GHOUSIA INSTITUTE OF TECHNOLOGY FOR WOMEN

NEAR DAIRY CIRCLE, HOSUR ROAD, BENGALURU-560029, KARNATAKA
AFFILIATED TO VTU., BELAGAVI, RECOGNIZED BY GOVERNMENT OF KARNATAKA & A.I.C.T.E., NEW DELHI

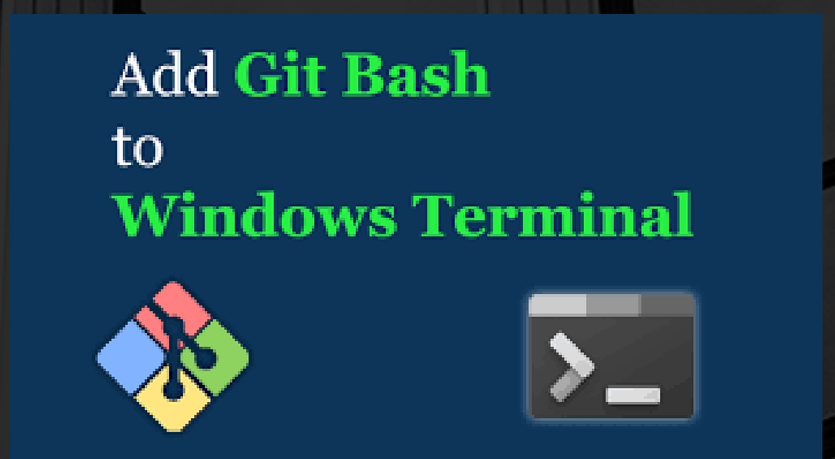
Dr. NAVEED
Assistant Professor
GITW-Bengaluru

Project Management with Git-BCS358C

GitHub is a web-based platform used primarily for version control and collaborative software development. It is built around Git, an open-source version control system that tracks changes in files and allows multiple people to work on a project simultaneously without interfering with each other's work.GitHub is widely used by individual developers, teams, and large organizations to collaborate on projects, share code, and contribute to open-source software.

MORE INFORMATION
www.github.com

THIRD SEMESTER
B.E DEGREE 2024



GHOUSIA INSTITUTE OF TECHNOLOGY FOR WOMEN

Near Dairy Circle, Hosur Road, Bengaluru , Karnataka 560029

Affiliated to VTU., Belagavi, Recognized by Government of Karnataka & A.I.C.T.E., New Delhi

PROJECT MANAGEMENT WITH GIT

(BCS358C)

As per 2022 Scheme Syllabus Prescribed by V.T.U.

For

THIRD SEMESTER

COMPUTER SCIENCE & ENGINEERING / INFORMATION SCIENCE & ENGINEERING

(Bachelor of Engineering)

Dr.NAVEED M.Tech., PhD.

Assistant Professor

Department of Computer Science & Engineering

GHOUSIA INSTITUTE OF TECHNOLOGY FOR WOMEN

Near Dairy Circle, Hosur Road, Bengaluru-560029, KARNATAKA
Affiliated to VTU., Belagavi, Recognized by Government of Karnataka & A.I.C.T.E., New Delhi

PROJECT MANAGEMENT WITH GIT / BCS358C / THIRD SEMESTER / B.E DEGREE / 2024-25

CERTIFICATE

This is to certify that Miss._____bearing USN_____of _____ Branch completed the academic requirements for the practical course work titled "**PROJECT MANAGEMENT WITH GIT/ BCS358C"** of THIRD SEMESTER B.E, prescribed by Visvesvaraya Technological University , Belagavi, for the academic year **2024-25**. The details of Mark's obtained by the candidate is given below.

Sl.No	Particulars		Max.Marks (Execution+Record)	Marks Obtained		Page No	Staff Sign
1	Expt-01	Basic Setup and Creation of a New Repository	5+5 = 10			11	
2	Expt-02	To add README.md file into the Repository				15	
3	Expt-03	Creating and Managing Branches				19	
4	Expt-04	Merging of Feature-Branch into the Master Branch				26	
5	Expt-05	Updating of files in the feature-branch				28	
6	Expt-06	Light Weight and Annotated Tags				34	
7	Expt-07	Analyzing GIT History				39	
8	Expt-08	GIT Cherry-pick and Revert				44	
9	Expt-09	Git in VS Code				56	
10	Expt-10	VS Code and Github (cloning of repository)				65	
11	Expt-11	VS Code and Github (creating of new repository)				78	
12	Assignment Experiments		20+20 = 40			86	
Total Marks-A			150				
Test Marks-B			100				
Final Internal Assessment Mark's.			[(A*30)/150] + (B*20%) = **50**				

Internal Assessment Marks Awarded in Words: _____

Signature of Staff Incharge with Date:

Project Management with Git		Semester	3
Course Code	BCS358C	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0: 0 : 2: 0	SEE Marks	50
Credits	01	Exam Marks	100
Examination type (SEE)	Practical		

Course objectives:

- .To familiar with basic command of Git
- To create and manage branches
- To understand how to collaborate and work with Remote Repositories
- To familiar with virion controlling commands

Sl.NO	Experiments
1	**Setting Up and Basic Commands** Initialize a new Git repository in a directory. Create a new file and add it to the staging area and commit the changes with an appropriate commit message.
2	**Creating and Managing Branches** Create a new branch named "feature-branch." Switch to the "master" branch. Merge the "feature-branch" into "master."
3	**Creating and Managing Branches** Write the commands to stash your changes, switch branches, and then apply the stashed changes.
4	**Collaboration and Remote Repositories** Clone a remote Git repository to your local machine.
5	**Collaboration and Remote Repositories** Fetch the latest changes from a remote repository and rebase your local branch onto the updated remote branch.
6	**Collaboration and Remote Repositories** Write the command to merge "feature-branch" into "master" while providing a custom commit message for the merge.
7	**Git Tags and Releases** Write the command to create a lightweight Git tag named "v1.0" for a commit in your local repository.
8	**Advanced Git Operations**

	Write the command to cherry-pick a range of commits from "source-branch" to the current branch.
9	**Analysing and Changing Git History** Given a commit ID, how would you use Git to view the details of that specific commit, including the author, date, and commit message?
10	**Analysing and Changing Git History** Write the command to list all commits made by the author "JohnDoe" between "2023-01-01" and "2023-12-31."
11	**Analysing and Changing Git History** Write the command to display the last five commits in the repository's history.
12	**Analysing and Changing Git History** Write the command to undo the changes introduced by the commit with the ID "abc123".

Course outcomes (Course Skill Set):

At the end of the course the student will be able to:

- Use the basics commands related to git repository
- Create and manage the branches
- Apply commands related to Collaboration and Remote Repositories
- Use the commands related to Git Tags, Releases and advanced git operations
- Analyse and change the git history

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation (CIE):

CIE marks for the practical course are **50 Marks**.

The split-up of CIE marks for record/ journal and test are in the ratio **60:40**.

- Each experiment is to be evaluated for conduction with an observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments are designed by the faculty who is handling the laboratory session and are made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.
- Total marks scored by the students are scaled down to **30 marks** (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up on time.
- Department shall conduct a test of 100 marks after the completion of all the experiments listed in the syllabus.
- In a test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability.
- The marks scored shall be scaled down to **20 marks** (40% of the maximum marks).

The Sum of scaled-down marks scored in the report write-up/journal and marks of a test is the total CIE marks scored by the student.

Semester End Evaluation (SEE):

- SEE marks for the practical course are 50 Marks.
- SEE shall be conducted jointly by the two examiners of the same institute, examiners are appointed by the Head of the Institute.
- The examination schedule and names of examiners are informed to the university before the conduction of the examination. These practical examinations are to be conducted between the schedule mentioned in the academic calendar of the University.

- All laboratory experiments are to be included for practical examination.
- (Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. **OR** based on the course requirement evaluation rubrics shall be decided jointly by examiners.
- Students can pick one question (experiment) from the questions lot prepared by the examiners jointly.
- Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.

- General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result in -60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)
- Change of experiment is allowed only once and 15% of Marks allotted to the procedure part are to be made zero.

The minimum duration of SEE is 02 hours

Suggested Learning Resources:

- Version Control with Git, 3rd Edition, by Prem Kumar Ponuthorai, Jon Loeliger Released October 2022, Publisher(s): O'Reilly Media, Inc.
- Pro Git book, written by Scott Chacon and Ben Straub and published by Apress, https://git-scm.com/book/en/v2
- https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013094443347369984278 2_shared/overview
- https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013301347121774592119 26_shared/overview

INRODUCTION TO GIT

Git is a distributed version control system designed to handle everything from small to very large projects with speed and efficiency. It was created by Linus Torvalds in 2005 for the development of the Linux kernel.

About Version Control

> What is "version control", and why should you care? Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later. For the examples in this book, you will use software source code as the files being version controlled, though in reality you can do this with nearly any type of file on a computer.
>
> If you are a graphic or web designer and want to keep every version of an image or layout (which you would most certainly want to), a Version Control System (VCS) is a very wise thing to use. It allows you to revert selected files back to a previous state, revert the entire project back to a previous state, compare changes over time, see who last modified something that might be causing a problem, who introduced an issue and when, and more. Using a VCS also generally means that if you screw things up or lose files, you can easily recover. In addition, you get all this for very little overhead.

Local Version Control Systems

> Many people's version-control method of choice is to copy files into another directory (perhaps a time-stamped directory, if they're clever). This approach is very common because it is so simple, but it is also incredibly error prone. It is easy to forget which directory you're in and accidentally write to the wrong file or copy over files you don't mean to.

To deal with this issue, programmers long ago developed local VCSs that had a simple database that kept all the changes to files under revision control.

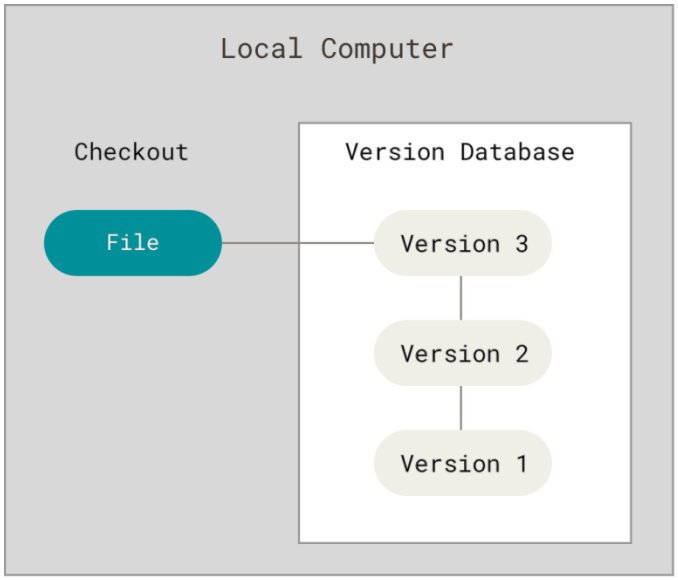


Figure1.Localversioncontroldiagram

One of the most popular VCS tools was a system called RCS, which is still distributed with many computers today. RCS works by keeping patch sets (that is, the differences between files) in a special format on disk; it can then re-create what any file looked like at any point in time by adding up all the patches.

Centralized Version Control Systems

The next major issue that people encounter is that they need to collaborate with developers on other systems. To deal with this problem, Centralized Version Control Systems (CVCSs) were developed. These systems (such as CVS, Subversion, and Perforce) have a single server that contains all the versioned files, and a number of clients that check out files from that central place. For many years, this has been the standard for version control.

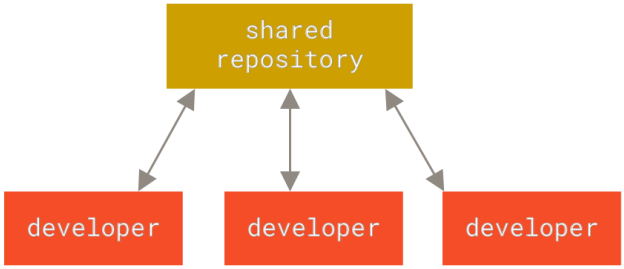


Figure2.Centralizedversioncontroldiagram

This setup offers many advantages, especially over local VCSs. For example, everyone knows to a certain degree what everyone else on the project is doing. Administrators have fine-grained control over who can do what, and it's far easier to administer a CVCS than it is to deal with local databases on every client.

However, this setup also has some serious downsides. The most obvious is the single point of failure that the centralized server represents. If that server goes down for an hour, then during that hour nobody can collaborate at all or save versioned changes to anything they're working on. If the hard disk the central database is on becomes corrupted, and proper backups haven't been kept, you lose absolutely everything — the entire history of the project except whatever single snapshots people happens to have on their local machines. Local VCSs suffer from this same problem — whenever you have the entire history of the project in a single place, you risk losing everything.

Distributed Version Control Systems

This is where Distributed Version Control Systems (DVCSs) step in. In a DVCS (such as Git, Mercurial or Darcs), clients don't just check out the latest snapshot of the files; rather, they fully mirror the repository, including its full history. Thus, if any server dies, and these systems were collaborating via that server, any of the client repositories can be copied back up to the server to restore it. Every clone is really a full backup of all the data.

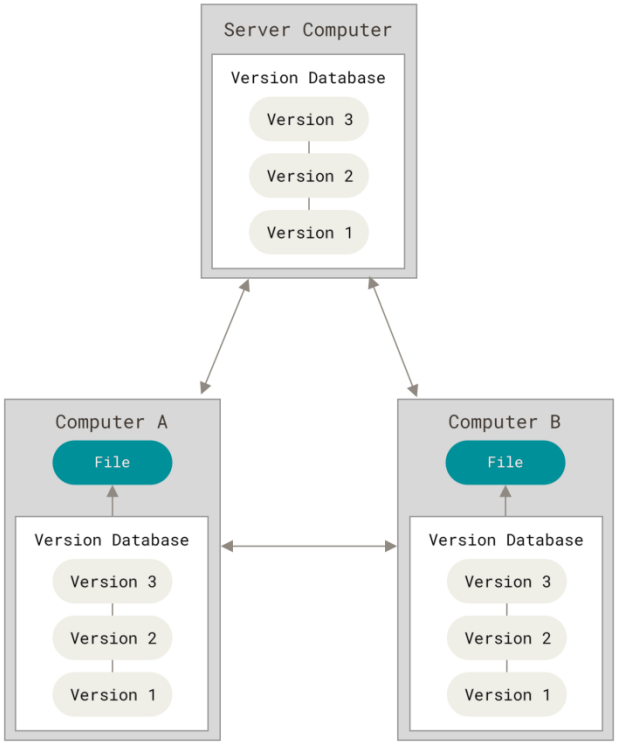


Figure3.Distributedversioncontroldiagram

Furthermore, many of these systems deal pretty well with having several remote repositories they can work with, so you can collaborate with different groups of people in different ways simultaneously within the same project. This allows you to set up several types of workflows that aren't possible in centralized systems, such as hierarchical models.

A Short History of Git

As with many great things in life, Git began with a bit of creative destruction and fiery controversy.

The Linux kernel is an open-source software project of fairly large scope. During the early years of the Linux kernel maintenance (1991–2002), changes to the software were passed around as patches and archived files. In 2002, the Linux kernel project began using a proprietary DVCS called Bit Keeper.

In 2005, the relationship between the community that developed the Linux kernel and the commercial company that developed Bit Keeper broke down, and the tool's free-of-charge status was revoked. This prompted the Linux development community (and in particular Linus Torvalds, the creator of Linux) to develop their own tool based on some of the lessons they learned while using Bit Keeper. Some of the goals of the new system were as follows:

- Speed
- Simple design
- Strong support for non-linear development (thousands of parallel branches)
- Fully distributed
- Able to handle large projects like the Linux kernel efficiently (speed and data size)

Since its birth in 2005, Git has evolved and matured to be easy to use and yet retain these initial qualities. It's amazingly fast, it's very efficient with large projects, and it has an incredible branching system for non-linear development (see Git Branching).

What is Git?

So, what is Git in a nutshell? This is an important section to absorb, because if you understand what Git is and the fundamentals of how it works, then using Git effectively will probably be much easier for you. As you learn Git, try to clear your mind of the things you may know about other VCSs, such as CVS, Subversion or Perforce — doing so will help you avoid subtle confusion when using the tool. Even though Git's user interface is fairly similar to these other VCSs, Git stores and thinks about information in a very different way, and understanding these differences will help you avoid becoming confused while using it.

Snapshots, Not Differences

The major difference between Git and any other VCS (Subversion and friends included) is the way Git thinks about its data. Conceptually, most other systems store information as a list of file-based changes. These other systems (CVS, Subversion,

Perforce, and so on) think of the information they store as a set of files and the changes made to each file over time (this is commonly described as *delta-based* version control).

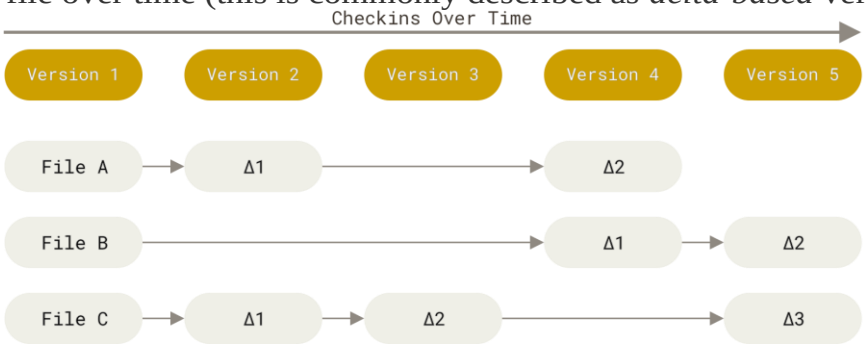
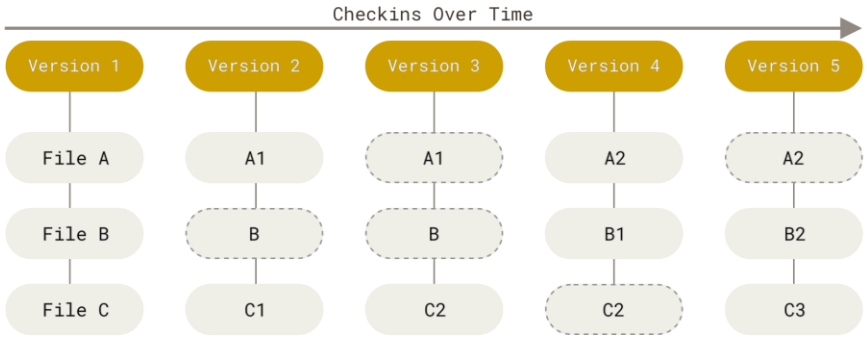


Figure4.Storingdataaschangestoabaseversionofeachfile

Git doesn't think of or store its data this way. Instead, Git thinks of its data more like a series of snapshots of a miniature filesystem. With Git, every time you commit, or save the state of your project, Git basically takes a picture of what all your files look like at that moment and stores a reference to that snapshot. To be efficient, if files have not changed, Git doesn't store the file again, just a link to the previous identical file it has already stored. Git thinks



about its data more like a **stream of snapshots**.

Figure5.Storingdataassnapshotsoftheprojectovertime

This is an important distinction between Git and nearly all other VCSs. It makes Git reconsider almost every aspect of version control that most other systems copied from the previous generation. This makes Git more like a mini filesystem with some incredibly powerful tools built on top of it, rather than simply a VCS. We'll explore some of the benefits you gain by thinking of your data this way when we cover Git branching in Git Branching.

Nearly Every Operation Is Local

Most operations in Git need only local files and resources to operate — generally no information is needed from another computer on your network. If you're used to a CVCS where most operations have that network latency overhead, this aspect of Git will make you think that the gods of speed have blessed Git with unworldly powers. Because you have the entire history of the

project right there on your local disk, most operations seem almost instantaneous.

For example, to browse the history of the project, Git doesn't need to go out to the server to get the history and display it for you — it simply reads it directly from your local database. This means you see the project history almost instantly. If you want to see the changes introduced between the current version of a file and the file a month ago, Git can look up the file a month ago and do a local difference calculation, instead of having to either ask a remote server to do it or pull an older version of the file from the remote server to do it locally.

This also means that there is very little you can't do if you're offline or off VPN. If you get on an airplane or a train and want to do a little work, you can commit happily (to your *local* copy, remember?) until you get to a network connection to upload. If you go home and can't get your VPN client working properly, you can still work. In many other systems, doing so is either impossible or painful. In Perforce, for example, you can't do much when you aren't connected to the server; in Subversion and CVS, you can edit files, but you can't commit changes to your database (because your database is offline). This may not seem like a huge deal, but you may be surprised what a big difference it can make.

Git Has Integrity

Everything in Git is check summed before it is stored and is then referred to by that checksum. This means it's impossible to change the contents of any file or directory without Git knowing about it. This functionality is built into Git at the lowest levels and is integral to its philosophy. You can't lose information in transit or get file corruption without Git being able to detect it.

mechanism that Git uses for this check summing is called a SHA-1 hash. This is a 40-character string composed of hexadecimal characters (0–9 and a–f) and calculated based on the contents of a file or directory structure in Git. A SHA-1 hash looks something like this:

```
24b9da6552252987aa493b52f8696cd6d3b00373
```

You will see these hash values all over the place in Git because it uses them so much. In fact, Git stores everything in its database not by file name but by the hash value of its contents.

Git Generally Only Adds Data

When you do actions in Git, nearly all of them only *add* data to the Git

database. It is hard to get the system to do anything that is not undoable or to make it erase data in any way. As with any VCS, you can lose or mess up changes you haven't committed yet, but after you commit a snapshot into Git, it is very difficult to lose, especially if you regularly push your database to another repository.

This makes using Git a joy because we know we can experiment without the danger of severely screwing things up. For a more in-depth look at how Git stores its data and how you can recover data that seems lost, see Undoing Things.

The Three States

Pay attention now — here is the main thing to remember about Git if you want the rest of your learning process to go smoothly. Git has three main states that your files can reside in: *modified*, *staged*, and *committed*:

- Modified means that you have changed the file but have not committed it to your database yet.
- Staged means that you have marked a modified file in its current version to go into your next commit snapshot.
- Committed means that the data is safely stored in your local database.

This leads us to the three main sections of a Git project: the working tree, the staging area, and the Git directory.

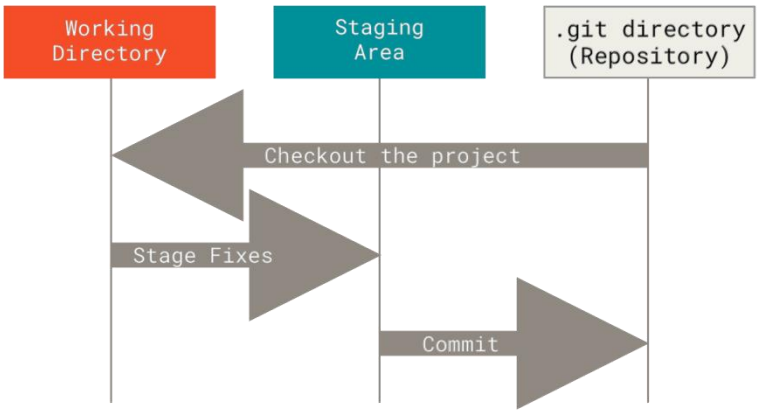


Figure6.Workingtree, staging area, and Git directory

The working tree is a single checkout of one version of the project. These files are pulled out of the compressed database in the Git directory and placed on disk for you to use or modify.

The staging area is a file, generally contained in your Git directory, that stores information about what will go into your next commit. Its technical

name in Git parlance is the “index”, but the phrase “staging area” works just as well.

The Git directory is where Git stores the metadata and object database for your project. This is the most important part of Git, and it is what is copied when you *clone* a repository from another computer.

The basic Git workflow goes something like this:

1. You modify files in your working tree.
2. You selectively stage just those changes you want to be part of your next commit, which adds
   only those changes to the staging area.
3. You do a commit, which takes the files as they are in the staging area and stores that snapshot permanently to your Git directory.

