## 1) Install git



git -version This command should return the installed Git version

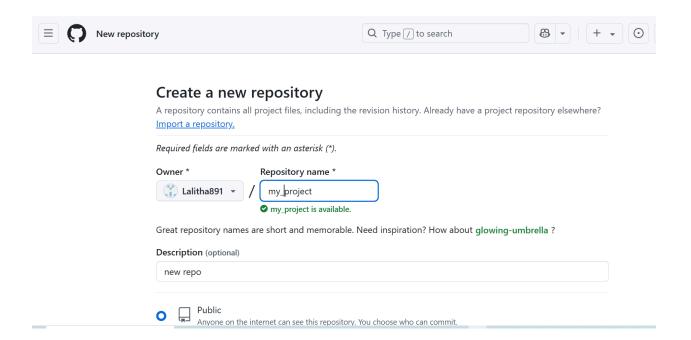
2. Create a repo in github with README.md and .ignore file.

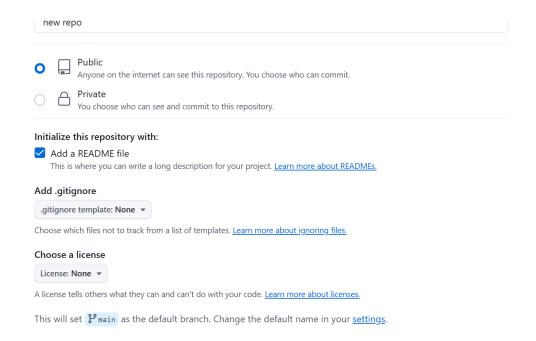
Select "New repository" from the dropdown menu.

Repository Name: Choose a name for your repository (e.g., my-project).

Description: Optionally, provide a brief description of your project.

Visibility: Select either Public or Private based on your preference.





3) Clone the created repo to local.

On your repository's GitHub page, click the "Code" button. Copy the URL provided (HTTPS or SSH).

Run the following command, replacing <URL> with the copied repository URL:

To clone the repo we use git clone command

```
HP@LAPTOP-LPTR344H MINGW64 ~
$ git clone https://github.com/Lalitha891/my_project.git
Cloning into 'my_project'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.

HP@LAPTOP-LPTR344H MINGW64 ~
$ |
```

4) Create two files in local repo.

## Using touch command to create the files Touch apple and Touch banana

```
HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (master)
$ touch apple

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (master)
$ touch banana

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (master)
$ 1s
apple banana

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (master)
$ 1s
$ 1s
$ 1s
$ 1s
$ 1s
$ 2pple banana
```

5) Commit two files and push to central Repository.

After saving the files we need to convert untracking area to tracking area by using git add Then commit git commit -m "Added two files"

Then we push the files

```
nothing added to commit but untracked files present (use "git add" to track)
  IP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (master)
   git add apple banana
 HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (master)
varning: could not open directory 'Application Data/': Permission denied varning: could not open directory 'Cookies/': Permission denied varning: could not open directory 'Documents/My Music/': Permission denied varning: could not open directory 'Documents/My Pictures/': Permission denied varning: could not open directory 'Documents/My Videos/': Permission denied varning: could not open directory 'Local Settings/': Permission denied varning: could not open directory 'My Documents/': Permission denied varning: could not open directory 'NetHood/': Permission denied varning: could not open directory 'PrintHood/': Permission denied varning: could not open directory 'Recent/': Permission denied varning: could not open directory 'SendTo/': Permission denied varning: could not open directory 'Start Menu/': Permission denied varning: could not open directory 'Templates/': Permission denied varning: could not open directory 'Templates/': Permission denied varning: could not open directory 'Templates/': Permission denied
 on branch master
 No commits yet
Changes to be committed:

(use "git rm_--cached_<file>..." to unstage)
              new file:
new file:
                                    apple
                                     banana
 Intracked files
 HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (master)
 $ git commit -m "added two files"
 [master (root-commit) 7b5dd41] added two files
   2 files changed, 0 insertions(+), 0 deletions(-)
   create mode 100644 OneDrive/Desktop/git/apple
   create mode 100644 OneDrive/Desktop/git/banana
  HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
 $ git push -u origin main
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 12 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (8/8), 647 bytes | 161.00 KiB/s, done.
Total 8 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/Lalitha891/my_project.git
      2b56c0d..5662798 main -> main
 branch 'main' set up to track 'origin/main'.
  HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
                                                           ii 🥠 📵 🤚 🛂 🔾 🍪 🕸 🖟 📈 🔀
   Type here to search
```

6) Create a branch in local and create a sample file and push to central.

