Source Code Management

Task 1.1

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Task 1.2

&

Task 2

(CS181)

Submitted by

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Institute/School Name	**Chitkara University Institute of Engineering and Technology**		
Department Name	**Department of Computer Science & Engineering**		
Programme Name	**Bachelor of Engineering (B.E.), Computer Science & Engineering**		
Course Name	**Source Code Management**	Session	**2021-22**
Course Code	**CS181**	Semester/Batch	**2nd/2021**
Vertical Name	**Beta**	Group No	G01
Course Coordinator	**Dr. Neeraj Singla**		
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TASK 1.1

S.no.	Title
1.	Setting up of Git Client
2.	Setting up of GitHub Account
3.	Generate logs
4.	Create and visualize branches
5.	Git lifecycle description

Experiment No. 01

Aim: Setting up of Git Client

Theory:

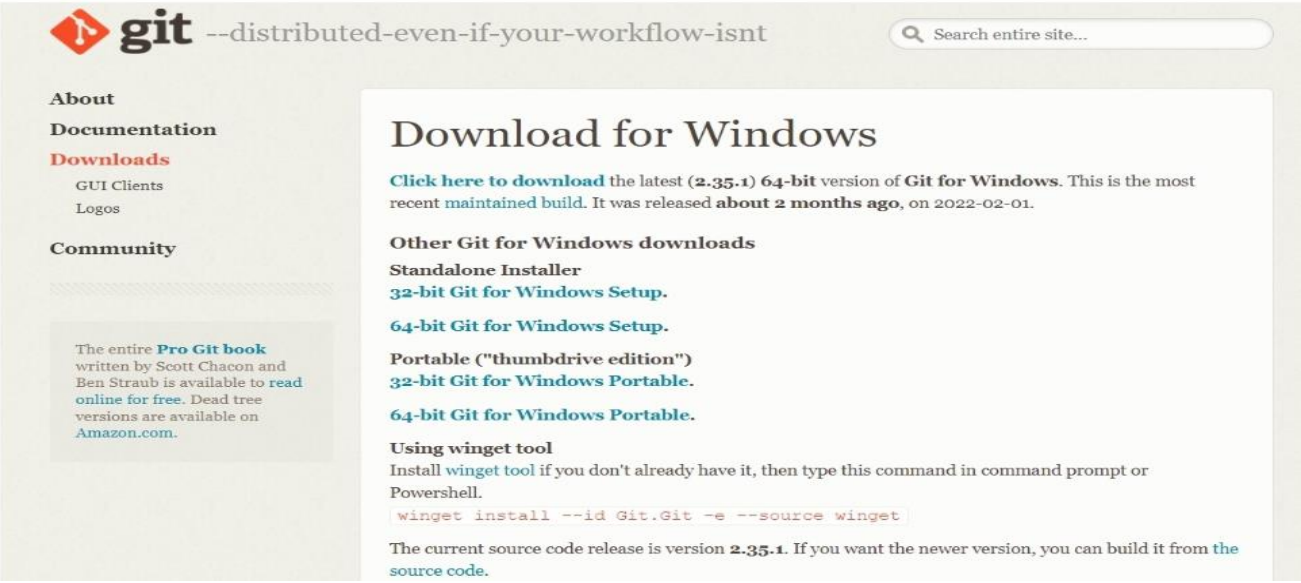
GIT –> It is basically used for pushing and pulling of code. We can use git and git-hub parallelly to work with multiple members or individually. We can make , edit , recreate ,copy or download any code on git hub using git.

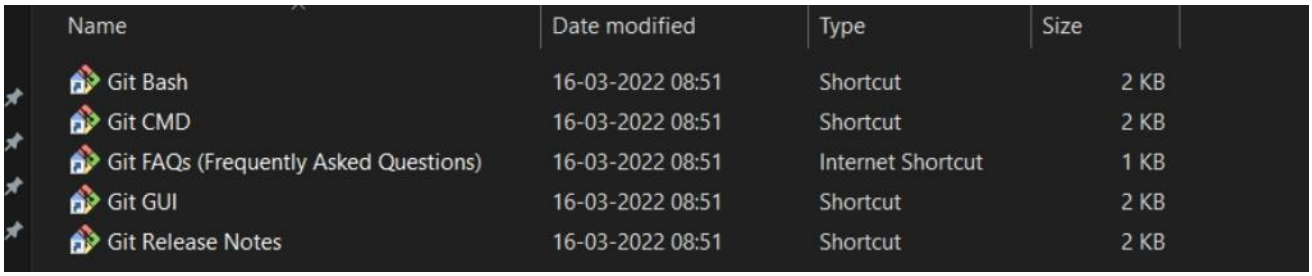
What is GIT ? –> It's a Version Control System(VCS) -> It is a software or we can say a server by which we are able to track all the previous changes in the code.

Advantages of GIT –>

Procedure: We can install Git on Windows, using the most official build which is available for download on the GIT's official website or by just typing (s c m git) on any search engine . We can go on https://git-scm.com/download/win and can select the platform and bit-version to download. And after clicking on your desired bit-version or ios it will start downloading automatically.

Snapshots of download:





Name	Date modified	Type	Size
Git Bash	16-03-2022 08:51	Shortcut	2 KB
Git CMD	16-03-2022 08:51	Shortcut	2 KB
Git FAQs (Frequently Asked Questions)	16-03-2022 08:51	Internet Shortcut	1 KB
Git GUI	16-03-2022 08:51	Shortcut	2 KB
Git Release Notes	16-03-2022 08:51	Shortcut	2 KB

Experiment No. 02

Aim: Setting up GitHub Account

Theory:

What is GitHub -> GitHub is a website and cloud-based service (client) that helps an individual or a developers to store and manage their code. We can also track as well as control changes to our or public code.

Advantages of GitHub -> GitHub's has a user-friendly interface and is easy to use .We can connect the git-hub and git but using some commands shown below in figure 001. Without GitHub we cannot use Git because it generally requires a host and if we are working for a project we need to share it will our team members, which can only be done by making a repository . Additionally , anyone can sign up and host a public code repository for free, which makes GitHub especially popular with open-source projects.

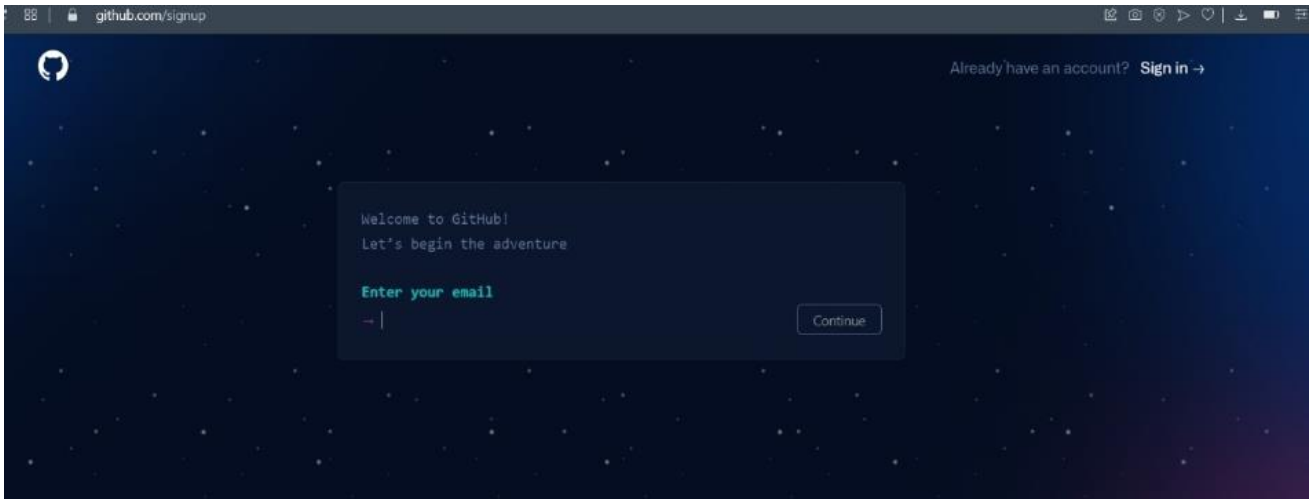
Procedure:-

Step1 :-

Google (any search engine)
Search for git-hub or (https://github.com/signup).

Step2 :-

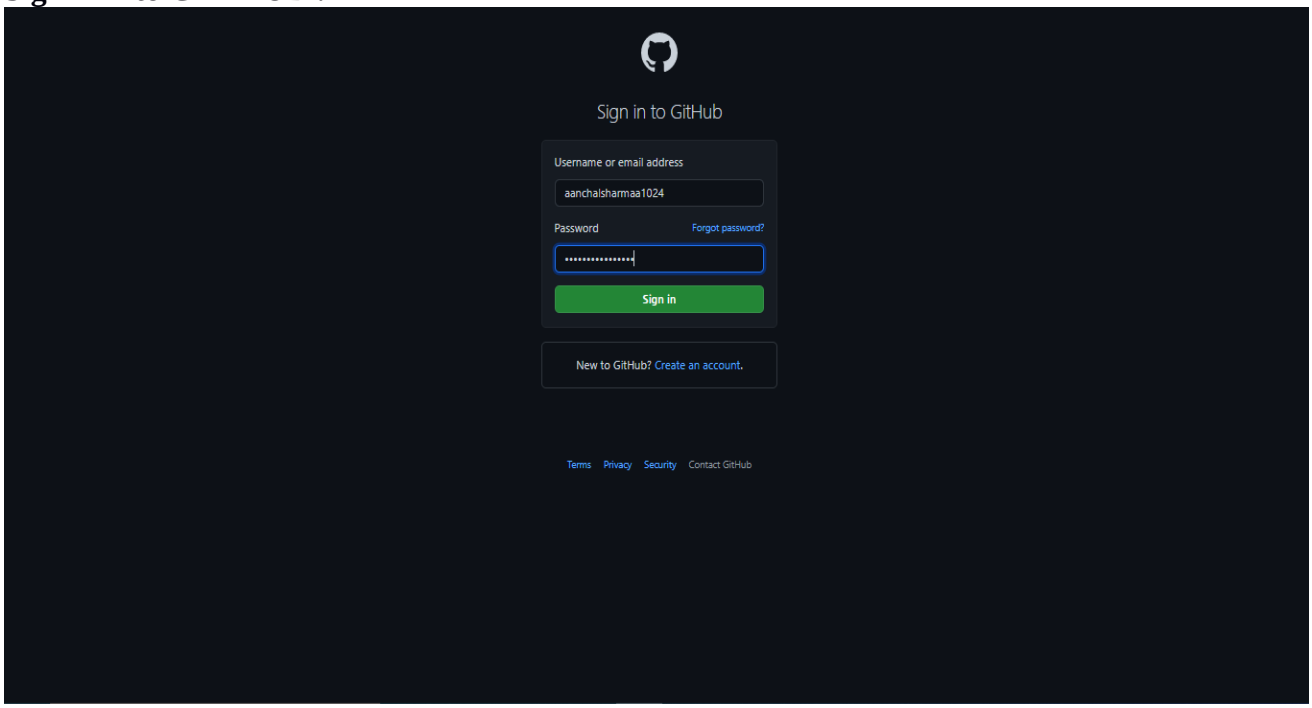
Snapshots –



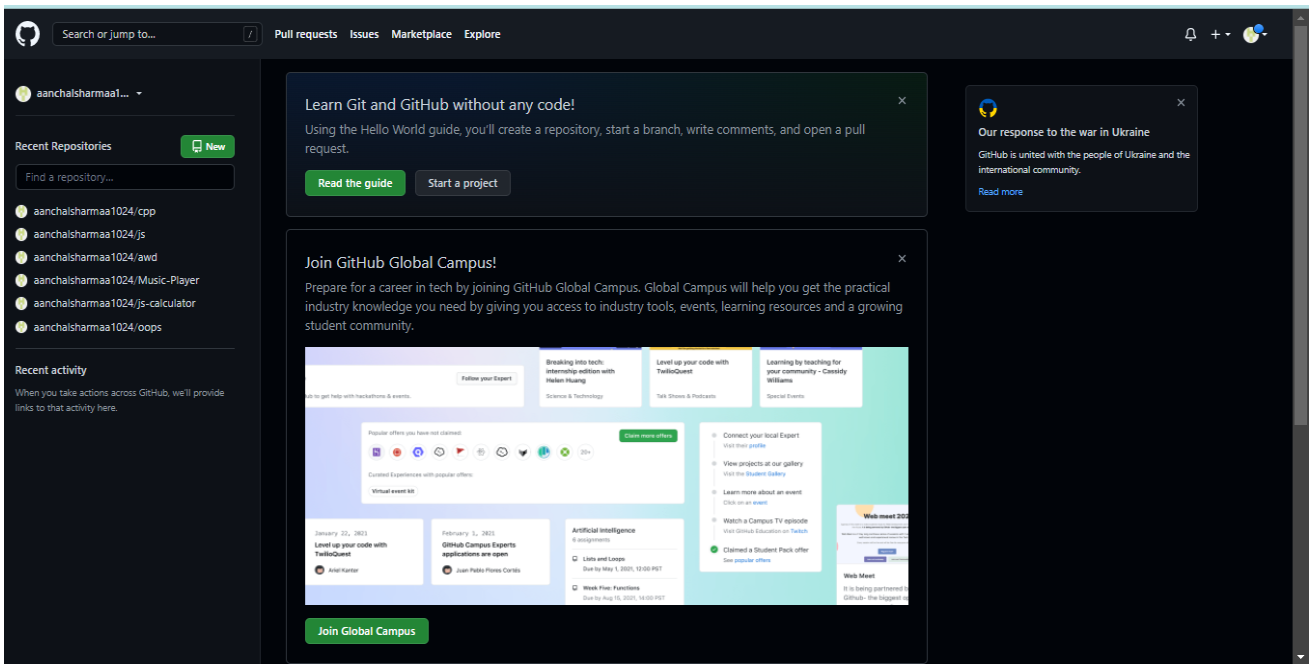
After visiting the link this type of interface will appear, if you already have account you can sign in

and if not you can create.