If a particular version of a file is in the Git directory, it’s considered *committed*. If it has been modified and was added to the staging area, it is *staged*. And if it was changed since it was checked out but has not been staged, it is *modified*. In Git Basics, you’ll learn more about these states and how you can either take advantage of them or skip the staged part entirely.

Uses of Git

1. Collaboration.
   Teams: Multiple developers can work on the same project simultaneously without conflicts.
   Open Source: Git is popular in the open-source community, allowing developers from around the world to contribute to a project.

2. Tracking Changes
   History: Git maintains a history of changes, which can be reviewed and reverted if necessary.
   Blame: Identify who made specific changes to the code and when they were made.

3. Branching and Merging
   Feature Development: Developers can create separate branches for new features, bug fixes, or experiments without affecting the main codebase.
   Code Reviews: Changes can be reviewed in branches before merging them into the main branch.

4. Backup and Restore
   Local Repositories: Each user has a complete copy of the repository, providing a backup of the project.
   Remote Repositories: Remote repositories (like those hosted on GitHub, GitLab, or Bitbucket) provide additional backups and a centralized place to push changes.

5. Continuous Integration/Continuous Deployment (CI/CD)

Automation: Git can be integrated with CI/CD pipelines to automate testing, building, and deployment processes whenever changes are pushed to the repository.

6. Documentation

README Files: Git repositories often include README files that provide information about the project, how to set it up, and how to contribute.

Wikis: Many Git hosting services provide integrated wikis for detailed documentation.

Git is a powerful tool that has become essential for modern software development, enabling efficient collaboration, robust change tracking, and streamlined workflows.

InstallingGit

Before you start using Git, you have to make it available on your computer. Even if it's already installed, it's probably a good idea to update to the latest version. You can either install it as a package or via another installer, or download the source code and compile it yourself.

Installing on Windows

There are also a few ways to install Git on Windows. The most official build is available for download on the Git website. Just go to https://git-scm.com/download/win and the download will start automatically. Note that this is a project called Git for Windows, which is separate from Git itself; for more information on it, go to https://gitforwindows.org.

To get an automated installation you can use the Git Chocolatey package. Note that the Chocolatey package is community maintained.

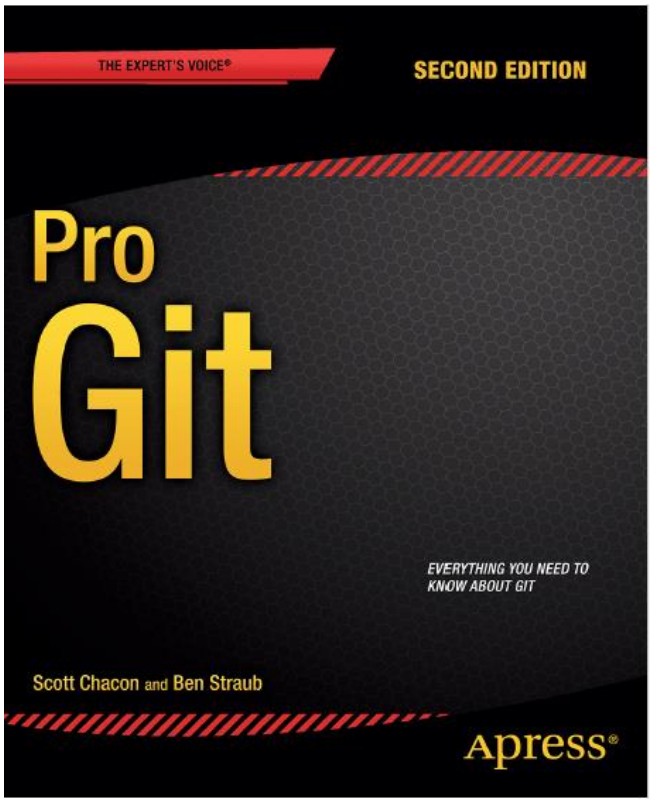
OR to Download click below link

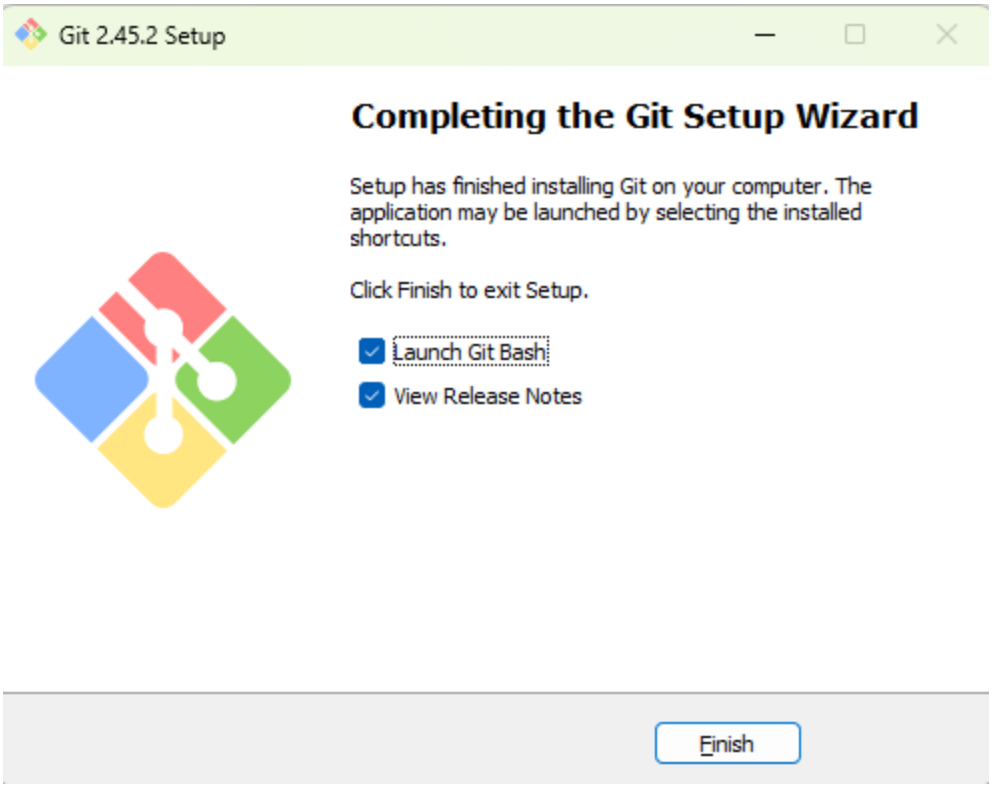
https://drive.google.com/file/d/1H9ZMW2lZnqNngLv-PTXSbUUXPas56IVw/view?usp=sharing

Go through the installation process by clicking Next for all the steps at the last click on Launch GitBash

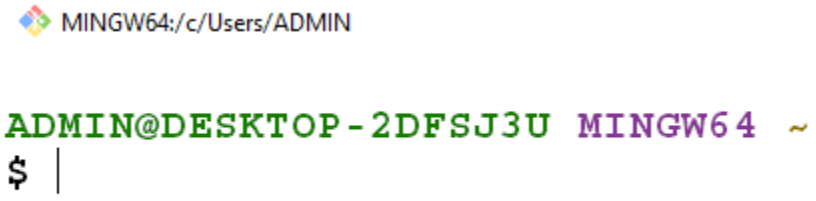
Reference:

The above material is extracted from the Prescribed Textbook by the University as shown below.





Click on Finish.



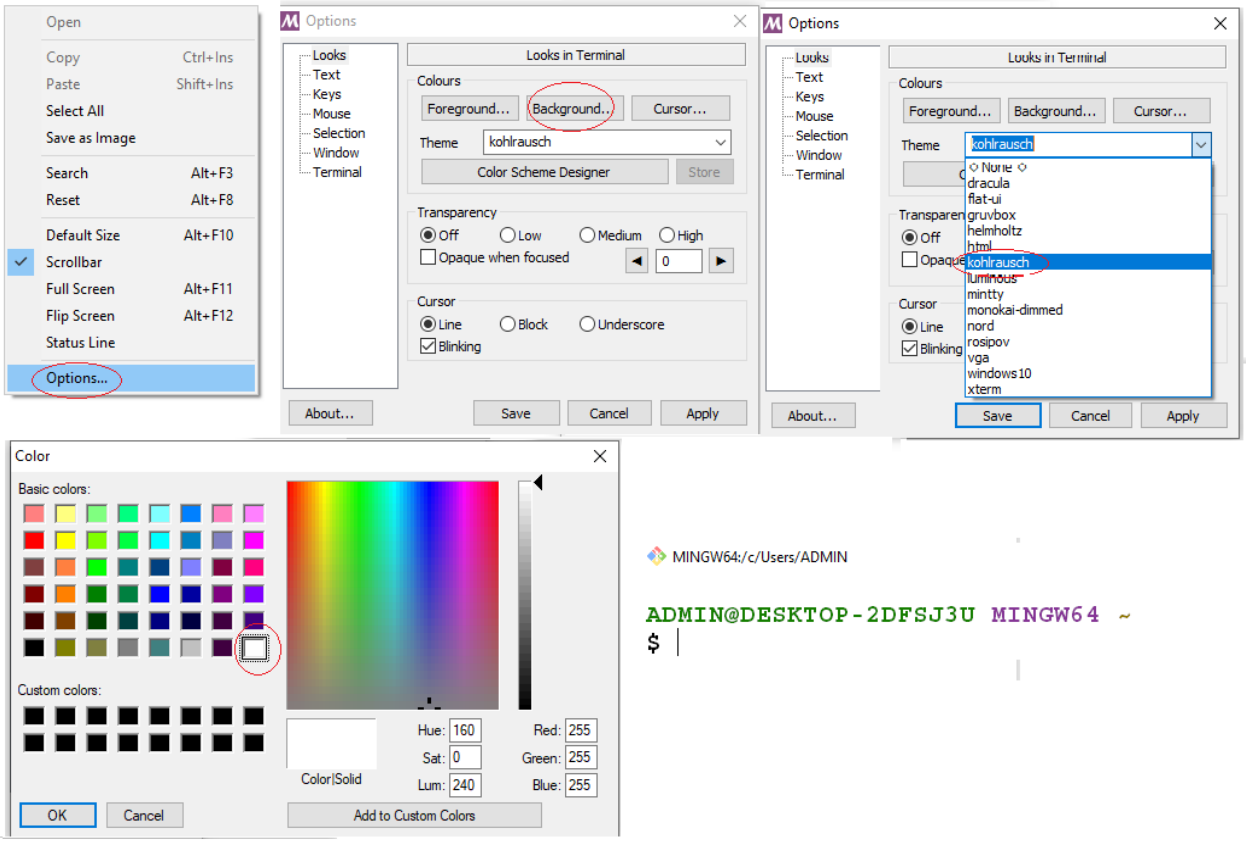
EXPERIMENT-01 Basic Setup and Creation of a New Repository

Aim:

1. To create a new repository “1WT23CS000” under any disc drive such as Z drive and also a sub repository “aboutMyself”.
2. To make the default branch as master branch in some systems it is main branch.
3. To launch the git and enter the user configurations like name, email ID.

First-Time Git Setup

To make the background color white and to make the theme Kohlrausch.



Now that you have Git on your system, you’ll want to do a few things to customize your Git environment. You should have to do these things only once on any given computer; they’ll stick around between upgrades. You can also change them at any time by running through the commands again.

Your Identity

The first thing you should do when you install Git is to set your user name and email address. This is important because every Git commit uses this information, and it’s immutably baked into the commits you start creating:

Again, you need to do this only once if you pass the --global option, because then Git will always use that information for anything you do on that system. If you want to

```
$ git config --global user.name "Dr.NAVEED"
$ git config --global user.email naveed.gce@gmail.com
```

override this with a different name or email address for specific projects, you can run the command without the --global option when you’re in that project.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ git config --global user.name "Dr.NAVEED"

ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ git config --global user.email naveed.gce@gmail.com
```

Checking Your Settings

If you want to check your configuration settings, you can use the git config --list command to list all the settings Git can find at that point:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ git config --list
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=openssl
http.sslcainfo=C:/Program Files/Git/mingw64/etc/ssl/certs/ca-bundle.crt
core.autocrlf=true
core.fscache=true
core.symlinks=false
pull.rebase=false
credential.helper=manager
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.name=Dr.NAVEED
user.email=naveed.gce@gmail.com
```

It will show all details and at the end user name and email ID will be highlighted. If only user name is required then git config user.name will be used.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ git config user.name
Dr.NAVEED
```

To check email of the user use git config user.email

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ git config user.email
naveed.gce@gmail.com
```

To clear the screen, use clear. Alternatively, you can use the keyboard shortcut Ctrl + L which also clears the screen in most terminal emulators, including Git Bash.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ clear
```

To Create a New Repository (Folder): By name "1WT23CS000".

First specify in which drive of your computer you want to create the new repository for Example 'Z' Drive

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ cd /z
```

In the next line you can see that Z drive is highlighted.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z
$
```

To create a new repository by name 1WT23CS000

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z
$ mkdir 1WT23CS000
```

To switch to the new repository

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z
$ cd 1WT23CS000
```

You can see now

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000
$
```

To create a sub folder " aboutMyself" inside the main folder

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000
$ mkdir aboutMyself
```

To shift to the subfolder

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000
$ cd aboutMyself
```

Now you can see

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself
$
```

Once the repository is created initialize the git:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself
$ git init
```

It will make master branch as default branch.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself
$ git init
Initialized empty Git repository in Z:/1WT23CS000/aboutMyself/.git/

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$
```

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git config user.name
Dr.NAVEED

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git config user.email
naveed.gce@gmail.com
```

EXPERIMENT No: 02 To add README.md file into the Repository

Aim:

1. To add README.md file into the repository /z/1WT23CS000/aboutMyself under master branch.
2. To add the contents given below:

```
Title: Dr.
Full Name: Naveed
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with GIT
Subject Code: BCS358C
Academic Year: 2024-25
Mobile No: 9620483405
Email ID: naveed.gce@gmail.com
```

3. To commit with a message "Contents updated successfully"

First get back to the repository by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ cd /z/1WT23CS000/aboutMyself
```

Now the repository is ready:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$
```

To Add README.md file inside the sub folder

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add README.md
```

To check the file added:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
README.md
```

Note: Some times if it shows some error like Z drive is unsafe directory then to make it safe use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git config --global --add safe.directory z:/
```

If git add command shows some error, then use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ echo > README.md
```

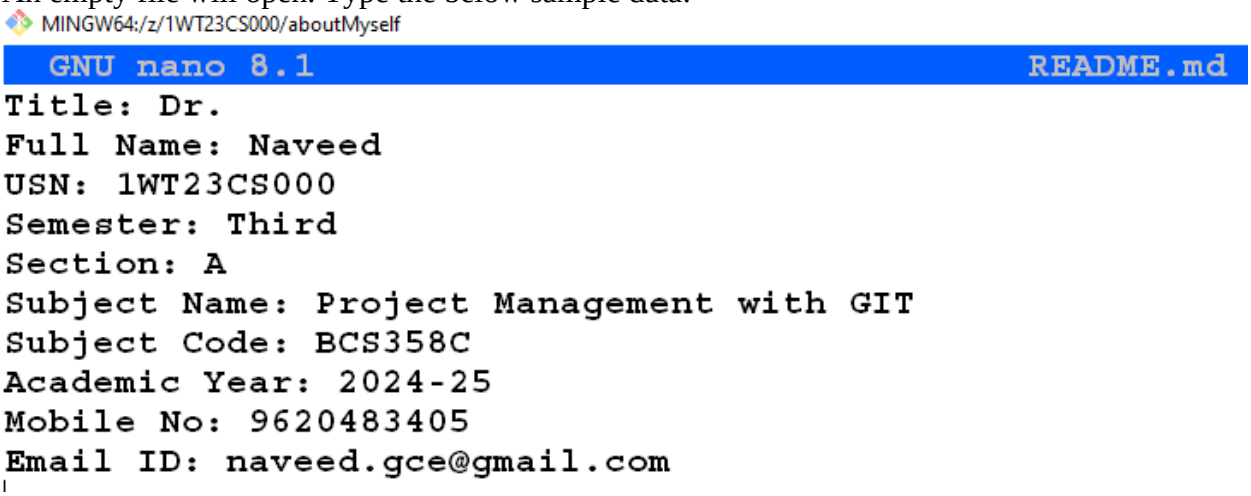
This command creates a file named README.md but it will be untraced. To make it traced use

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add README.md
```

To open the README.md file.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ nano README.md
```

An empty file will open. Type the below sample data:



To save: Ctrl+S
To Exit: Ctrl+X
To check the contents of the README.md File

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
```

It will highlight the contents of the file

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
Title: Dr.
Full Name: Naveed
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with GIT
Subject Code: BCS358C
Academic Year: 2024-25
Mobile No: 9620483405
Email ID: naveed.gce@gmail.com
```

To edit or modify the contents of the README.md file the same above procedure may be adopted.
The data will be updated. But it will not be committed in the git. If we check the status:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git status
```

It will show changes to be committed with a new file README.md highlighted in green color.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   README.md

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
```

To commit the above with a message “Added README.md file with basic data successfully”

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .
```

And then use

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Added README.md file with basic data successfully"
```

It will show you the message:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Added README.md file with basic data successfully"
[master (root-commit) 4dda3ea] Added README.md file with basic data successfully
 1 file changed, 11 insertions(+)
 create mode 100644 README.md
```

If you want to check the status:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git status
```

It will show you nothing to commit, working tree clean:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git status
On branch master
nothing to commit, working tree clean
```

`git add .` is used in Git to stage all changes in the current directory and its subdirectories for the next commit. When you make changes to files in your Git repository, these changes are initially considered "unstaged" or "untracked." Staging files with `git add .` prepares these changes to be included in the next commit snapshot of your project.

Here’s a breakdown of what `git add .` does:

Staging Changes: It adds all modified (tracked) files and all new files (untracked) to the staging area.

Recursive Operation: The `.` represents the current directory and its subdirectories, so `git add .` recursively adds changes from all directories and subdirectories.

Efficiency: It's a convenient shortcut to stage multiple files and changes quickly without specifying each file individually.

After staging changes with `git add .`, you typically follow up with `git commit` to permanently store those changes in the Git repository history.

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
Title: Dr.
Full Name: Naveed
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with GIT
Subject Code: BCS358C
Academic Year: 2024-25
Mobile No: 9620483405
Email ID: naveed.gce@gmail.com

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git status
On branch master
nothing to commit, working tree clean
```

Experiment_03 Creating and Managing Branches

Aim:

1. To create a new branch named "feature-branch".
2. To add a text file "aboutMyself.txt" into the repository /1WT23CS000/aboutMyself .
3. To add the contents into the text file given below:
    - Title: Dr.
    - Full Name: Naveed
    - USN: 1WT23CS000
    - Semester: Third
    - Section: A
    - Branch: Mechanical Engineering
    - Year of Admission: 2023
    - College Name: GITW
4. To commit a message "Added text file aboutMyself.txt successfully".

Normally the default branch will be master branch or in some system it will be main branch. During the development stage it is desirable to create a new branch with any name and add all the required files in it and carry on the process. Whatever the files added into the master branch it will be visible in the new branch. But if we create a new file in new branch such as feature-branch it will not be highlighted in master branch. Even if we modify the content of the file of master branch in the new feature-branch it will not be updated until merged.

To create a new branch "feature-branch":

First open the repository by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /
$ cd /z/1WT23CS000/aboutMyself
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
```

By default, it will be master branch or in some case it will be main branch. To check out which branch the current repository belongs use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
```

It will show

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
* master
```

Though the type of branch will be normally highlighted under () in the drive itself. But still it is required to checkout, the above can be used.

To create a new branch "feature-branch":

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch feature-branch
```

Let us check whether the branch is created or not by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
  feature-branch
* master
```

Now we can see there are two branches. It will highlight the number of branches available with the active branch shown in green color with * symbol

To shift to the new branch created:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git checkout feature-branch
```

It will shift to the new branch

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$
```

If we check the number of files available in feature-branch by using

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
README.md
```

It is shows README.md file which was created in master branch. If the check the contents of the README.md file by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat README.md
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
Email: naveed.gce@gmail.com
```

Therefore, whatever files that were created in master branch are also available in the feature-branch with the same contents.

But if we modify the contents of README.md file in feature-branch, will it get reflected in master branch?

/**********/

/* For Knowledge Purpose Not for Record Writing */

Let us checkout.

Remove Email ID from the file README.md available in feature-branch by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ nano README.md
```

It shows:

```
  GNU nano 8.1                                          README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
Email: naveed.gce@gmail.com
```

Remove Email from the above and save the file.
Again, let us check the content by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat README.md
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
```

Therefore, there is no Email present in the above content. Now if we check the status by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
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

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

It tells us to save it with committed message. Let us save by committing a message “Removed Email Successfully from README.md”

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git commit -m "Removed Email successfully from README.md file"
[feature-branch 7c1af39] Removed Email successfully from README.md file
 1 file changed, 1 insertion(+), 1 deletion(-)

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
nothing to commit, working tree clean
```

Now let us switch back to the master branch and check the contents of the same file README.md by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git checkout master
```

It will get switched to master branch

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
```

Now let us check the contents of README.md file by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
Email: naveed.gce@gmail.com
```

We can see that the Email which was deleted in feature-branch is not deleted in master branch. Therefore, if we want to update it into the master branch as well then git-merging will be used.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git merge feature-branch
```

It shows

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git merge feature-branch
Updating d9068ac..7c1af39
Fast-forward
 README.md | 3 +--
 1 file changed, 1 insertion(+), 2 deletions(-)
```

Now if we check the contents of README.md file in master branch by using

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
```

Now we can see that after merging the contents are updated and we don't find Email in the above content.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Merged feature-branch into the master branch with updated contents"
On branch master
nothing to commit, working tree clean
```

/*********/

To Create a new text file by name "aboutMyself.txt"

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add aboutMyself.txt
```

It shows some error.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add aboutMyself.txt
fatal: pathspec 'aboutMyself.txt' did not match any files
```

To solve the error, let us add an untraced file by using

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ echo > aboutMyself.txt
```

Then we will use

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add aboutMyself.txt
```

It will show some warning related to operating system. Just ignore it.
Now if we check the number of files available:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
```

It shows two files available.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
README.md
aboutMyself.txt
```

Add the contents by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ nano aboutMyself.txt
```

A file will open, type the contents and save with Ctrl+S and exit by using Ctrl+X.

- `Title: Dr.`
- `Full Name: Naveed`

- USN: 1WT23CS000
- Semester: Third
- Section: A
- Branch: Mechanical Engineering
- Year of Admission: 2023
- College Name: GITW

```
  GNU nano 8.1                                    aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN : 1WT23CS000
Semester: Third
Section: A
Branch: Mechanical Engineering
Year of Admission: 2023
College Name: GITW
```

To check the contents of the file use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
```

Save the file by committing a message “Added aboutMyself.txt file successfully”

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add .
warning: in the working copy of 'aboutMyself.txt', LF will be replaced by CRLF the next time Git
touches it

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git commit -m "Added aboutMyself.txt file successfully"
[feature-branch 75c036f] Added aboutMyself.txt file successfully
 1 file changed, 8 insertions(+)
 create mode 100644 aboutMyself.txt
```

Now let us find whether the same file is added into the master branch with same contents.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git checkout master
Switched to branch 'master'

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
README.md
```

Here we don’t find the file aboutMyself.txt which was created in feature-branch.

If we check the status,

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git status
```

It will show a message of working tree clean:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git status
On branch master
nothing to commit, working tree clean
```

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
  feature-branch
* master
```

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
README.md
aboutMyself.txt
```

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
```

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
nothing to commit, working tree clean
```

Experiment-04: Merging of Feature-Branch into the Master Branch:

Aim:

To merge feature-branch into the master branch

Now let us find whether the same file is added into the master branch with same contents.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git checkout master
Switched to branch 'master'

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
README.md
```

Here we don't find the file aboutMyself.txt which was created in feature-branch.