7) Create a branch in github and clone that to local.

```
HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ git checkout -b new-branch # Create and switch to the new branch
fatal: a branch named 'new-branch' already exists

HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ git push -u origin new-branch # Push the new branch to GitHub
Everything up-to-date
branch 'new-branch' set up to track 'origin/new-branch'.

HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ git clone https://github.com/Lalitha891/my_project.git
fatal: destination path 'my_project' already exists and is not an empty directory.

HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ \text{S C}

HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ git clone https://github.com/Lalitha891/my_project.git new-folder-name
Cloning into 'new-folder-name'...
remote: Enumerating objects: 17, done.
remote: Counting objects: 100% (17/17), done.
remote: Counting objects: 100% (17/17), done.
remote: Total 17 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (1/1), done.

HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ |
HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ |
HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ |
HPQLAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)
```

8) Merge the created branch with master in git local.

```
HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (main)
$ git checkout -b new_branch
switched to a new branch 'new_branch'

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
$ git merge new_branch
Already up to date.

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
$ |
```

9) Merge the created branch with master in github by sending a pull request.

```
| P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
| Git merge new_branch | P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
| Git pull | remote: Enumerating objects: 15, done. | remote: Counting objects: 100% (15/15), done. | remote: Compressing objects: 100% (7/7), done. | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), reused 13 (delta 0), pack-reused 0 (from 0) | remote: Total 14 (delta 1), remote: Total 14 (delta 1), reused 13 (delta 1), reused 13 (delta
```

10) create a file in local and send that to branch in github.

11) clone only a branch from github to local.

```
HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
$ git clone --branch main --single-branch https://github.com/Lalitha891/my_project.git
cloning into 'my_project'...
remote: Enumerating objects: 11, done.
remote: Counting objects: 100% (11/11), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 11 (delta 0), reused 8 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (11/11), done.
```

12) create a file with all passwords and make that untrackable with git.

```
TOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
$ vi password.yml
 HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
$ cat password.yml
lalitha@2003
 HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
$ git status
warning: could not open directory 'Application Data/': Permission denied warning: could not open directory 'Cookies/': Permission denied
warning: could not open directory 'Documents/My Music/': Permission denied warning: could not open directory 'Documents/My Pictures/': Permission denied warning: could not open directory 'Documents/My Videos/': Permission denied warning: could not open directory 'Documents/My Videos/': Permission denied warning: could not open directory 'Local Settings/': Permission denied warning: could not open directory 'My Documents/': Permission denied
warning: could not open directory 'My Documents/': Permission denied warning: could not open directory 'NetHood/': Permission denied warning: could not open directory 'PrintHood/': Permission denied warning: could not open directory 'Recent/': Permission denied warning: could not open directory 'SendTo/': Permission denied warning: could not open directory 'Start Menu/': Permission denied warning: could not open directory 'Templates/': Permission denied
 On branch main
Your branch is ahead of 'origin/main' by 1 commit.
     (use "git push" to publish your local commits)
Changes to be committed:
(use "git restore --staged <file>..." to unstage)
                    new file: my_pro
                   new file:
                                              new-folder-name
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)

(commit or discard the untracked or modified content in submodules)

modified: my_project (modified content)
```

