Introduction:

- Overview of Git and Github :

Git is a Software , It can be installed locally on the system. It is a distributed version control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.
GitHub is a Git repository hosting service that provides a web-based graphical interface. It is the world's largest coding community. Putting a code or a project into GitHub brings it increased, widespread exposure. Programmers can find source codes in many different languages and use the command-line interface, Git, to make and keep track of any changes.
GitHub helps every team member work together on a project from any location while facilitating collaboration. You can also review previous versions created at an earlier point in time.

- Repositories:

A repository, or Git project, encompasses the entire collection of files and folders associated with a project, along with each file's revision history. The file history appears as snapshots in time called commits. The commits can be organized into multiple lines of development called branches. Because Git is a DVCS, repositories are selfcontained units and anyone who has a copy of the repository can access the entire codebase and its history. Using the command line or other ease-of-use interfaces, a Git repository also allows for: interaction with the history, cloning the repository, creating branches, committing, merging, comparing changes across versions of code, and more.

Through platforms like GitHub, Git also provides more opportunities for project transparency and collaboration. Public repositories help teams work together to build the best possible final product.

- Basic Git Commands :

To use Git, developers use specific commands to copy, create, change, and combine code. These commands can be executed directly from the command line or by using an application like GitHub Desktop. Here are some common commands for using Git:

- ✓ git init initializes a brand new Git repository and begins tracking an existing directory. It adds a hidden subfolder within the existing directory that houses the internal data structure required for version control.
- ✓ git clone creates a local copy of a project that already exists remotely. The clone includes all the project's files, history, and branches.
- ✓ git add stages a change. Git tracks changes to a developer's codebase, but it's necessary to stage and take a snapshot of the changes to include them in the project's history. This command performs staging, the first part of that two-step process. Any changes that are staged will become a part of the next snapshot and a part of the project's history. Staging and committing separately gives developers complete control over the history of their project without changing how they code and work.
- ✓ git commit saves the snapshot to the project history and completes the change-tracking process. In short, a commit functions like taking a photo. Anything that's been staged with git add will become a part of the snapshot with git commit.
- ✓ git status shows the status of changes as untracked, modified, or

staged.

- ✓ git branch shows the branches being worked on locally.
- ✓ git merge merges lines of development together. This command is typically used to combine changes made on two distinct branches. For example, a developer would merge when they want to combine changes from a feature branch into the main branch for deployment.
- ✓ git pull updates the local line of development with updates from its remote counterpart. Developers use this command if a teammate has made commits to a branch on a remote, and they would like to reflect those changes in their local environment.
- ✓ git push updates the remote repository with any commits made locally to a branch.

- How to create Git and Github :
  i. Create your GitHub account.
  ii. Create a repository or “repo” for short. This is where you store your code.
  iii. Build a file.
  iv. Make a commit. Whenever you create a file or change it, you create a Git commit to store the new version.
  v. Connect your repo with your computer system.

Creating and uploading a project on Github using Git bash and Git GUI :

Git is a distributed version control system for tracking changes in source code during software development . Git provides two entries when we install git in windows , i.e Git Bash and Git Gui .

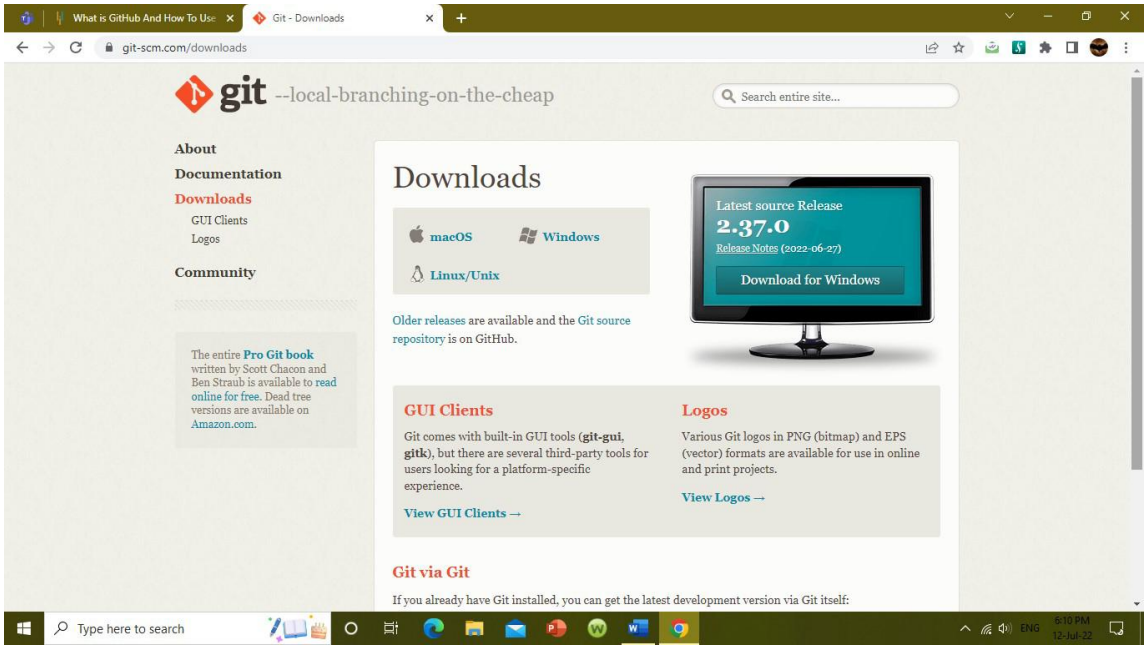
Git Bash , we can use git bash to clone the repository , and Git Gui is a Graphical User Interface focuses on allowing users to make changes to their repository by making new commits or we can use Git Gui to commit and push new changes to remote repo’s at GitHub .

- Procedure :

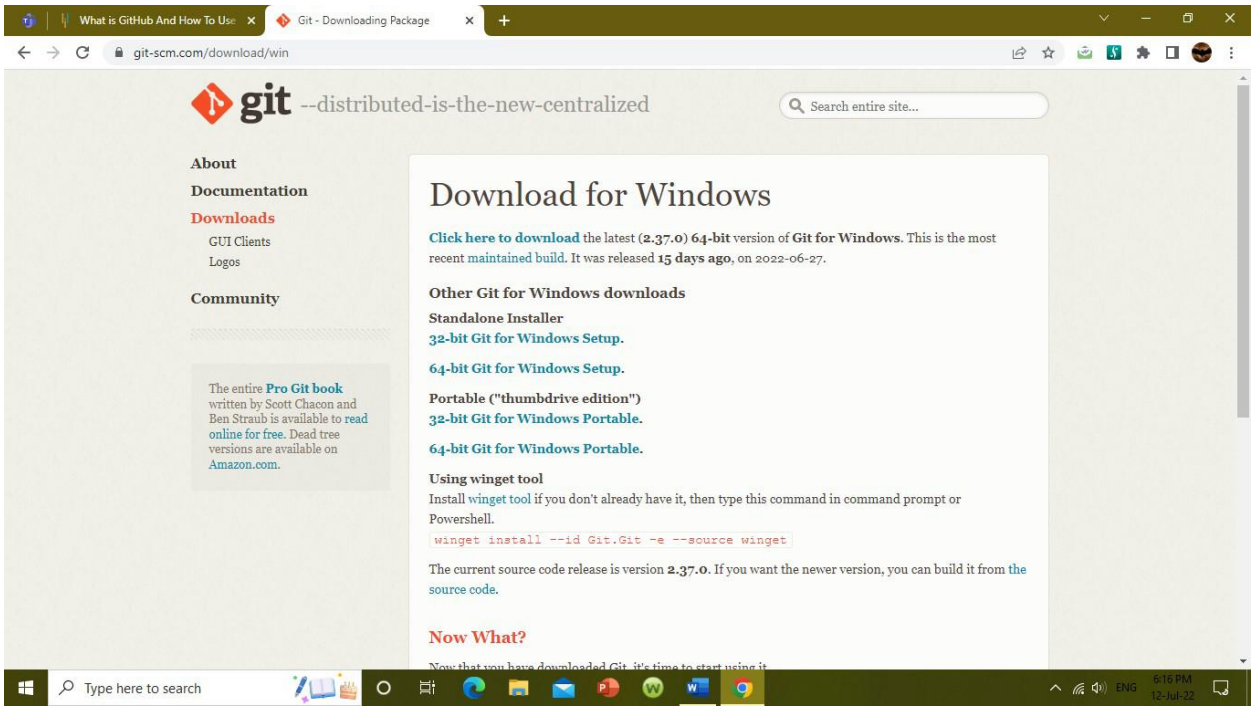
✓ The first step is to install a Git for windows.

✓ Type Git download in the browser and press enter and go on the Download -Git .

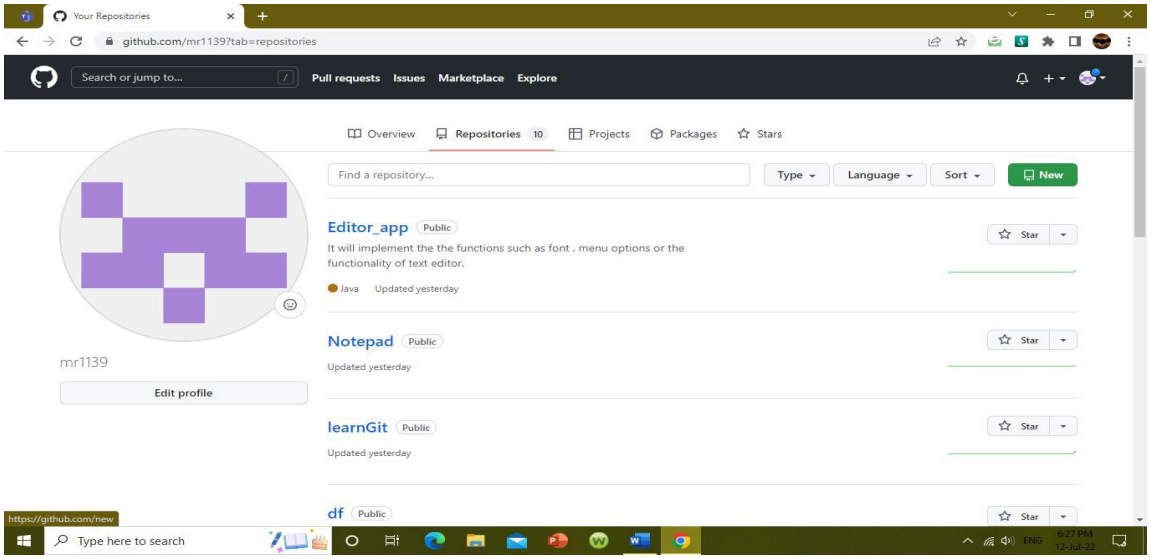
✓ Or Go to the link “https://git-scm.com/downloads” .