To make the file aboutMyself.txt available in master branch git merging is used:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git merge feature-branch
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git merge feature-branch
Updating 7c1af39..75c036f
Fast-forward
 aboutMyself.txt | 8 ++++++++
 1 file changed, 8 insertions(+)
 create mode 100644 aboutMyself.txt
```

Now if we check the files available in master branch by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
```

It shows two files.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
README.md
aboutMyself.txt
```

Now if we check the contents of aboutMyself.txt file by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
```

Commit the above with a message by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Merged feature-branch into master branch and added aboutMyself.txt file successf
ully"
On branch master
nothing to commit, working tree clean
```

Merging feature branches into the main branch is a fundamental practice in modern software development. It ensures that new features and improvements are regularly integrated, tested, and made available to all team members, leading to a more robust and maintainable codebase. By following best practices, teams can effectively manage their development process and deliver high-quality software.

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
README.md
aboutMyself.txt

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Merged feature-branch into master branch and added aboutMyself.txt file successf
ully"
On branch master
nothing to commit, working tree clean
```

Experiment-05: Updating of files in the Feature-Branch

Aim:

1. To add the Qualification Details given Below into the file "aboutMyself.txt" of the feature-branch:
   UG Degree: B.E – Mechanical Engineering
   PG Degree: M.Tech – Manufacturing
   PhD Degree: Materials Science
2. To commit the above with a message "Added Qualification Details Successfully"
3. To merge the feature-branch with the master branch and commit with a message "Merged the feature-branch Successfully and updated the file with Qualification Details".
4. To delete the feature-branch if no longer needed.
5. To get back the deleted feature-branch

Before proceeding checkout to the feature-branch from master branch by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git checkout feature-branch
```

It will get shifted to feature-branch

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
```

Let us checkout the number of files available by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
```

It shows two files:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
README.md
aboutMyself.txt
```

Now let us checkout the contents of the file "aboutMyself.txt " by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
```

To the above add the following data:
UG Degree: B.E – Mechanical Engineering
PG Degree: M.Tech – Manufacturing
PhD Degree: Materials Science

By using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ nano aboutMyself.txt
```

It will open a GNU file window as shown below:

```
  GNU nano 8.1                                    aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
```

Now type the above data. Save the data with Ctrl+S and exit the screen using Ctrl+X
Now let us check the data

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
UG Degree: Mechanical Engineering
PG Degree: Manufacturing Science & Engineering
PhD Degree: Materials Science
```

We can see the data is updated. If we check the status by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
```

It shows that the file is modified but it is not committed. added. To commit with a message. To commit with a message use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git commit -m "Updated the contents of aboutMyself.txt file successfull
[feature-branch c3a5454] Updated the contents of aboutMyself.txt file su
 1 file changed, 3 insertions(+)
```

Now if we check the status:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
nothing to commit, working tree clean
```

The working tree is clean.

Now let us check whether in master branch the data is updated or not. We will shift to the master branch and checkout the contents of the file aboutMyself.txt

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git checkout master
Switched to branch 'master'

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
```

We can see that the contents of the file aboutMyself.txt are not updated in the master branch. To update the contents git-merging will be used as shown below:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git merge feature-branch
```

It will merge the contents of the file aboutMyself.txt present in feature-branch. It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git merge feature-branch
Updating 75c036f..c3a5454
Fast-forward
 aboutMyself.txt | 3 +++
 1 file changed, 3 insertions(+)
```

Now if we check the contents

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
UG Degree: Mechanical Engineering
PG Degree: Manufacturing Science & Engineering
PhD Degree: Materials Science
```

Now we can see that the contents are now updated after merging.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Updated the contents by merging the file aboutMyself.txt into to the master b
ch successfully"
On branch master
nothing to commit, working tree clean
```

Note: If it shows some conflict resolve the issue and then proceed.

To delete feature-branch:

First, we will check no. of branches available by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
  feature-branch
* master
```

It shows two branches with master branch in active mode.
To delete we will use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch -d feature-branch
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch -d feature-branch
Deleted branch feature-branch (was c3a5454).
```

If we check the number of branches available by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
* master
```

It shows only one branch i.e., master branch.
To get back the feature-branch:
To get back the deleted feature-branch use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git checkout -b feature-branch
```

It will restore and get back to the feature-branch:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'
```

Now if we check the number of branches available:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git branch
* feature-branch
  master
```

It shows two branches. Now let us check the number of files available in feature-branch

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
README.md
aboutMyself.txt
```

It shows the same two files that were available before deleting the branch. Let us check the contents of aboutMysellf.txt file:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
UG Degree: Mechanical Engineering
PG Degree: Manufacturing Science & Engineering
PhD Degree: Materials Science
```

It shows the same contents which were available before deleting.

Note: Always download the updated version of git bash. In some version it will show some reference code when "git reflog" command is used. Then to restore the deleted branch "git checkout -b feature-branch ref. code" command will be used.

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
UG Degree: Mechanical Engineering
PG Degree: Manufacturing Science & Engineering
PhD Degree: Materials Science

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
nothing to commit, working tree clean

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat aboutMyself.txt
Title: Dr
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Branch : Mechanical Engineering
Year of Admission: 2023
College Name: GITW
UG Degree: Mechanical Engineering
PG Degree: Manufacturing Science & Engineering
PhD Degree: Materials Science
```

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Updated the contents by merging the file aboutMyself.txt into to the master b
ch successfully"
On branch master
nothing to commit, working tree clean
```

Experiment-06: Light Weight and Annotated Tags

Aim:

1. To update the file "README.md" and add "Date of Joining to GITW: 1st Oct-2023" to it under the repository /1WT23CS000/aboutMyself under master branch.
2. To commit with a message "My Date of Joining to GITW Updated successfully"
3. To add a light wight tag v1.0 into file "README.md"
4. To add an Annotated tag v2.0 with a message "My Date of Joining to GITW" into the same file

In Git, there are two main types of tags:

1. **Lightweight Tags**
2. **Annotated Tags**

Each type serves different purposes and has different characteristics.

1. Lightweight Tags

Lightweight tags are simple and act like a pointer to a specific commit. They are just a name (like a branch) that points to a specific commit. Lightweight tags do not contain any additional metadata such as the tagger name, date, or a tagging message.

Characteristics:

- Simple and fast to create.
- Do not store any additional information beyond the commit they point to.
- Similar to a branch that doesn't change.

Lightweight tags are useful when you just want to mark a specific point in your history, such as a commit representing a release, without the need for additional metadata.

2. Annotated Tags

Annotated tags store additional metadata, including the tagger's name, email, date, and a tagging message. They are stored as full objects in the Git database, which makes them more robust and verifiable.

Characteristics:

- Include metadata (tagger name, email, date, and message).
- Stored as full objects in the Git database.
- Can be signed with GPG to verify authenticity.

Annotated tags are suitable for marking releases or other significant milestones where you want to include detailed information about the tag.

Summary

- **Lightweight Tags**: Simple, fast, and just a pointer to a commit. Created with git tag tagname.
- **Annotated Tags**: Contain metadata, are stored as full objects, and can be signed. Created with git tag -a tagname -m "message".

Use lightweight tags for simple markers and annotated tags when you need more information and robustness.

First ensure that we are in master branch. Let us checkout the number of files available in master branch by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git ls-files
README.md
aboutMyself.txt
```

It shows two files. Let us checkout the contents of the README.md file by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
```

It shows:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
```

Now to the above we will add a content such as “My date of Joining to GITW” by using

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ nano README.md
```

It will open GNU screen. Add the data and save it and exit by using Ctrl+S and Ctrl+X.

```
  GNU nano 8.1                                          README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
My Date of Joining to GITW: 3rd Oct-2023
```

Now if we check the contents.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ cat README.md
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
My Date of Joining to GITW: 3rd Oct-2023
```

We can see the contents are updated.

Now we will commit the above with a message “My Date of Joining to GITW Updated successfully” by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "My Date of Joinining to GITW updated successfully"
[master 44fcdcb] My Date of Joinining to GITW updated successfully
 1 file changed, 1 insertion(+), 1 deletion(-)
```

To add lightweight Tag v1.0 to the above committed message:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git tag v1.0
```

It will add the tag by name v1.0. Now to check whether it is added or not use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git tag
```

It will show all the tags available

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git tag
v1.0
```

It shows one tag by name v1.0. Now let us check the contents of the tag v1.0 by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show v1.0
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show v1.0
commit 44fcdcb8b4cbd09c285b662173c7cd65eefc0ecf (HEAD -> master, tag: v1.0)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:40:07 2024 +0500

    My Date of Joinining to GITW updated successfully

diff --git a/README.md b/README.md
index 3add72c..4802ed1 100644
--- a/README.md
+++ b/README.md
@@ -7,4 +7,4 @@ Subject Name: Project Management with Git
 Subject Code: BCS358C
 Academic Year:  2024-25
 Mobile No: 9620483405
-
+My Date of Joining to GITW: 3rd Oct-2023
```

We can see the committed message along with the contents added to the above file in last line with green color.

Light wight tags will show only the committed message. It will not show the tagger name and its details. For those Annotated tags are used as shown below:

To create Annotated tag v2.0 with a message "My Date of Joining to GITW"

Use the following code:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git tag -a v2.0 -m "My DAte of Joining to GITW"
```

It will add an annotated tag v2.0. To check the number of tags available use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git tag
v1.0
v2.0
```

It shows two tags. To check the contents of tag v2.0 use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show v2.0
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show v2.0
tag v2.0
Tagger: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:47:25 2024 +0500

My DAte of Joining to GITW

commit 44fcdcb8b4cbd09c285b662173c7cd65eefc0ecf (HEAD -> master, tag: v2.0, tag: v1.0)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:40:07 2024 +0500

    My Date of Joinining to GITW updated successfully

diff --git a/README.md b/README.md
index 3add72c..4802ed1 100644
--- a/README.md
+++ b/README.md
@@ -7,4 +7,4 @@ Subject Name: Project Management with Git
 Subject Code: BCS358C
 Academic Year:  2024-25
 Mobile No: 9620483405
-
+My Date of Joining to GITW: 3rd Oct-2023
```

It will show details with tagger name and its details:

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show v1.0
commit 44fcdcb8b4cbd09c285b662173c7cd65eefc0ecf (HEAD -> master, tag: v1.0)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:40:07 2024 +0500

    My Date of Joinining to GITW updated successfully

diff --git a/README.md b/README.md
index 3add72c..4802ed1 100644
--- a/README.md
+++ b/README.md
@@ -7,4 +7,4 @@ Subject Name: Project Management with Git
 Subject Code: BCS358C
 Academic Year:  2024-25
 Mobile No: 9620483405
-
+My Date of Joining to GITW: 3rd Oct-2023
```

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show v2.0
tag v2.0
Tagger: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:47:25 2024 +0500

My DAte of Joining to GITW

commit 44fcdcb8b4cbd09c285b662173c7cd65eefc0ecf (HEAD -> master, tag: v2.0, tag: v1.0)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:40:07 2024 +0500

    My Date of Joinining to GITW updated successfully

diff --git a/README.md b/README.md
index 3add72c..4802ed1 100644
--- a/README.md
+++ b/README.md
@@ -7,4 +7,4 @@ Subject Name: Project Management with Git
 Subject Code: BCS358C
 Academic Year:  2024-25
 Mobile No: 9620483405
-
+My Date of Joining to GITW: 3rd Oct-2023
```

Experiment-07: Analyzing GIT History

Aim:

1. To view the details of specific commit, including the author, date, and commit message for the given commit ID.
2. To display the commits made in master branch
3. To obtain details of the commit with full details such as Author name, Email, date, timings, committed message for the given ID 44fcdcb of master branch
4. To display the commits made in feature-branch
5. To obtain details of the commit with full details such as Author name, Email, date, timings, committed message for the given ID c3a5454 of feature-branch
6. To write the command to list all commits made by the author "Dr. NAVEED" between "2024-01-01" and "2024-12-31."
7. To write the command to display the last five commits in the repository's history for master branch as well feature-branch.

First find out how many branches are available or how many branches were created other than the default master branch by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
```

It will show the available branches with current branch in green color.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git branch
  feature-branch
* master
```

To display commits made in master branch use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master --oneline
44fcdcb (HEAD -> master, tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
```

Note: Running the git log master --oneline command will show you a simplified, one-line-per-commit log of the feature-branch. This is useful for quickly viewing the commit history in a compact format.

To check committed details for the given ID 44fcdcb:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show 44fcdcb
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show 44fcdcb
commit 44fcdcb8b4cbd09c285b662173c7cd65eefc0ecf (HEAD -> master, tag: v2.0, tag: v1.0)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:40:07 2024 +0500

    My Date of Joinining to GITW updated successfully

diff --git a/README.md b/README.md
index 3add72c..4802ed1 100644
--- a/README.md
+++ b/README.md
@@ -7,4 +7,4 @@ Subject Name: Project Management with Git
 Subject Code: BCS358C
 Academic Year:  2024-25
 Mobile No: 9620483405
-
+My Date of Joining to GITW: 3rd Oct-2023
```

Author name, Email, Date, timings and committed messages are shown.

Similarly for feature-branch:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
```

Now for the given ID c3a5454 use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show c3a5454
```

It will show.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git show c3a5454
commit c3a5454237c4c6fa81fa3895409cee8fa7e92dee (feature-branch)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 12:52:07 2024 +0500

    Updated the contents of aboutMyself.txt file successfully

diff --git a/aboutMyself.txt b/aboutMyself.txt
index d608607..daee66a 100644
--- a/aboutMyself.txt
+++ b/aboutMyself.txt
@@ -6,3 +6,6 @@ Section: A
 Branch : Mechanical Engineering
 Year of Admission: 2023
 College Name: GITW
+UG Degree: Mechanical Engineering
+PG Degree: Manufacturing Science & Engineering
+PhD Degree: Materials Science
```

To list all commits made by the author "Dr. NAVEED" between "2024-01-01" and "2024-12-31."

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log --author="Dr.NAVEED" --since="2024-08-21" --until="2024-08-29"
```

It should be “Year-Month-Day” format. It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log --author="Dr.NAVEED" --since="2024-08-21" --until="2024-08-29"
commit 44fcdcb8b4cbd09c285b662173c7cd65eefc0ecf (HEAD -> master, tag: v2.0, tag: v1.0)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 14:40:07 2024 +0500

    My Date of Joinining to GITW updated successfully

commit c3a5454237c4c6fa81fa3895409cee8fa7e92dee (feature-branch)
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Tue Aug 27 12:52:07 2024 +0500

    Updated the contents of aboutMyself.txt file successfully

commit 75c036f3a0a8355b2ab703e7e6e5c315d8417219
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Mon Aug 26 15:31:37 2024 +0500

    Added aboutMyself.txt file successfully

commit 7c1af39098223212fb799c26bc4c5c141f935d9d
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Mon Aug 26 14:46:57 2024 +0500

    Removed Email successfully from README.md file

commit b62ac1e5be85b2487633fd15fa9b686161272dd5
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Mon Aug 26 14:33:47 2024 +0500

    Added Email Successfully

commit ac80e2e8cf50d1466d757eb665bee05fb3e45e7b
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Mon Aug 26 14:23:33 2024 +0500

    Removed Email ID

commit d9068ac99cdf754c7309d7666a6dc5afdb4d84e4
Author: Dr.NAVEED <naveed.gce@gmail.com>
Date:   Mon Aug 26 14:13:41 2024 +0500
```

Note: Press Q to get back to coding.

If we require the details in brief just in one line then use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log --author="Dr.NAVEED" --since="2024-08-21" --until="2024-08-29" --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log --author="Dr.NAVEED" --since="2024-08-21" --until="2024-08-29" --oneline
44fcdcb (HEAD -> master, tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
```

To display the last five commits in the repository's history for master branch:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 5 --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 5 --oneline
44fcdcb (HEAD -> master, tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
```

Note: To get full details avoid --oneline:

Similarly for feature-branch:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch -n 5 --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch -n 5 --oneline
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
```

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master --oneline
44fcdcb (HEAD -> master, tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully


ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log --author="Dr.NAVEED" --since="2024-08-21" --until="2024-08-29" --oneline
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log --author="Dr.NAVEED" --since="2024-08-21" --until="2024-08-29" --oneline
44fcdcb (HEAD -> master, tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
```

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 5 --oneline
44fcdcb (HEAD -> master, tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch -n 5 --oneline
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
```

Experiment-08: GIT Cherry-pick and Revert

Aim:

1. Create a new file “bugfile.txt” in feature-branch and obtain the details such as day and time of this file from master branch without merging it
2. To check committed message with date and time by using the reference ID in any branch such as feature-branch for the ID: c3a5454 by using cherry-pick command. Resolve the error if it exist.
3. To write the command to undo the changes introduced by the commit with the ID " b5b6caf " in master branch. Change the committed message from “Deleted data1.txt file successfully” to Deleted data1.txt file successfully which was a dummy file for testing purpose”. Resolve the error if it exist.

The git cherry-pick command is used to apply the changes introduced by an existing commit onto the current branch. It allows you to select a specific commit from one branch and apply it to another branch, without merging the entire branch history. For example, if you want to add some committed message done in feature-branch into the master branch without merging the feature-branch into the master branch then git cherry-pick is helpful. This can be useful in a variety of situations, such as:

1. **Porting Specific Changes:** If you've made a specific fix or feature in one branch and want to apply it to another branch without merging all other changes from the source branch, you can use git cherry-pick to apply just that commit.
2. **Selective Backporting:** When you need to backport, a bug fixes from a development branch to a stable branch without including all other changes.
3. **Undoing Changes:** You can also use git cherry-pick in combination with a revert commit to undo specific changes made by a particular commit.

To create a new file “bugfile.txt”:

First, we will shift to feature-branch by using

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git checkout feature-branch
Switched to branch 'feature-branch'

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
```

To add a bugfile.txt in feature-branch use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add bugfile.txt
```

It shows some error: We will use echo > bugfile.txt and then use git add

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ echo > bugfile.txt
```

It will add an untraced file bugfile.txt. To trace it and add it use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add bugfile.txt
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add bugfile.txt
warning: in the working copy of 'bugfile.txt', LF will be replaced by CRLF the next
time Git touches it
```

Ignore the warning as it is related to type of operating system. Now if we check the number of files.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
README.md
aboutMyself.txt
bugfile.txt
```

We can see bugfile.txt is added. If we check the status:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   bugfile.txt
```

It shows new file and it will ask to commit. To commit with a message "Added bugfile.txt successfully with confidential information" use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git commit -m "Added bugfile.txt successfully with confidential information"
```

Now if we check the status

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
nothing to commit, working tree clean
```

Everything is fine. Now to check this committed message in master branch without merging feature-branch into master branch, we will shift to master branch.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git checkout master
Switched to branch 'master'
```

Let us find out the history of feature-branch to get the reference ID related to bugfile.txt by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
fd00805 (feature-branch) Added bugfile.txt successfully with confidential informat
n
c3a5454 Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
```

From the above we got the ID as: fd00805. By using

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git cherry-pick fd00805
```

We can get information about the time and date details of the bugfile.txt inserted into the feature-branch. It shows

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git cherry-pick fd00805
[master b5b6caf] Added bugfile.txt successfully with confidential information
 Date: Fri Aug 30 15:05:33 2024 +0500
```

Now if we check the history of master branch

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 5 --oneline
b5b6caf (HEAD -> master) Added bugfile.txt successfully with confidential informatio
n
47f6b3e Removed Email successfully from README.md file
b4b021a Updated the contents of aboutMyself.txt file successfully
44fcdcb (tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 Updated the contents of aboutMyself.txt file successfully
```

We can see that the committed message added in feature-branch related to bugfile.txt is now saved in master branch.

Therefore, date and time of the bugfile.txt is obtained successfully without merging feature-branch into the master branch by using git cherry-pick.

To check committed message with date and time by using the reference ID in any branch such as feature-branch in the above ID c3a5454 by cherry-pick command:

Use git cherry-pick command for the given ID in feature-branch: as shown below

First, we will use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
```

To check the details of the committed message with date and time for the above ID use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git cherry-pick c3a5454
```

It will show the details if no error found. If error found it will show the error.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git cherry-pick c3a5454
The previous cherry-pick is now empty, possibly due to conflict resolution.
If you wish to commit it anyway, use:

    git commit --allow-empty

Otherwise, please use 'git cherry-pick --skip'
On branch master
You are currently cherry-picking commit c3a5454.
  (all conflicts fixed: run "git cherry-pick --continue")
  (use "git cherry-pick --skip" to skip this patch)
  (use "git cherry-pick --abort" to cancel the cherry-pick operation)

nothing to commit, working tree clean
```

It tells that the cherry-pick is now empty due to conflict resolution. Follow the instruction given above. We will use git commit --allow-empty. A window will open as shown below:

```
Updated the contents of aboutMyself.txt file successfully
#
# It looks like you may be committing a cherry-pick.
# If this is not correct, please run
#       git update-ref -d CHERRY_PICK_HEAD
# and try again.


# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# Date:      Tue Aug 27 12:52:07 2024 +0500
#
# On branch master
# You are currently cherry-picking commit c3a5454.
#
```

The committed message is shown in brown color. If you want to modify the message it can be modified or else keep as such.

```
Updated the contents of aboutMyself.txt file successfully
#
# It looks like you may be committing a cherry-pick.
# If this is not correct, please run
#       git update-ref -d CHERRY_PICK_HEAD
# and try again.


# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# Date:      Tue Aug 27 12:52:07 2024 +0500
#
# On branch master
# You are currently cherry-picking commit c3a5454.
#

.git/COMMIT_EDITMSG [unix] (09:42 30/08/2024)
:wq
```

To get back to the coding screen keep the cursor at the above message and type ":wq" as shown above and then enter.
Now it will show the details of the commit.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master|CHERRY-PICKING)
$ git commit --allow-empty
[master b4b021a] Updated the contents of aboutMyself.txt file successfully
 Date: Tue Aug 27 12:52:07 2024 +0500
```

We can see that the above committed message of feature-branch with the ID: c3a5454 is now saved in master branch.
To check use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 1 --oneline
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 1 --oneline
b4b021a Updated the contents of aboutMyself.txt file successfully  file
```

We can see that the committed message of feature-branch is now added into the master branch with a new ID b4b021a. This is helpful if we want to share some important commit of feature-branch into the master branch without merging the entire feature-branch into the master branch.