Sign in into GIT-HUB :-



Interface of GitHub :-



To link GitHub account with Git bash –

For username:-

git config --global user.name “username in git-hub”

For user email:-

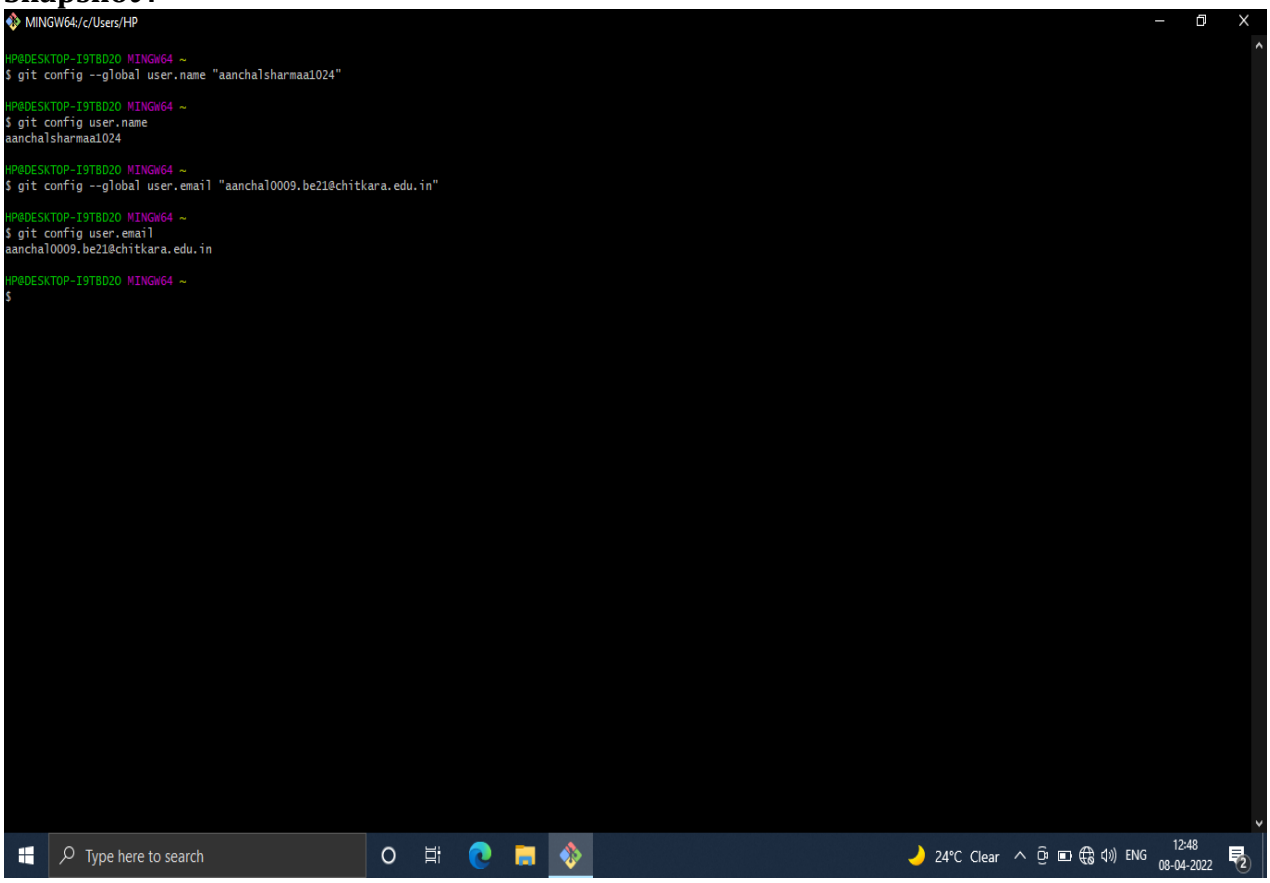
git config --global user.email “your email in git-hub”

To verify:-

git config user.name

git config user.email

Snapshot :-



Experiment No. 03

Aim: Program to Generate log

Theory:-

Logs -> Logs are nothing but the history which we can see in git by using the code git log.
It contains all the past commits, insertions and deletions in it which we can see any time.

Why logs -> Logs helps to check that what were the changes in the code or any other file and by whom. It also contains the number of insertions and deletions including at which time it was changed.

Snapshots –

```
 1 file changed, 26 insertions(+)

HP@DESKTOP-I9TBD2O MINGW64 /d/js (master)
$ git log
commit 7a8b073a32b98f26bf332aa2e28034f7141c13a5 (HEAD -> master)
Author: aanchalsharmaa1024 <aanchal0009.be21@chitkara.edu.in>
Date:   Fri Apr 8 13:06:02 2022 +0530

    code added

commit c1868658da8311a78a3f7b7ea1a348e71005c4e6
Author: aanchalsharmaa1024 <aanchal0009.be21@chitkara.edu.in>
Date:   Fri Apr 8 13:02:50 2022 +0530

    dec object

commit 8f0eb74b737fb26bf277a3694a2fd3d32b9055aa
Author: aanchalsharmaa1024 <aanchal0009.be21@chitkara.edu.in>
Date:   Fri Apr 8 12:58:14 2022 +0530

    switch case

HP@DESKTOP-I9TBD2O MINGW64 /d/js (master)
$ |
```

Experiment No. 04

Aim: Create and visualize branches

Create branches :-

The main branch in git is called as master branch. But we can make branches out of this main master branch. All the files present in master can be shown in branch but the file which are created in branch are not shown in master branch. We can also merge both the parent (master) and child (other branches).

Syntax:-

1. For creating a new branch.

git branch name of branch , by default it is master branch

Snapshots –

2. To change the present working branch.

git checkout name of branch.

```
HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git branch feature

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git branch
  feature
* master

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git checkout feature
Switched to branch 'feature'

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ git branch
* feature
  master
```

Visualizing branches :-

```
HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ git log --oneline
50baca7 (HEAD -> feature, origin/master, master) object
6f58a90 static dec
6937fc7 constructors
d564cf4 class
7351c2a code
8c47134 use of strict
2d943bf code added
b5c488a func
5a49d63 to display prop of obj
fb9cd4b functions
c79caf9 alert
2da0f98 sum n avg of given series of nos.
02df71f comment
53c387f code added
031cc4f sum of odd nos.
715c172 code added
f5dd341 display the sum of series
bc0b07c code added
8a3cbf9 code
279f41e print odd nos. from 1 to 20
c938e1d code added
21ae6e8 print nos. from 1 to 20
bcb4cfe total bill
6ec9c64 code added
22e1faa let var
7be5958 index of array
5ee9e36 code added
8e26823 swaping of two nos.
1d2293b swaping two nos.
a5da5be to display grades
f95025d reverse a number

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$
```

```
MINGW64:/d/awd

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ vi day3.html

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ git status
On branch feature
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:   day3.html

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

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ git add .
warning: LF will be replaced by CRLF in day3.html.
The file will have its original line endings in your working directory

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ git commit -m "one comment is made"
[feature 4c02a0a] one comment is made
 1 file changed, 1 insertion(+)

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ git log --oneline
4c02a0a (HEAD -> feature) one comment is made
50baca7 (origin/master, master) object
6f58a90 static dec
6937fc7 constructors
d564cf4 class
7351c2a code
8c47134 use of strict
2d943bf code added
b5c488a func
5a49d63 to display prop of obj
fb9cd4b functions
c79caf9 alert
2da0f98 sum n avg of given series of nos.
02df71f comment
53c387f code added
031cc4f sum of odd nos.
715c172 code added
f5dd341 display the sum of series
bc0b07c code added
8a3cbf9 code
279f41e print odd nos. from 1 to 20
c938e1d code added
21ae6e8 print nos. from 1 to 20
bcb4cfe total bill
```

```
HP@DESKTOP-I9TBD2O MINGW64 /d/awd (feature)
$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git log --oneline
50baca7 (HEAD -> master, origin/master) object
6f58a90 static dec
6937fc7 constructors
d564cf4 class
7351c2a code
8c47134 use of strict
2d943bf code added
b5c488a func
5a49d63 to display prop of obj
fb9cd4b functions
c79caf9 alert
2da0f98 sum n avg of given series of nos.
02df71f comment
53c387f code added
031cc4f sum of odd nos.
715c172 code added
f5dd341 display the sum of series
bc0b07c code added
8a3cbf9 code
279f41e print odd nos. from 1 to 20
c938e1d code added
21ae6e8 print nos. from 1 to 20
bcb4cfe total bill
6ec9c64 code added
22e1faa let var
7be5958 index of array
5ee9e36 code added
8e26823 swaping of two nos.
1d2293b swaping two nos.
a5da5be to display grades
f95025d reverse a number

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ vi day3.html

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git commit -m "console.log"
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
```

```
HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git commit -m "console.log"
On branch master
Your branch is up to date with 'origin/master'.

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:   day3.html

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

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git add .

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   day3.html


HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git log --oneline
50baca7 (HEAD -> master, origin/master) object
6f58a90 static dec
6937fc7 constructors
d564cf4 class
7351c2a code
8c47134 use of strict
2d943bf code added
b5c488a func
5a49d63 to display prop of obj
fb9cd4b functions
c79caf9 alert
2da0f98 sum n avg of given series of nos.
02df71f comment
53c387f code added
031cc4f sum of odd nos.
```

Experiment No. 05

Aim: Git lifecycle description

Theory:

Stages in GIT Life Cycle -> Files in a Git project have various stages like Creation, Modification, Refactoring, and Deletion and so on. Irrespective of whether this project is tracked by Git or not, these phases are still prevalent. However, when a project is under Git version control system, they are present in three major Git states in addition to these basic ones. Here are the three Git states:

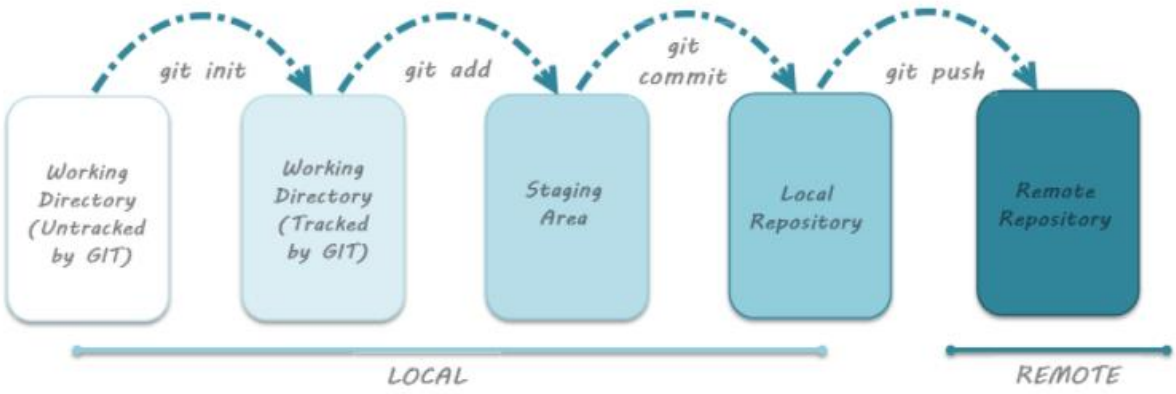
- Working directory
- Staging area
- Git directory

Working Directory ->
Consider a project residing in your local system. This project may or may not be tracked by Git. In either case, this project directory is called your Working directory.

Staging Area ->
Staging area is the playground where you group, add and organize the files to be committed to Git for tracking their versions.

Git Directory ->
Now that the files to be committed are grouped and ready in the staging area, we can commit these files. So, we commit this group of files along with a commit message explaining what is the commit about. Apart from commit message, this step also records the author and time of the commit. Now, a snapshot of the files in the commit is recorded by Git. The information related to this commit is stored in the Git directory.

Remote Repository-> means mirror or clone of the local Git repository in GitHub. And **pushing means uploading the commits from local Git repository to remote repository hosted in GitHub.**



Snapshots –

```
MINGW64:/d/awd

HP@DESKTOP-I9TBD2O MINGW64 ~
$ cd D:

HP@DESKTOP-I9TBD2O MINGW64 /d
$ mkdir awd
mkdir: cannot create directory 'awd': File exists

HP@DESKTOP-I9TBD2O MINGW64 /d
$ cd awd

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ vi day8.html

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ cat day8.html
const student = {
     name: "raman",
    class: "t7",
    sum: function () {
        var res = 10 + 12;
        console.log(res);
        console.log(this);
    }
}

    student.sum();
    function sum2 (){
        var res=10+12;
        console.log(res);
        console.log(this);




    }
    sum2();

a=7;
//document.write(a+" ");
/*"use strict";
n=8;
document.write(n);*/

const student={
    name:"Ram",
    class:"3",
    sum:function(){
        var res=12+33;
        console.log(res);
```

```
MINGW64:/d/awd

    }*/
    //end of code

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git init
Reinitialized existing Git repository in D:/awd/.git/

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git add .
warning: LF will be replaced by CRLF in day8.html.
The file will have its original line endings in your working directory

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   day8.html


HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git commit -m "comment added"
[master 4a9bfee] comment added
 1 file changed, 2 insertions(+), 1 deletion(-)

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git remote add origin git@github.com:aanchalsharmaa1024/js-calculator.git
error: remote origin already exists.

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ git push -u origin master
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 4 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (7/7), 878 bytes | 439.00 KiB/s, done.
Total 7 (delta 5), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (5/5), completed with 4 local objects.
remote: This repository moved. Please use the new location:
remote:   https://github.com/aanchalsharmaa1024/js.git
To https://github.com/aanchalsharmaa1024/g13.git
   50baca7..4a9bfee  master -> master
branch 'master' set up to track 'origin/master'.

HP@DESKTOP-I9TBD2O MINGW64 /d/awd (master)
$ |
```

TASK 1.2

S. No.	Title
1	Add collaborators on GitHub Repo
2	Fork and Commit
3	Merge and Resolve conflicts created due to own activity and collaborators activity.
4	Reset and Revert

ADD COLLABORATORS ON GITHUB REPO

In GitHub, we can invite other GitHub users to become collaborators to our private repositories (which expires after 7 days if not accepted, restoring any unclaimed licenses). Being a collaborator, of a personal repository you can pull (read) the contents of the repository and push (write) changes to the repository. You can add unlimited collaborators on public and private repositories.

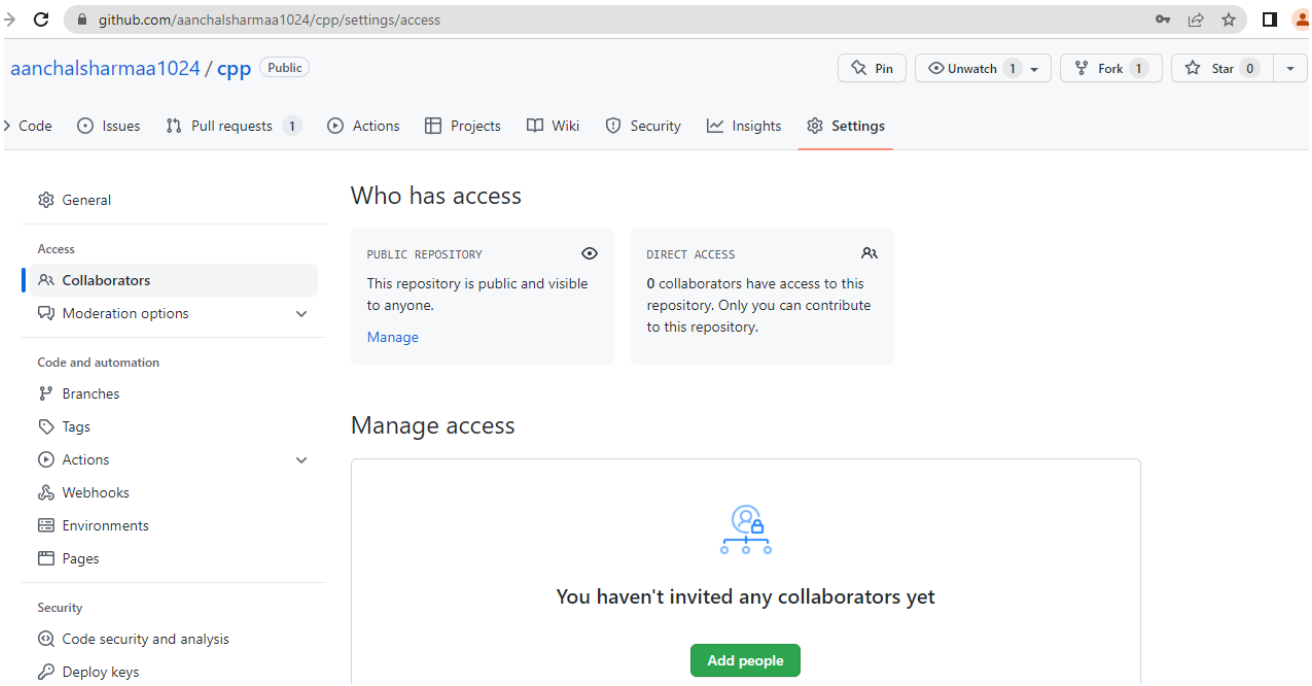
Collaborators can perform a number of actions into someone else's personal repositories, they have gained access to. Some of them are,

1. Create, merge, and close pull requests in the repository
2. Publish, view, install the packages
3. Fork the repositories
4. Make the changes on the repositories as suggested by the Pull requests.
5. Mark issues or pull requests as duplicate
6. Create, edit, and delete any comments on commits, pull requests, and issues in the repository
7. Removing themselves as collaborators on the repositories.
8. Manage releases in the repositories.

