16 (delta 1), reused 15 (delta 0), pack-reused 0 Receiving objects: 100% (16/16), done. Resolving deltas: 100% (1/1), done. C:\Users\admin\PravinSathe2> </pre>
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Task-2: Git Commands with Example

Consider that your want to start an open-source project in your organization. Perform all the standard operation to create a repository with minimal permission for all the users. It should contain.

- Proper open source structure
- Proper Readme
- Add 2 collaborator
- Host GitHub Pages using settings (Designed to host your personal, organization, or project pages from a GitHub repository)

- **Add Collaborator:**

PravinSathe / gittest1 Public

Pin Unwatch 1 Fork 0 Star 0

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

General

Access

Collaborators

Moderation options

Code and automation

Branches

Tags

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Environments

Pages

General

Repository name

gittest1 [Rename](#)

☐ **Template repository**
Template repositories let users generate new repositories with the same directory structure and files. [Learn more.](#)

☐ **Require contributors to sign off on web-based commits**
Enabling this setting will require contributors to sign off on commits made through GitHub's web interface. Signing off is a way for contributors to affirm that their commit complies with the repository's terms, commonly the [Developer Certificate of Origin \(DCO\)](#). [Learn more about signing off on commits.](#)

Social preview
Upload an image to customize your repository's social media preview.
Images should be at least 640×320px (1280×640px for best display).
[Download template](#)

General

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Security

Code security and analysis

Deploy keys

Secrets

Who has access

PUBLIC REPOSITORY

This repository is public and visible to anyone.

[Manage](#)

DIRECT ACCESS

2 have access to this repository. [0 collaborators](#). [2 invitations](#).

Manage access

☐ Select all

Type ▾

Find a collaborator...

☐

PravinSathe2

Awaiting PravinSathe2's response

Pending Invite

[Remove](#)

☐

PravinSathe3

Awaiting PravinSathe3's response

Pending Invite

[Remove](#)

Add people

- **Accepting Collaborate request:**

The screenshot shows the GitHub web interface. At the top is a dark navigation bar with the GitHub logo, a search bar, and links for Pull requests, Issues, Marketplace, and Explore. On the left is a sidebar with navigation options: Inbox, Saved, Done (highlighted in blue), and a Filters section with icons for Assigned, Participating, Mentioned, Team mentioned, and Review requested. The main content area displays a notification filter 'is:done' and a list of notifications. The first notification is circled in red; it is from 'PravinSathe/gittest1' and is an 'Invitation to join PravinSathe/gittest1 from PravinSathe'. To the right of the notification text are the words 'subscribed', a green plus icon, and the time '5 minutes ago'. Below the notification list is a 'ProTip!' message and pagination controls showing '1-1 of 1' with 'Prev' and 'Next' buttons.

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

Inbox

Saved

✓ Done

Filters

Assigned

Participating

Mentioned

Team mentioned

Review requested

Manage notifications ▾

is:done

Select all

PravinSathe/gittest1
Invitation to join PravinSathe/gittest1 from PravinSathe

subscribed 5 minutes ago

ProTip! Triage notifications on the go with GitHub Mobile for iOS or Android.

1-1 of 1 Prev Next



Search or jump to...

[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)



[← Back to notifications](#)

[→ Move to inbox](#)

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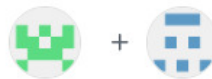
[PravinSathe](#) / [gittest1](#) Public

[Watch](#) 1

[Fork](#) 0

[Star](#) 0

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Security](#) [Insights](#)



[PravinSathe](#) invited you to collaborate

[Accept invitation](#)

[Decline](#)

[Owners](#) of gittest1 will be able to see:

- Your public profile information
- [Certain activity](#) within this repository
- Country of request origin
- Your access level for this repository
- Your IP address

General

Access

Collaborators

Moderation options

Code and automation

Branches

Tags

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Webhooks

Environments

Pages

Security

Code security and analysis

Deploy keys

Secrets

Who has access

PUBLIC REPOSITORY

This repository is public and visible to anyone.