Let us check some other ID such as 7c1af39 as shown below.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log feature-branch --oneline
c3a5454 (feature-branch) Updated the contents of aboutMyself.txt file successfully
75c036f Added aboutMyself.txt file successfully
7c1af39 Removed Email successfully from README.md file
b62ac1e Added Email Successfully
ac80e2e Removed Email ID
d9068ac Added README.md file successfully
4dda3ea Added README.md file with basic data successfully
```

Use the git cherry-pick command for the above ID.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git cherry-pick 7c1af39
```

It shows some error.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git cherry-pick 7c1af39
Auto-merging README.md
CONFLICT (content): Merge conflict in README.md
error: could not apply 7c1af39... Removed Email successfully from README.md file
hint: After resolving the conflicts, mark them with
hint: "git add/rm <pathspec>", then run
hint: "git cherry-pick --continue".
hint: You can instead skip this commit with "git cherry-pick --skip".
hint: To abort and get back to the state before "git cherry-pick",
hint: run "git cherry-pick --abort".
hint: Disable this message with "git config advice.mergeConflict false"
```

To open the file use:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master|CHERRY-PICKING)
$ vim README.md
```

It will open the file README.md.

```
MINGW64:/z/1WT23CS000/aboutMyself
Title: Dr.
Full Name: NAVEED
USN: 1WT23CS000
Semester: Third
Section: A
Subject Name: Project Management with Git
Subject Code: BCS358C
Academic Year:  2024-25
Mobile No: 9620483405
<<<<<<< HEAD
My Date of Joining to GITW: 3rd Oct-2023
=======

>>>>>>> 7c1af39 (Removed Email successfully from README.md file)
```

Remove the conflicting text and edit the content as shown below. Keep the cursor at the text and type ":wq" and then press enter.

```
~
~MINGW64:/z/1WT23CS000/aboutMyself
~Title: Dr.
~Full Name: NAVEED
~USN: 1WT23CS000
~Semester: Third
~Section: A
~Subject Name: Project Management with Git
~Subject Code: BCS358C
~Academic Year:  2024-25
~Mobile No: 9620483405
~Date of Joining TO GITW: 3rd Oct 2023
~
~
~
README.md[+] [dos] (10:14 30/08/2024)
:wq
```

It will open an Attention file:

```
E325: ATTENTION
Found a swap file by the name ".README.md.swp"
          owned by: ADMIN   dated: Fri Aug 30 10:02:46 2024
         file name: /z/1WT23CS000/aboutMyself/README.md
          modified: YES
         user name: ADMIN   host name: DESKTOP-2DFSJ3U
        process ID: 1818 (STILL RUNNING)
While opening file "README.md"
             dated: Fri Aug 30 09:59:13 2024

(1) Another program may be editing the same file.  If this is the case,
    be careful not to end up with two different instances of the same
    file when making changes.  Quit, or continue with caution.
(2) An edit session for this file crashed.
    If this is the case, use ":recover" or "vim -r README.md"
    to recover the changes (see ":help recovery").
    If you did this already, delete the swap file ".README.md.swp"
    to avoid this message.

Swap file ".README.md.swp" already exists!
[O]pen Read-Only, (E)dit anyway, (R)ecover, (Q)uit, (A)bort:
```

Type E and the proceed.

Add the modified file and continue with the cherry-pick

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master|CHERRY-PICKING)
$ git add README.md

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master|CHERRY-PICKING)
$ git cherry-pick --continue
```

It will open the conflicting file

```
MINGW64:/z/1WT23CS000/aboutMyself
Removed Email successfully from README.md file

# Conflicts:
#       README.md
#
# It looks like you may be committing a cherry-pick.
# If this is not correct, please run
#       git update-ref -d CHERRY_PICK_HEAD
# and try again.


# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit
#
# Date:      Mon Aug 26 14:46:57 2024 +0500
#
# On branch master
# You are currently cherry-picking commit 7c1af39.
#
# Changes to be committed:
#       modified:   README.md
#
# Untracked files:
#       .README.md.swo
#       .README.md.swp
#
```

Type ":wq" then enter

```
MINGW64:/z/1WT23CS000/aboutMyself
Removed Email successfully from README.md file

# Conflicts:
#       README.md
#
# It looks like you may be committing a cherry-pick.
# If this is not correct, please run
#       git update-ref -d CHERRY_PICK_HEAD
# and try again.


# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# Date:      Mon Aug 26 14:46:57 2024 +0500
#
# On branch master
# You are currently cherry-picking commit 7c1af39.
#
# Changes to be committed:
#       modified:   README.md
#
# Untracked files:
#       .README.md.swo
#       .README.md.swp
#
~
~
.git/COMMIT_EDITMSG [unix] (10:23 30/08/2024)
:wq
```

Now we got the committed message.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master|CHERRY-PICKING)
$ git cherry-pick --continue
[master 47f6b3e] Removed Email successfully from README.md file
 Date: Mon Aug 26 14:46:57 2024 +0500
 1 file changed, 4 insertions(+), 1 deletion(-)
```

Now if we check the history of master branch for the last two commits

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 2 --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 2 --oneline
47f6b3e (HEAD -> master) Removed Email successfully from README.md file
b4b021a Updated the contents of aboutMyself.txt file successfully
```

We can see that the committed message of feature-branch is now added into the master branch with a separate ID: 47f6b3e.

To undo the changes introduced by the commit with the ID " b5b6caf " in master branch.
First let us find out last 5 commits made in master branch by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 5 --oneline
```

It will show:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 5 --oneline
b5b6caf (HEAD -> master) Added bugfile.txt successfully with confidential informatio
n
47f6b3e Removed Email successfully from README.md file
b4b021a Updated the contents of aboutMyself.txt file successfully
44fcdcb (tag: v2.0, tag: v1.0) My Date of Joinining to GITW updated successfully
c3a5454 Updated the contents of aboutMyself.txt file successfully
```

Now to change the committed message for the refence ID b5b6caf to “Added bugfile.txt successfully with very important information” use

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git revert b5b6caf
```

It will open the file as shown below.

MINGW64:/z/1WT23CS000/aboutMyself

```
Revert "Added bugfile.txt successfully with confidential information"

This reverts commit b5b6caf8a1b5a3c9e5507dfa332e4564ef8053ee.

# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# On branch master
# Changes to be committed:
#       deleted:    .README.md.swo
#       deleted:    .README.md.swp
#       deleted:    bugfile.txt
#
```

Edit the above file and change the content as to save and quiet type “:wq” as shown below:

```
MINGW64:/z/1WT23CS000/aboutMyself
Added bugfile.txt successfully with important information
This reverts commit b5b6caf8a1b5a3c9e5507dfa332e4564ef8053ee.

# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# On branch master
# Changes to be committed:
#       deleted:    .README.md.swo
#       deleted:    .README.md.swp
#       deleted:    bugfile.tx#
~
~
~
.git/COMMIT_EDITMSG[+] [unix] (15:26 30/08/2024)
:wq
```

Now if we check the last two committed message in master branch by using:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 2 --oneline
```

It will show :

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 2 --oneline
37e84c2 (HEAD -> master) Added bugfile.txt successfully with important information T
his reverts commit b5b6caf8a1b5a3c9e5507dfa332e4564ef8053ee.
b5b6caf Added bugfile.txt successfully with confidential information
```

We can see the change of committed message in the above.

OUTPUT:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git ls-files
README.md
aboutMyself.txt
bugfile.txt

 ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
 $ git cherry-pick fd00805
 [master b5b6caf] Added bugfile.txt successfully with confidential information
  Date: Fri Aug 30 15:05:33 2024 +0500

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git log master -n 2 --oneline
37e84c2 (HEAD -> master) Added bugfile.txt successfully with important information T
his reverts commit b5b6caf8a1b5a3c9e5507dfa332e4564ef8053ee.
b5b6caf Added bugfile.txt successfully with confidential information
```

GIT and VS Coding

Visual Studio Code (commonly referred to as VS Code) is a free, open-source code editor developed by Microsoft. It is designed to be lightweight yet powerful, with a rich set of features for developers. Here are some key aspects of VS Code. It is a versatile and powerful code editor that balances a lightweight footprint with rich functionality, making it a popular choice among developers of all kinds.

Key Features of VS Code:

1. Cross-Platform: Available on Windows, macOS, and Linux, making it accessible to a wide range of developers.

2.Extensible: It has a vast ecosystem of extensions available through the Visual Studio Code Marketplace. These extensions can enhance the editor with additional functionality, such as language support, linters, debuggers, and more.

3. Integrated Git Support: VS Code provides built-in Git integration, allowing users to perform Git operations like commits, branches, merges, and more directly from the editor.

4. Debugging: It has an integrated debugging tool that supports multiple programming languages and can be extended through plugins.

5. IntelliSense: Offers smart code completions based on variable types, function definitions, and imported modules, making it easier and faster to write code.

6.Customizable: Users can customize the editor's appearance and functionality through settings, themes, and key bindings.

7.Terminal Integration: Includes an integrated terminal that supports various shells (e.g., Bash, PowerShell), allowing developers to execute command-line operations within the editor.

8. Multi-Language Support: VS Code supports a wide range of programming languages out of the box and can be extended to support more through extensions.

9. Code Navigation and Refactoring: Provides features for easy navigation through code, such as "Go to Definition," "Peek Definition," and powerful refactoring tools.

10. Snippets and Emmet: Offers code snippets and Emmet support for faster coding.

Use Cases:

1.Software Development: Suitable for developing applications in various languages like JavaScript, Python, Java, C++, and more.
2.Web Development: Popular among web developers for working with HTML, CSS, JavaScript, and frameworks like React, Angular, and Vue.
3.Data Science: Can be used for data science tasks with extensions for Jupiter Notebooks, Python, and data visualization tools.
4.DevOps and Cloud: Integrated terminal and extensions for Docker, Kubernetes, and Azure make it useful for DevOps tasks.

5. Community and Ecosystem: VS Code has a large and active community contributing to its extensions and core features. The Visual Studio Code Marketplace offers a wide range of extensions that can significantly enhance the editor's functionality.

To download VS Code: Click the link given below:

https://drive.google.com/file/d/1q1zzTLY_ELwFg2mS2wJZRn3gD1V0CRQ7/view?usp=drive_link

Experiment-09: **Git in VS Code**

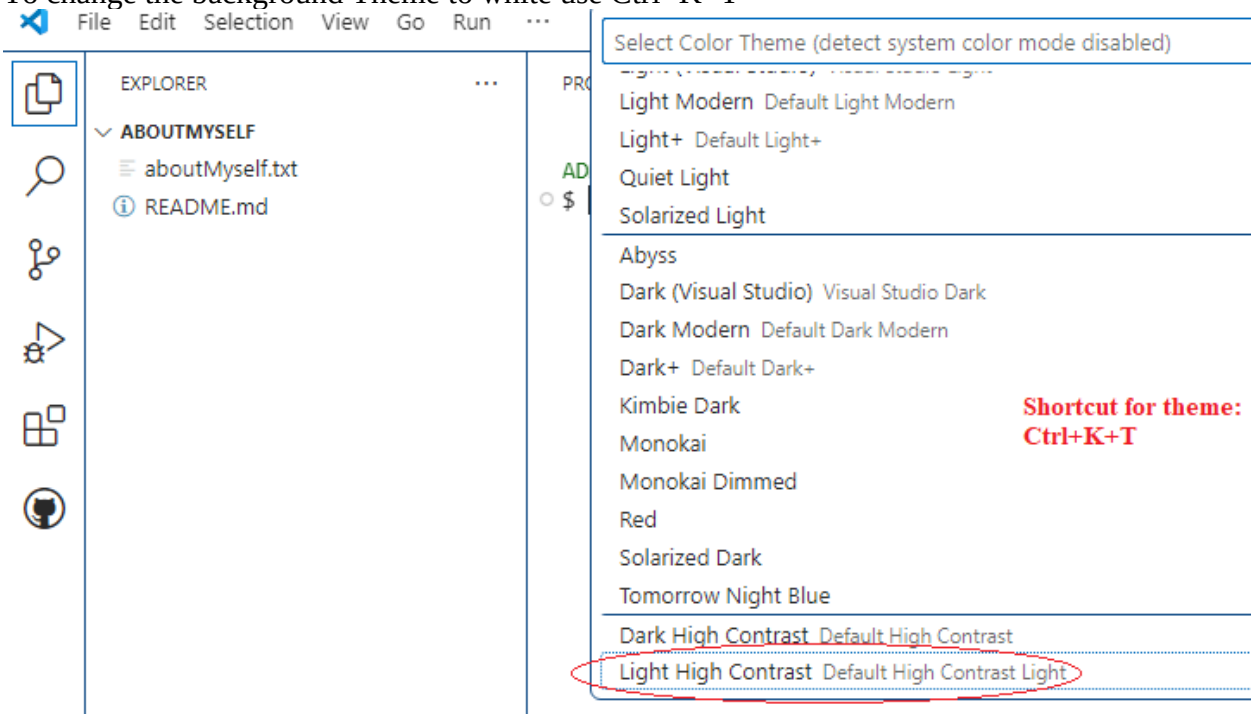
Aim:

1. To clone the repository /z/1WT23CS000/aboutMyself from Git-Bash to VS code:
2. To add a new file vsFile.txt under VS code. Add the following data:
   Vs File details:
   - Version: 2.1
   - Date of Installation: 30/07/2024
   - Author Name: Dr.Naveed

   and commit a message "Added vsFile.txt successfully"

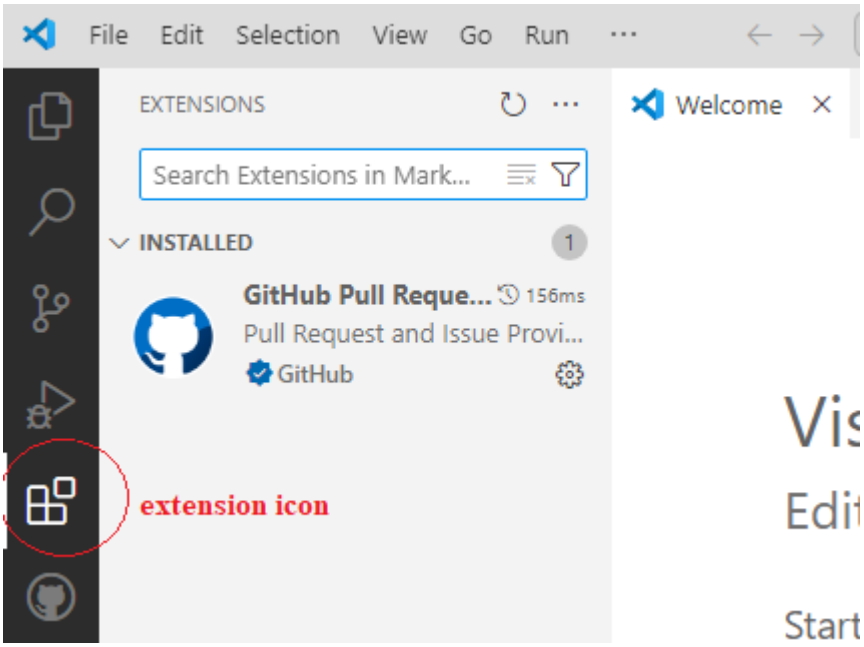
Basic Setup after Installation:

To change the background Theme to white use Ctrl+K+T



Select Light High Contrast as shown above.

Under Extension search for GitHub and Install it.



To clone the repository from git bash to VS code platform:

First, we will shift to the required repository position by using:

MINGW64:/Z/1WT23CS000/aboutMyself

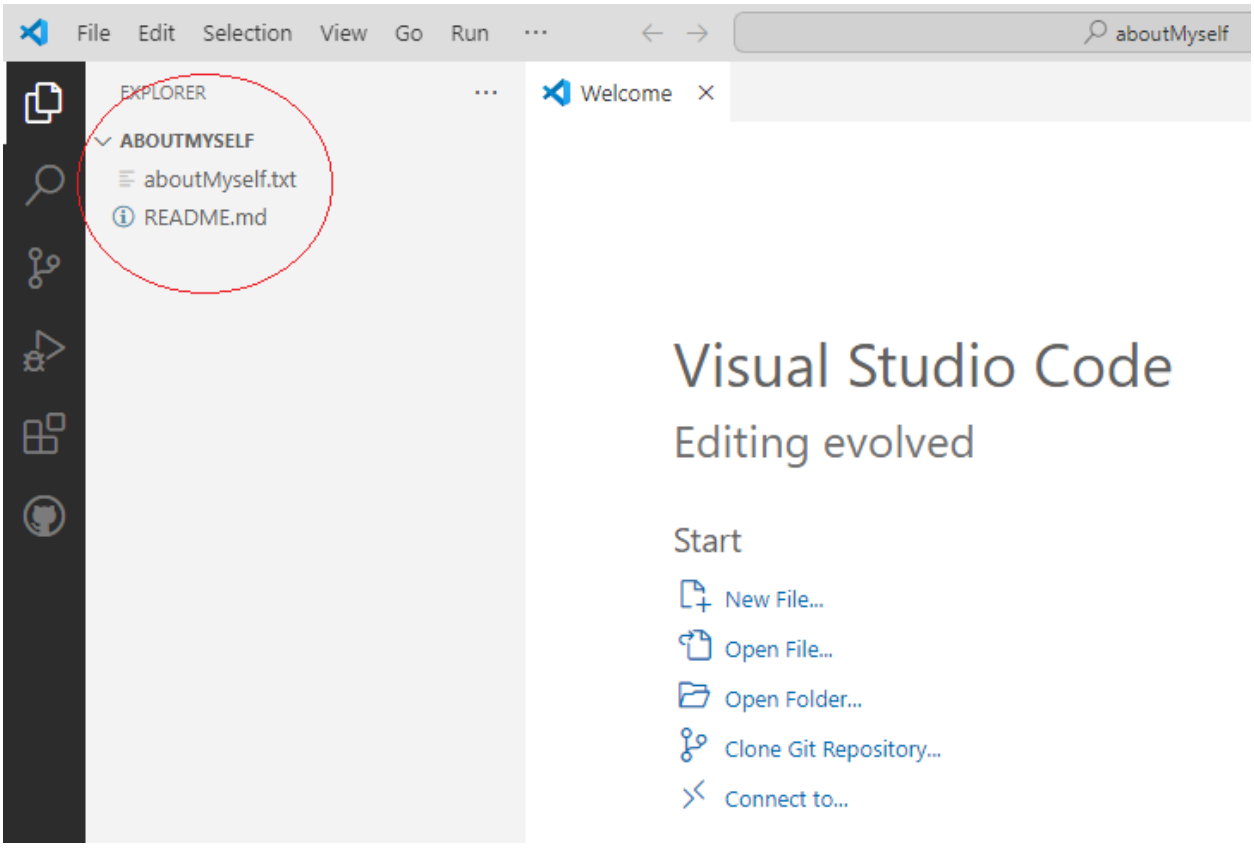
```
ADMIN@DESKTOP-2DFSJ3U MINGW64 ~
$ cd /Z