STEPS TO ADD COLLABORATORS:

1. Navigate to the repository on Github you wish to share with your collaborator.
2. Click on the "Settings" tab on the right side of the menu at the top of the screen.

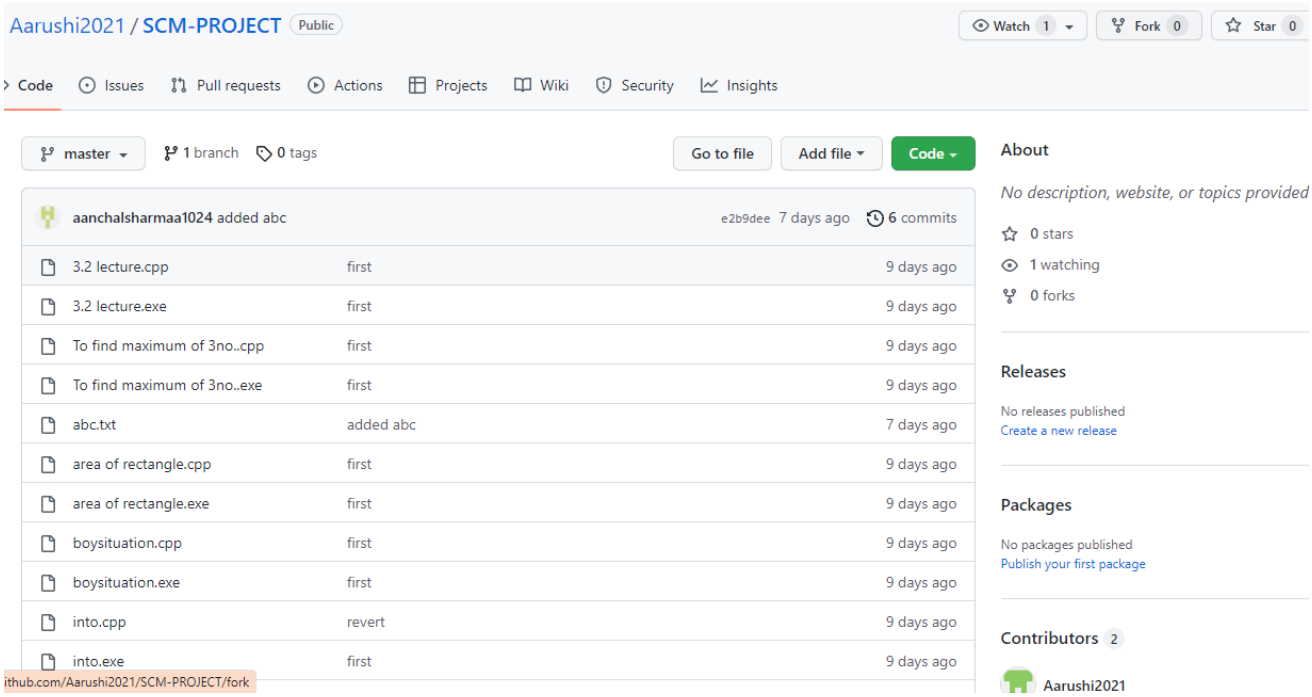
3.On the new page, click the "Collaborators" menu item on the left side of the page.



FORK AND COMMIT

A fork is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. Most commonly, forks are used to either propose changes to someone else's project to which you do not have write access, or to use someone else's project as a starting point for your own idea.

STEPS TO FORK A REPO-



1. Go to the repository that you wish to fork.

2. Click on the option ‘Fork’ in the top right corner.

3. You now have a forked repository.

github.com/Aarushi2021/SCM-PROJECT/fork

Aarushi2021 / SCM-PROJECT Public

Watch 1

Code Issues Pull requests Actions Projects Wiki Security Insights

Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project.

Owner * Repository name *

aanchalsharmaa1024 / SCM-PROJECT

By default, forks are named the same as their parent repository. You can customize the name to distinguish it further.

Description (optional)

You are creating a fork in your personal account.

Create fork

github.com/aanchalsharmaa1024/SCM-PROJECT

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

aanchalsharmaa1024 / SCM-PROJECT Public

forked from Aarushi2021/SCM-PROJECT

Pin

Code Pull requests Actions Projects Wiki Security Insights Settings

Forking Aarushi2021/SCM-PROJECT

It should only take a few seconds.

Refresh

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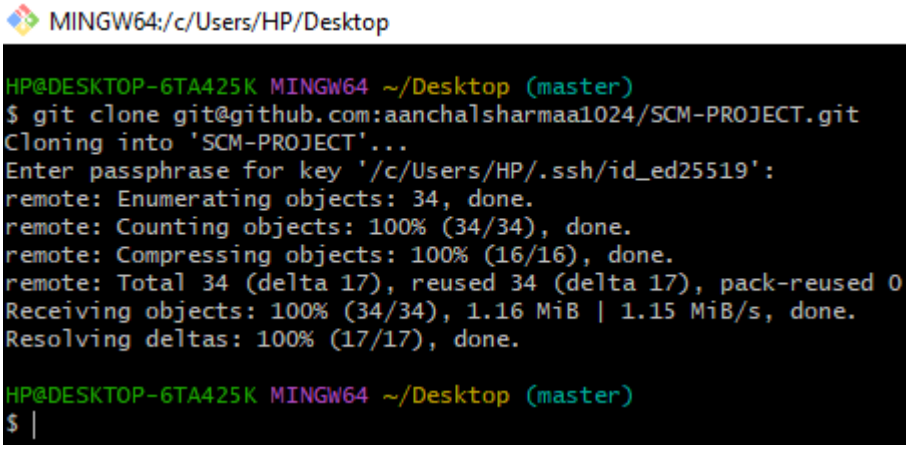
CLONING THE REPO INTO YOUR DEVICE

When you create a repository on GitHub.com, it exists as a remote repository. You can clone your repository to create a local copy on your computer and sync between the two locations.

1. Once you have forked the repository, you can clone it into your computer using directly the option given on github or through running git clone command in git bash.
2. Copy the URL of the forked repository

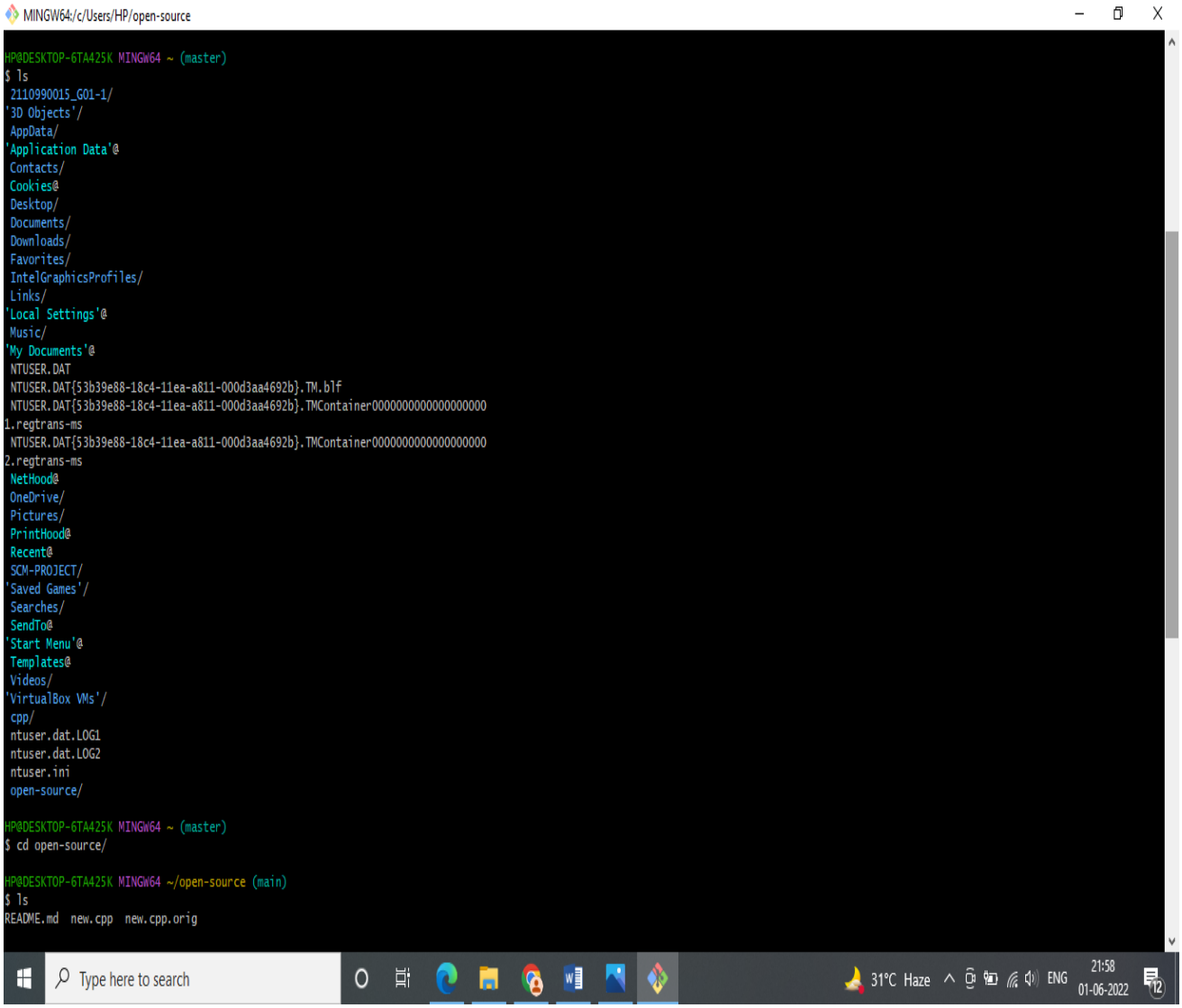
3. Open git bash and type the command " git clone <url of the forked repository>"



COMMITING CHANGES TO THE FORKED REPOSITORY

1. Once you have cloned the repository you can introduce changes to it as per your wish.

2. After changing it you have to stage the file and then commit it.
3. After committing changes push it to your remote repository.



MINGW64:/c/Users/HP/open-source

```
'VirtualBox VMs'/
 cpp/
 ntuser.dat.LOG1
 ntuser.dat.LOG2
 ntuser.ini
 open-source/

HP@DESKTOP-6TA425K MINGW64 ~ (master)
$ cd open-source/

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ ls
README.md  new.cpp  new.cpp.orig

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ vi new.cpp

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ git remote -v
origin  git@github.com:aanchalsharmaa1024/open-source.git (fetch)
origin  git@github.com:aanchalsharmaa1024/open-source.git (push)

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ git init
Reinitialized existing Git repository in C:/Users/HP/open-source/.git/

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ git add .

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ git commit -m "final commit"
[main 1c59e66] final commit
 1 file changed, 1 insertion(+)

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ git push -u origin main
Enter passphrase for key '/c/Users/HP/.ssh/id_ed25519':
Enumerating objects: 14, done.
Counting objects: 100% (14/14), done.
Delta compression using up to 4 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (12/12), 1.10 KiB | 374.00 KiB/s, done.
Total 12 (delta 6), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (6/6), completed with 1 local object.
To github.com:aanchalsharmaa1024/open-source.git
   6904717..1c59e66  main -> main
branch 'main' set up to track 'origin/main'.

HP@DESKTOP-6TA425K MINGW64 ~/open-source (main)
$ 9~
```

Type here to search

31°C Haze ENG 21:58 01-06-2022

MERGE AND RESOLVE CONFLICTS CREATED DUE TO OWN ACTIVITY AND COLLABORATORS ACTIVITY

Merging and conflicts are a common part of the Git experience. Conflicts generally arise when two people have changed the same lines in a file, or if one developer deleted a file while another developer was modifying it. In these cases, Git cannot automatically determine what is correct. Conflicts only affect the developer conducting the merge, the rest of the team is unaware of the conflict. Git will mark the file as being conflicted and halt the merging process. It is then the developers' responsibility to resolve the conflict.

1. To understand , merge conflicts Firstly on the master branch

Change ,add and commit the file.

2. And then make a new branch and switch to another branch
   Using the command , git branch branch name
   git checkout branch name.