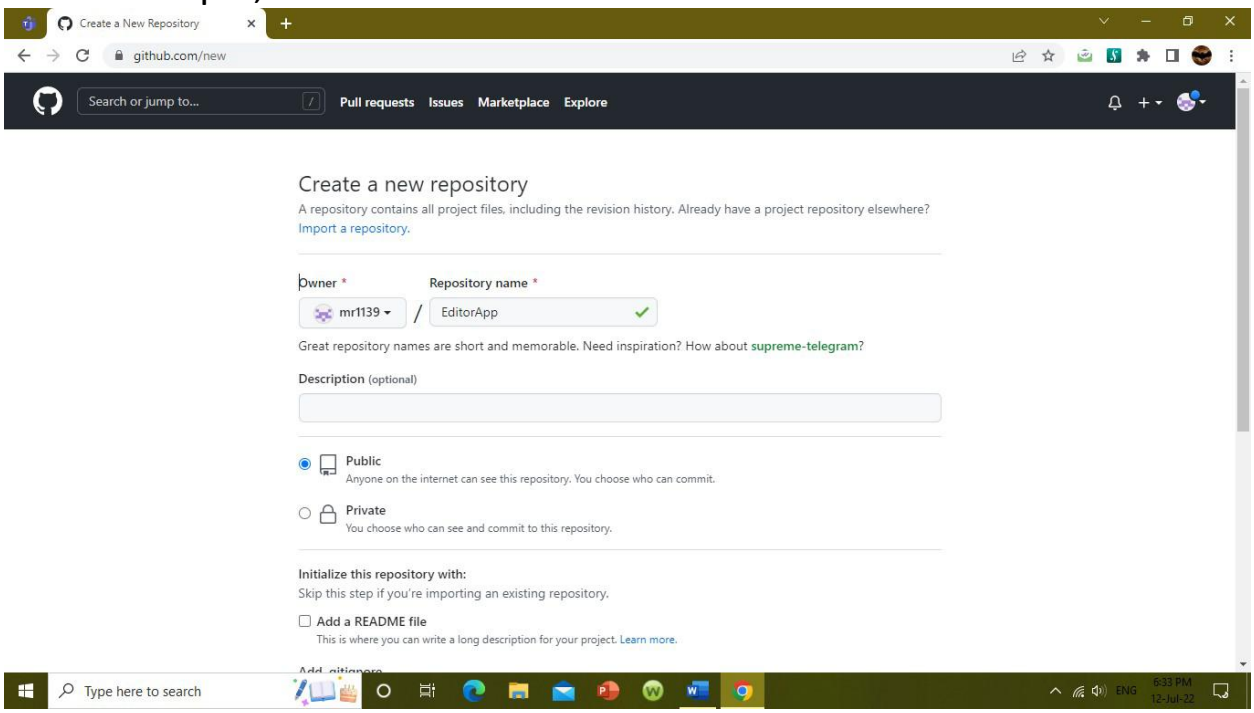
✓ Now click on download “windows”, in the next page click on “click here to download”



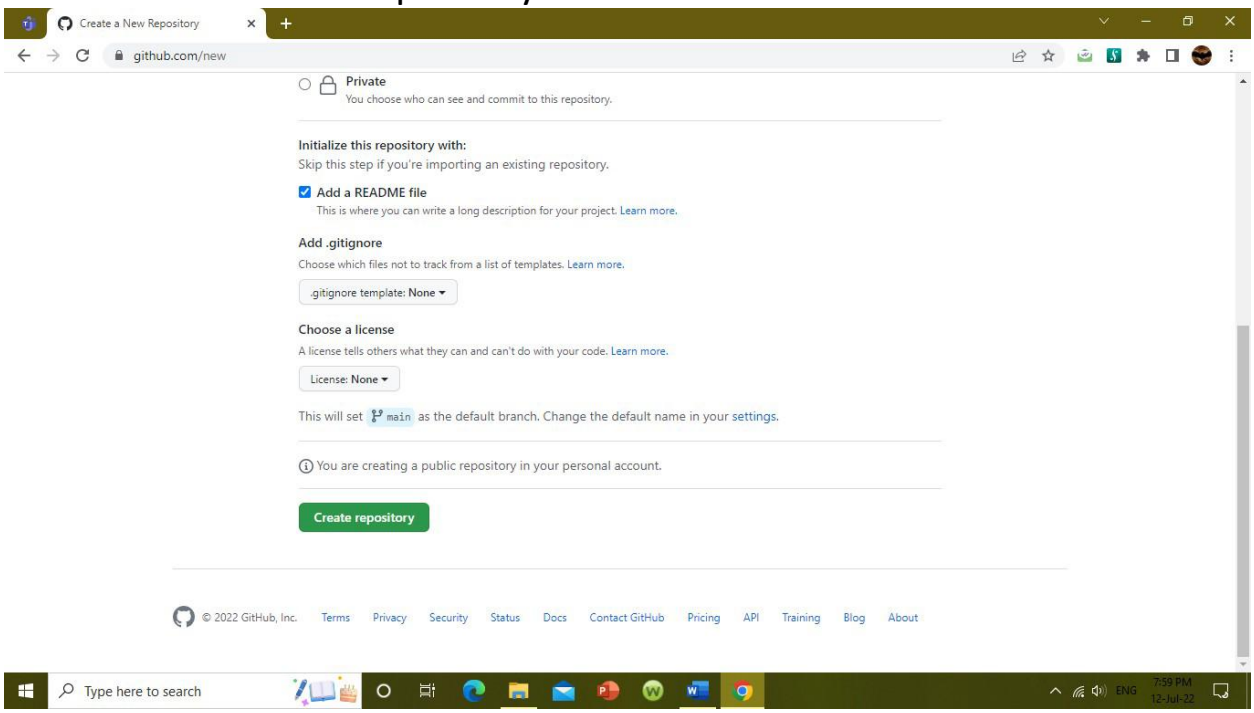
- ✓ Now , after we install git for windows , First of all we should have a repository to start with.
- ✓ Now we will use github .
- ✓ Go to the browser and type “GitHub”.
- ✓ After that click on the git-hub , and create an account in github .
- ✓ Now for creating a repository in the github , go the tab repository and create new by clicking on “new”.



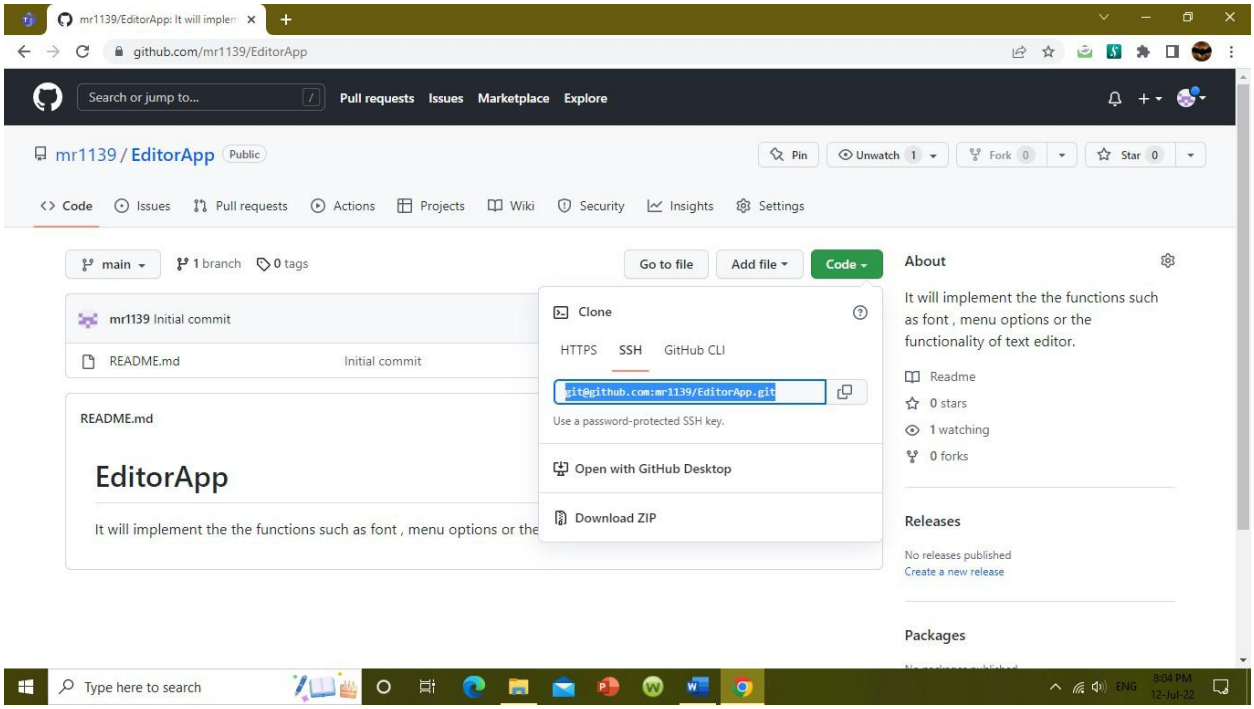
✓ And type name of repository as we are creating project for “editor -app” So , we have typed “EditorApp” , and give the description of the repo ,tick “add read me file” .