ADMIN@DESKTOP-2DFSJ3U MINGW64 /Z
$ cd 1WT23CS000/aboutMyself
```

Now we are in the project repository. To clone this in VS Code use:

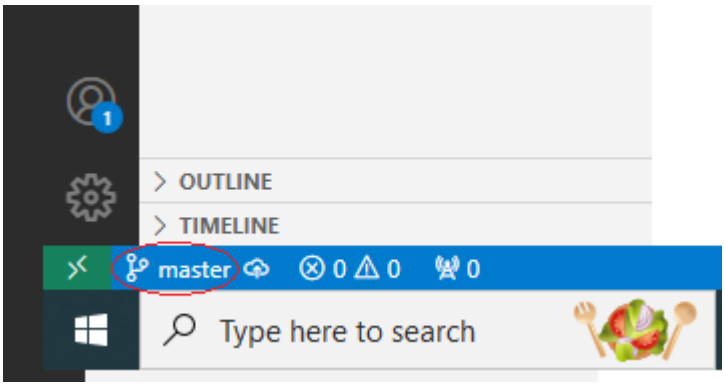
```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /Z/1WT23CS000/aboutMyself (master)
$ code .
```

It will clone the repository in VS code and it will get operated as shown below:

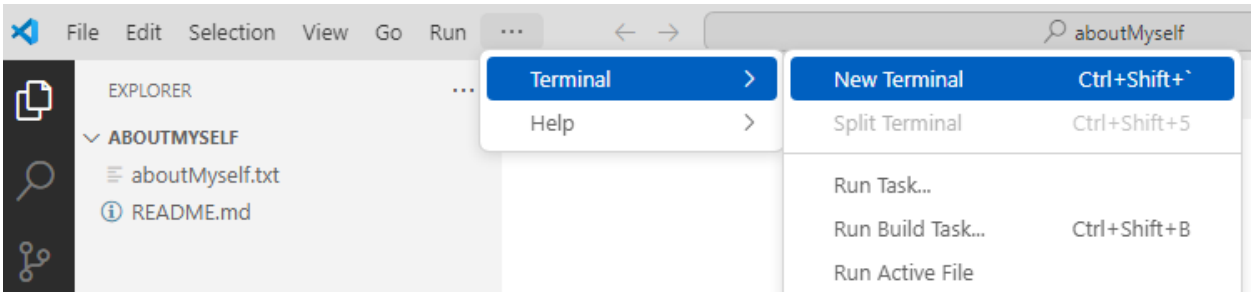


We can see the repository aboutMyself inside which there are two files available. aboutMyself.txt and README.md files.

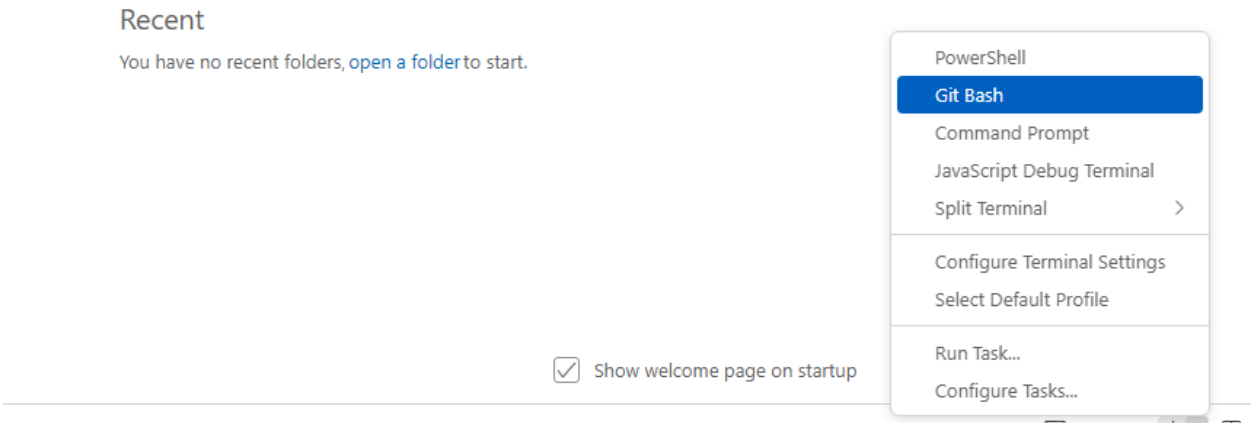
We can see on left side the repository aboutMyself. The branch will be shown on left bottom screen:

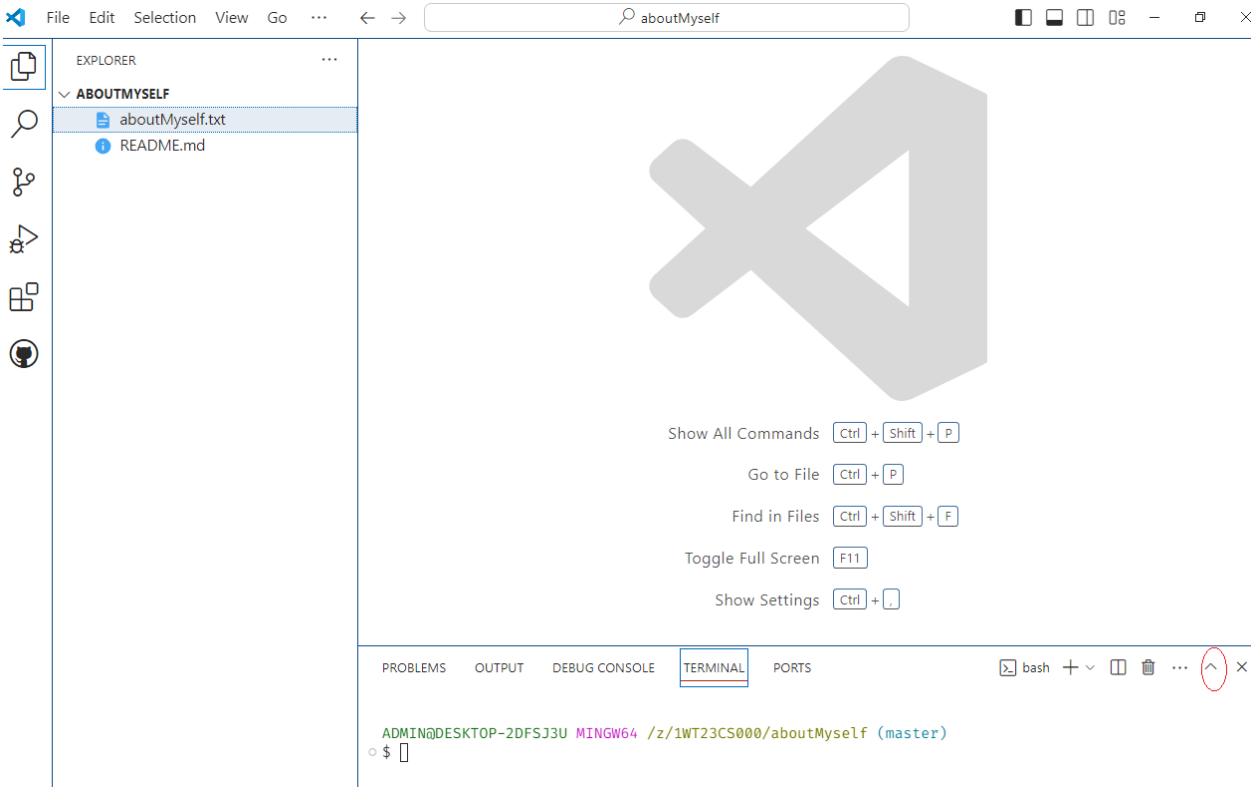


To operate git bash under VS code: Click on the Terminal then New Terminal and then Git bash. We can see the terminal screen below.

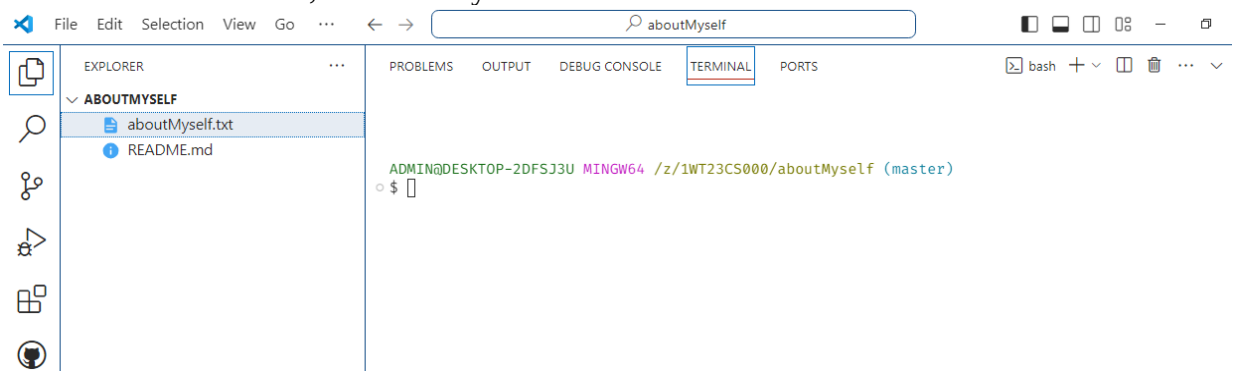


By default it will show powershell. Change it to git Bash as shown below:

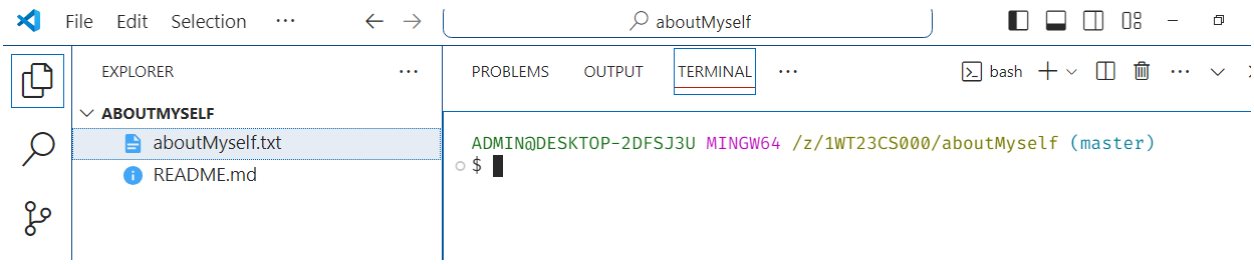




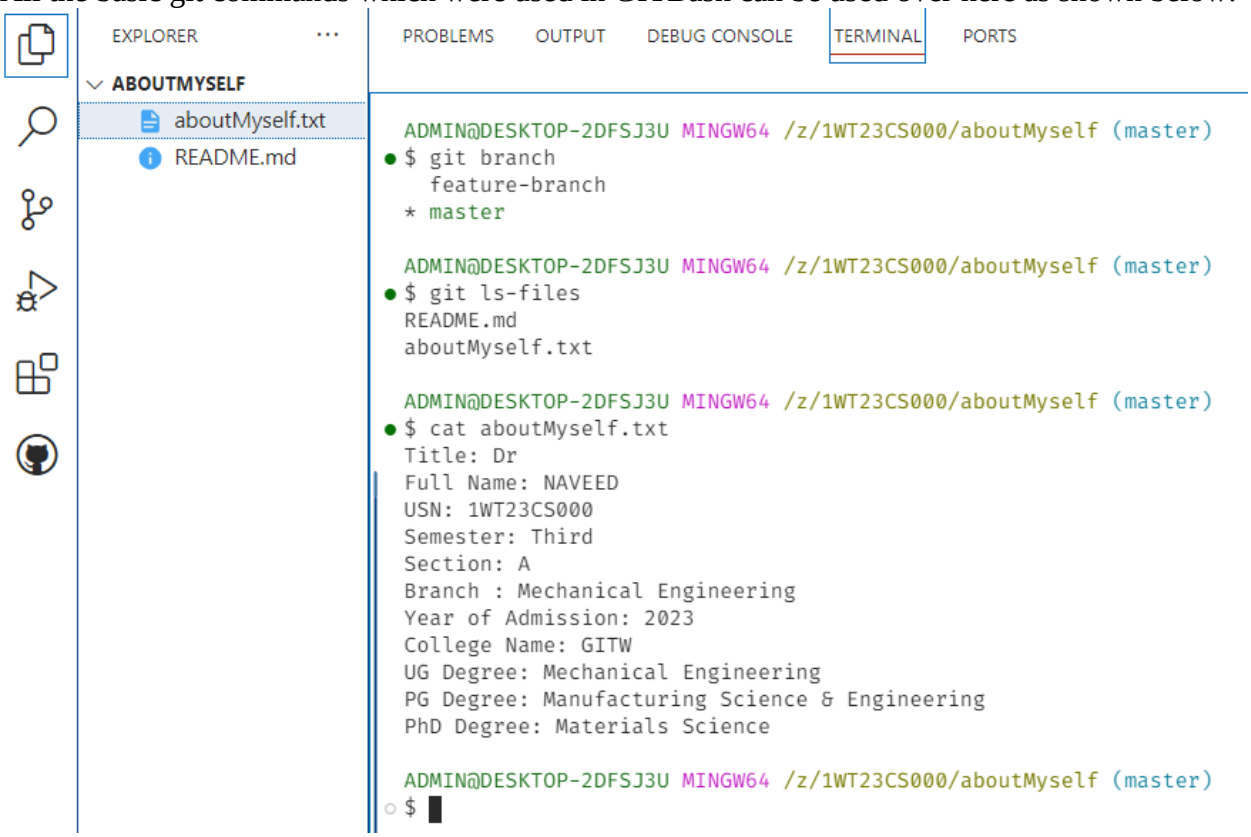
To maximize the screen, click on ^ symbol.



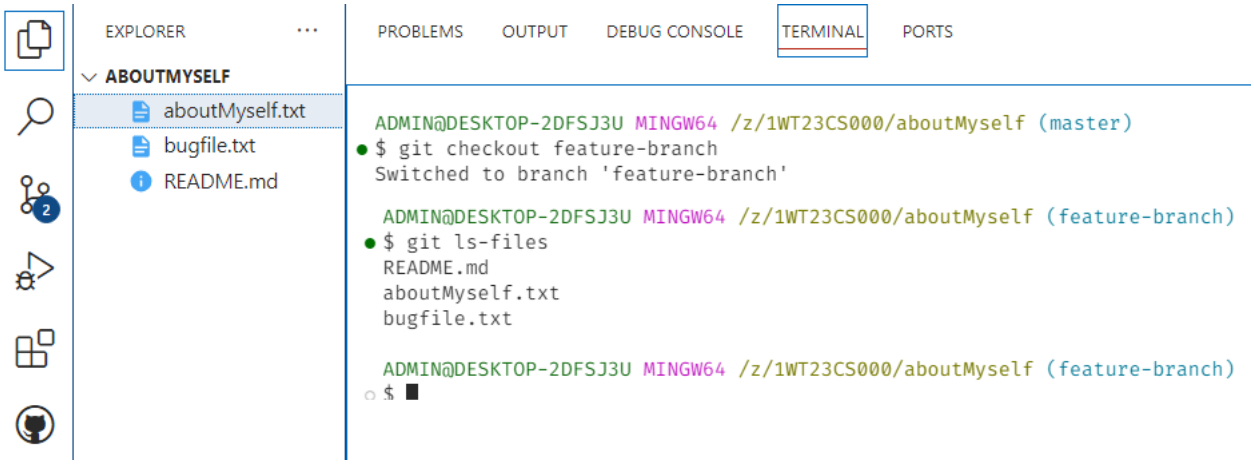
Note: To Zoom In and Zoom OUT use Ctrl + and Ctrl -



All the basic git commands which were used in GITBash can be used over here as shown below:

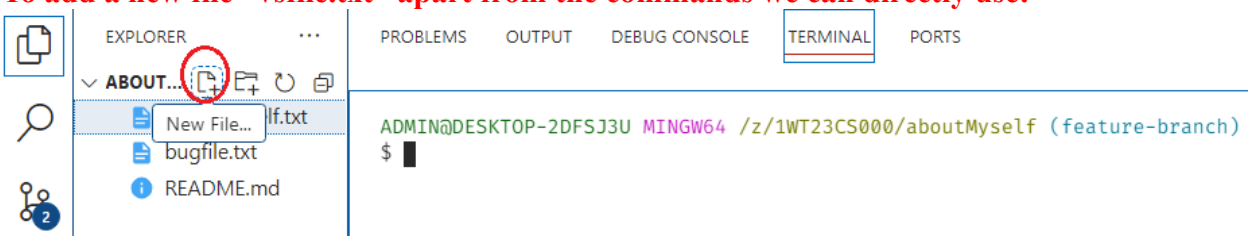


Note: If (master) is not highlighted then use git init command.

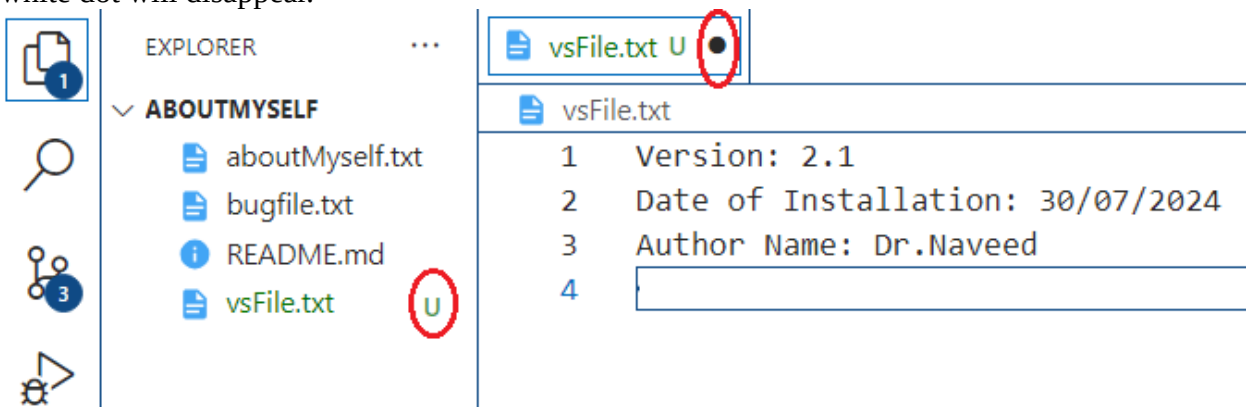


Now all the commands that were used in git bash can be used over here as shown above.

To add a new file "vsfile.txt" apart from the commands we can directly use:



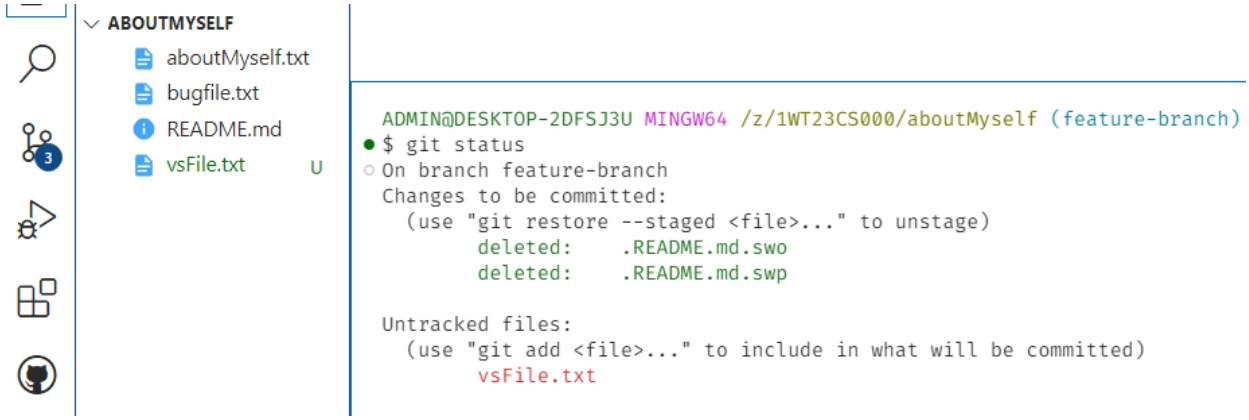
Add the data: Vs File details: Here we can copy and paste it. This was not available in gitbash.
Version: 2.1
Date of Installation: 30/07/2024
Author Name: Dr.Naveed
U- shows it is untracked. The white dot symbol shows it is not saved. Use Ctrl+S to save. The white dot will disappear.



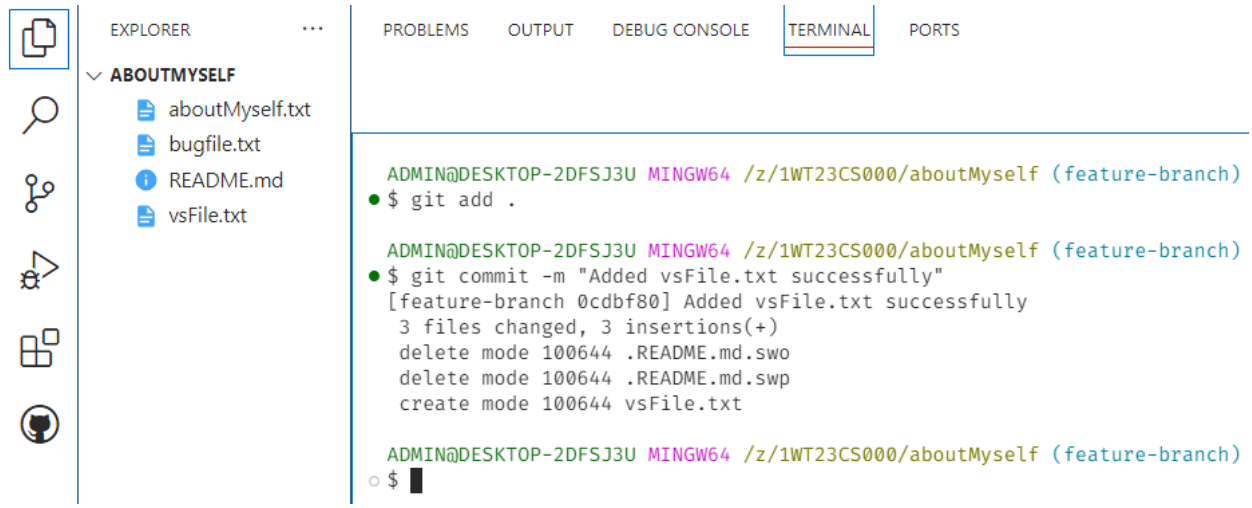
If we check the status:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
```

It shows untracked file without commit.



To track the file and get added use:

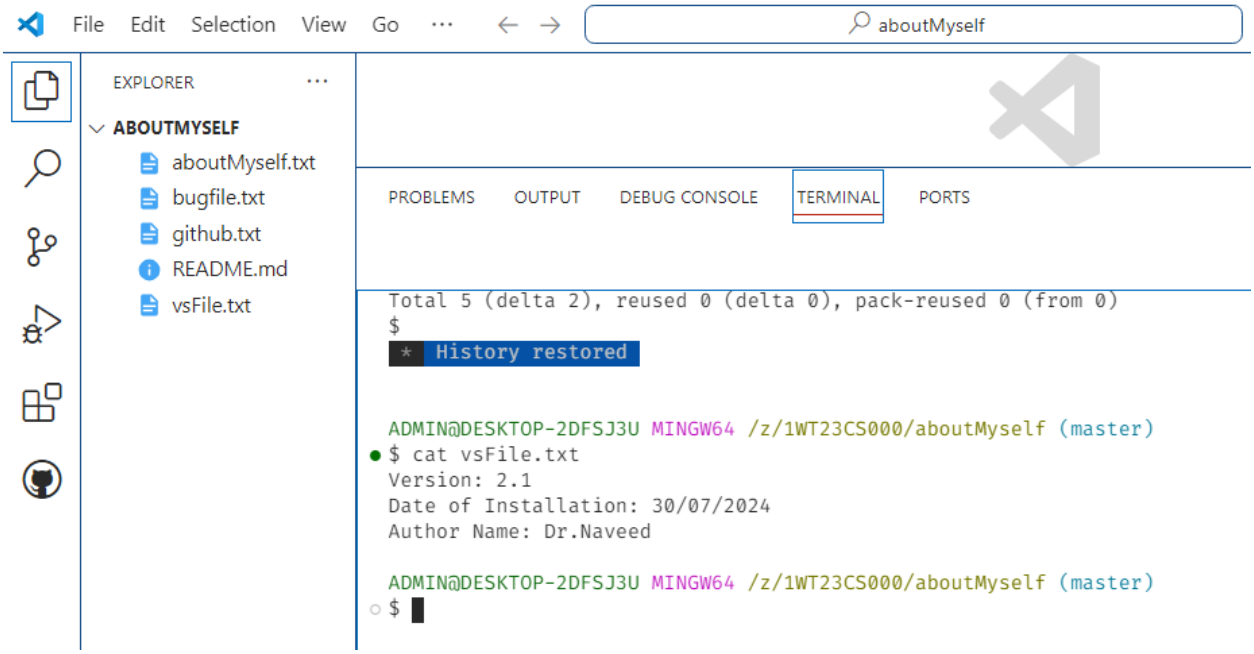


Now there is no symbol U. If we check the status:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (feature-branch)
$ git status
On branch feature-branch
nothing to commit, working tree clean
```

Everything is fine.

OUTPUT:



Introduction to GIT-HUB

GitHub is a web-based platform for version control and collaboration, primarily used for code. It leverages Git, a distributed version control system, to manage and track changes in source code during software development. GitHub offers both free and paid plans and provides a wide range of features that facilitate collaborative coding, project management, and more.
GitHub is a powerful platform that combines the functionalities of Git version control with additional tools for collaboration, project management, and automation. Its widespread adoption in the software development community makes it an essential tool for developers, teams, and organizations.

Key Features of GitHub

1. Repository Hosting:
   - GitHub allows users to host repositories, which can be either public or private. Repositories contain all the files, history, and metadata for a project.

2. Version Control with Git:
   - GitHub uses Git to track changes in code. This includes features like branching, merging, pull requests, and commit history.

3. Collaboration:
   - Multiple developers can work on the same project simultaneously. GitHub provides tools for managing contributions, reviewing code, and discussing changes.

4. Pull Requests:
   - A pull request is a feature that allows developers to propose changes to a repository. Other team members can review, discuss, and approve or reject these changes before they are merged into the main codebase.

5. Issues and Project Management:
   - GitHub provides an issue tracking system to manage bugs, feature requests, and other tasks. It also offers project boards and task management features to help organize and prioritize work.

6. Actions and Continuous Integration/Continuous Deployment (CI/CD):
   - GitHub Actions allow users to automate workflows, such as running tests, building projects, and deploying applications, directly from their repositories.

7. Documentation and Wikis:
   - Users can create and maintain documentation for their projects using Markdown files within the repository or GitHub's wiki feature.

8. Social Networking for Developers:
   - GitHub has social features like following users, starring repositories, and forking projects, which help foster community and collaboration.

9. Security Features:
   - GitHub offers various security features, such as vulnerability alerts, Dependabot for dependency management, and security advisories.

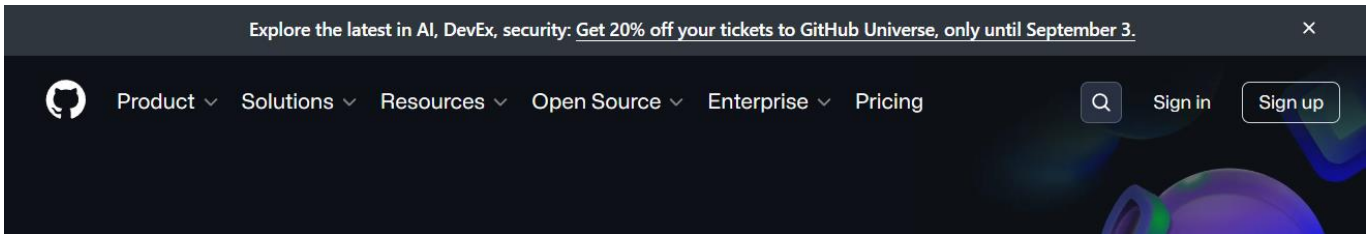
10. Integration with Other Tools:
- GitHub integrates with a wide range of third-party tools and services, including IDEs, project management tools, CI/CD systems, and more.

Applications:

1.Open-Source Projects: Many open-source projects are hosted on GitHub, allowing contributors from around the world to collaborate.
2.Private Projects: Companies and organizations use GitHub for private projects, taking advantage of its tools for collaboration, code review, and CI/CD.
3.Personal Projects and Portfolios: Developers often use GitHub to showcase their work and build a portfolio.
4.Learning and Experimentation: GitHub is a valuable resource for learning new technologies, as many projects and tutorials are hosted there.

To Sign-up and create an account in the git-hub refer the following link and follow the steps to create an account.

https://github.com/

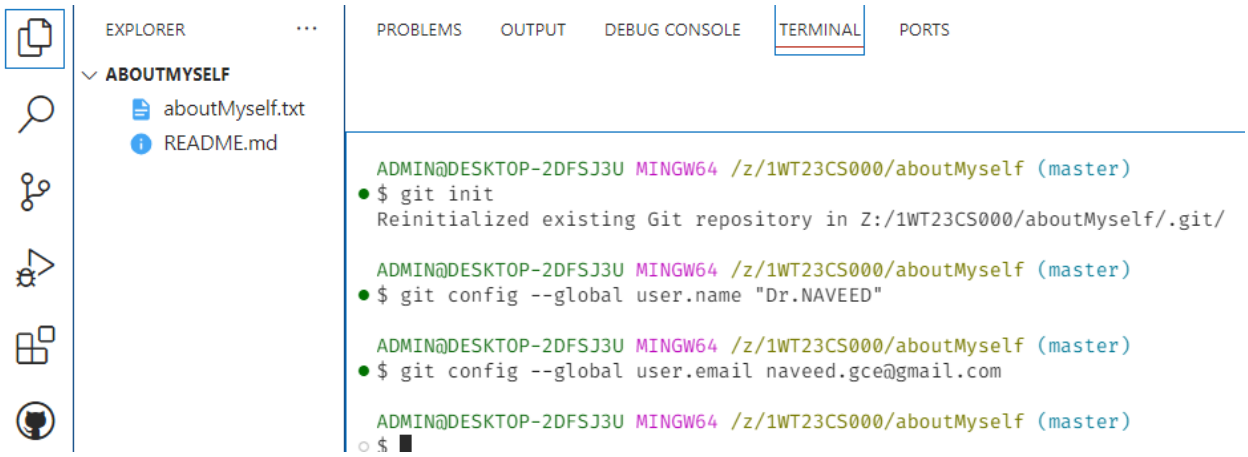


Experiment-10 **VS Code and Github**

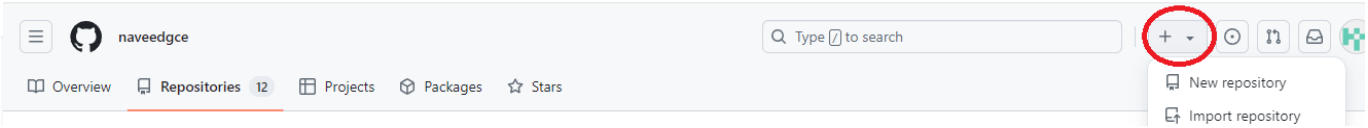
Aim:

1. To clone the repository /z/1WT23CS000/aboutMyself from VS code to your github account for both master branch and feature-branch.
2. To create a new file github.txt in VS code add the following data: Push to the github account with committed message "Added github.txt file successfully" into the master branch.
    - githubID: naveedgce
    - Version: 2.1
    - Date of installation: 01/08/2024

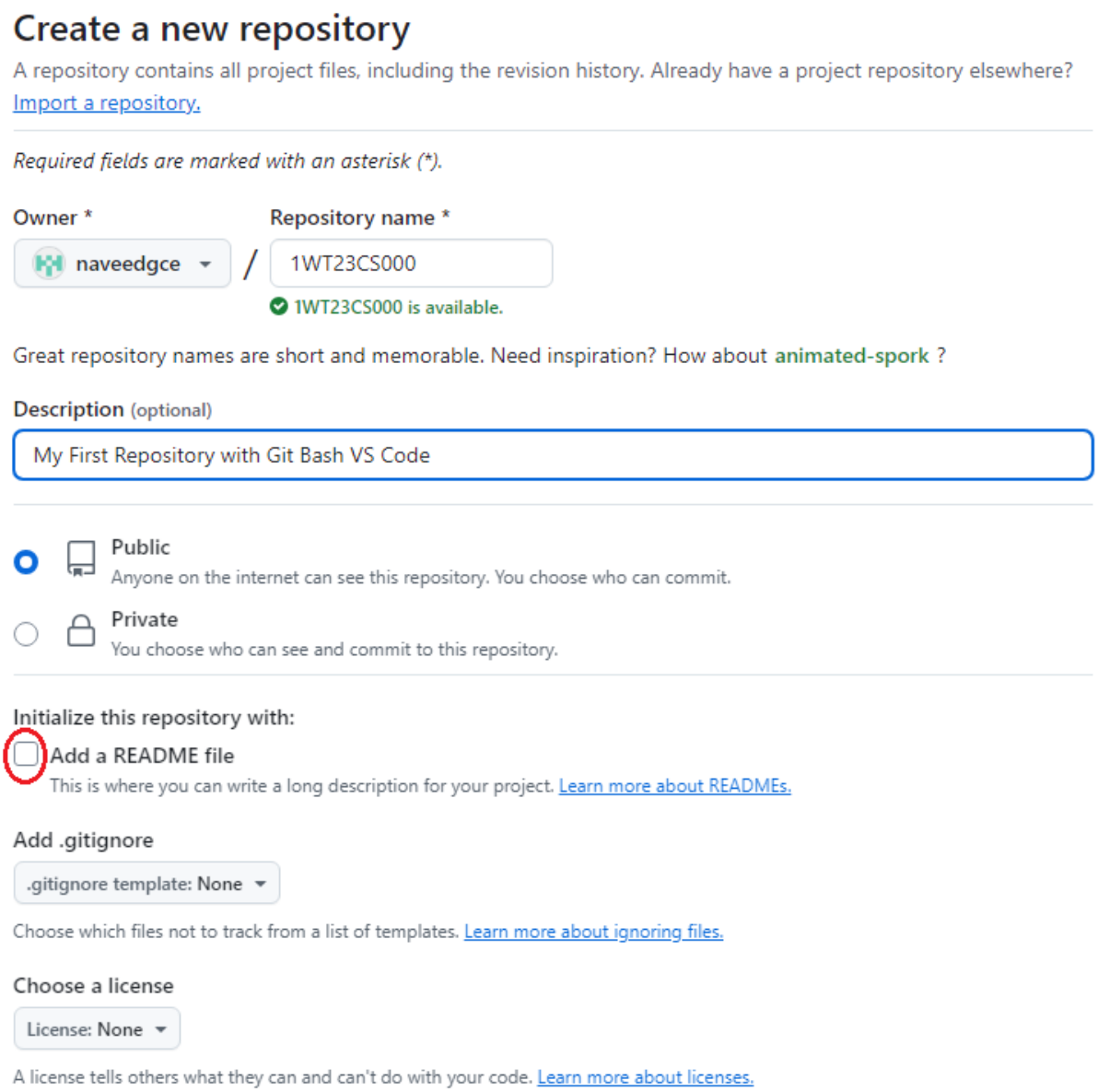
First open the VS code and initialise the repository and configure the author name and Email address as shown below:



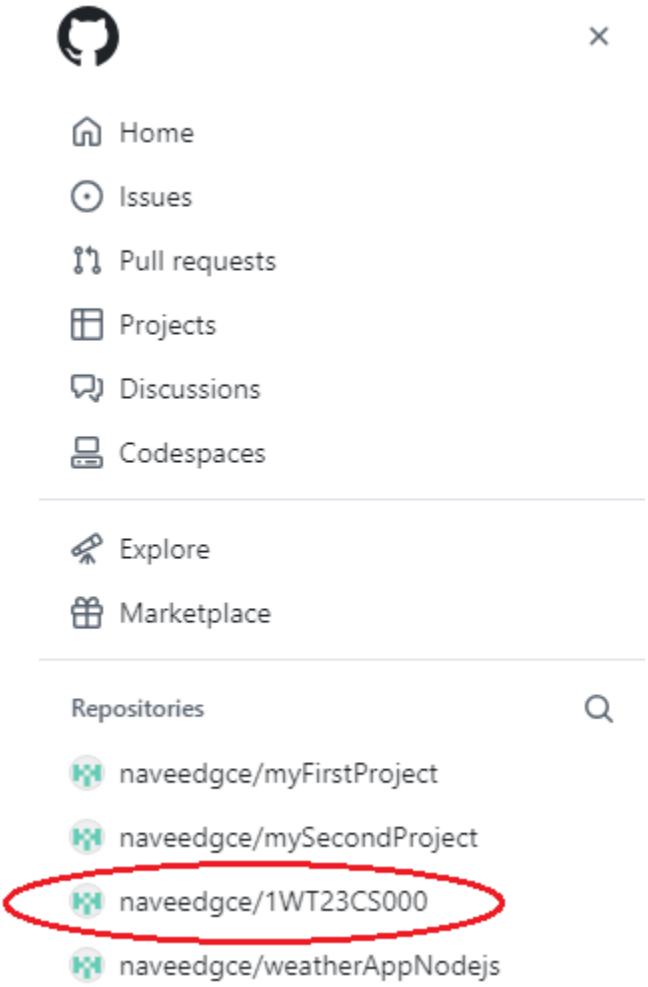
Sign in to your github account:My github account is naveedgce. You can type your own github account with your USN as ID.
Click on + sign to add New repository



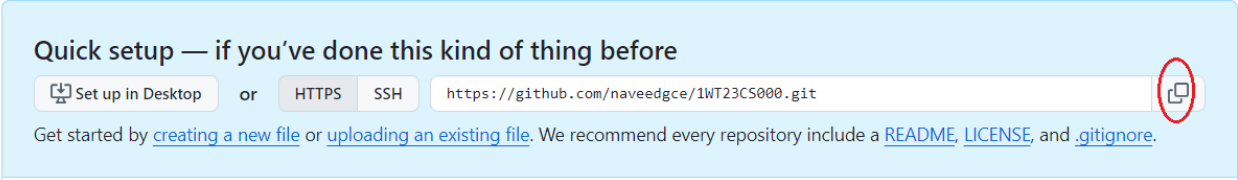
Fill up all the details as shown below. Give the repository name as 1WT23CS000.Make it public so that everybody can access.
Donot activate README.md file as there is already README.md file available in our repository.



Now we can see that a new repository by “1WT23CS000 ” is created as shown below:

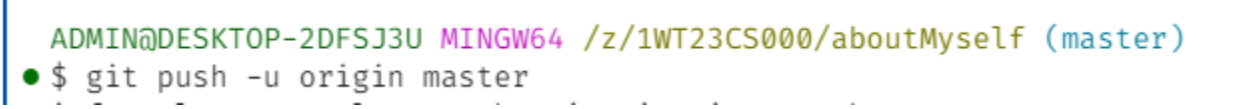


Click on the repository name and copy the URL of the repository created by referring:

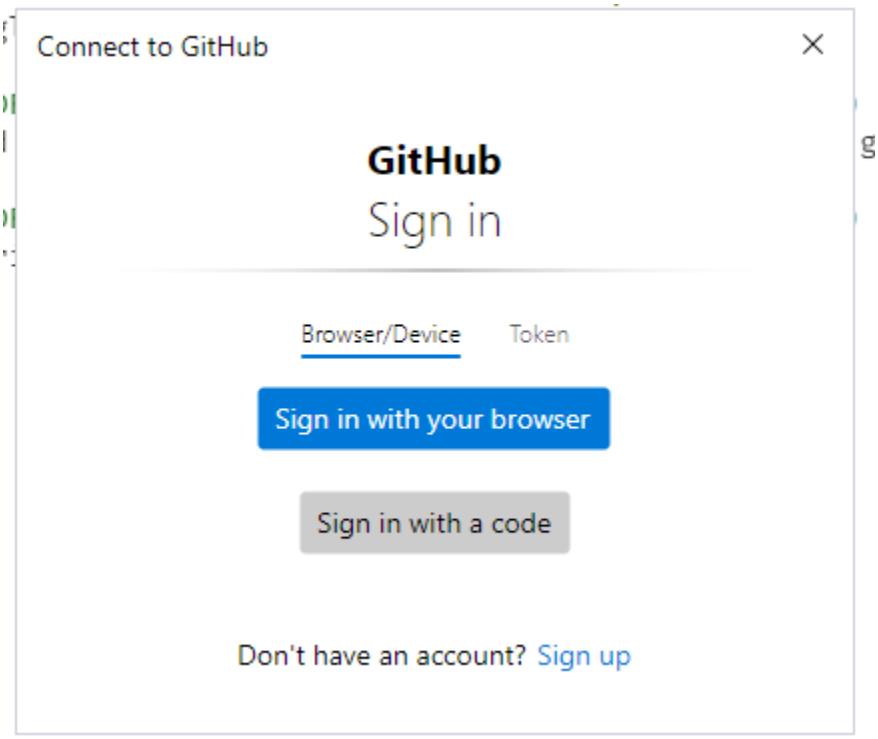


Use the below code in VS coding screen git remote add origin < paste the copied URL of github repository >:

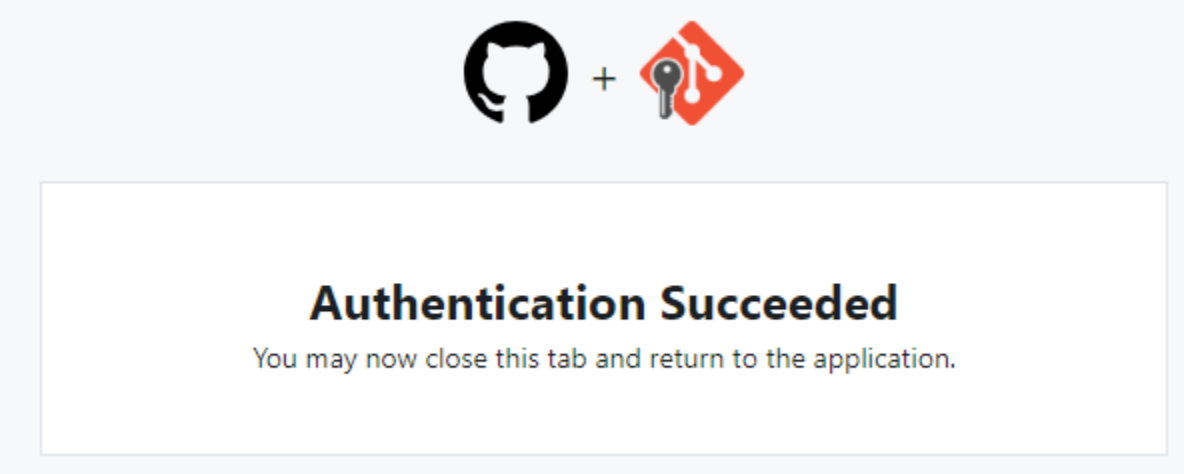
After this use the below code to push your repository into your GitHub account:



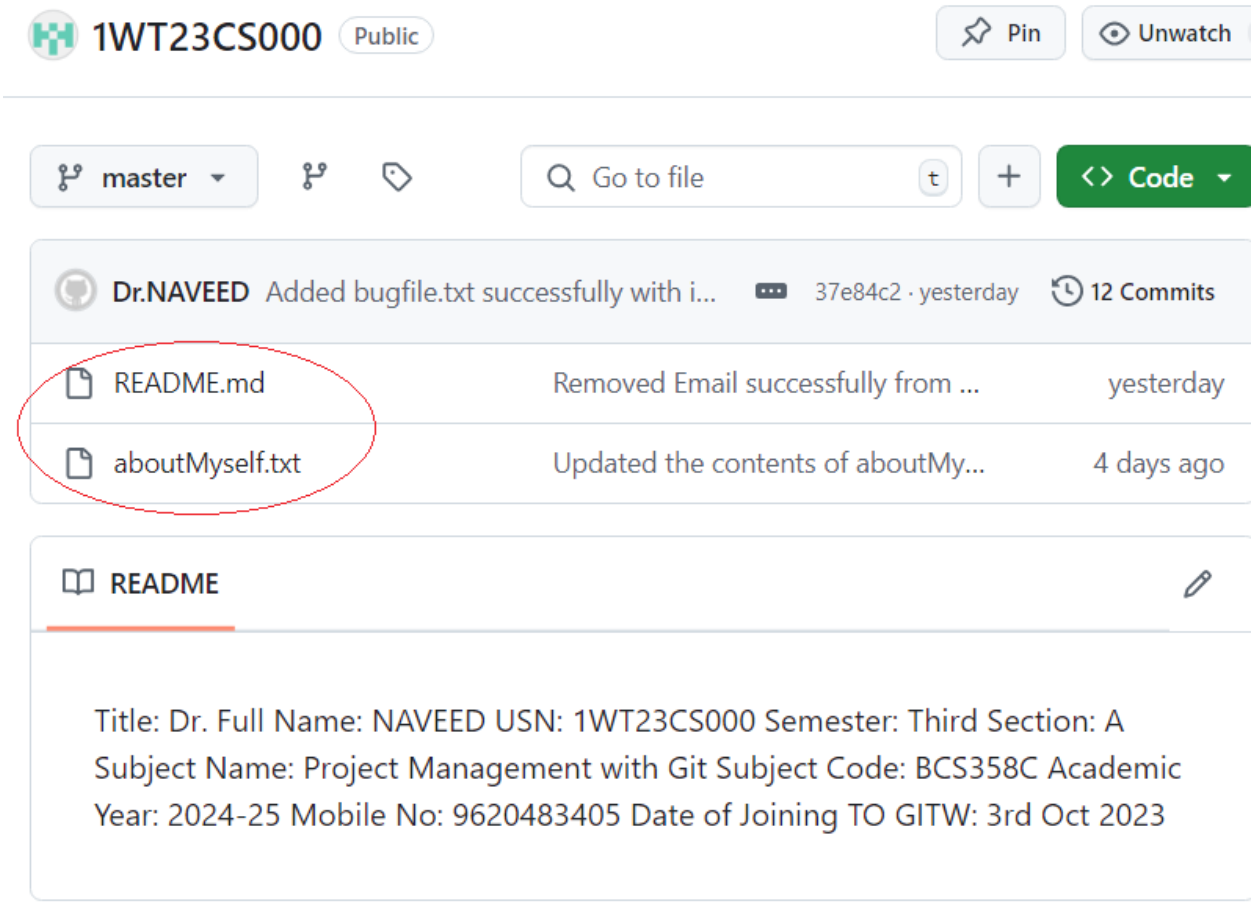
It will ask for Authentication by signing into your GitHub account:



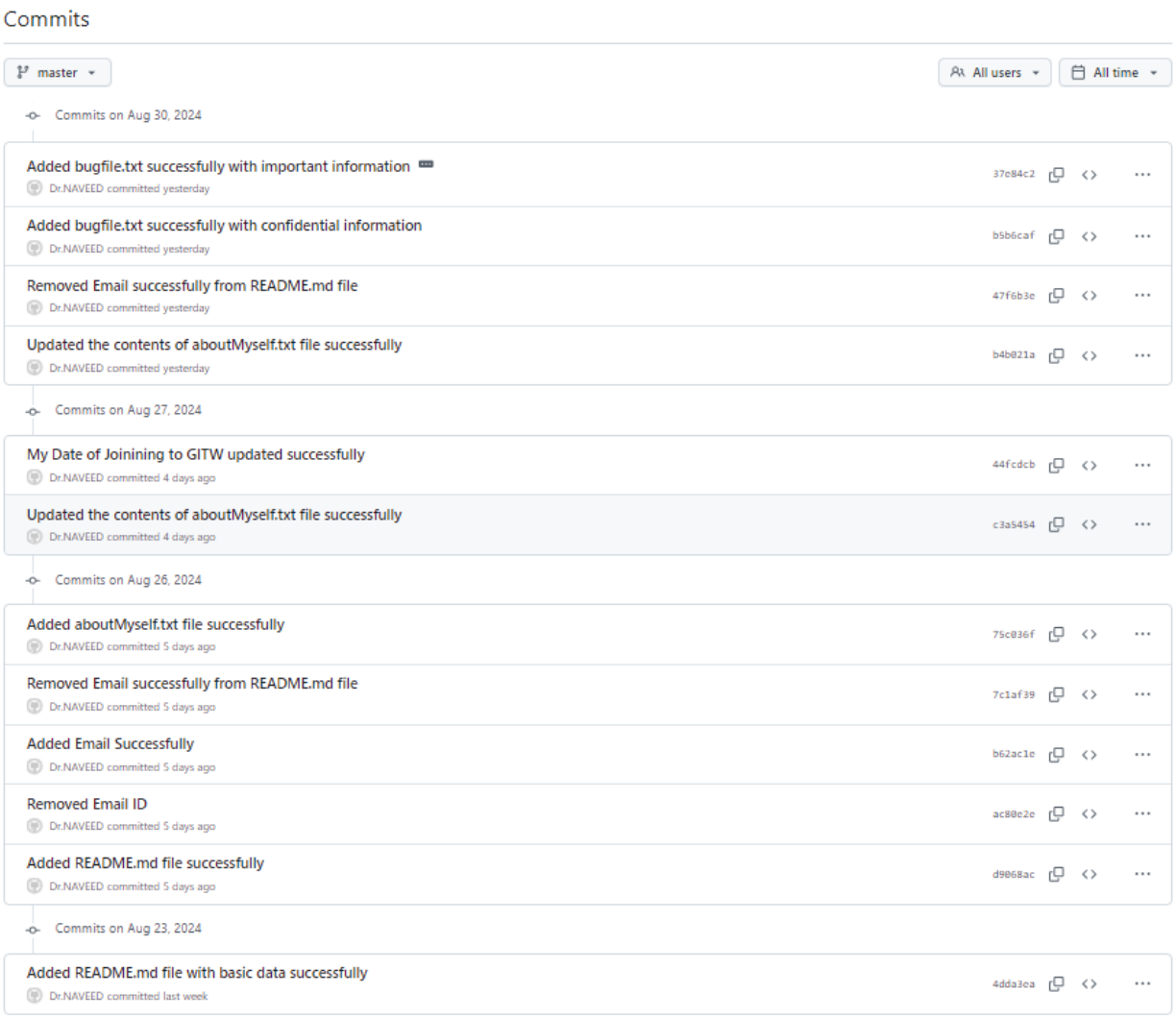
Once you log in into your GitHub account successfully it will show:



Now we can find all the files copied into our GitHub repository;



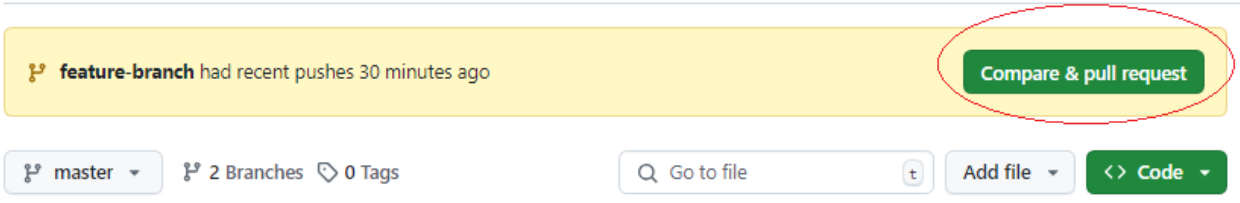
It shows 12 commits done so far. If we click on it:



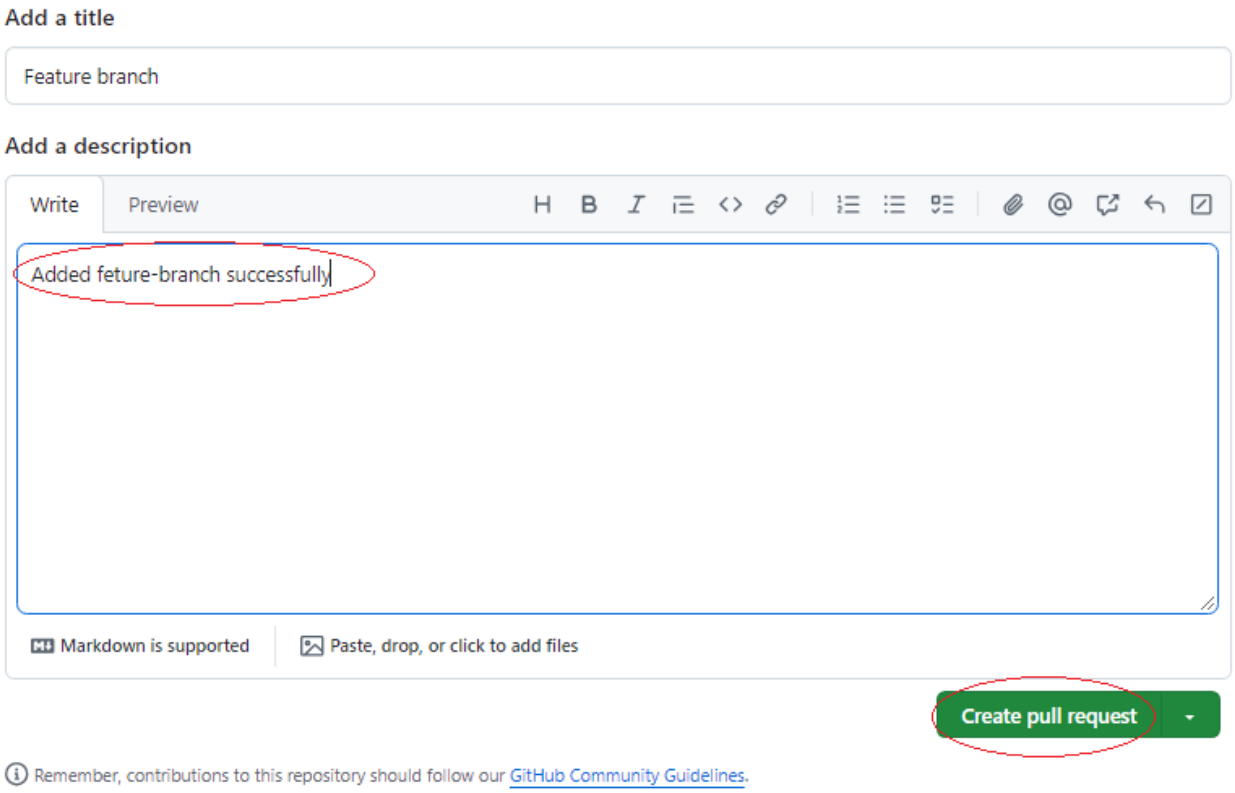
To push feature-branch:

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git push -u origin feature-branch
```