[Manage](#)

DIRECT ACCESS

2 have access to this repository. 1 collaborator, 1 invitation.


Manage access

Add people

Select all

Type

Find a collaborator...

☐  PravinSathe3
Collaborator

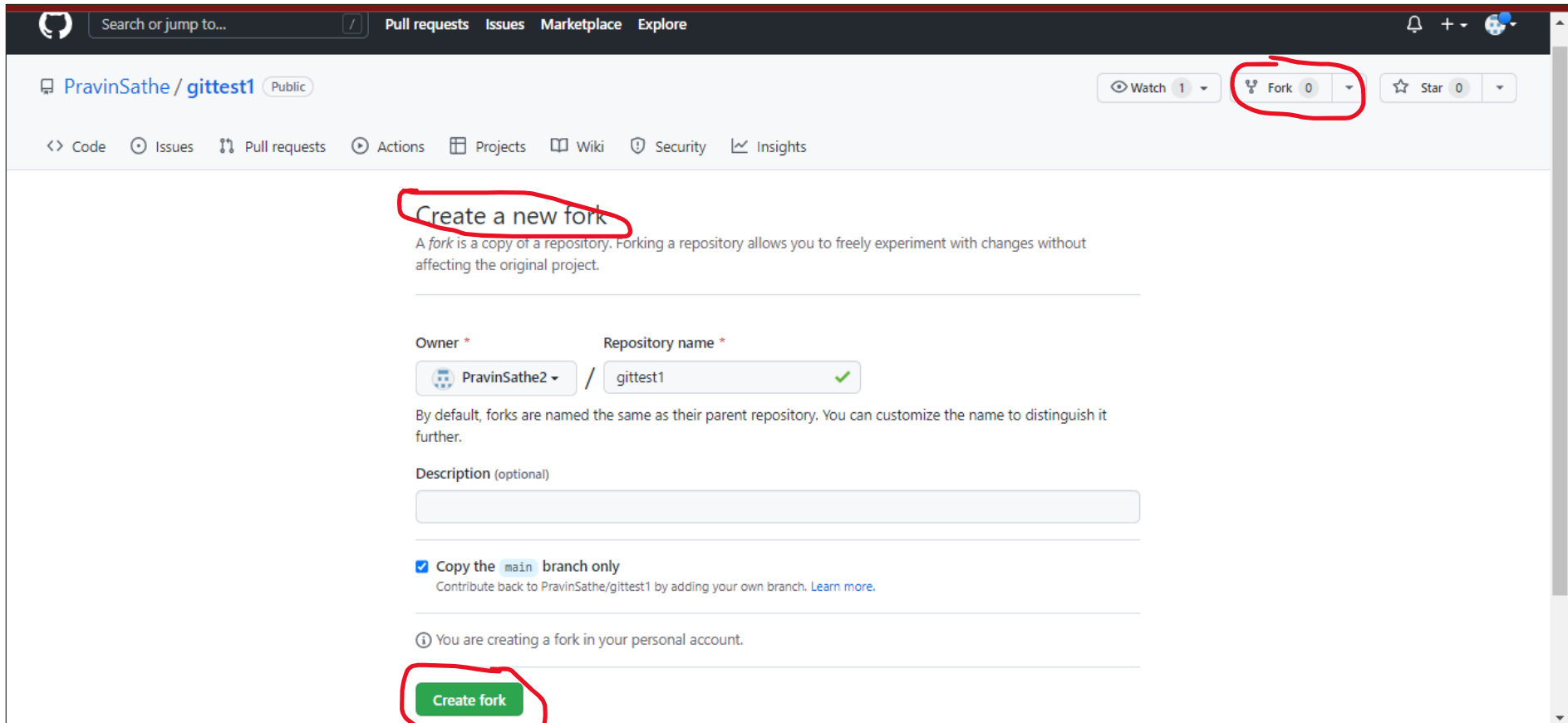
Remove


☐  PravinSathe3
Awaiting PravinSathe3's response

Pending Invite

Remove

- Fork repository for access the content





[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

PravinSathe2 / gittest1 Public

[Pin](#) [Watch 0](#) [Fork 1](#) [Star 0](#)

[Code](#) [Pull requests](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#) [Insights](#) [Settings](#)

main 1 branch 0 tags

This branch is up to date with PravinSathe/gittest1:main.