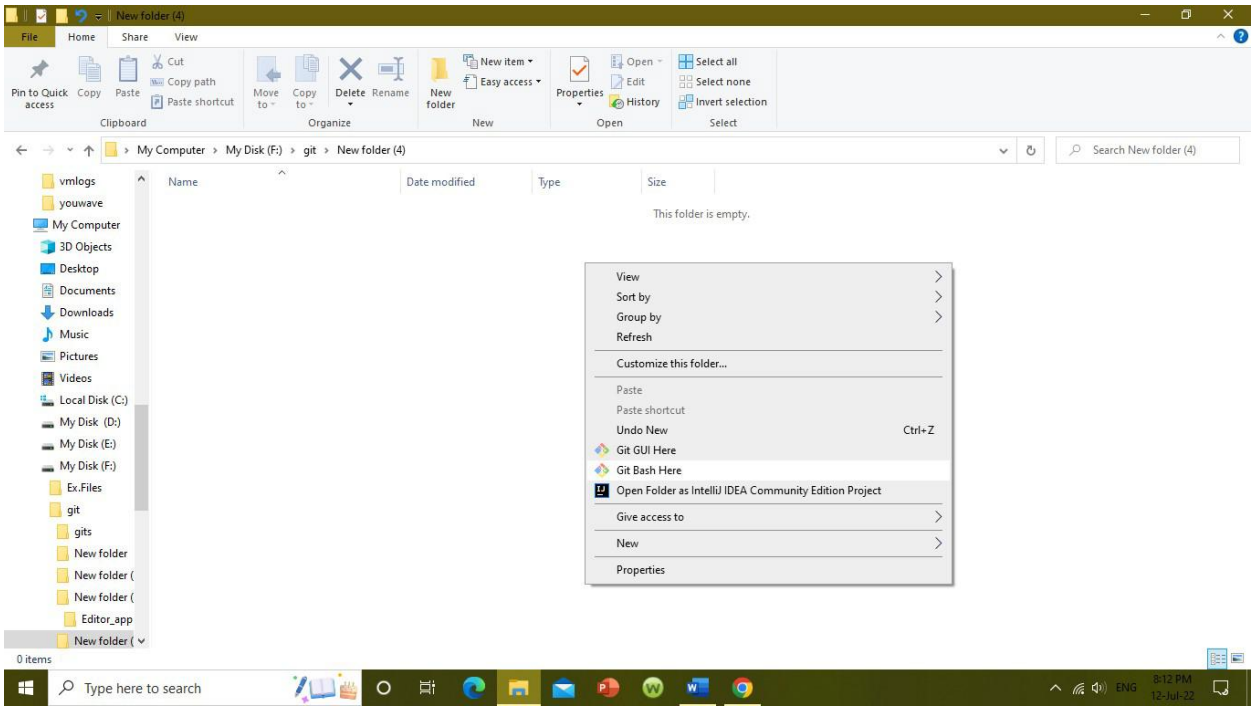
✓ Click on create repository



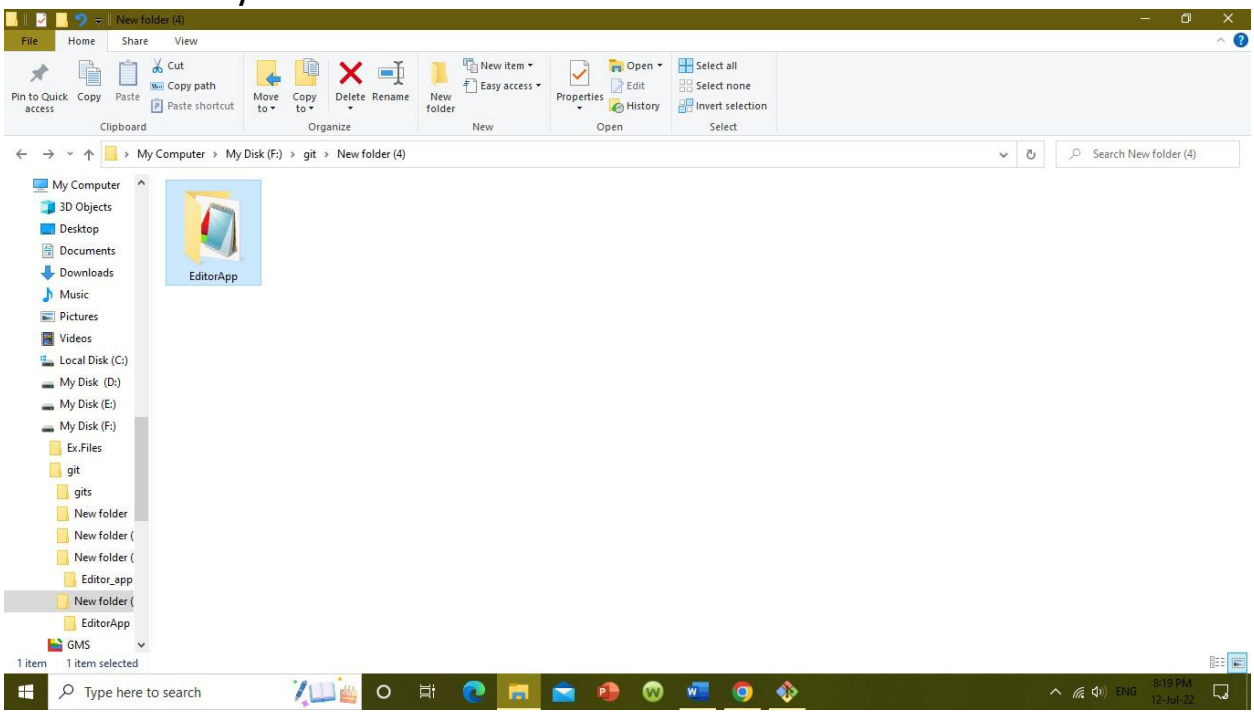
- ✓ After creating the repository we have got the its path in the “code” tab for cloning the repo’s.
- ✓ https path , SSH path .



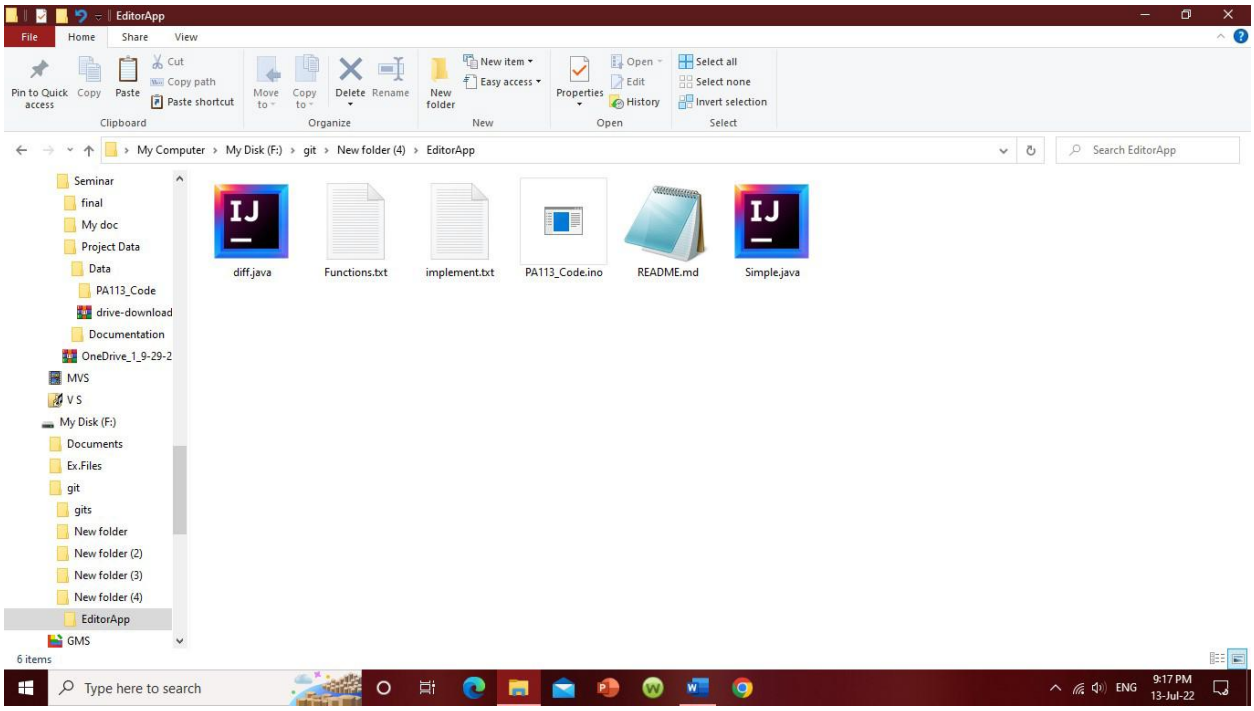
- ✓ now copy this SSH path for cloning the repo .
- ✓ copy the SSH path , and open the “Git Bash” in any empty folder by right clicking on the path and click on ” Git bash here ” .



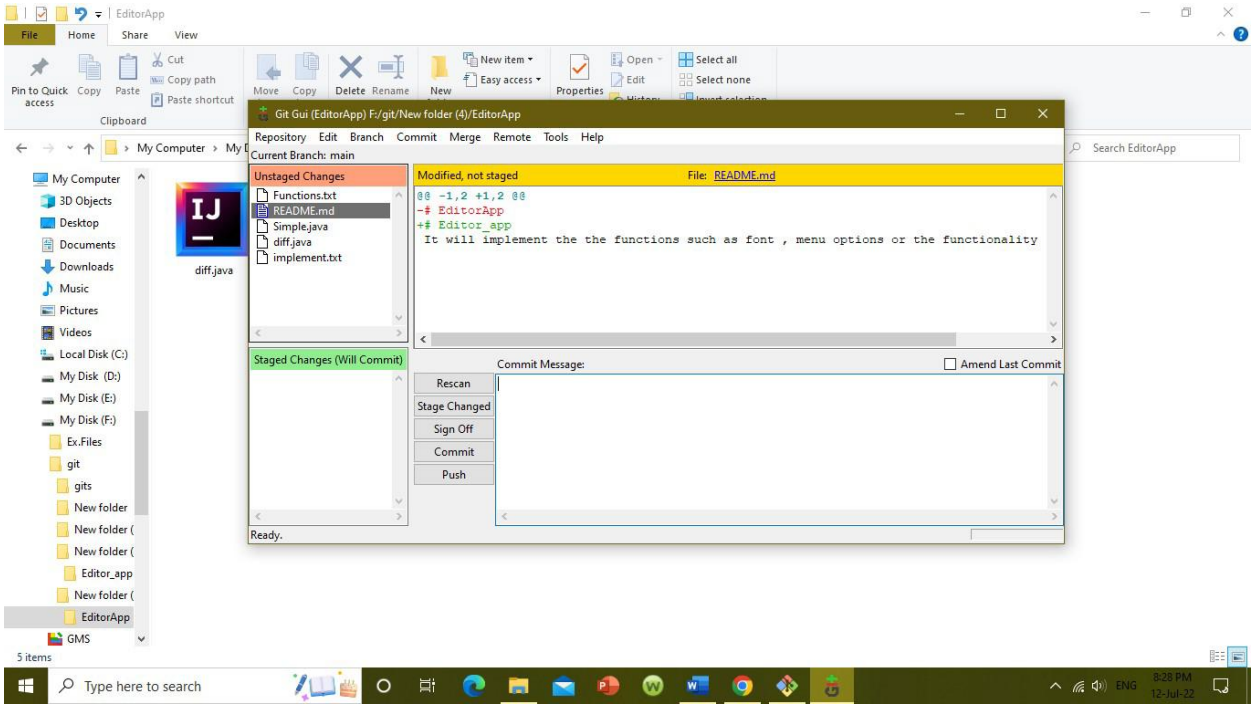
✓ By using this command we have got our repo in our local directory.



✓ Here we have to add our project documentation for it in the same folder, it may be a file or the source code etc.