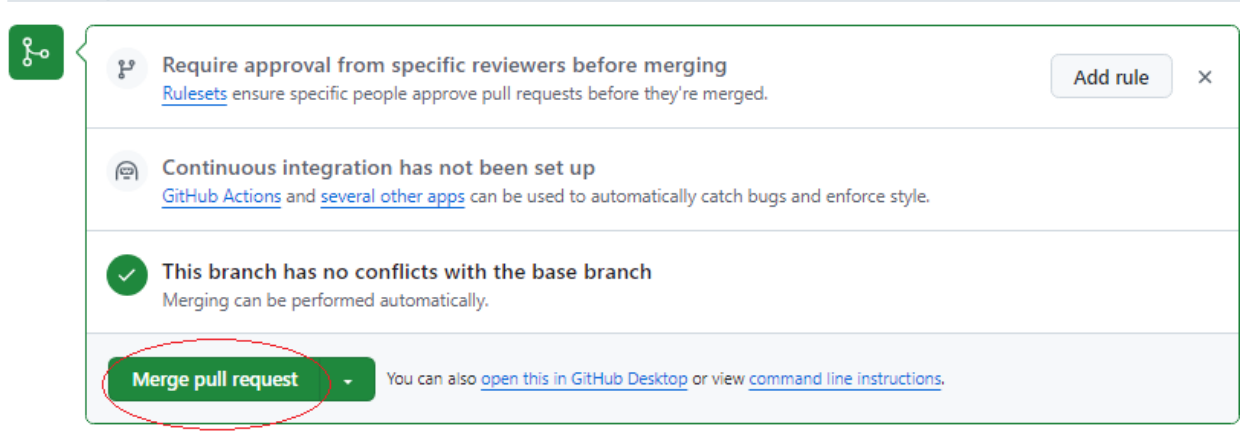
It will add into the GitHub account and it will ask to compare and pull the request as shown below:



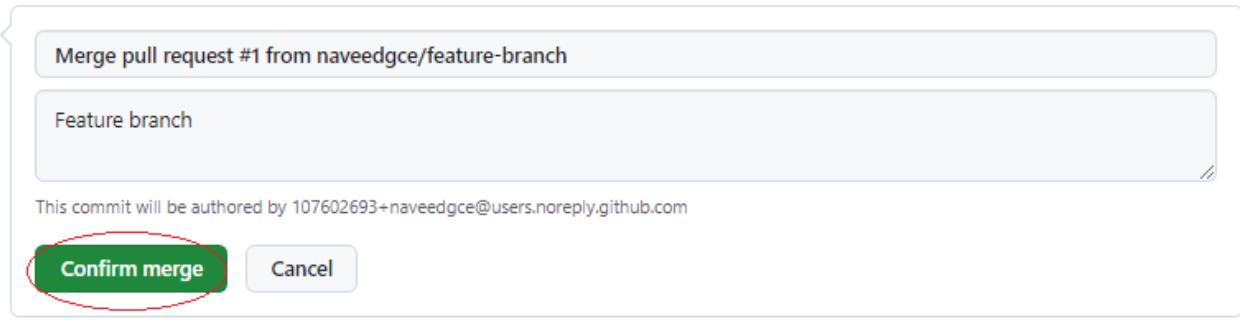
Click on compare & Pull request:



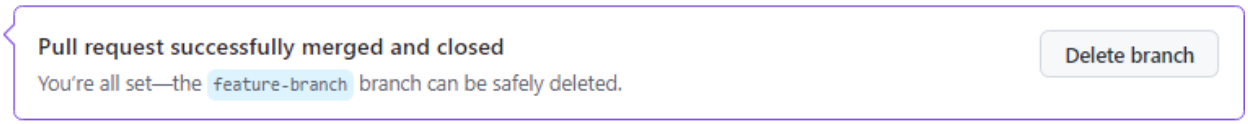
Click on Create pull request:



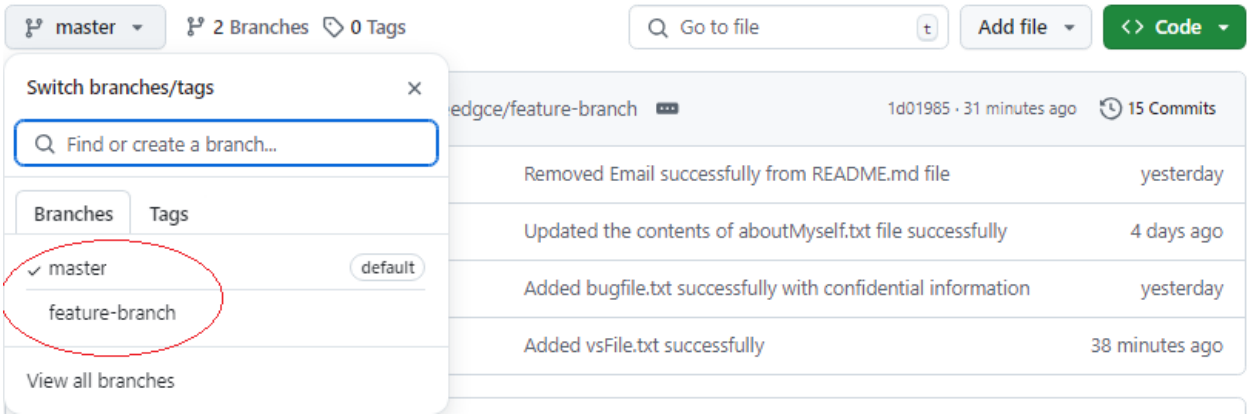
Click on Merge Pull Request.



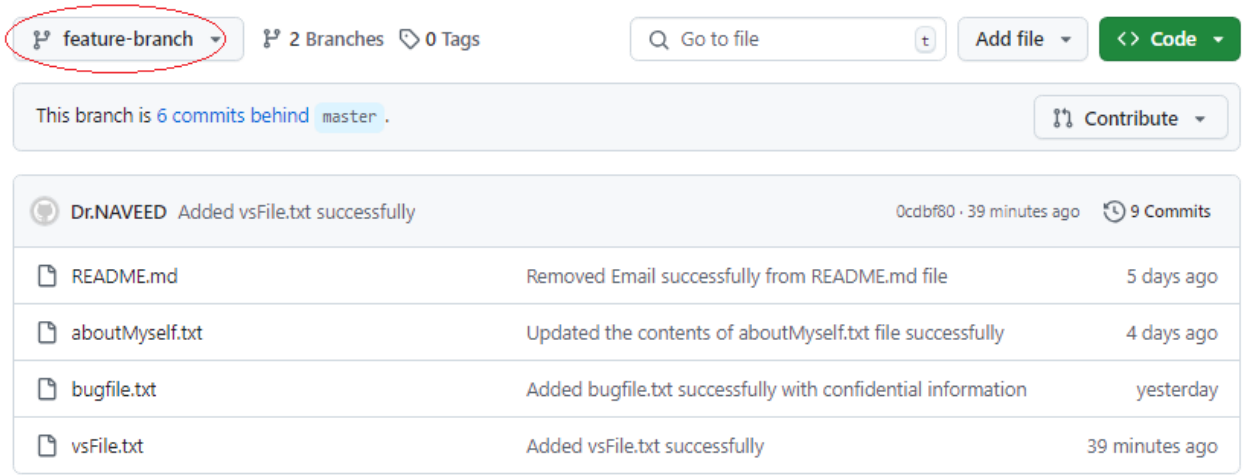
It will ask for Confirm merge. Click on it.



It shows a message of successfully merged and closed. Now if we click on the branches, it will show two branches.

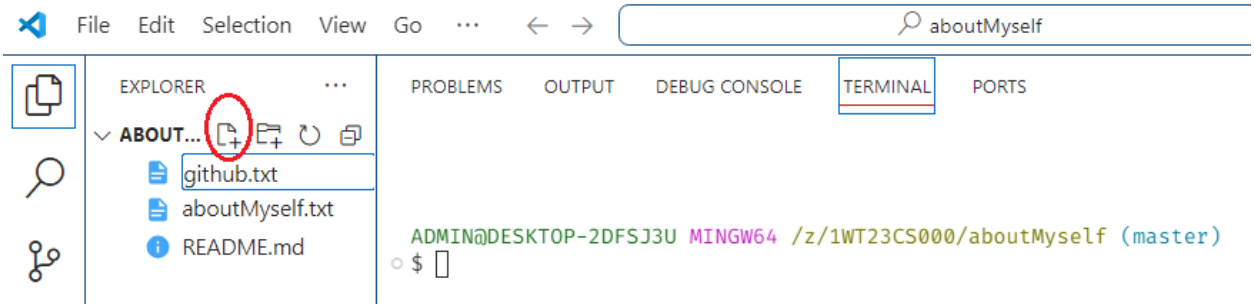


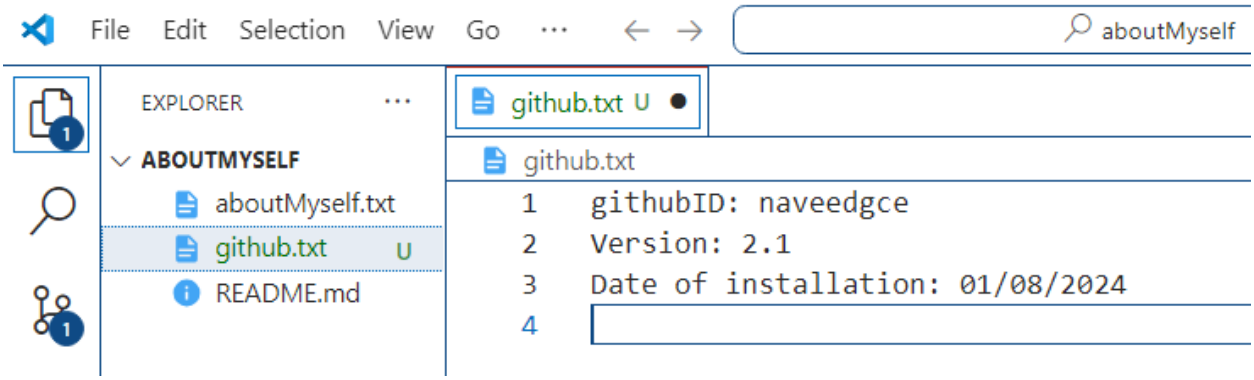
If we click on the feature-branch:



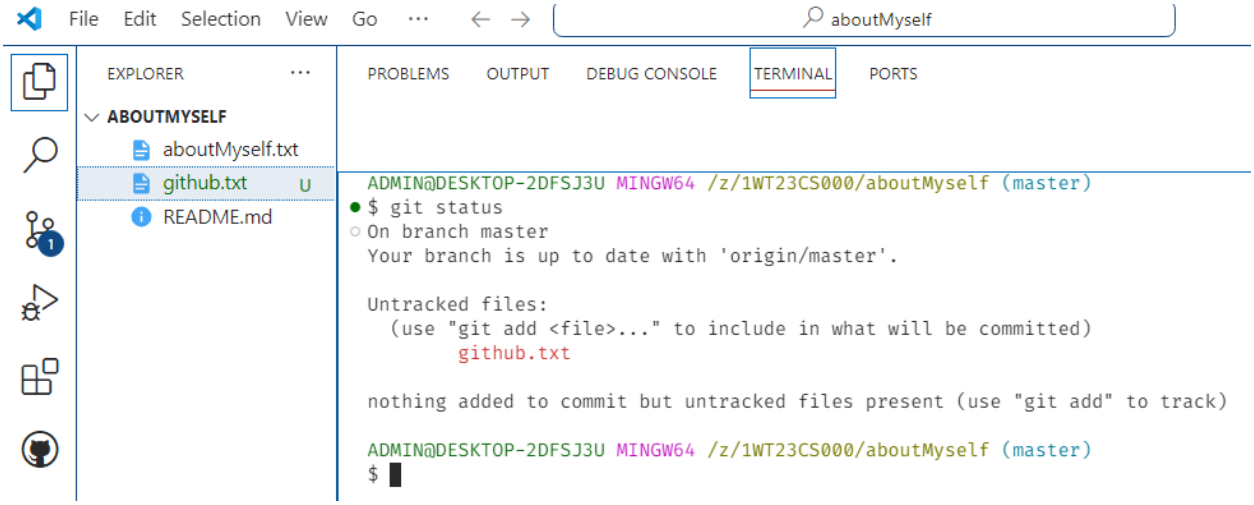
It shows all the files that are available in feature-branch along with the 9 commits.

To add a new file github.txt into the VS code and then to push into the GitHub account Use:
Click on New file and enter the data into it and save it.

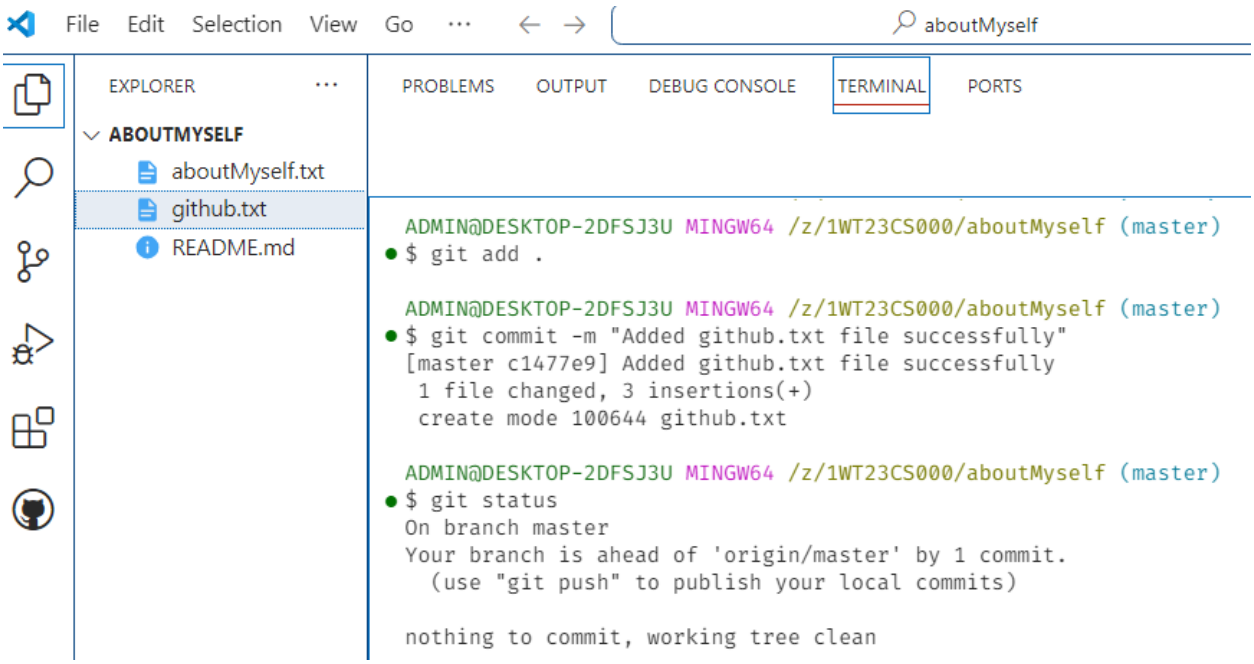




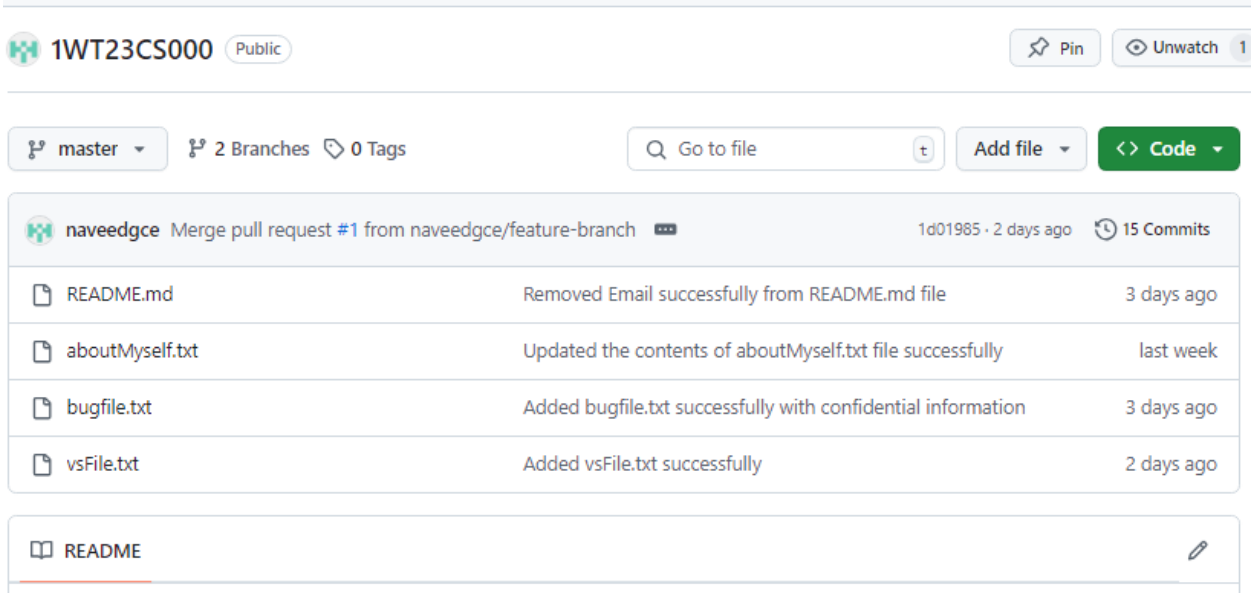
If we check the status:



It shows untracked file with symbol U. To track it and to commit use:

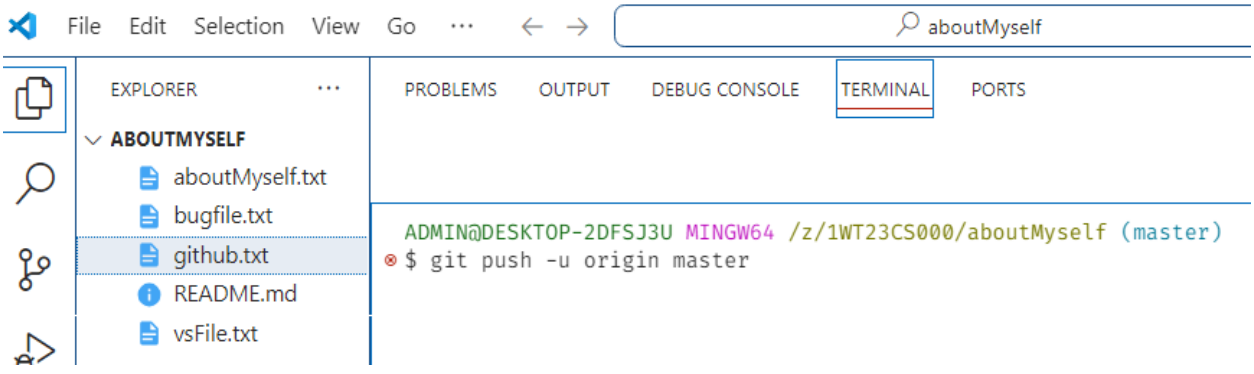


Check the GitHub account:



There is no file added into GitHub account.

To push into GitHub account use:



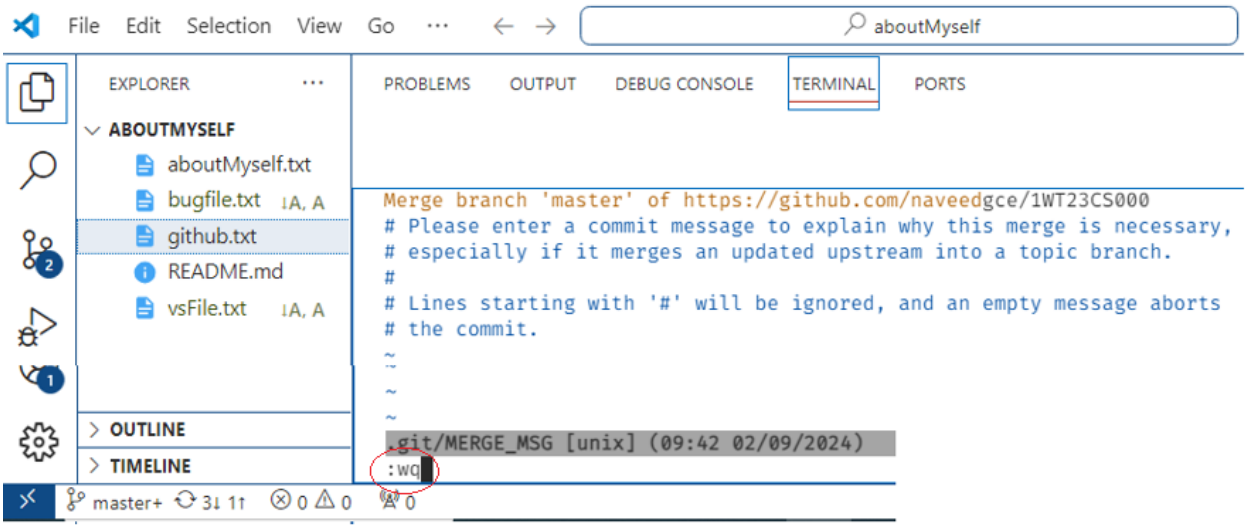
It shows some error:

```
To https://github.com/naveedgce/1WT23CS000.git
 ! [rejected]        master -> master (fetch first)
error: failed to push some refs to 'https://github.com/naveedgce/1WT23CS000.git'
hint: Updates were rejected because the remote contains work that you do not
hint: have locally. This is usually caused by another repository pushing to
hint: the same ref. If you want to integrate the remote changes, use
hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

There might be some conflict. To resolve use:

```
● ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
  $ git pull origin master
```

A screen will open showing the conflict message. Keep it as such or it can be modified as well. To save and quit type ":wq" as shown below and enter.



It shows:

```
● ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
  $ git pull origin master
  From https://github.com/naveedgce/1WT23CS000
   * branch            master     -> FETCH_HEAD
  Merge made by the 'ort' strategy.
   bugfile.txt | 1 +
   vsFile.txt  | 3 +++
   2 files changed, 4 insertions(+)
   create mode 100644 bugfile.txt
   create mode 100644 vsFile.txt
```

Then use the following to commit with a message.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git commit -m "Resolved the conflict successfully"
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
```