MINGW64:/c/Users/HP/Desktop/new

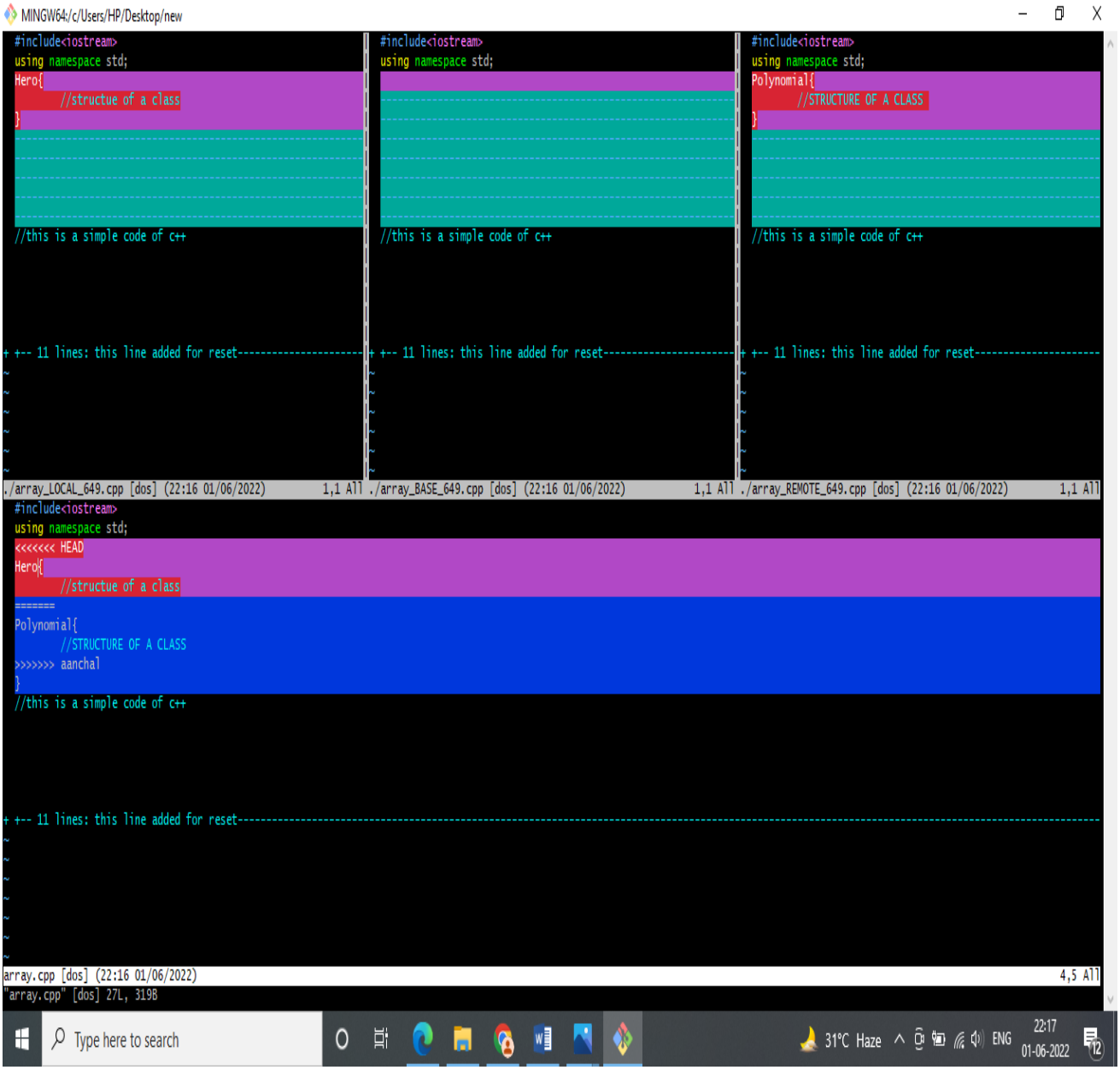
```
HP@DESKTOP-6TA425K MINGW64 ~/Desktop (master)
$ mkdir new
mkdir: cannot create directory 'new': File exists

HP@DESKTOP-6TA425K MINGW64 ~/Desktop (master)
$ cd new

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ ls
array.cpp

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ vi array.cpp

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git add .

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git commit -m "initial commit"
[master dc627fd] initial commit
 1 file changed, 1 insertion(+), 1 deletion(-)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git branch aanchal

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git checkout aanchal
Switched to branch 'aanchal'

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ vi array.cpp
```

3. Now in the new branch again change the same file .and if your changes are in the same line
4. Then while merging the two branches , merge conflict will arise.

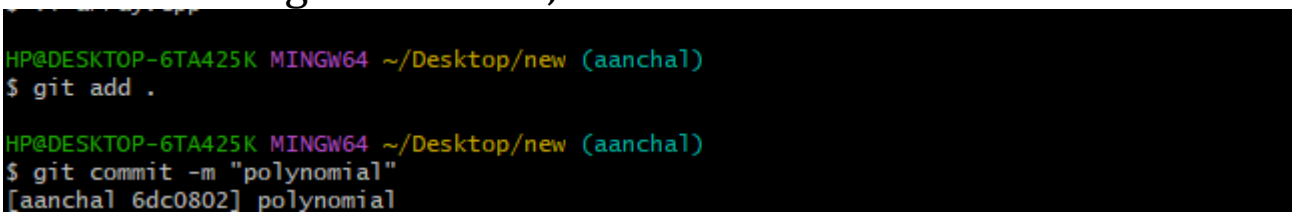
```
MINGW64:/c/Users/HP/Desktop/new
Switched to branch 'aanchal'

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ vi array.cpp

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ git add .

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ git commit -m "final commit"
[aanchal d9da901] final commit
 1 file changed, 1 insertion(+)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 3 commits.
  (use "git push" to publish your local commits)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git merge aanchal
Updating dc627fd..d9da901
Fast-forward
 array.cpp | 1 +
 1 file changed, 1 insertion(+)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ vi array.cpp

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git add .

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git commit -m "class str"
[master d03a63a] class str
 1 file changed, 3 insertions(+), 1 deletion(-)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git checkout aanchal
Switched to branch 'aanchal'

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ vi array.cpp

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ git add .

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ git commit -m "polynomial"
[aanchal 6dc0802] polynomial
```

```
HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (aanchal)
$ git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 5 commits.
  (use "git push" to publish your local commits)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git merge aanchal
Auto-merging array.cpp
CONFLICT (content): Merge conflict in array.cpp
Automatic merge failed; fix conflicts and then commit the result.

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master|MERGING)
$ git mergetool

This message is displayed because 'merge.tool' is not configured.
See 'git mergetool --tool-help' or 'git help config' for more details.
'git mergetool' will now attempt to use one of the following tools:
opendiff kdiff3 tkdiff xxdiff meld tortoisemerge gvimdiff diffuse diffmerge ecmerge p4merge araxis bc codecompare smerge emerge vimdiff nvimdiff
Merging:
array.cpp

Normal merge conflict for 'array.cpp':
  {local}: modified file
  {remote}: modified file
Hit return to start merge resolution tool (vimdiff):
4 files to edit
```

5. Now we will resolve the merge conflict using the mergetool command .



6. After resolving the conflict, add and commit the file .

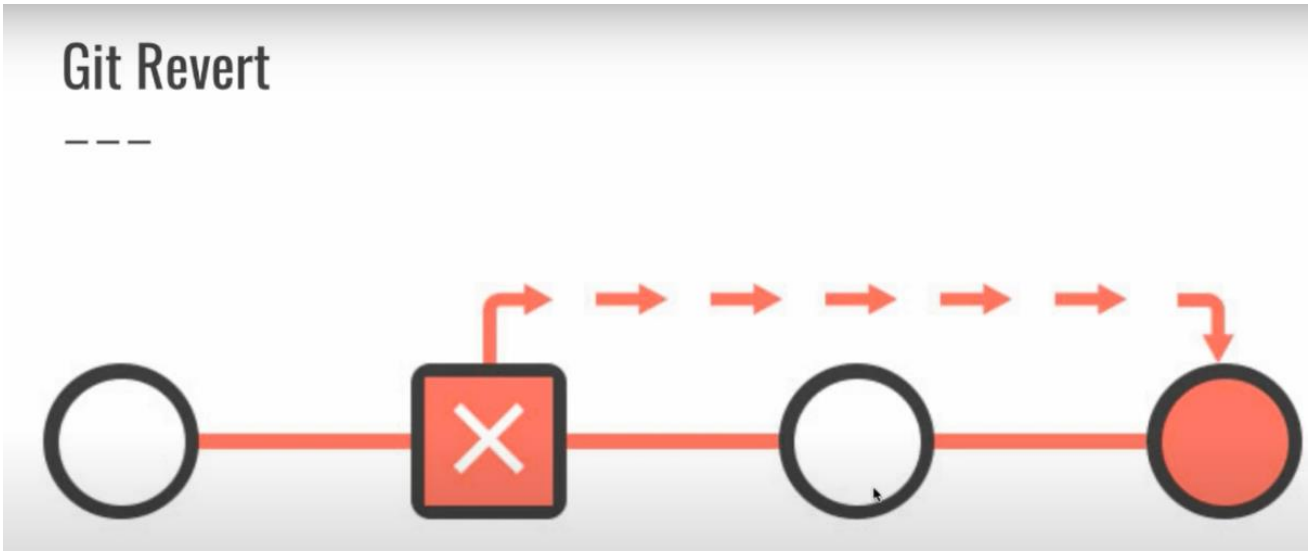


RESET AND REVERT

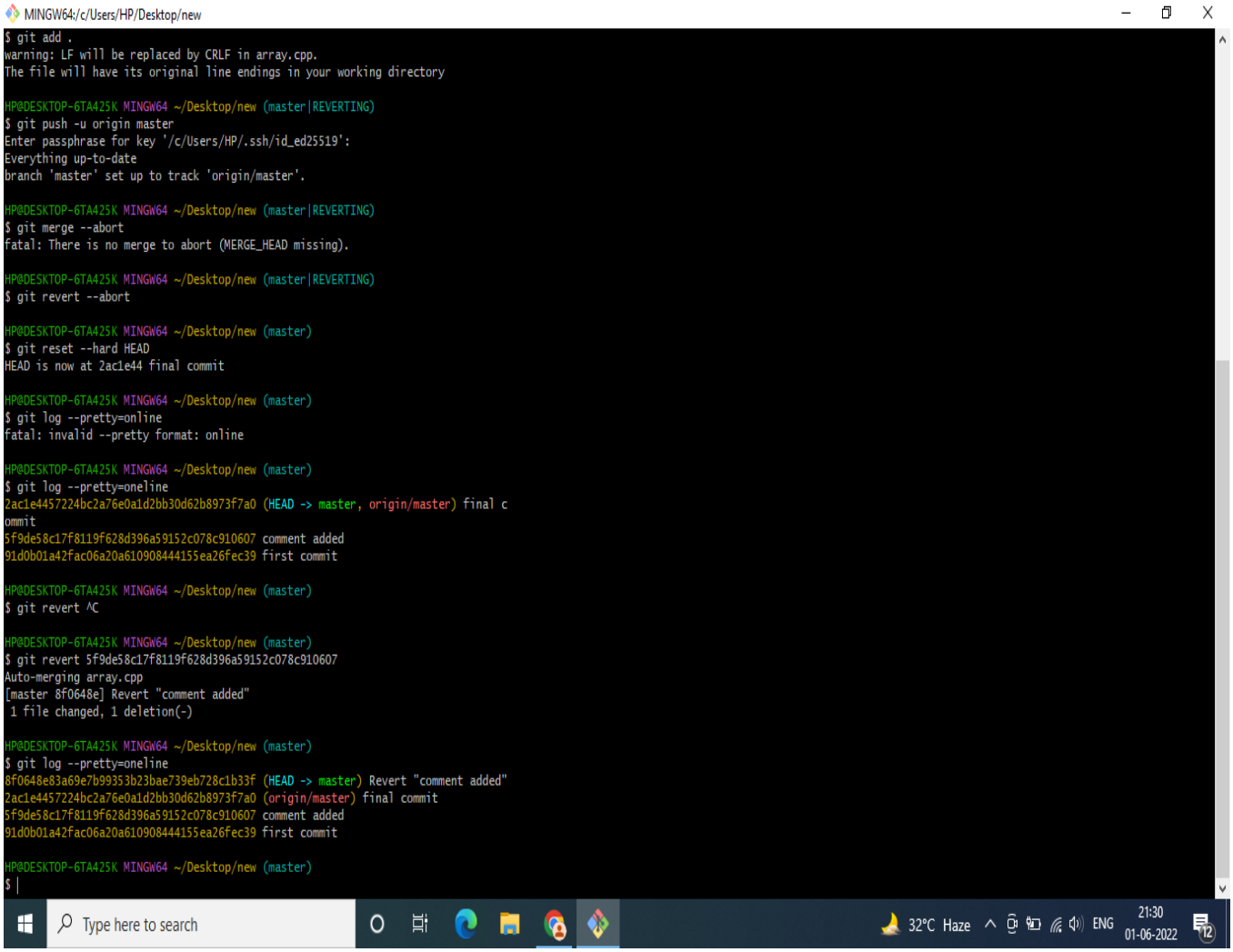
While Working with Git in certain situations we want to undo changes in the working area or index area, sometimes remove commits locally or remotely and we need to reverse those changes. We can do it by using the git reset, git revert, git checkout commands.

REVERT-

git revert is used to remove the commits from the remote repository. git revert removes the commit that we have done but adds one more commit which tells us that the revert has been done.



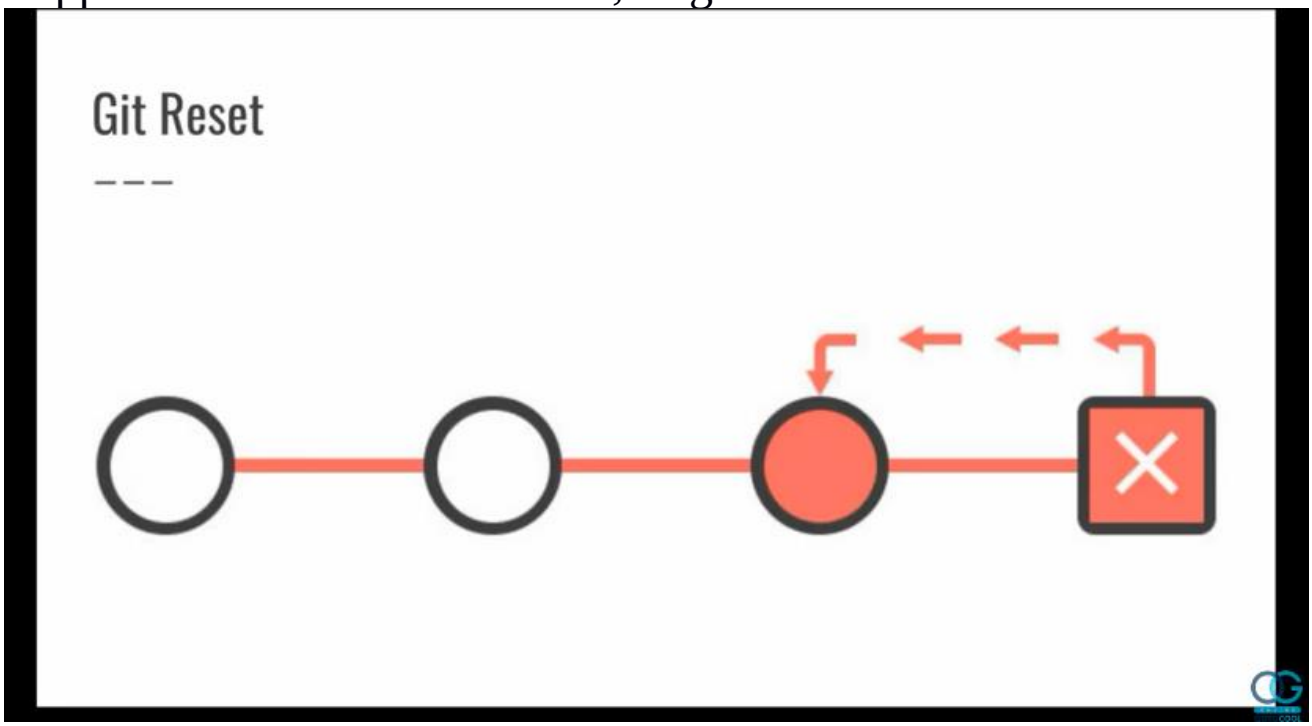
Let’s see how to revert a commit, say haved pushed a unwanted commit from your local and now we will revert it.
The basic advantage of reverting a commit is that it is not permanentatly deleted.



RESET-

git reset is used when we want to unstage a file and bring our changes back to the working directory. Git reset can also be used to remove commits from the local repository.

Suppose we make edits to a file, stage it and commit it



When to use

So if you have bad commits on your local machine then you can use this and revert your code till one point.