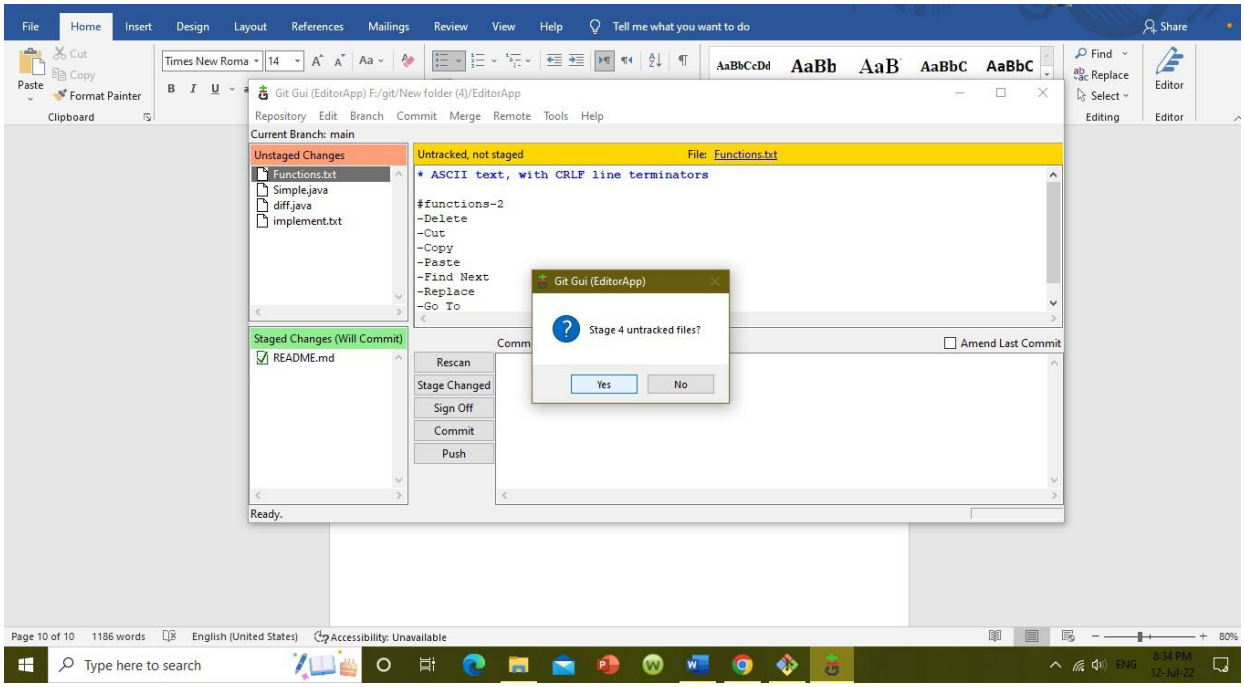


✓ Now we have to push all the files into our remote repo created in github.

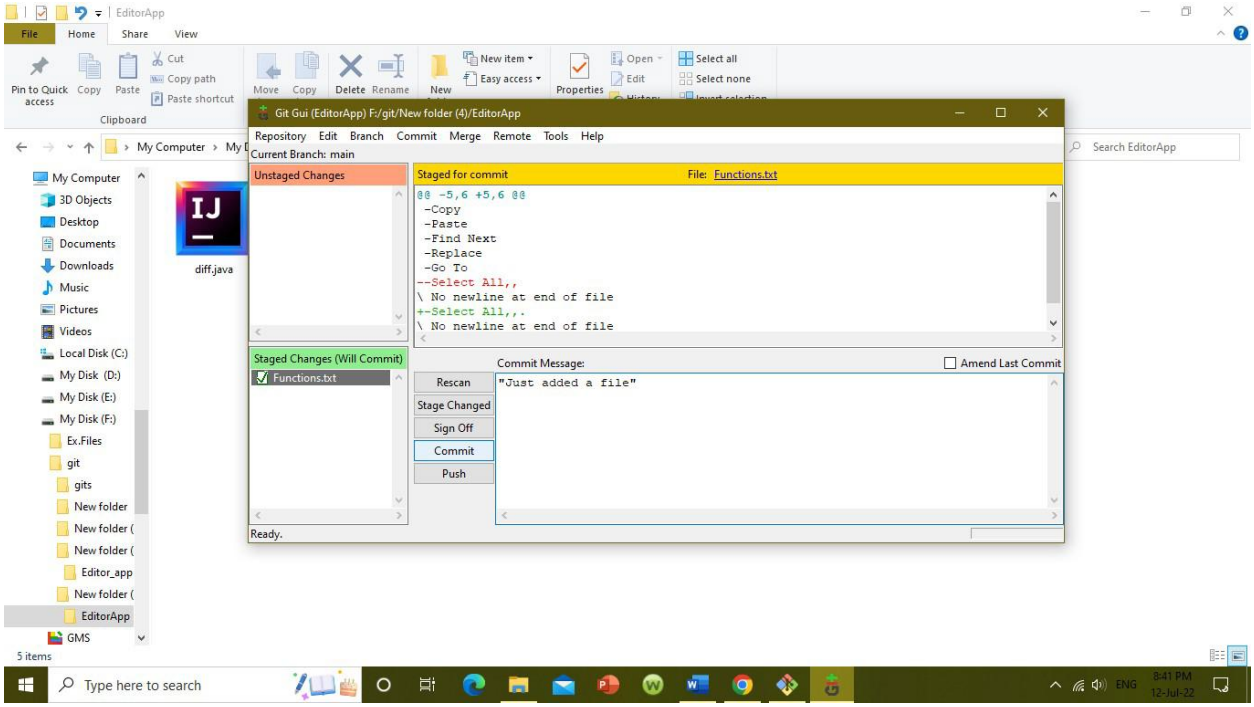


✓ Here now we can see the unstaged changes, which says that the git-gui documents are added here.

✓ Click on the documents and then click on the staged changes.

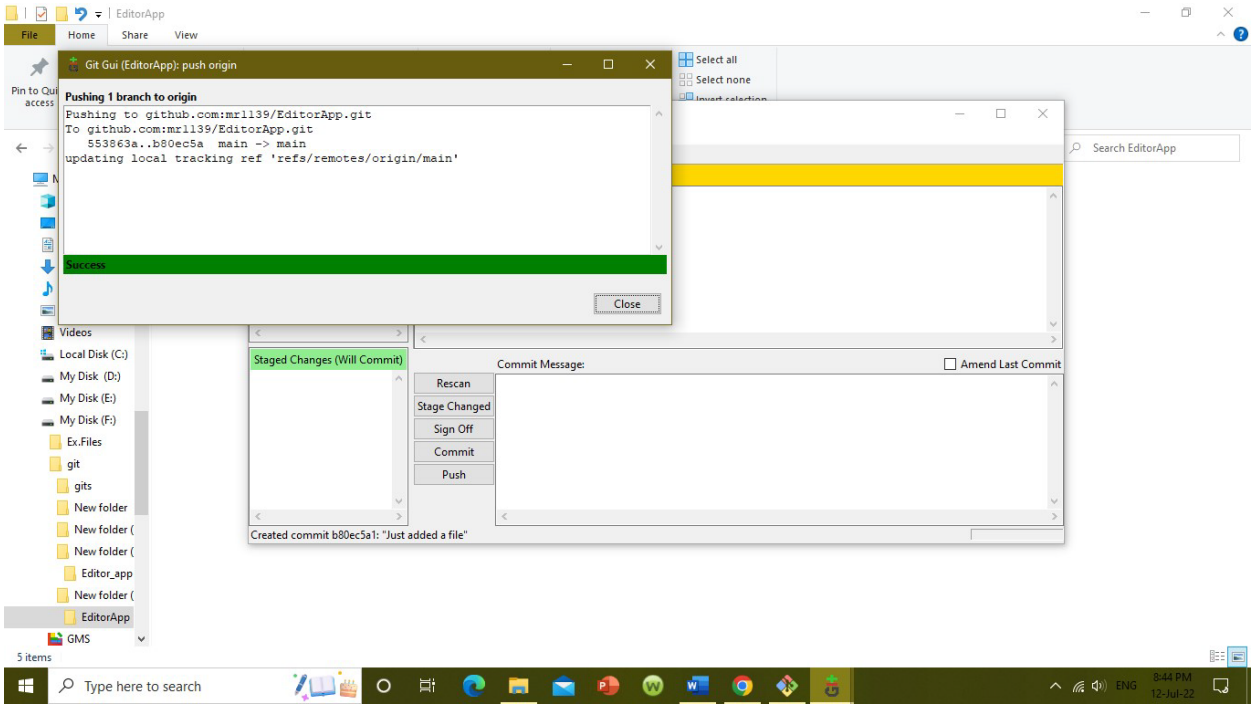


✓ No these are staged changes , these changes will add into commit.
✓ Now we will add our message as “Just added a file”.
✓ And then click at commit.
✓ And then we will click at push.

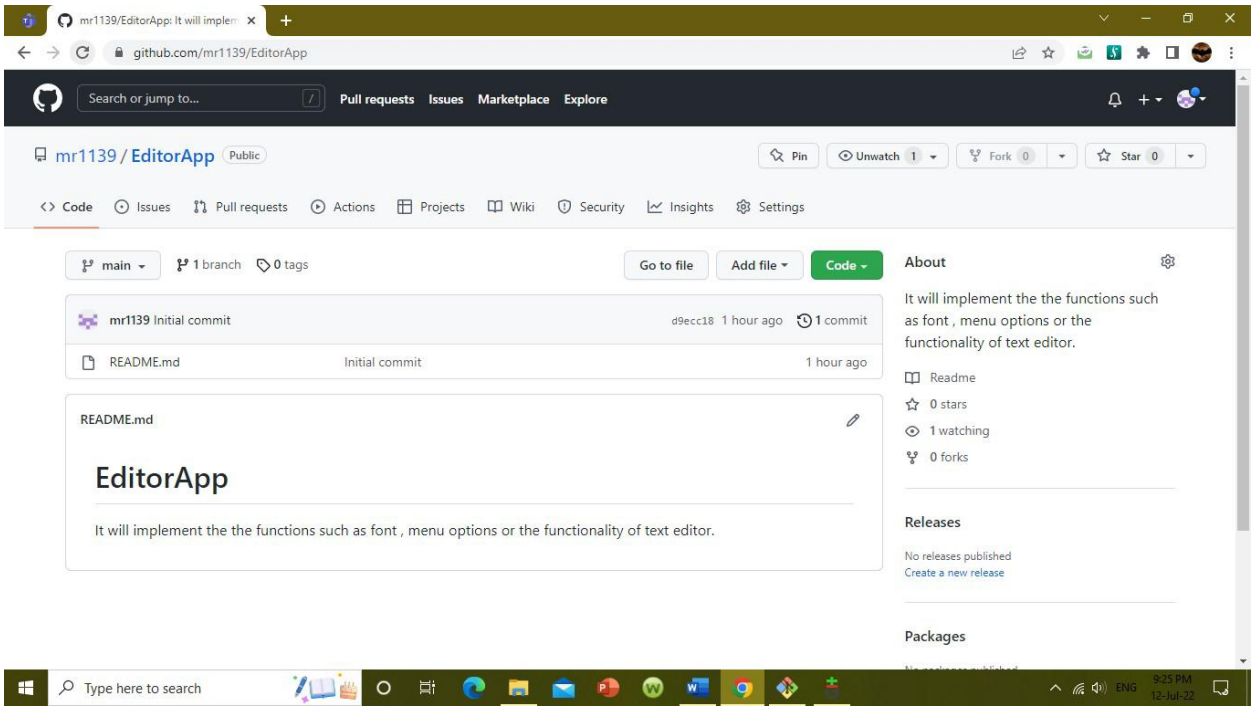


✓ As its branch is main, click on “push”.