13) make a commit and make that commit reset without savings changes.

```
P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
  touch pass.txt
  P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
  nano pass.txt
 P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
  echo "pass.txt" >> .gitignore
 P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
  git status
on branch new_branch
Untracked files:
(use "git add <file>..." to include in what will be committed)
nothing added to commit but untracked files present (use "git add" to track)
 P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
s git add .
warning: in the working copy of '.gitignore', LF will be replaced by CRLF the next time Git touches it
warning: adding embedded git repository: my_project
hint: You've added another git repository inside your current repository.
hint: Clones of the outer repository will not contain the contents of
hint: the embedded repository and will not know how to obtain it.
hint: If you meant to add a submodule, use:
$ git add .
  int:
  int:
           git submodule add <url> my_project
  int:
 int: If you added this path by mistake, you can remove it from the int: index with:
            git rm --cached my_project
 int:
 int:
hint: See "git help submodule" for more information.
warning: in the working copy of 'passwords.txt', LF will be replaced by CRLF the next time Git touches it
         If you added this path by mistake, you can remove it from the index with:
  int:
            git rm --cached my_project
 nint:
nint: see "git help submodule" for more information.
warning: in the working copy of 'passwords.txt', LF will be replaced by CRLF the next time Git touches it
 IP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
$ git status
 on branch new_branch
 Changes to be committed:
(use "git restore --staged <file>..." to unstage)
            new file: .gitignore
new file: my_project
new file: passwords.txt
 IP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
HPMLAPTOP-LPTR344H MINGW64 ~/OneDPTVe/Desktop/git/my_project $ git push --force origin new_branch Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 289 bytes | 289.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
 remote:
remote: Create a pull request for 'new_branch' on GitHub by visiting:
remote: https://github.com/Lalitha891/my_project/pull/new/new_branch
 emote:
 To https://github.com/Lalitha891/my_project.git
    [new branch]
                               new_branch -> new_branch
 IP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git/my_project (new_branch)
```

14) Revert a committed commit to the older version.

```
HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)

$ git revert 7b5dd
warning: could not open directory 'Application Data/': Permission denied
warning: could not open directory 'Cookies/': Permission denied
warning: could not open directory 'Documents/My Music/': Permission denied
warning: could not open directory 'Documents/My Pictures/': Permission denied
warning: could not open directory 'Documents/My Videos/': Permission denied
warning: could not open directory 'Local Settings/': Permission denied
warning: could not open directory 'My Documents/': Permission denied
warning: could not open directory 'NetHood/': Permission denied
warning: could not open directory 'PrintHood/': Permission denied
warning: could not open directory 'SendTo/': Permission denied
warning: could not open directory 'Start Menu/': Permission denied
warning: could not open directory 'Templates/': Permission denied
warning: could not open directory 'Templates/': Permission denied
[main a97e9ca] Revert "added two files"

2 files changed, 0 insertions(+), 0 deletions(-)
delete mode 100644 OneDrive/Desktop/git/apple
delete mode 100644 OneDrive/Desktop/git/banana
```

15) push a file to stash without savings the changes and work on another file.

```
44H MINGW64 ~/OneDrive/Desktop/git (main)
$ git stash file1
fatal: unknown subcommand: file1
usage: git stash list [<options>]
or: git stash show [<options>] [<stash>]
or: git stash drop [-q|--quiet] [<stash>]
or: git stash ( pop | apply ) [--index] [-q|--quiet] [<stash>]
or: git stash branch <branchname> [<stash>]
       or: git stash clear
      HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
$ git stash push -m "stash file1 changes"
No local changes to save
 HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
$ git status
S git status
warning: could not open directory 'Application Data/': Permission denied
warning: could not open directory 'Cookies/': Permission denied
warning: could not open directory 'Documents/My Music/': Permission denied
warning: could not open directory 'Documents/My Pictures/': Permission denied
warning: could not open directory 'Documents/My Videos/': Permission denied
warning: could not open directory 'Local Settings/': Permission denied
warning: could not open directory 'My Documents/': Permission denied
warning: could not open directory 'NetHood/': Permission denied
warning: could not open directory 'Permission denied
warning: could not open directory 'Permission denied
warning: could not open directory 'Printendody': Permission denied warning: could not open directory 'Recent': Permission denied warning: could not open directory 'SendTo/': Permission denied warning: could not open directory 'Start Menu/': Permission denied warning: could not open directory 'Templates/': Permission denied
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
   (use "git push" to publish your local commits)
```

16) undo the stash file and start working on that again.