--soft

--hard

--mixed

--merge

--keep

MINGW64:/c/Users/HP/Desktop/new

```
HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

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:   array.cpp

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

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git add .

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ commit -m "undo"
bash: commit: command not found

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git commit -m "undo"
[master bb0ae17] undo
 1 file changed, 1 insertion(+)

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git log --pretty=oneline
bb0ae171fe45c5521995b6a1cf96c68bc78e81d3 (HEAD -> master) undo
8f0648e83a69e7b99353b23bae739eb728c1b33f Revert "comment added"
2ac1e4457224bc2a76e0a1d2bb30d62b8973f7a0 (origin/master) final commit
5f9de58c17f8119f628d396a59152c078c910607 comment added
91d0b01a42fac06a20a610908444155ea26fec39 first commit

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ ^C

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git reset --soft bb0ae171fe45c5521995b6a1cf96c68bc78e81d3

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

HP@DESKTOP-6TA425K MINGW64 ~/Desktop/new (master)
$ |
```

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TASK 2

S. No.	Title
1	Introduction
2	Create a distributed repository and add members in project team
3	Open and Close Pull request

4	Create a pull request on a team member’s repo and close pull requests generated by team members on own repository as a maintainer
5	Network graphs

INTRODUCTION:

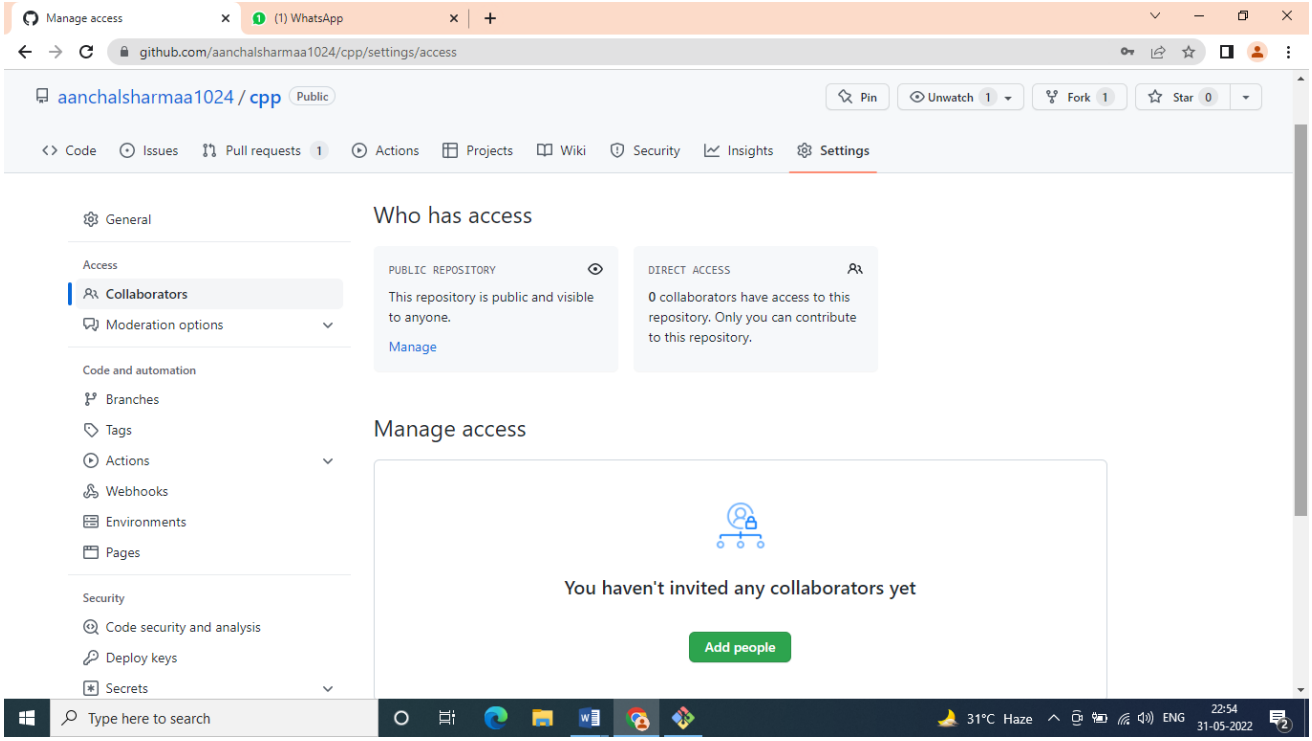
This task is performed in the group of four. Each one of us made it possible to work on this project as if we are doing an open source contribution.

Each one of us create his/her repo and rest of the three contributers in the repo , firstly forked that repo and then clone it in our local machine and then make a new branch and made some changes in the existing file in master branch in the repo and then push it from your local system.

And finally make pull request to the owner of the repo in whose repo we want to make the changes.

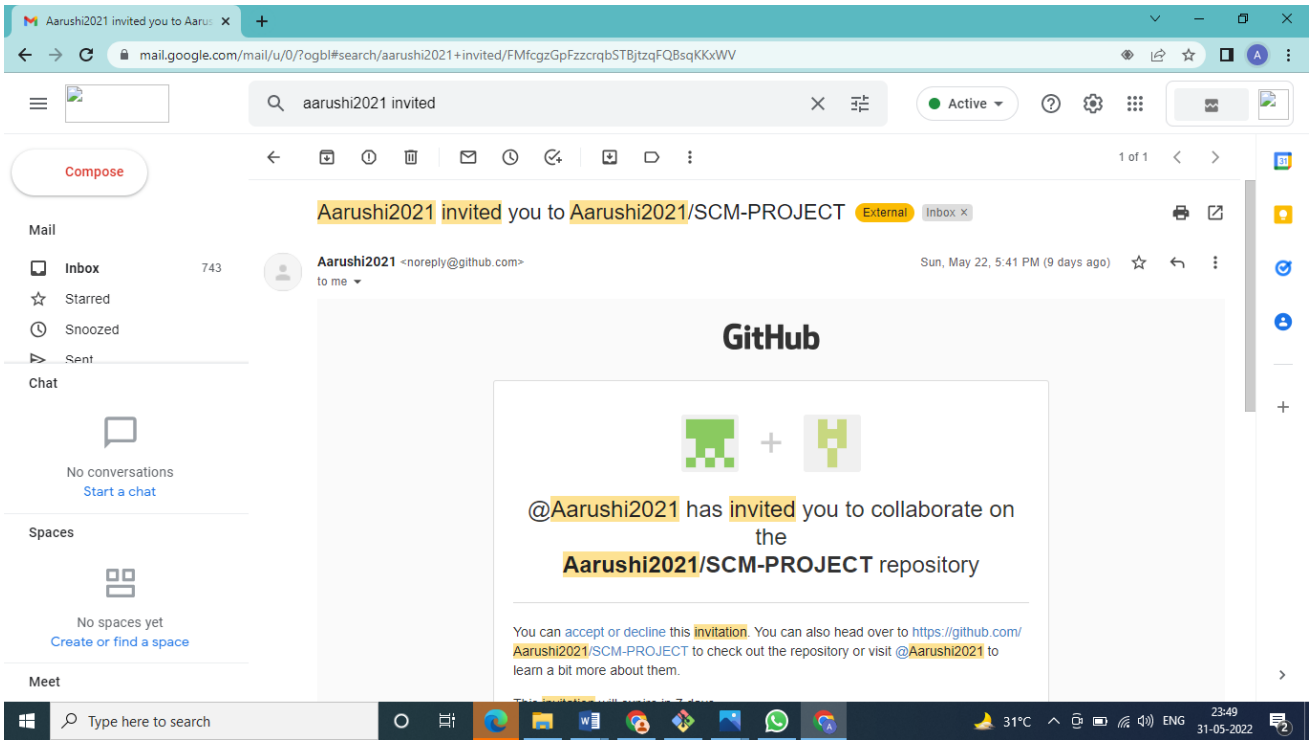
CREATE A DISTRIBUTED REPOSITORY AND ADD MEMBERS IN PROJECT TEAM

1. On the homepage of your GitHub account, click on Repositories option in the menu bar.
2. Click on the ‘New’ button in the top right corner.
3. Enter the Repository name and add the description of the repository.
4. To add members to your repository, open your repository and select settings option in the navigation bar.
5. Click on Collaborators option under the access tab.
6. You can manage access and add/remove team members to your project.
7. To add members, click on the add people, option and search the id of your respective team members.



9. To accept the invitation from your team members, open your email registered with GitHub.

10. You will receive an invitation mail from the repository owner. Open the email and click on accept invitation.



Similarly , you can add more collaborators to your project.

OPEN AND CLOSE PULL REQUEST:

1. First, select a repository of the other person in which you

want to make changes and create a pull request.

2. Clone it into your local storage.

3. To open a pull request we first have to make a new branch, by using git checkout -b branch name option.

4. After making new branch we add a file to the branch or make changes in the existing file.

5. Add and commit the changes to the local repository.

MINGW64:/c/Users/HP/Desktop

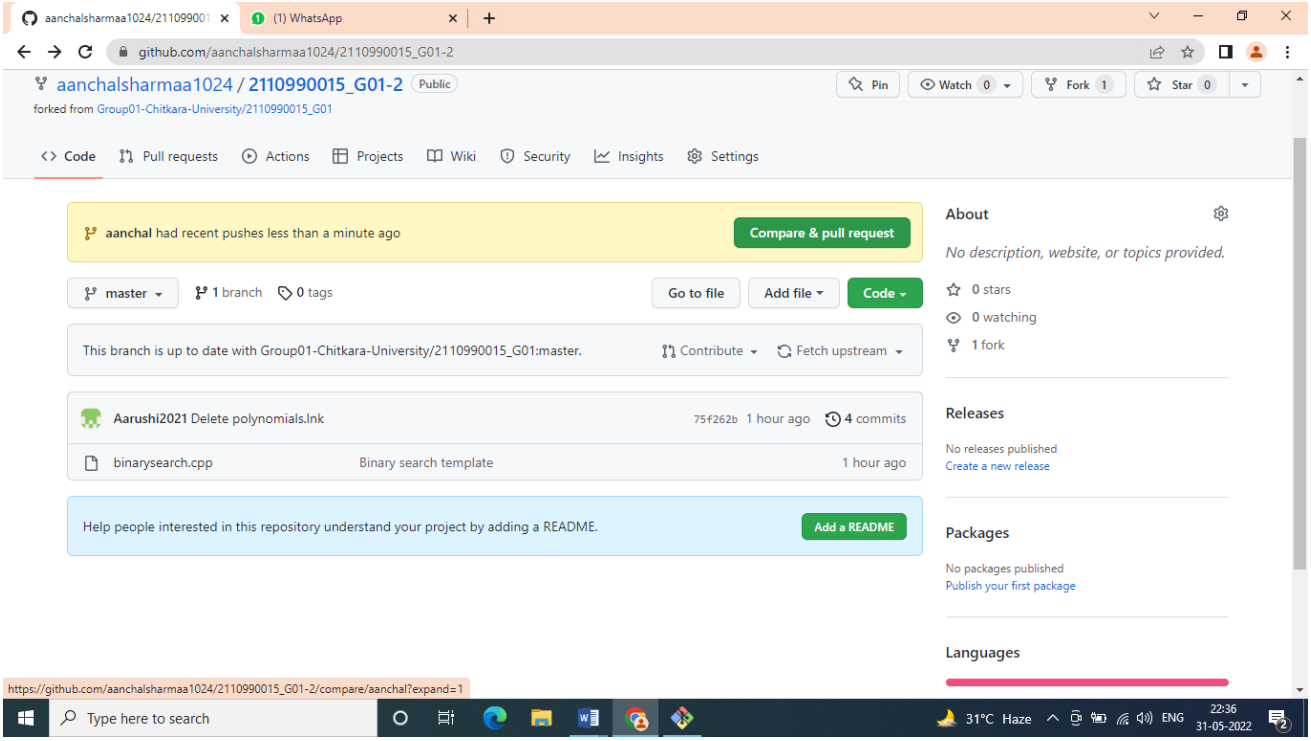
```
HP@DESKTOP-6TA425K MINGW64 ~/Desktop (master)
$ git clone git@github.com:aanchalsharmaa1024/SCM-PROJECT.git
Cloning into 'SCM-PROJECT'...
Enter passphrase for key '/c/Users/HP/.ssh/id_ed25519':
remote: Enumerating objects: 34, done.
remote: Counting objects: 100% (34/34), done.
remote: Compressing objects: 100% (16/16), done.
remote: Total 34 (delta 17), reused 34 (delta 17), pack-reused 0
Receiving objects: 100% (34/34), 1.16 MiB | 1.15 MiB/s, done.
Resolving deltas: 100% (17/17), done.

HP@DESKTOP-6TA425K MINGW64 ~/Desktop (master)
$ |
```

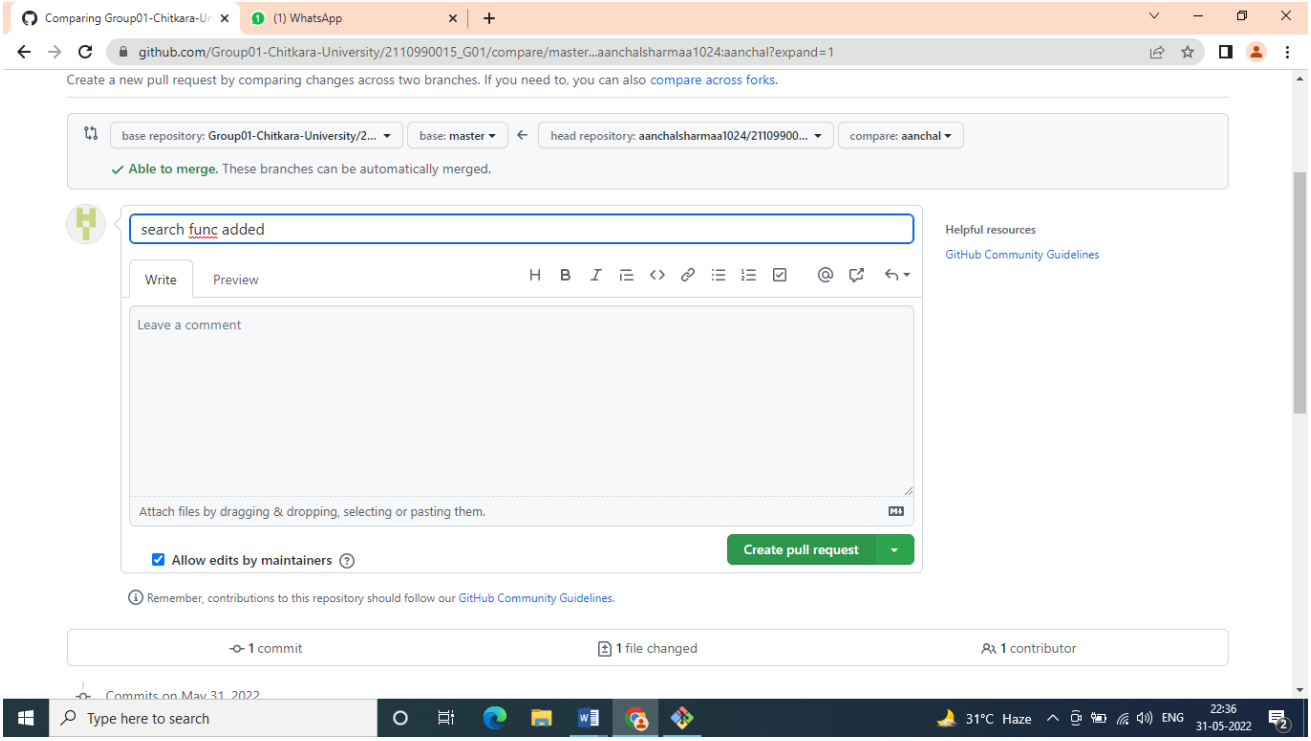
6. Use git push origin branch name option to push the new branch to the main repo