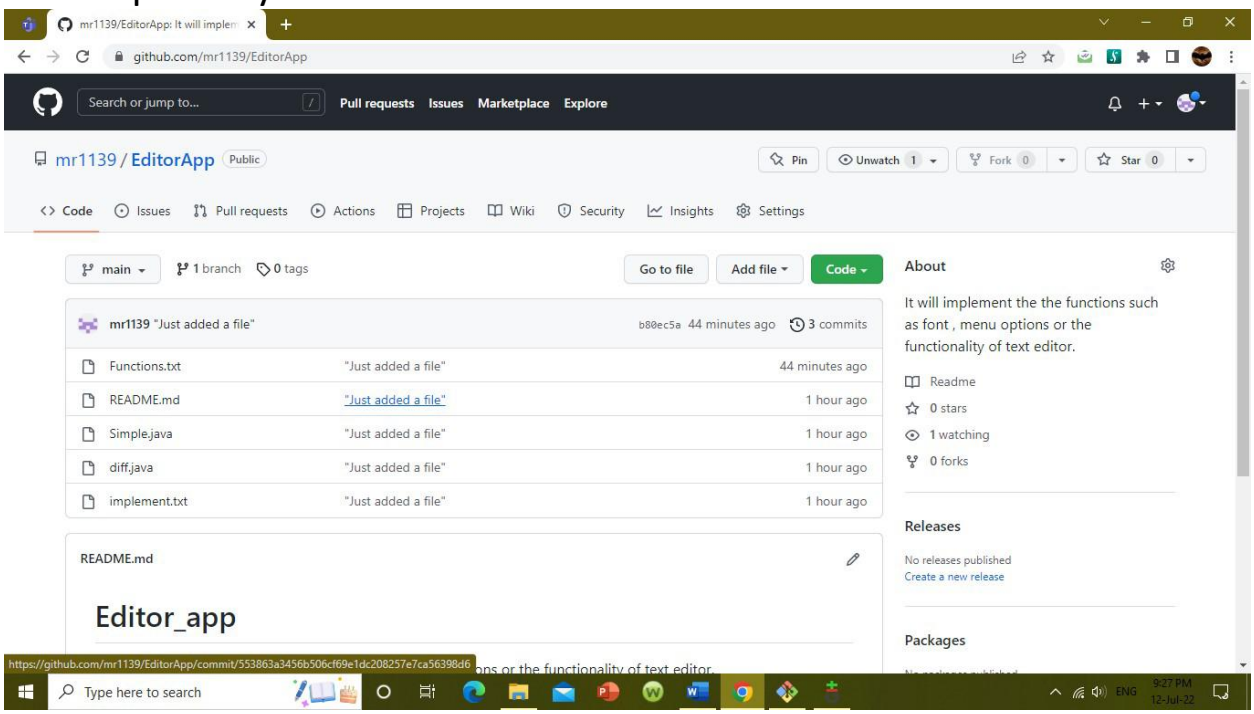
✓ After clicking push, it shows success. Now we have to close it.



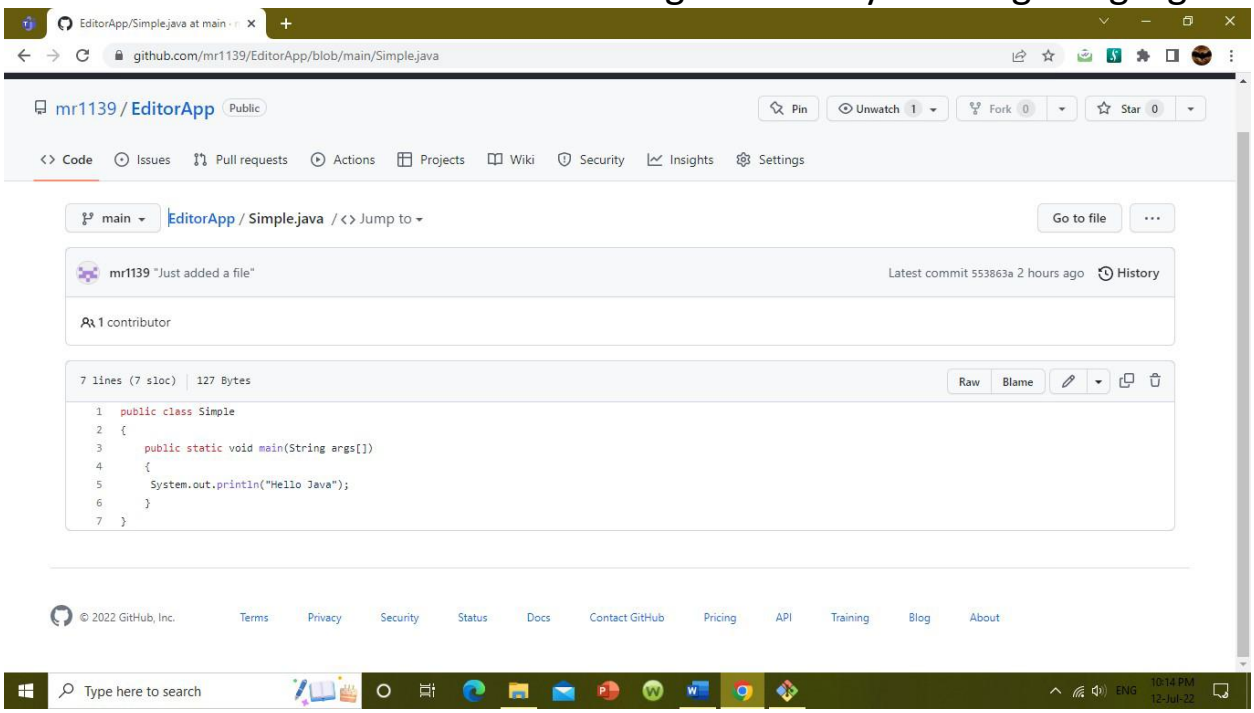
✓ After this, we need to go back to the remote repository and reload or refresh the page.



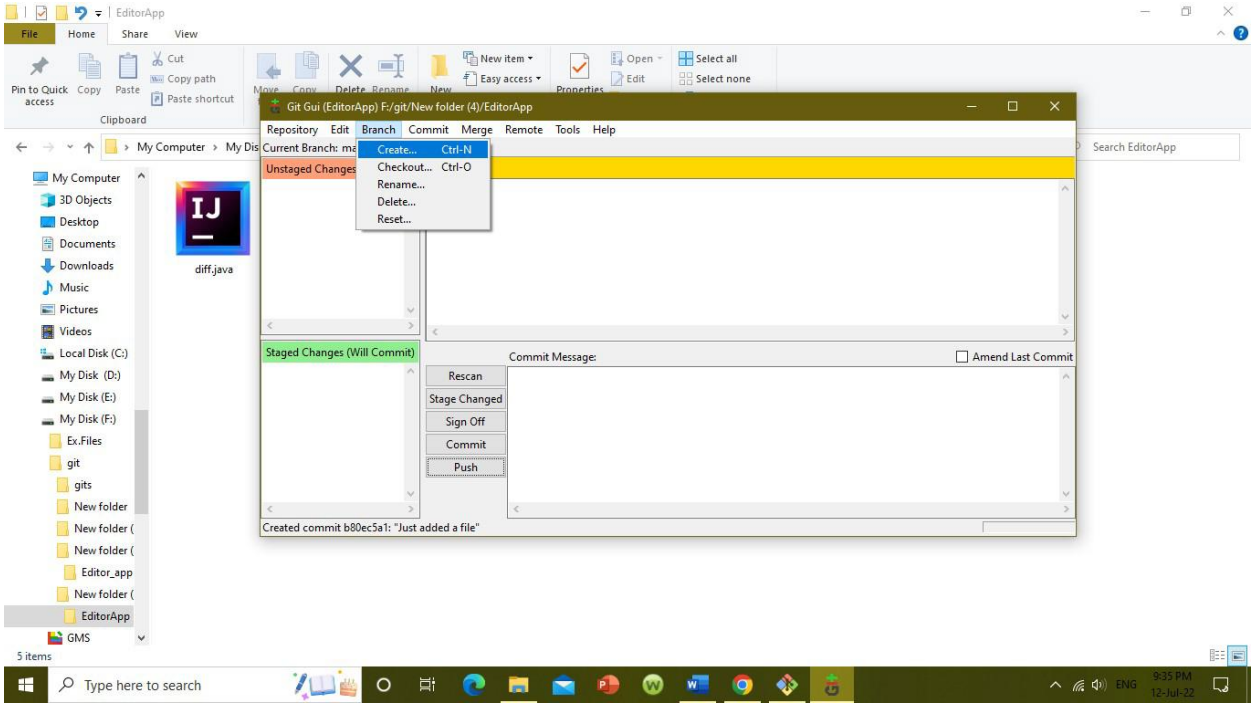
✓ Now here all the ducumentation are added in the remote repository.