17) generate a ssh-keygen and configure into github.

```
HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/HP/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c/Users/HP/.ssh/id_rsa
Your public key has been saved in /c/Users/HP/.ssh/id_rsa.pub
The key fingerprint is:
SHAZ56:ClbIymIDohjcB5zwlS54AlxRfMSHmqxT0g34Y5n2lh0 HP@LAPTOP-LPTR344H
The key's randomart image is:
+---[RSA 3072]----+
|=.++=+*0...|
|=00* + + + ...|
|+00 * * 0 ...|
|-00 * # ...|
|-+.0 ...|
|----[SHAZ56]-----+

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
$ |
```

19) basic understanding of .git file.

- git is a hidden directory (not a file) found at the root of a Git repository.
- It is created when you run git init in a folder or when you clone a repository.
- This folder stores all the metadata, configuration, and history of your Git project.

Some key components inside .git:

HEAD - points to the current branch reference

Config - stores repo- specific git configurations

Description - used by gitweb, not important for normal git use

hooks/ - contains script that run on git events

info / - has includes files for untracking ignores

Objects - stores all the commits, trees, and blobs

20) Check all the logs of git.

```
HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)

$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)

$ git log
commit 56627980c1686911d4069cbf150524969ec60ace (HEAD -> main, origin/main)
Merge: 7b5dd41 2b56c0d
Author: lalitha <lalithaganta2003@gmail.com>
Date: Tue May 6 13:43:22 2025 +0530

Merge branch 'main' of https://github.com/Lalitha891/my_project

commit 7b5dd4135cf0273cc62283f418d648cd74e7b965
Author: lalitha <lalithaganta2003@gmail.com>
Date: Tue May 6 12:24:11 2025 +0530

added two files

commit 2b56c0dd4999e30f823f3cd703cf2275d4acf258
Author: Lalitha891 <lalithaganta2003@gmail.com>
Date: Mon May 5 15:56:04 2025 +0530

Initial commit

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)

$ |
```

21) Rename the commit message.

```
@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (new-branch)
git checkout main
witched to branch 'main'
our branch is up to date with 'origin/main'.
P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
 git log
             '980c1686911d4069cbf150524969ec60ace (HEAD -> main, origin/main)
1erge: 7b5dd41 2b56c0d
outhor: lalitha <lalithaganta2003@gmail.com>
Date: Tue May 6 13:43:22 2025 +0530
   Merge branch 'main' of https://github.com/Lalitha891/my_project
ommit 7b5dd4135cf0273cc62283f418d648cd74e7b965
author: lalitha <lalithaganta2003@gmail.com>
Date: Tue May 6 12:24:11 2025 +0530
   added two files
commit 2b56c0dd4999e30f823f3cd703cf2275d4acf258
author: Lalitha891 <lalithaganta2003@gmail.com>
       Mon May 5 15:56:04 2025 +0530
    Initial commit
P@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main) git commit --amend -m "new message"
main a191e0d] new message
Date: Tue May 6 13:43:22 2025 +0530
```

22) Merge multiple commits into single commit.

```
HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)

git rebase -i HEAD~3

successfully rebased and updated refs/heads/main.

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)

git push origin main --force

Enumerating objects: 25, done.

Counting objects: 100% (25/25), done.

Delta compression using up to 12 threads

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

Vriting objects: 100% (21/21), 1.48 KiB | 216.00 KiB/s, done.

Total 21 (delta 2), reused 0 (delta 0), pack-reused 0

remote: Resolving deltas: 100% (2/2), done.

To https://github.com/Lalitha891/my_project.git

+ 5662798...cbeeeea main -> main (forced update)

HP@LAPTOP-LPTR344H MINGW64 ~/OneDrive/Desktop/git (main)
```