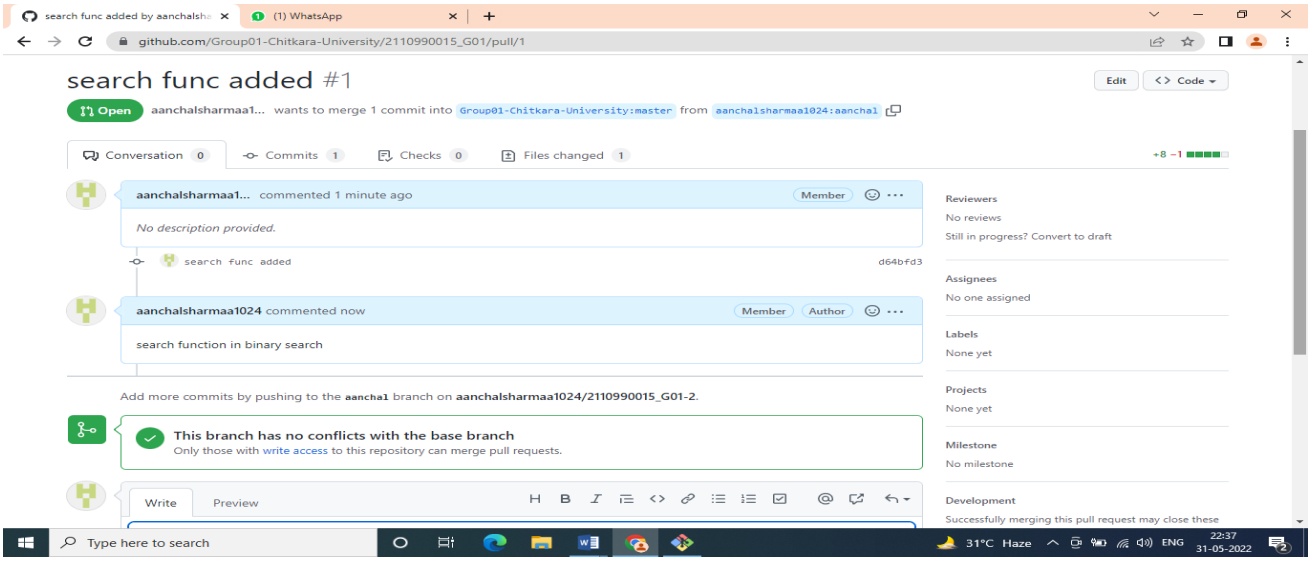
```
HP@DESKTOP-6TA425K MINGW64 ~/2110990015_G01-1 (aanchal)
$ git push -u origin aanchal
Enter passphrase for key '/c/Users/HP/.ssh/id_ed25519':
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 603 bytes | 603.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'aanchal' on GitHub by visiting:
remote:      https://github.com/aanchalsharmaa1024/2110990015_G01-1/pull/new/aanchal
remote:
To github.com:aanchalsharmaa1024/2110990015_G01-1.git
 * [new branch]      aanchal -> aanchal
branch 'aanchal' set up to track 'origin/aanchal'.
```

7. After pushing new branch GitHub will either automatically ask you to create a pull request or you can create your own pull request.



8. to create your own pull request ,click on pull request option.


Comparing Group01-Chitkara-Ur
(1) WhatsApp
github.com/Group01-Chitkara-University/2110990015_G01/compare/master...aanchalsharmaa1024:aanchal?expand=1
Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.
base repository: Group01-Chitkara-University/2...
base: master
head repository: aanchalsharmaa1024/21109900...
compare: aanchal
Able to merge. These branches can be automatically merged.
search func added
Write
Preview
Leave a comment
Attach files by dragging & dropping, selecting or pasting them.
Allow edits by maintainers
Create pull request
Helpful resources
GitHub Community Guidelines
Remember, contributions to this repository should follow our GitHub Community Guidelines.
1 commit
1 file changed
1 contributor
Commits on May 31, 2022
Type here to search
31°C Haze
ENG
22:36
31-05-2022


search func added by aanchalsha
(1) WhatsApp
github.com/Group01-Chitkara-University/2110990015_G01/pull/1
search func added #1
Edit
Code
Open
aanchalsharmaa1... wants to merge 1 commit into Group01-Chitkara-University:master from aanchalsharmaa1024:aanchal
Conversation 0
Commits 1
Checks 0
Files changed 1
+8 −1
aanchalsharmaa1... commented 1 minute ago
Member
No description provided.
search func added
d64bfd3
aanchalsharmaa1024 commented now
Member
Author
search function in binary search
Add more commits by pushing to the aanchal branch on aanchalsharmaa1024/2110990015_G01-2.
This branch has no conflicts with the base branch
Only those with write access to this repository can merge pull requests.
Write
Preview
Reviewers
No reviews
Still in progress? Convert to draft
Assignees
No one assigned
Labels
None yet
Projects
None yet
Milestone
No milestone
Development
Successfully merging this pull request may close these
Type here to search
31°C Haze
ENG
22:37
31-05-2022

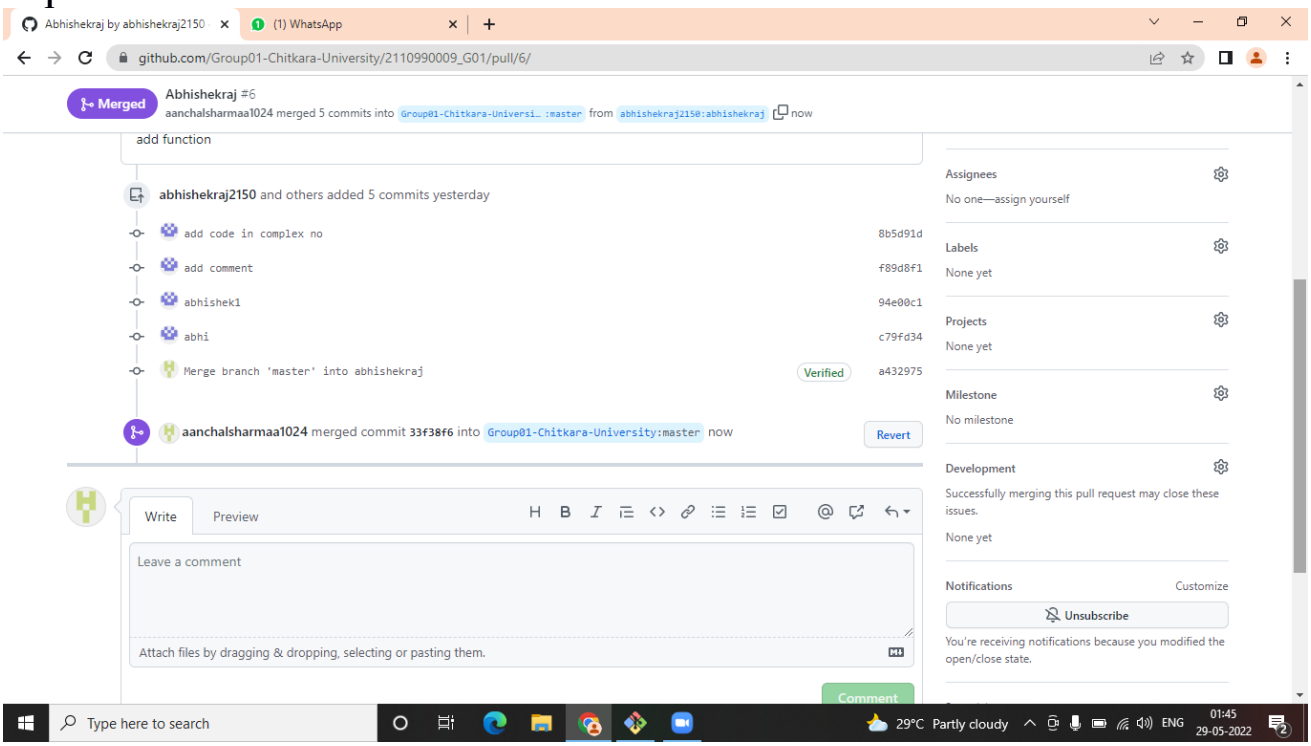
9. GitHub will detect any conflicts and ask you to enter a description of your pull request.

10.After opening a pull request the owner of the original repository will be sent the request if they want to merge or close the request.

11.If the owner chooses not to merge your pull request, they will close it.

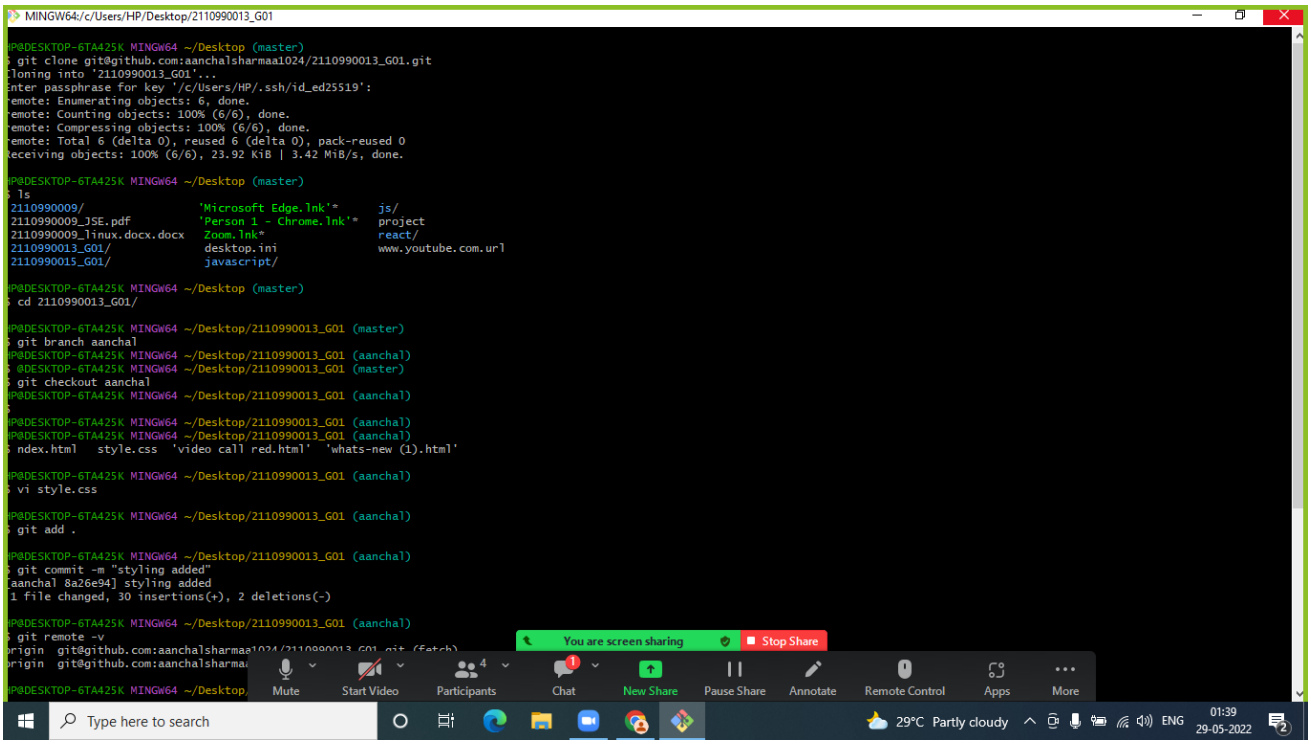
12.To close the pull request simply click on close pull request and add comment/ reason why you closed the pull request.

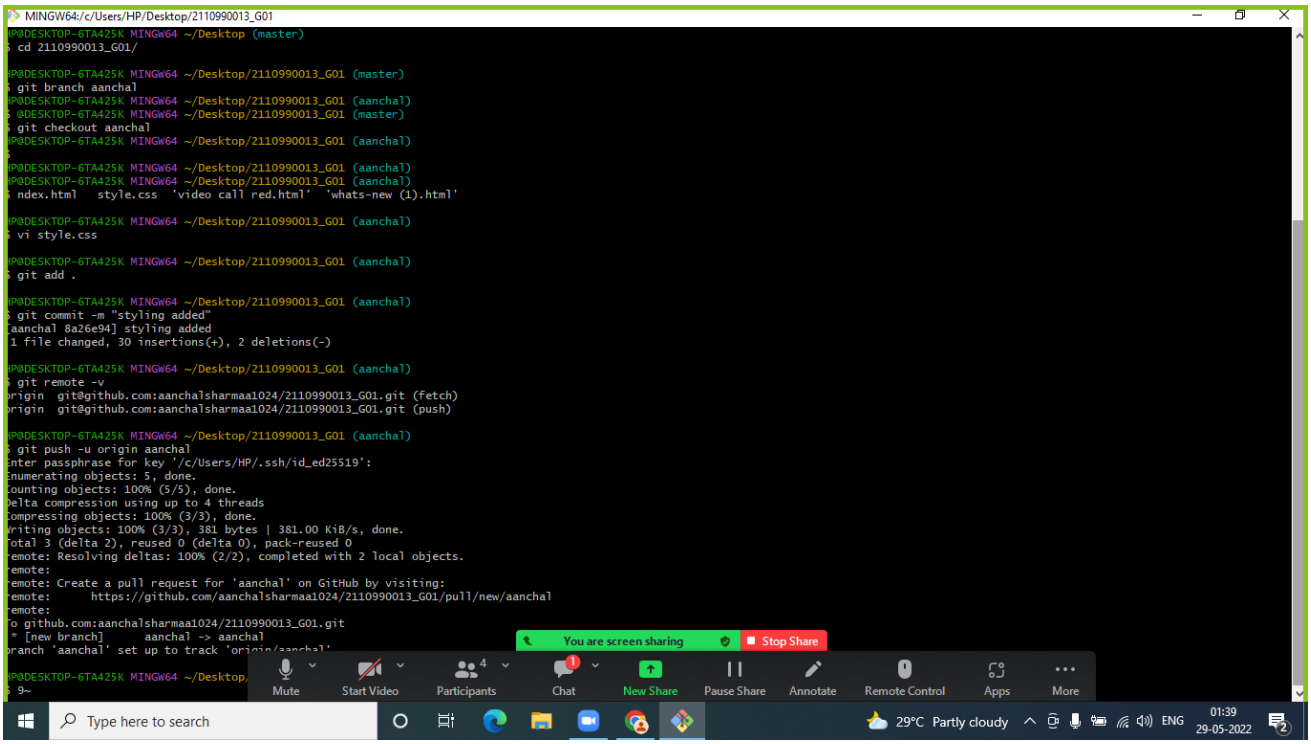
13.If you want to merge it into the original, click on merge pull request.