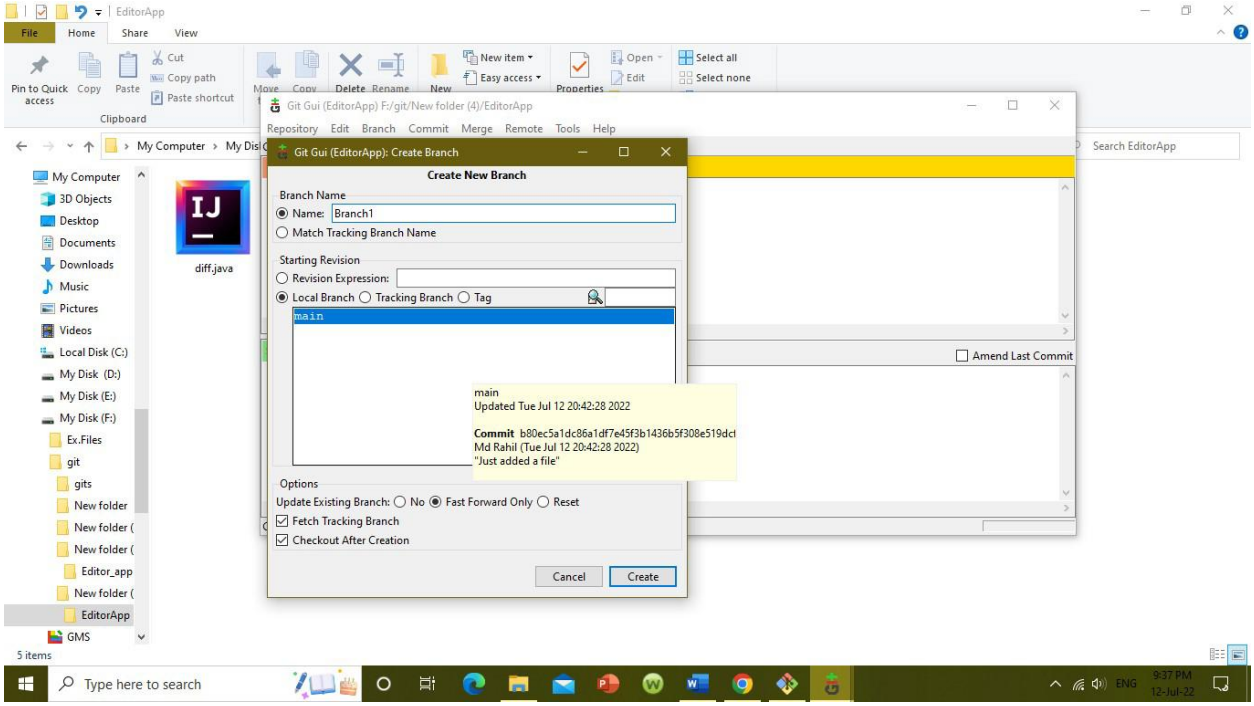
✓ And here we can see all the changes made by us using the git-gui.



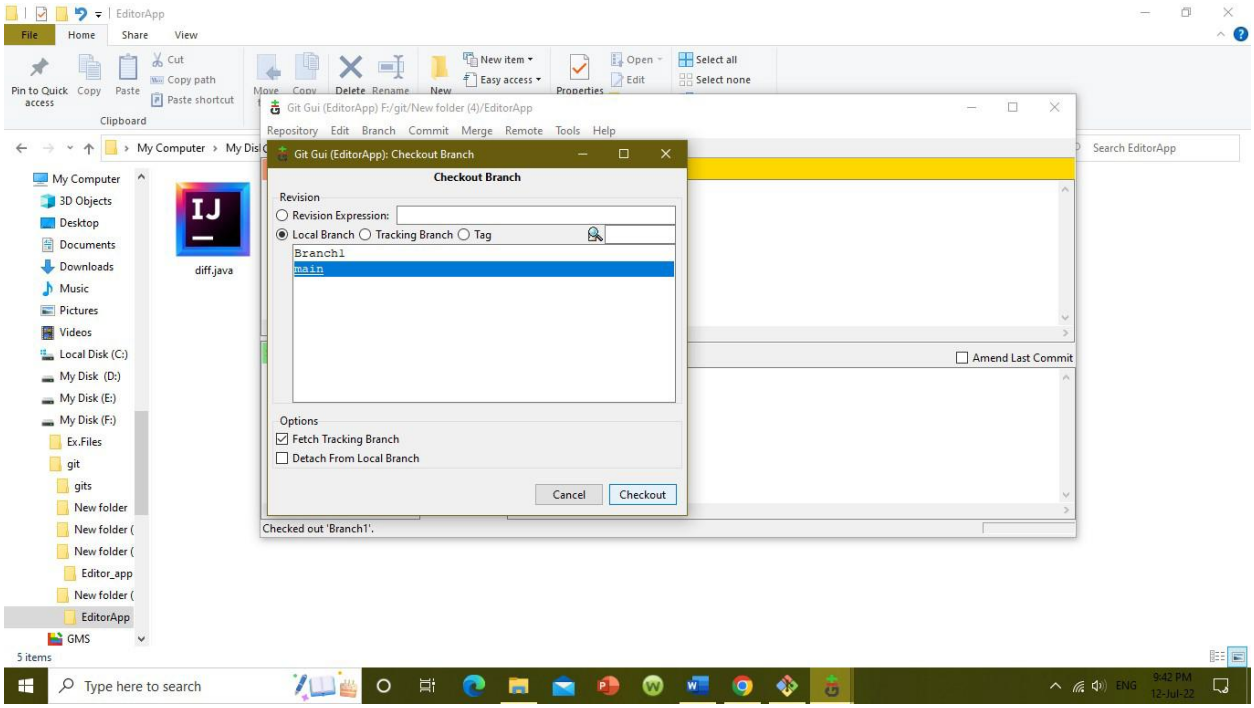
✓ Now If we want to create a branch and merge it using gui , we have to first create a branch by clicking on branch > create branch in the git-gui.

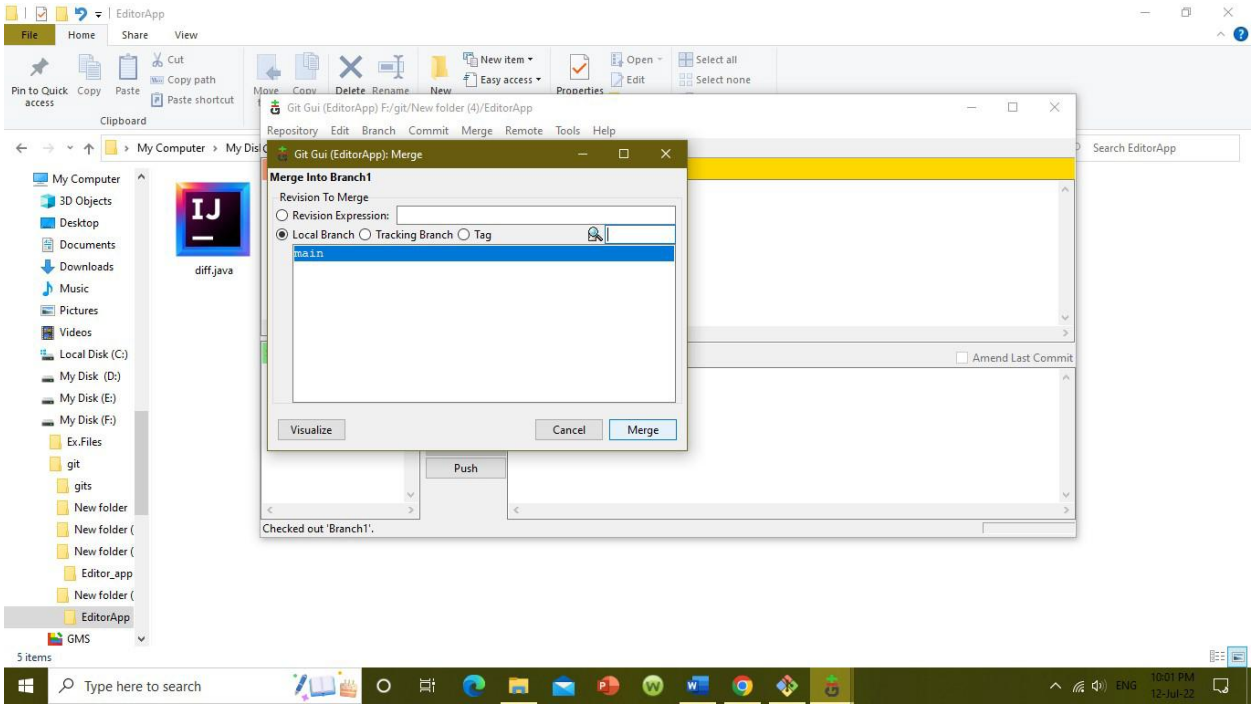


✓ Create a branch named as “branch1”.

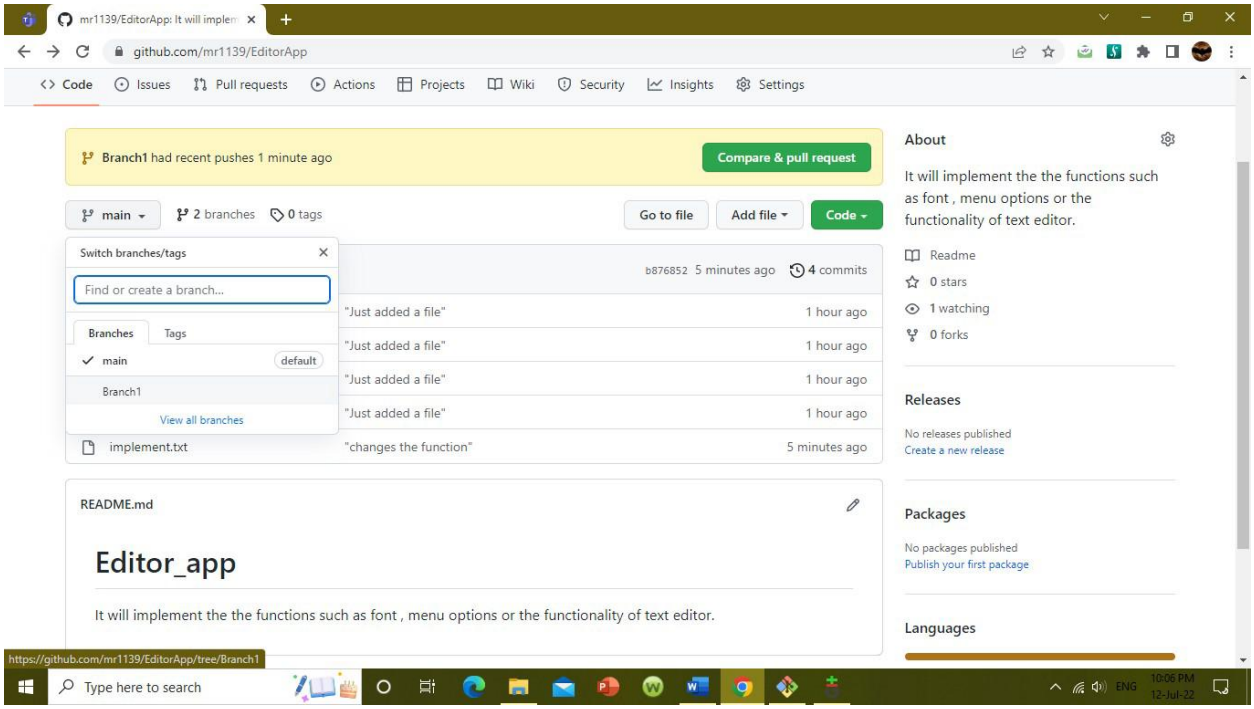


- ✓ We can see at the “current branch : branch1” , we are in the branch 1 .
- ✓ so this how we can create multiple branches .
- ✓ for merging we have to checkout the main branch and merge it with the branch1 , by clicking on the “local merge”.