PravinSathe forth commit by developer2

README.md forth commit by developer2

app.py forth commit by developer2

requirement.txt forth commit by developer2

Go to file

Add file

Code

Clone

HTTPS SSH GitHub CLI New

https://github.com/PravinSathe2/gittest1.git

Use Git or checkout with SVN using the web URL.

Open with GitHub Desktop

Download ZIP

About

No description, website, or topics provided.

Readme

0 stars

0 watching

1 fork

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

README.md

This is a amazing git tutorials by Pravin

We will learn git

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PravinSathe2 / gittest1 Public

forked from PravinSathe2/gittest1

<> Code Pull Request

C:\Windows\system32\cmd.exe

Microsoft Windows [Version 10.0.19042.631]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\admin>cd PravinSathe2

C:\Users\admin\PravinSathe2>git clone https://github.com/PravinSathe2/gittest1.git

Cloning into 'gittest1'...

remote: Enumerating objects: 16, done.

remote: Counting objects: 100% (16/16), done.

remote: Compressing objects: 100% (11/11), done.

remote: Total 16 (delta 1), reused 15 (delta 0), pack-reused 0

Receiving objects: 100% (16/16), done.

Resolving deltas: 100% (1/1), done.

C:\Users\admin\PravinSathe2>

ics provided.

```
C:\Users\admin\PravinSathe2\gittest1>dir
Volume in drive C has no label.
Volume Serial Number is 3E99-1487

Directory of C:\Users\admin\PravinSathe2\gittest1

16/10/2022  09:38 PM    <DIR>          .
16/10/2022  09:38 PM    <DIR>          ..
16/10/2022  09:38 PM                32 app.py
16/10/2022  09:38 PM            126 README.md
16/10/2022  09:38 PM            25 requirement.txt
               3 File(s)            183 bytes
               2 Dir(s) 19,331,506,176 bytes free

C:\Users\admin\PravinSathe2\gittest1>
```

The image shows a Visual Studio Code window with the following components:

- Explorer:** Shows a file tree with `1GIT&GITHUB` containing `app.py`, `README.md`, and `requirement.txt`.
- Editor:** Displays `app.py` with the following content:

```
1 print('Hello')
2 print('Pravin')
3 print('Hello Once Again')
```

A red arrow points to the third line of code.
- Terminal:** Shows the output of several git commands:

```
nothing to commit, working tree clean

C:\Users\admin\Future\6Ineuron\1git&github>git status
On branch main
Your branch is up to date with 'origin/main'.


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:   app.py

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

C:\Users\admin\Future\6Ineuron\1git&github>git add .
C:\Users\admin\Future\6Ineuron\1git&github>git commit -m"changed app.py added print statement"
[main 6e9d69a] changed app.py added print statement
1 file changed, 2 insertions(+), 1 deletion(-)

C:\Users\admin\Future\6Ineuron\1git&github>
C:\Users\admin\Future\6Ineuron\1git&github>git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
```

Red arrows point to the `modified: app.py` line, the `git add .` command, the `git commit` command, and the `git push` command.

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

PravinSathe2 / gittest1 Public

forked from PravinSathe/gittest1

Pin Watch 0 Fork 1 Star 0

<> Code Pull requests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags

This branch is 1 commit behind PravinSathe:main.

Go to file Add file Code

About

No description, website, or topics provided.

Readme 0 stars 0 watching 1 fork

Releases

No releases published
[Create a new release](#)

Packages

No packages published

PravinSathe forth commit by developer2 36f654d 2 hours ago 4 commits

README.md	forth commit by developer2	2 hours ago
app.py	forth commit by developer2	2 hours ago
requirement.txt	forth commit by developer2	2 hours ago

README.md

This is a amazing git tutorials by Pravin