CREATE A PULL REQUEST ON A TEAM MEMBER'S REPO AND CLOSE PULL REQUESTS GENERATED BY TEAM MEMBERS ON OWN REPOSITORY AS A MAINTAINER

#Creating pull request on a team member's repo

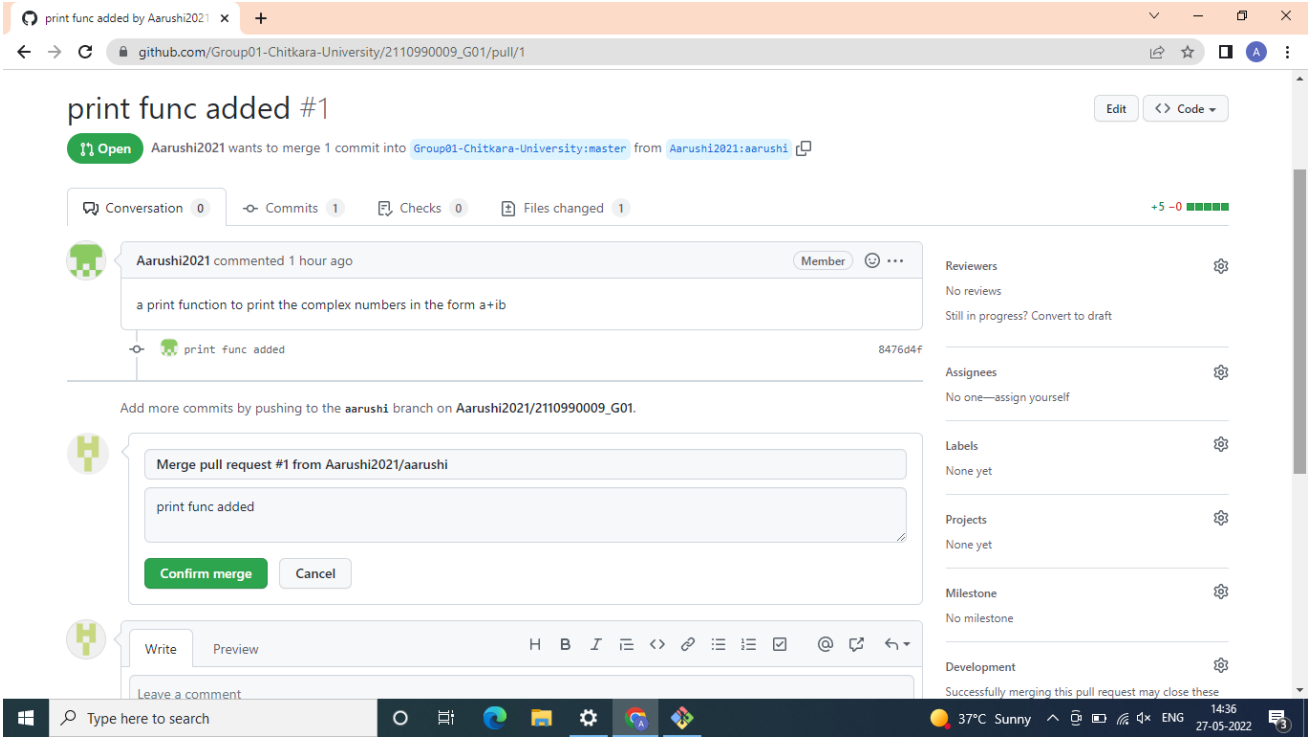


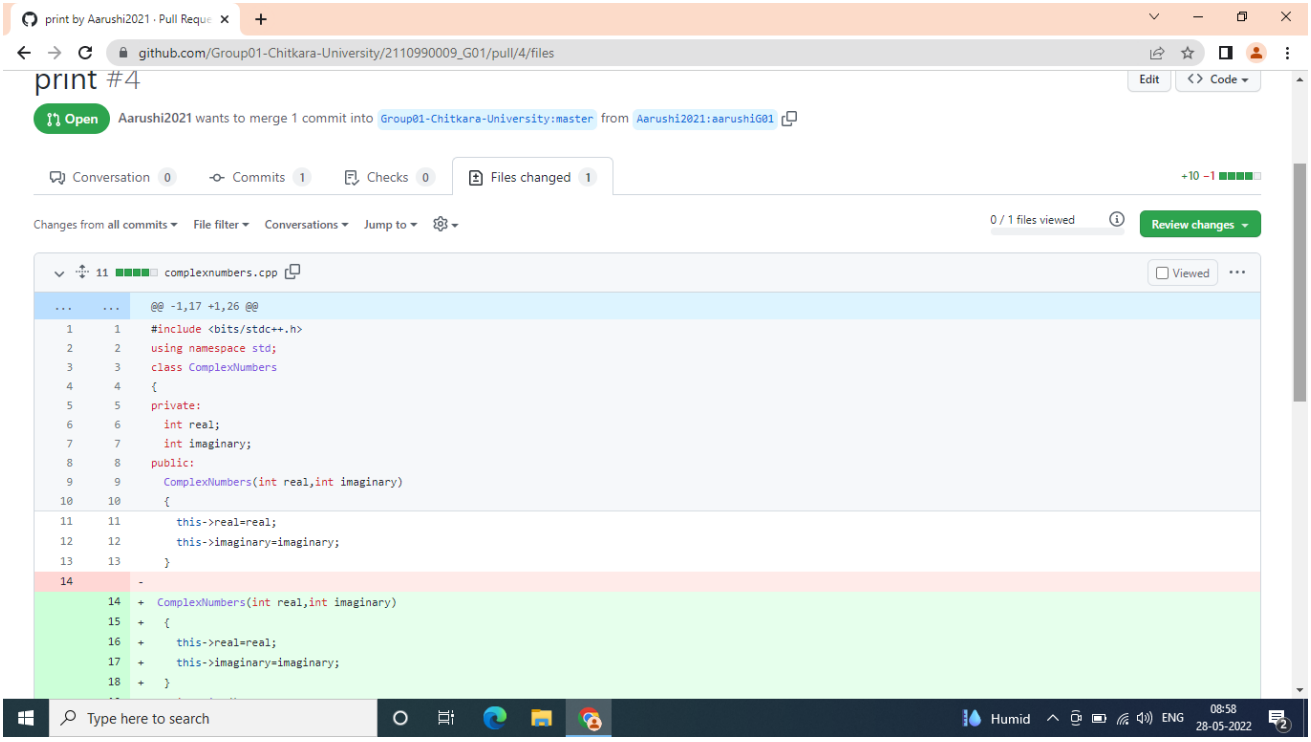


close pull request generated by team members on own repo as a maintainer.

1. Firstly open the pull request , review changes in it , and then merge it ...if there will be a conflict in merging the pull request resolve it .

#1 TEAM MEMBER'S PULL REQUEST


print func added by Aarushi2021
github.com/Group01-Chitkara-University/2110990009_G01/pull/1
print func added #1
Edit
Code
Open
Aarushi2021 wants to merge 1 commit into Group01-Chitkara-University:master from Aarushi2021:aarushi
Conversation 0
Commits 1
Checks 0
Files changed 1
+5 −0
Aarushi2021 commented 1 hour ago
Member
a print function to print the complex numbers in the form a+ib
print func added
8476d4f
Add more commits by pushing to the aarushi branch on Aarushi2021/2110990009_G01.
Merge pull request #1 from Aarushi2021/aarushi
print func added
Confirm merge
Cancel
Write
Preview
Leave a comment
Reviewers
No reviews
Still in progress? Convert to draft
Assignees
No one—assign yourself
Labels
None yet
Projects
None yet
Milestone
No milestone
Development
Successfully merging this pull request may close these
Type here to search
37°C Sunny
ENG
14:36
27-05-2022


print by Aarushi2021 · Pull Requ
github.com/Group01-Chitkara-University/2110990009_G01/pull/4/files
print #4
Edit
Code
Open
Aarushi2021 wants to merge 1 commit into Group01-Chitkara-University:master from Aarushi2021:aarushiG01
Conversation 0
Commits 1
Checks 0
Files changed 1
+10 −1
Changes from all commits
File filter
Conversations
Jump to
0 / 1 files viewed
Review changes
11 complexnumbers.cpp
Viewed
@@ -1,17 +1,26 @@
#include <bits/stdc++.h>
using namespace std;
class ComplexNumbers
{
private:
int real;
int imaginary;
public:
ComplexNumbers(int real,int imaginary)
{
this->real=real;
this->imaginary=imaginary;
}
-
+ ComplexNumbers(int real,int imaginary)
+ {
+ this->real=real;
+ this->imaginary=imaginary;
+ }
Type here to search
Humid
ENG
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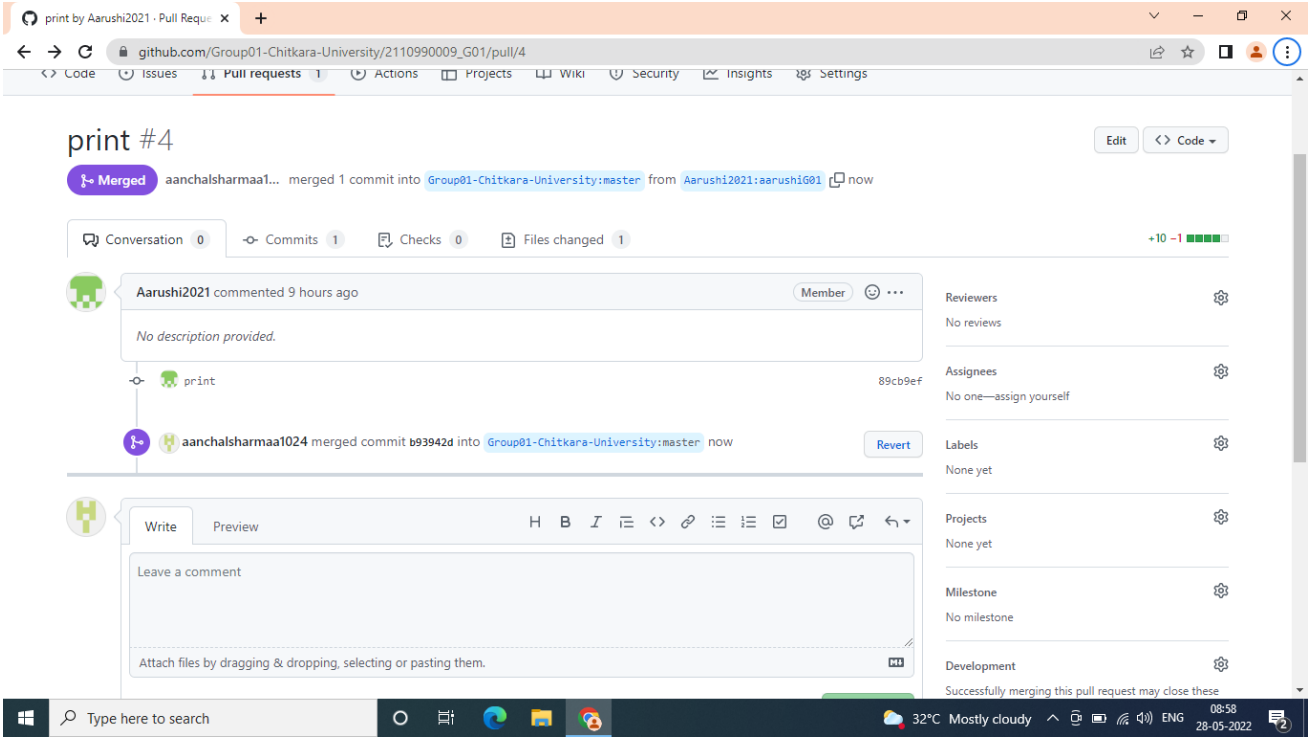
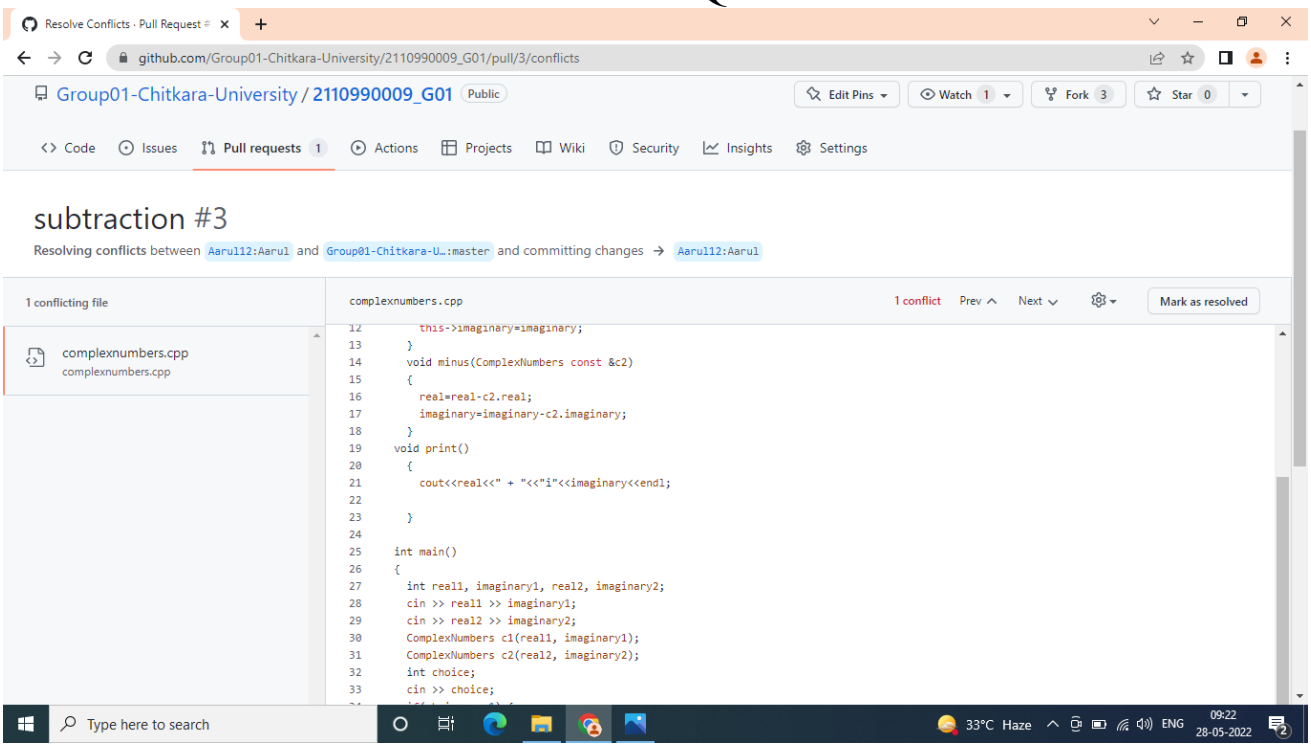
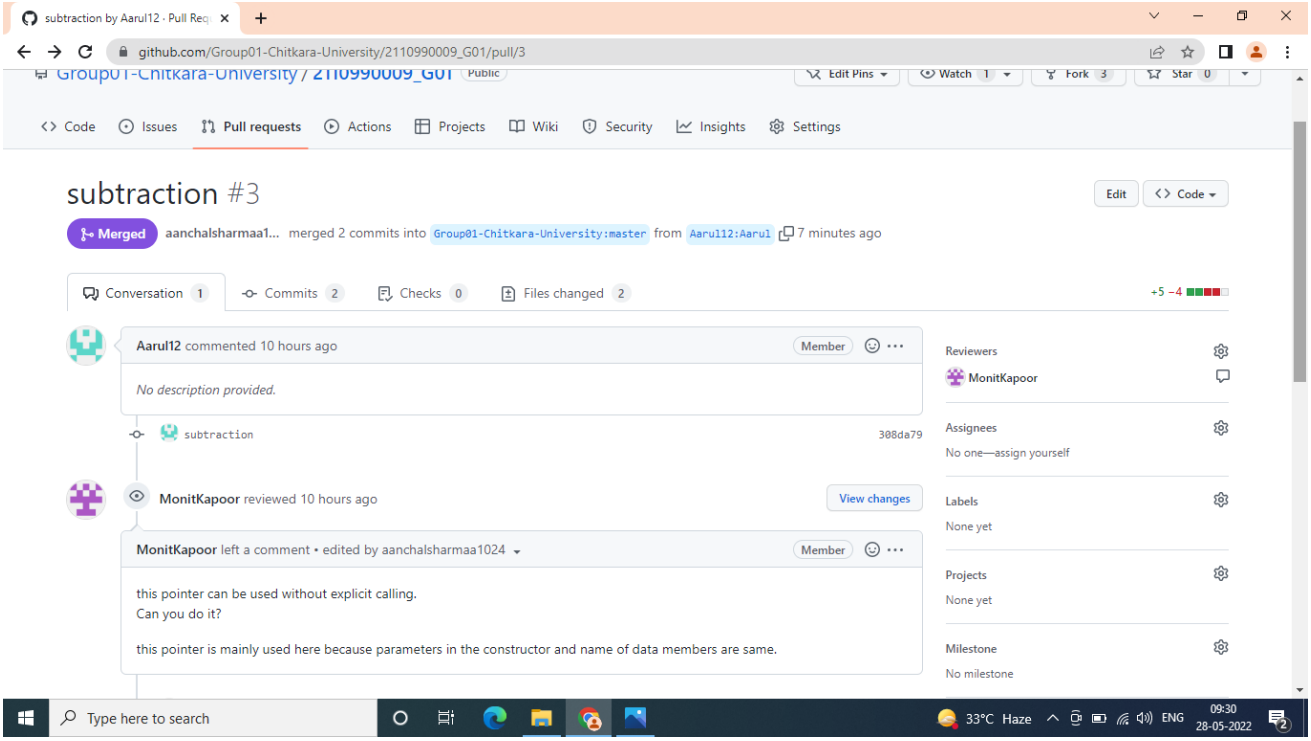
28-05-2022