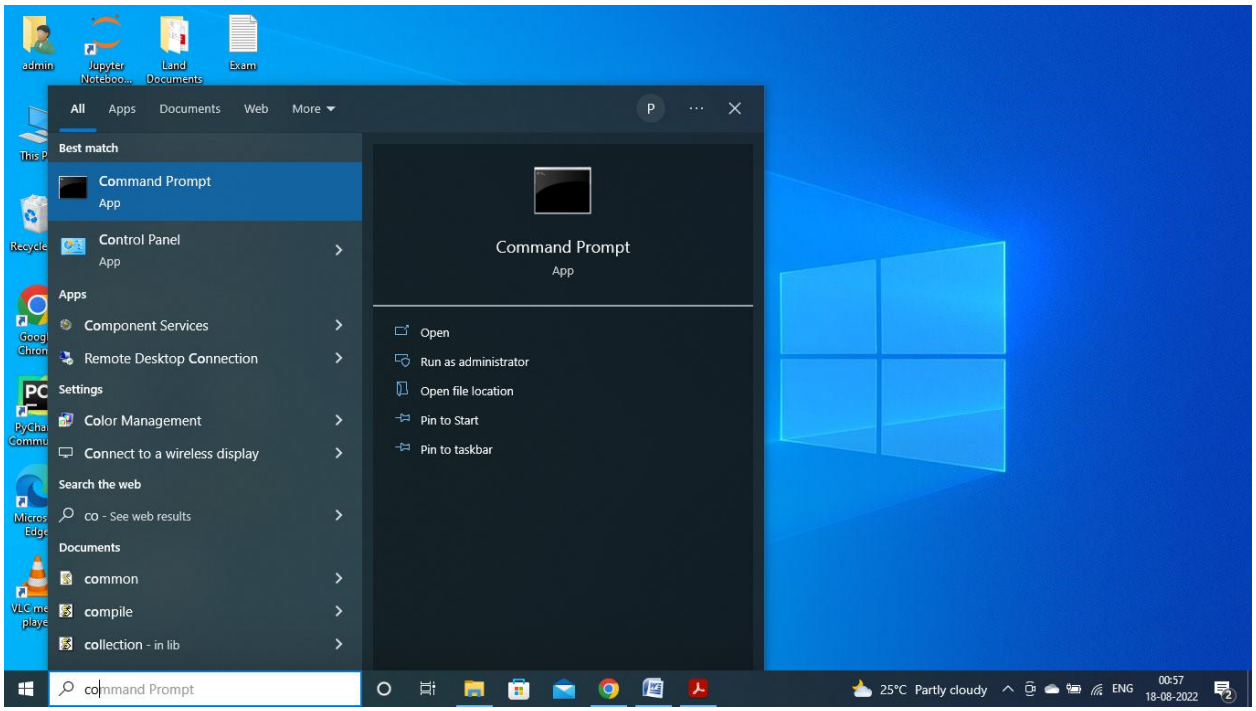


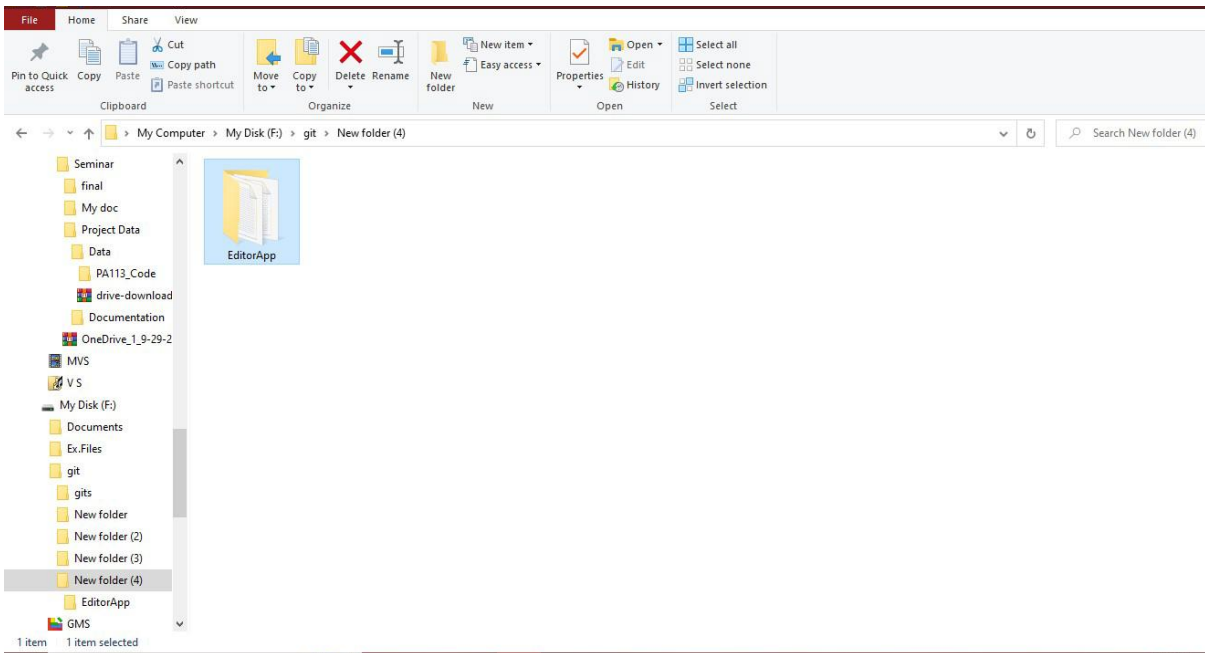
- ✓ In the github new branch i.e., branch1 has been created.
- ✓ And it has been merged into the main branch.
- ✓ So this is how we have created and uploaded our project using Git-Gui.



- Using of comand prompt(cmd)

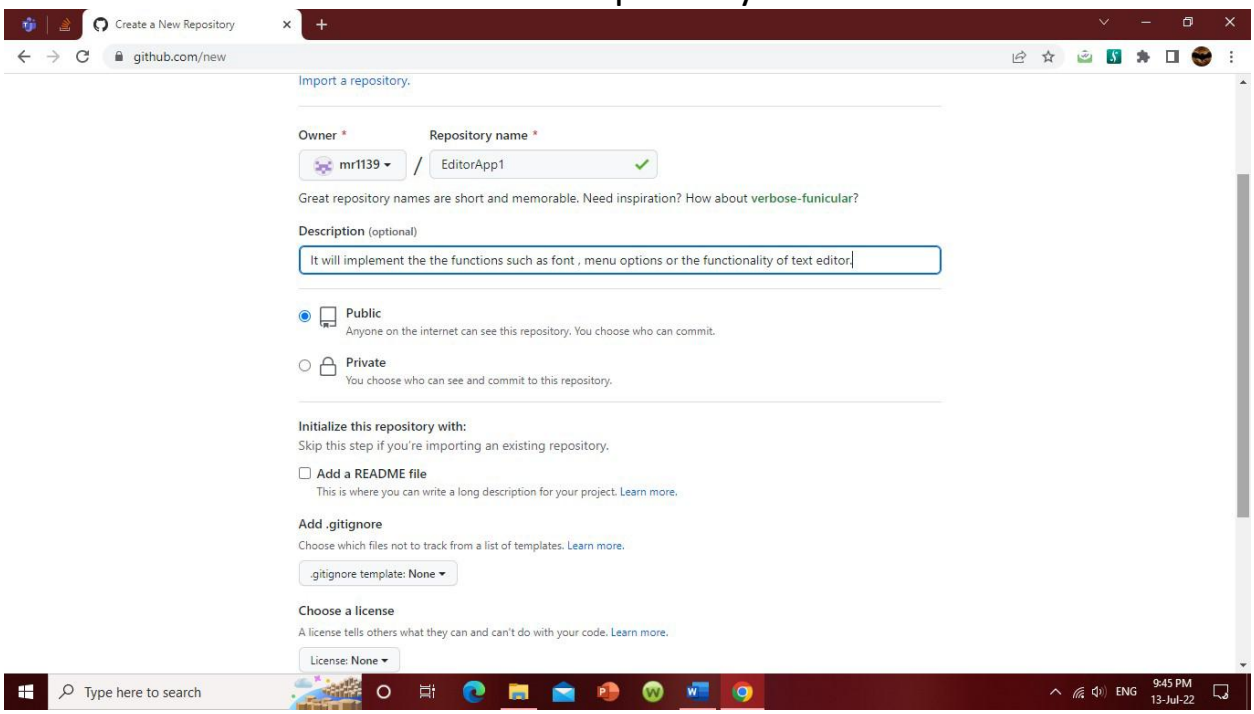
- ✓ Click on the windows button and search for “cmd” and then open it.
- ✓ Now we have project documentation in our local directory.





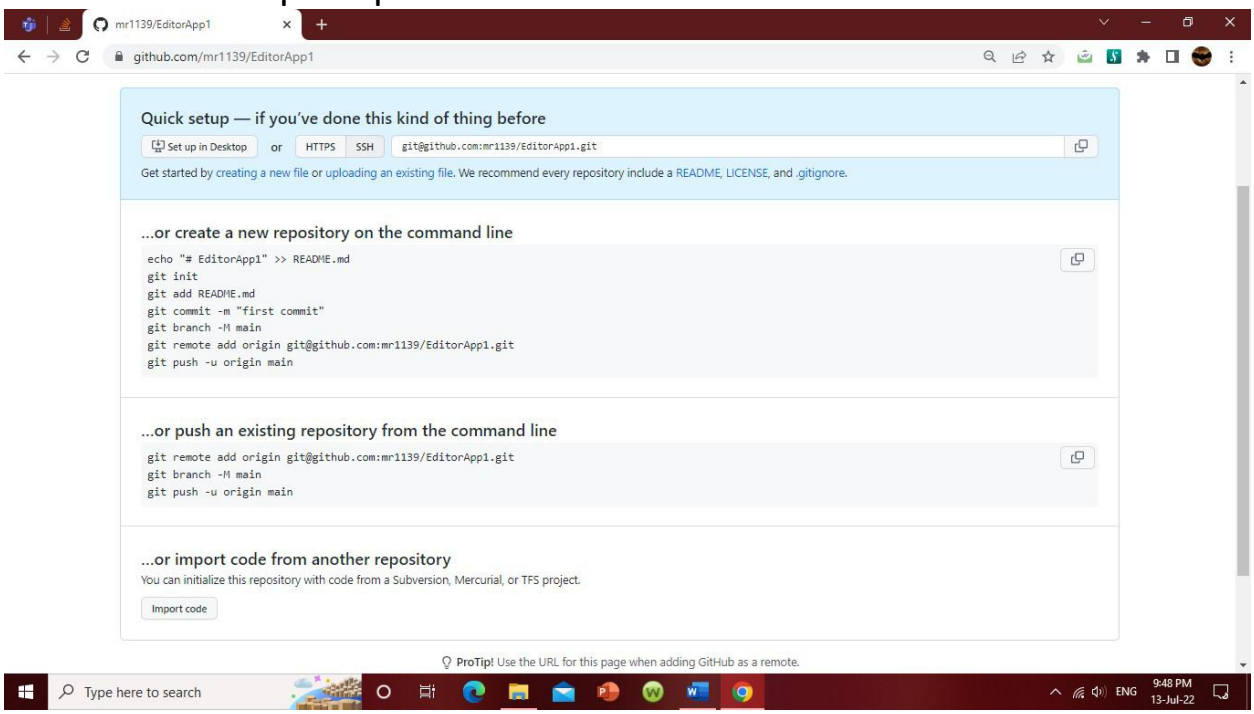
- ✓ Now we have to push/upload this project folder in to my github repository using command prompt .
- ✓ So for this we need to have github account .
- ✓ Once the github account is created simply go ahead and create repository .

✓ For creating repository in the github , go to “your repository” and click on “new” . create new repository.

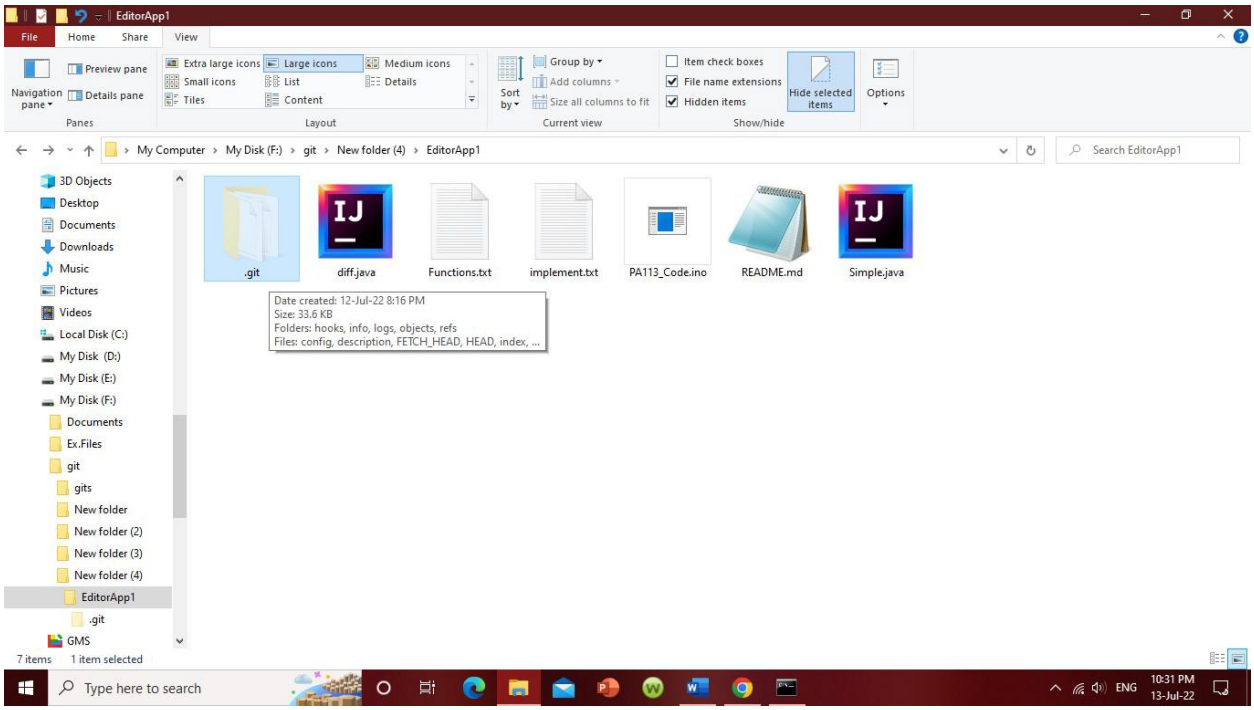


✓ Now we will get the our repository path i.e in HTTPS or in SSH.

✓ As we have our project folder local directory , and open the command prompt.

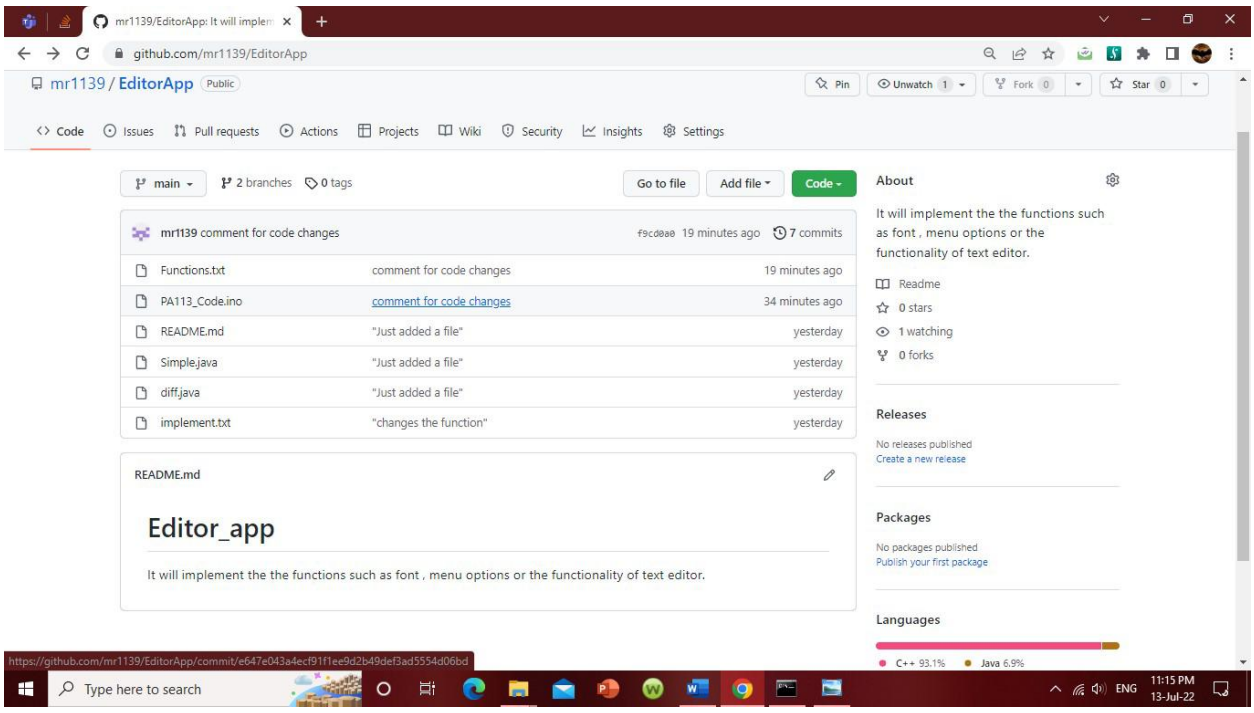


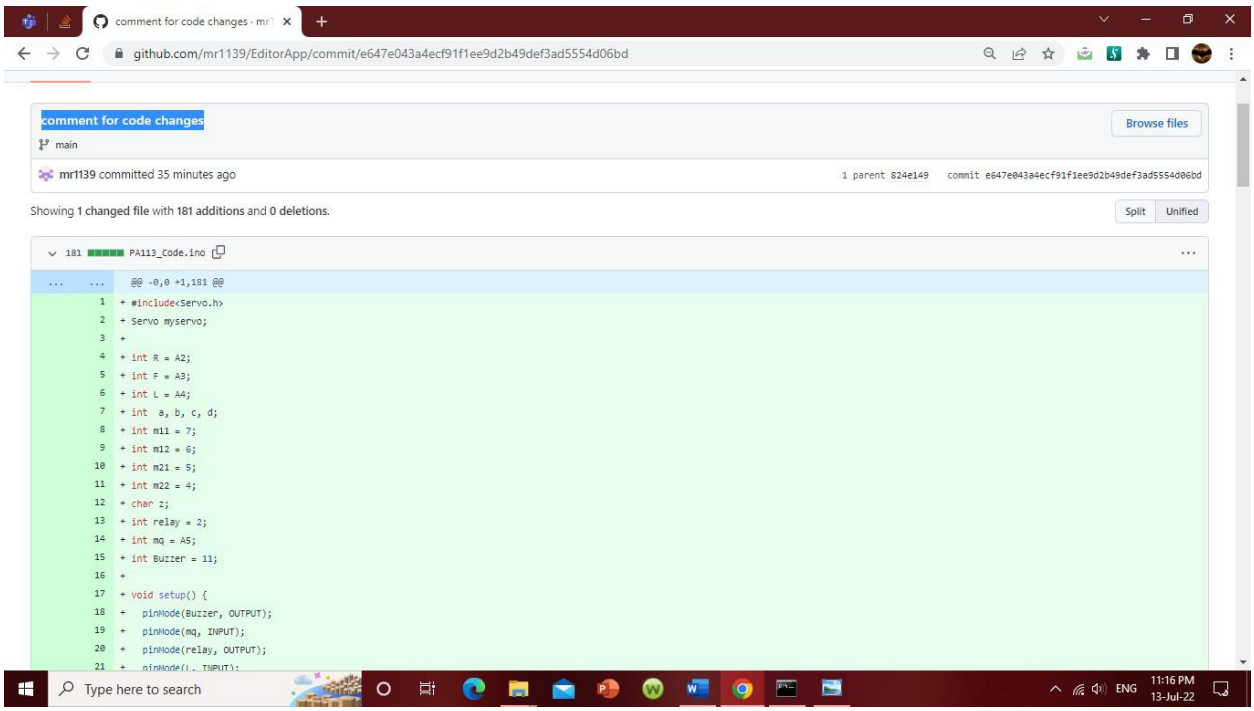
- ✓ Now open the command prompt and go to the directory where the project file/document is present using cd(change directory) command .
- ✓ Here you can see we are in our local directory , where our all file and documents are present.
- ✓ In this here we have to initialize empty git repository using the command “git init” .
- ✓ And after this we have add all the files and the documents in the repository using the command “git add.” Which will add the files and documents into our created local repository or we can say it will add a change in the working directory to the staging area.
- ✓ Now you can see we have initializes the git repository into our existing project folder.



- ✓ Here we will use git commit command “git commit – m“message” means adding commits keep track of our progress and changes as we work .
- ✓ Now , in the git-hub if you refresh the page , you can see all

the files / documents , code has been added there , and whatever the changes we have done it will showing in the commit message as “comment for code changes”





- **Conclusion**

The Git and GitHub provide fast and convenient ways to track projects, whether the project is by one individual or a team of software developers.

In this we have done with creating and uploading projects on Github using the Git Gui and by using the command prompt , both has been successfully completed .