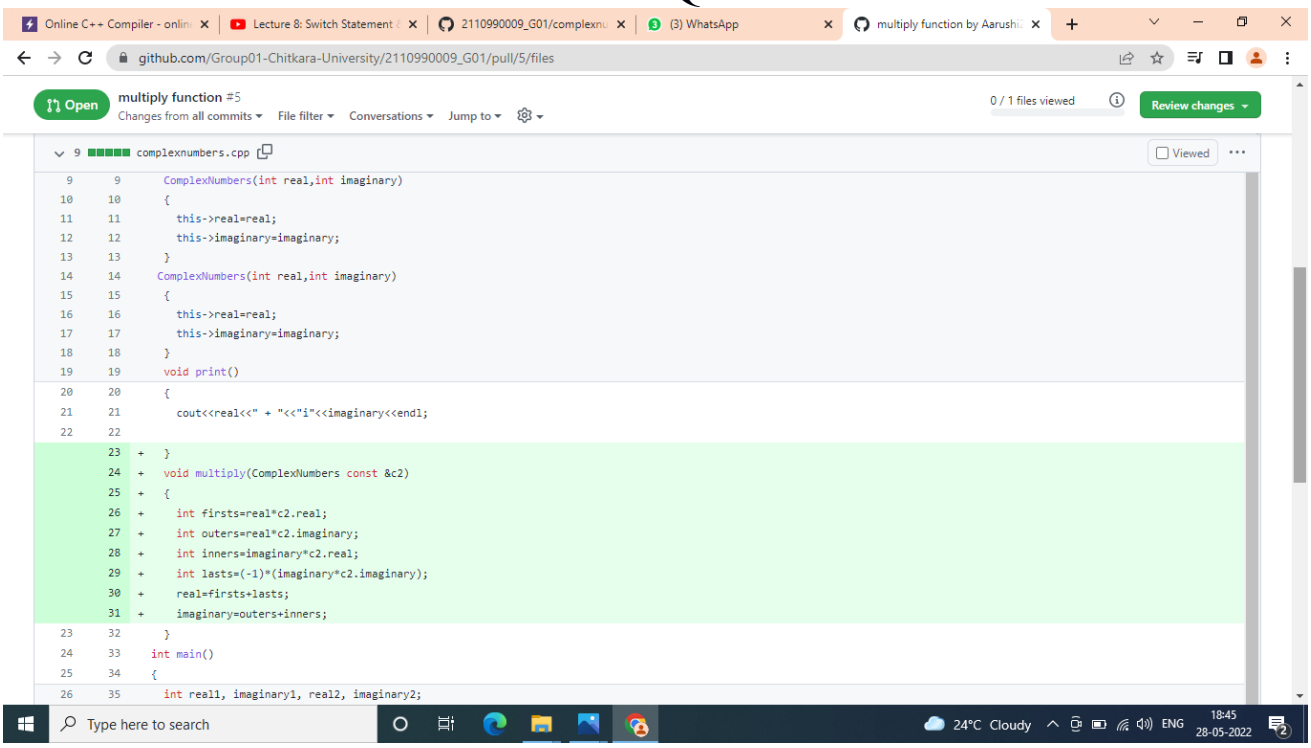


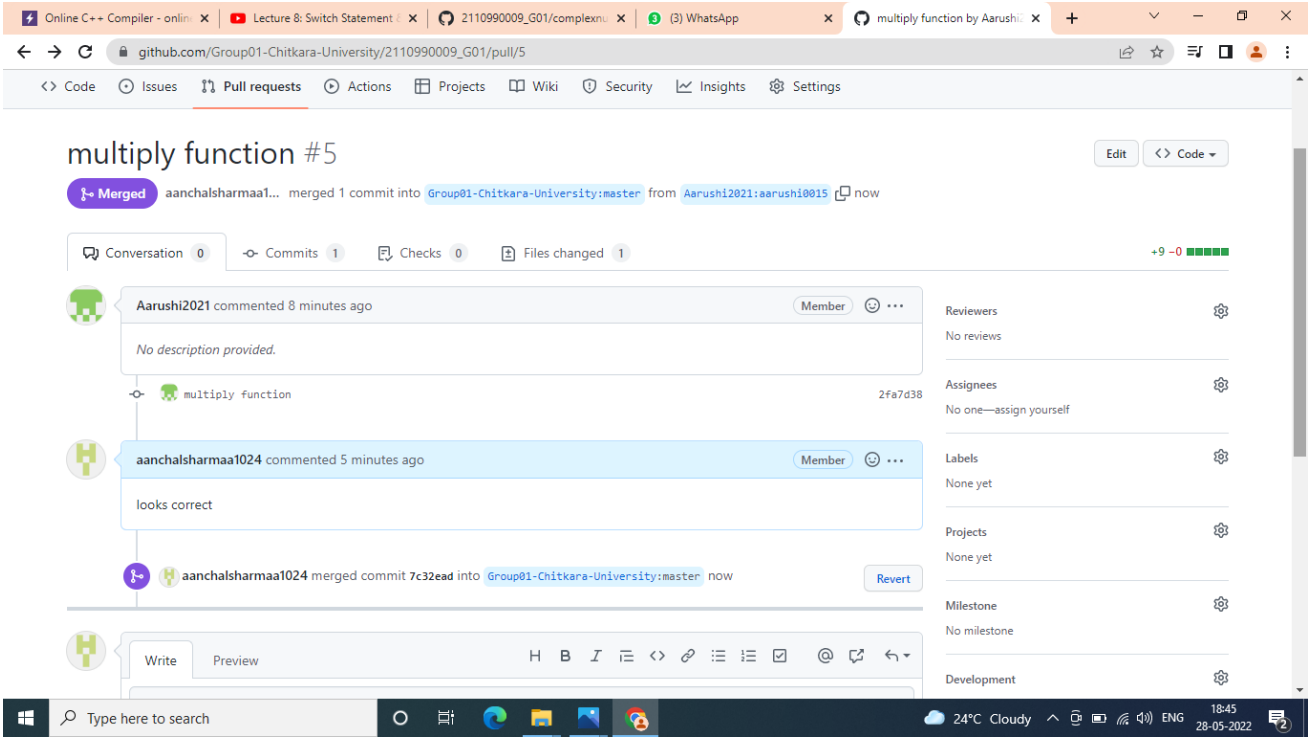
#2 TEAM MEMBERS'S PULL REQUEST





#3 TEAM MEMBER'S PULL REQUEST



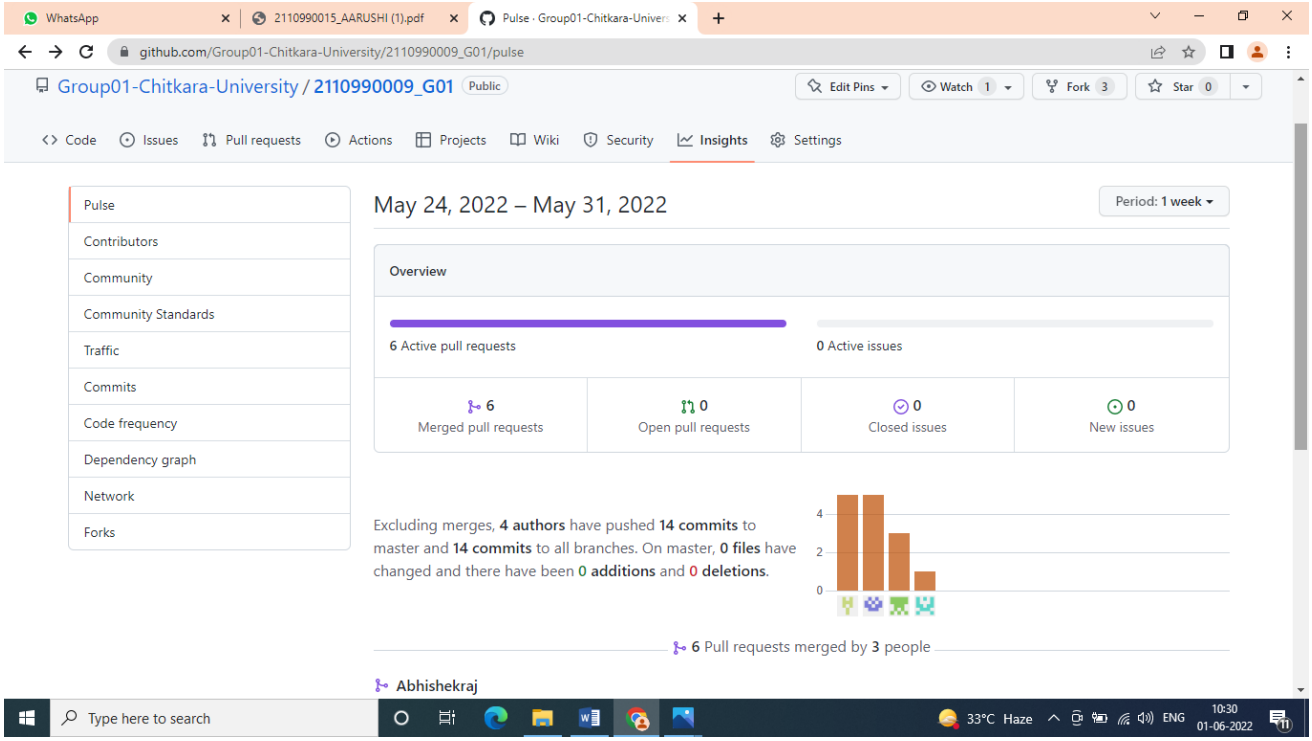


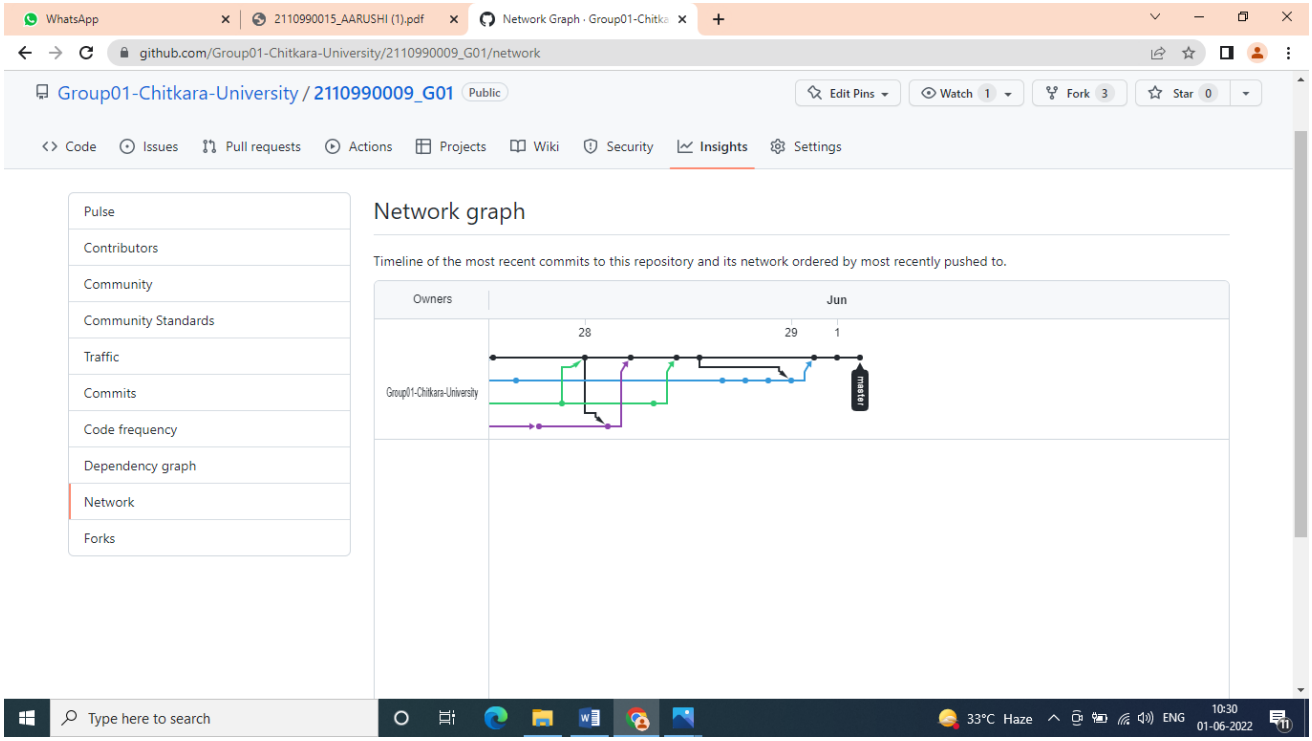
NETWORK GRAPHS

To view the network graphs of your repository, follow the steps:

1. Go to the repository of which you want the graph/details.
2. Click on the ‘Insights’ option it the menu bar.
3. In the right menu list click on network.
4. You can see the network graph there.

It shows the timeline of the most recent commits to this repository and its network ordered by most recently pushed to.





The points in the network graph represents the commits. By hovering over the points, you can see the information about the commit such as author, checksum, message of commit