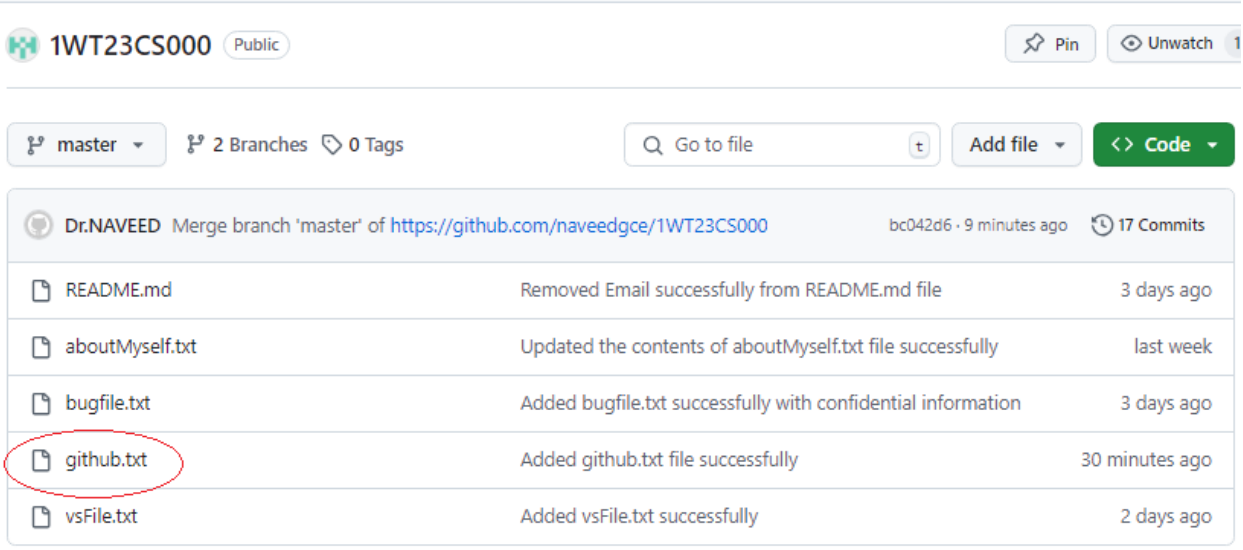
Now let us use the previous code to push the file into the GitHub account.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git push -u origin master
```

Now it shows a successful message.

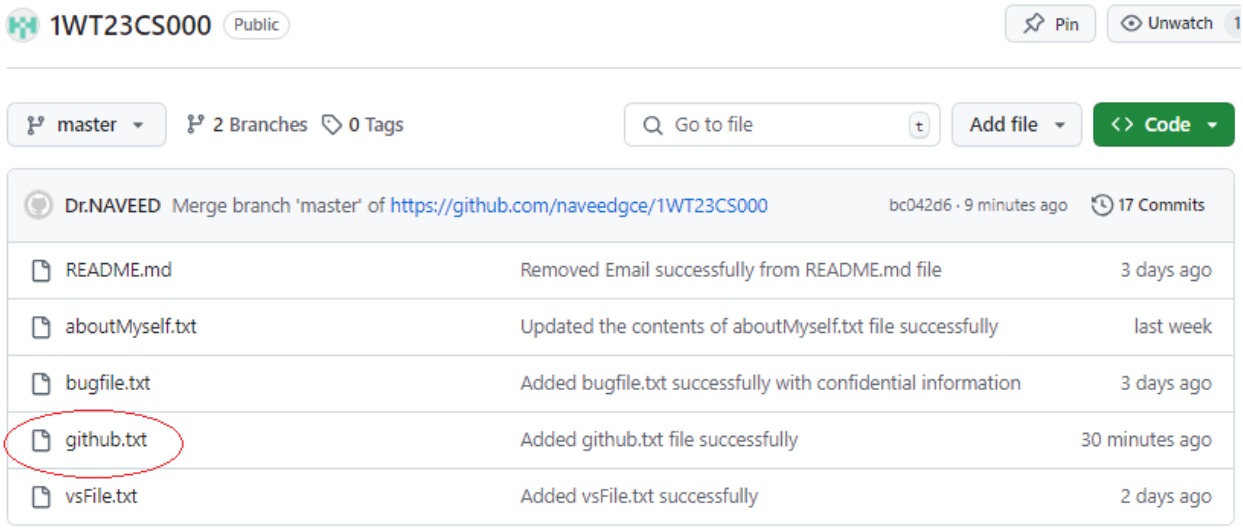
```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/1WT23CS000/aboutMyself (master)
$ git push -u origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 598 bytes | 119.00 KiB/s, done.
Total 5 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/naveedgce/1WT23CS000.git
   1d01985..bc042d6  master -> master
branch 'master' set up to track 'origin/master'.
```

Now if we check our GitHub account:



We can see the github.txt file added into it.

OUTPUT:

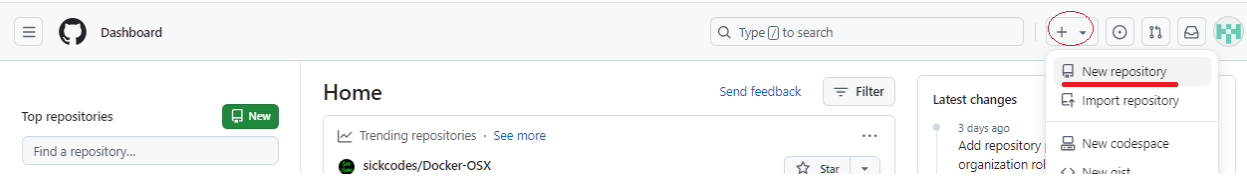

1WT23CS000
Public
Pin
Unwatch
master
2 Branches
0 Tags
Go to file
t
Add file
Code
Dr.NAVEED Merge branch 'master' of https://github.com/naveedgce/1WT23CS000
bc042d6 · 9 minutes ago
17 Commits
README.md
Removed Email successfully from README.md file
3 days ago
aboutMyself.txt
Updated the contents of aboutMyself.txt file successfully
last week
bugfile.txt
Added bugfile.txt successfully with confidential information
3 days ago
github.txt
Added github.txt file successfully
30 minutes ago
vsFile.txt
Added vsFile.txt successfully
2 days ago

Experiment-11 VS code and Github

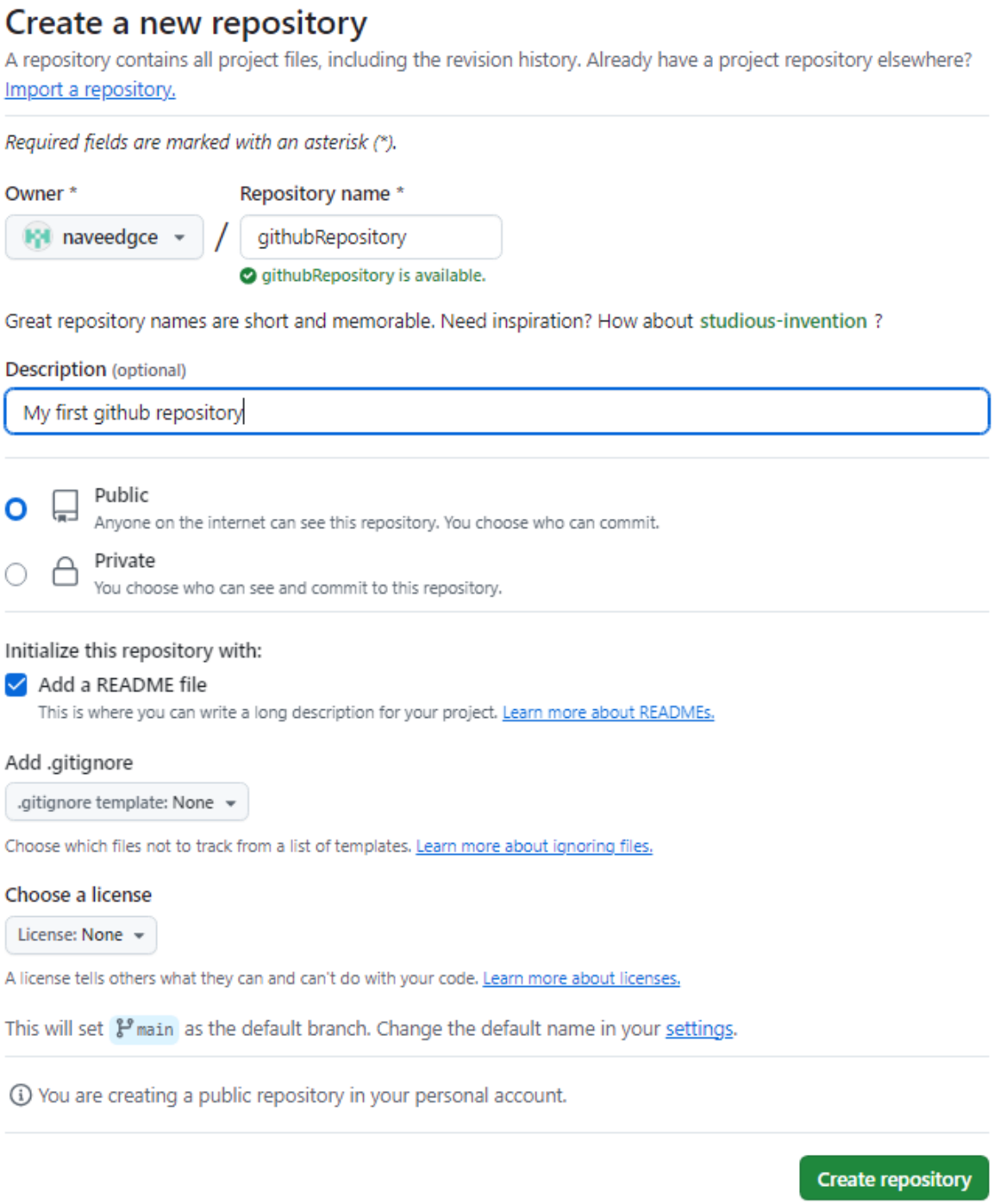
Aim:

1. To create a new repository “githubRepository” from the GitHub account. Add README.md file
2. To clone the repository into the VS code. To add the following data into README.md file
    - First Name:
    - Last Name:
    - Email ID
    - GitHub ID:
    - Mobile Number:
3. To push the repository into the GitHub account

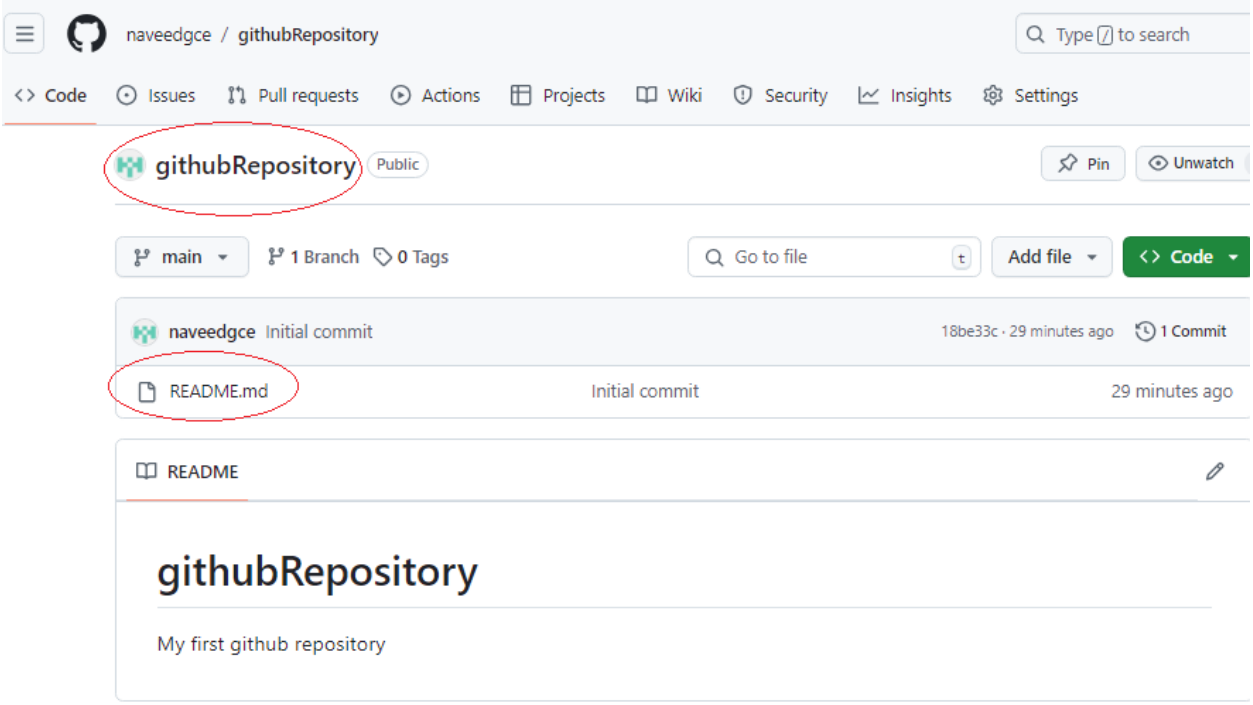
First login into your GitHub account. Go to the home page and then click on add a new repository as shown below:



Type the repository name and check for the availability. Each repository is unique and cannot be of the same name. You can type your last three digits of your USN along with this name. Provide a brief description about it. My first GitHub repository. Add a README.md file which can be later filled.



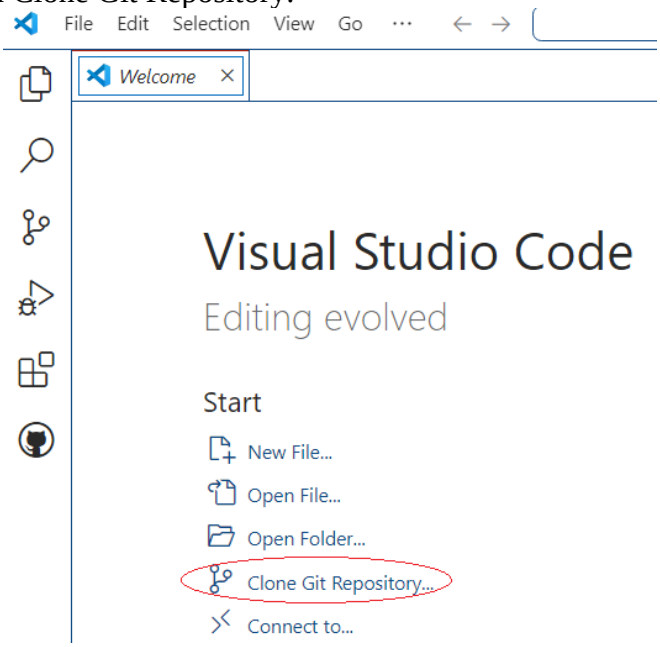
Click on Create repository.
We can see that the new repository is created in our GitHub account as shown below.



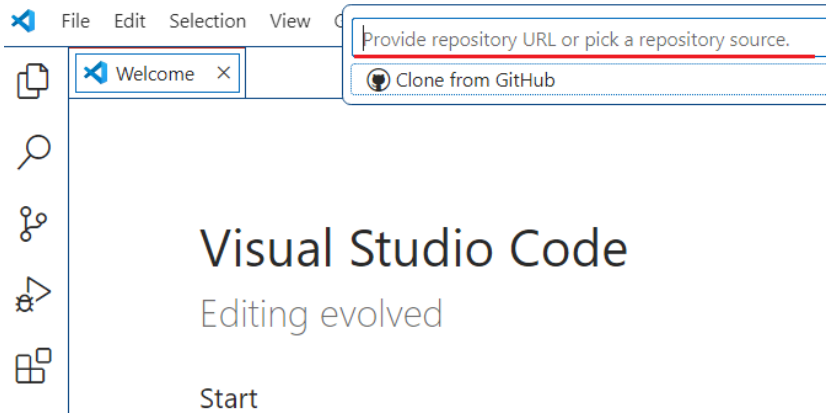
To clone this repository into the local server through VS coding platform there are two options:

Option-01:

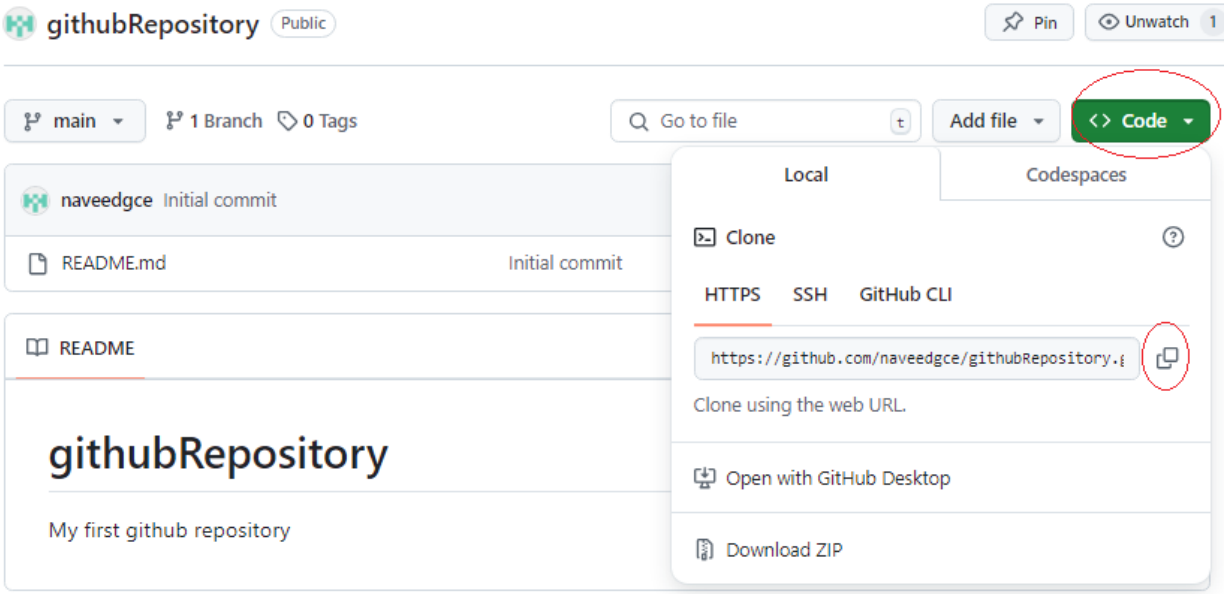
Close the vs code editor if previous repository is in active state. Go the home page with Welcome file. Click on Clone Git Repository.



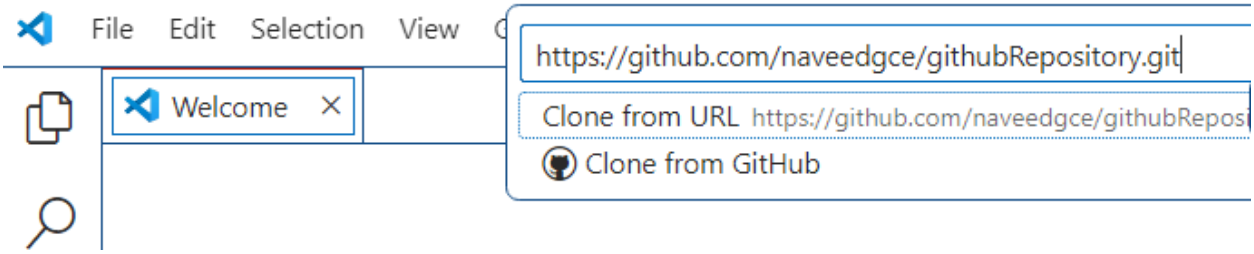
It will ask for the GitHub repository URL.



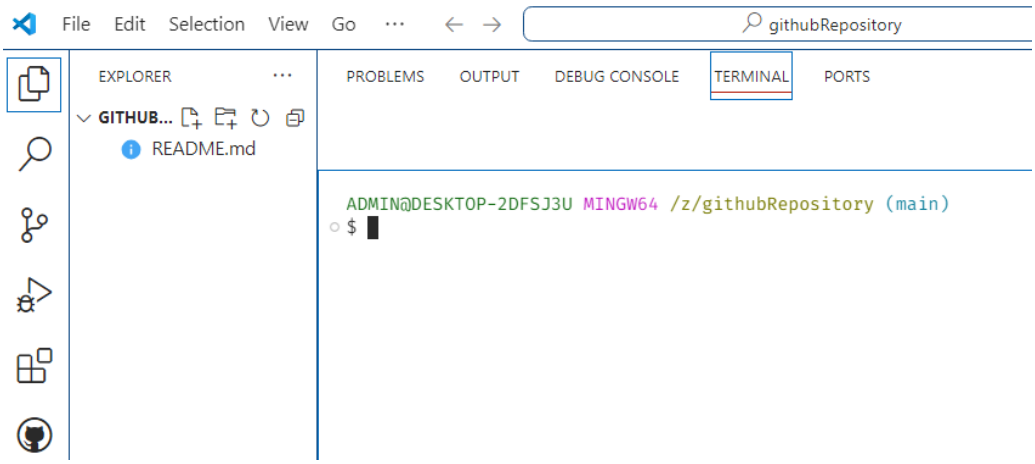
Click on code and then click on copy option of the URL as shown below:



Now go to the VS code page and add the above URL



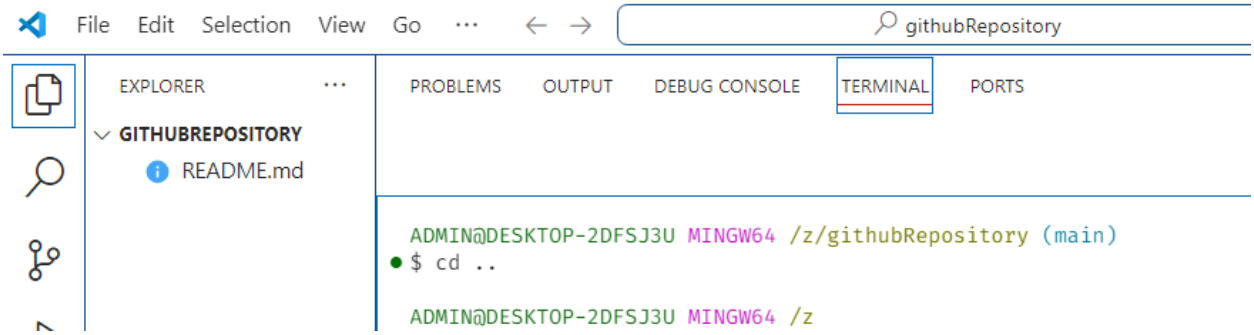
It will ask for the folder. Select any drive such as Z drive.
Now we can see our repository is created in VS code platform



Now the project is ready to be worked.

Option-02

We can also do in the other way as well. In the previous project screen: Get back to Z drive by using:



It will get shifted to Z drive. Now we can use a code such as "git clone <paste the URL of GitHub repository>" as shown below:

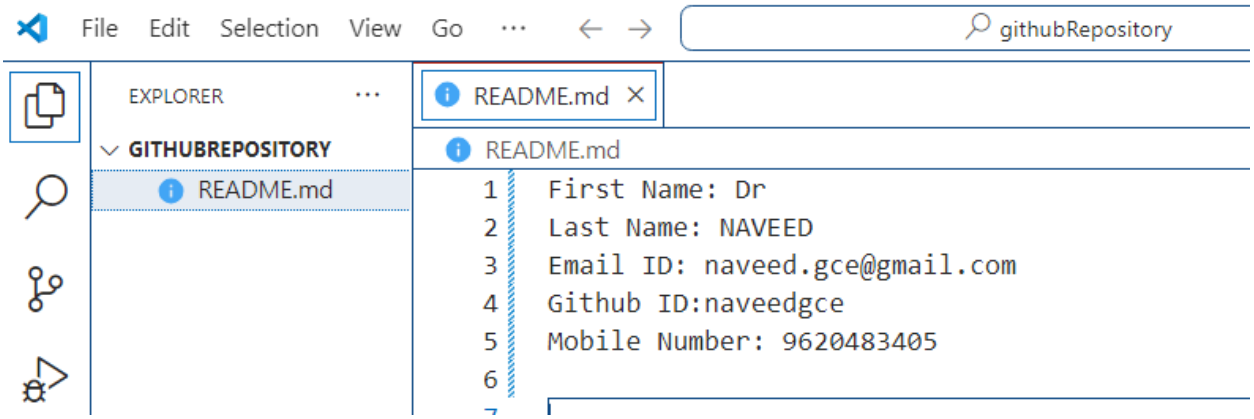
```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z
$ git clone https://github.com/naveedgce/githubRepository.git
```

The above https://.....was copied from the GitHub account.

To add the data:

Open the README.md file and add the following data and save it:

1. First Name:
2. Last Name:
3. Email ID
4. GitHub ID:
5. Mobile Number:



To push the updated file into the GitHub account:
First, we have to commit the task with a message. If we check the status.

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$ 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

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

Therefore, to commit use the following:

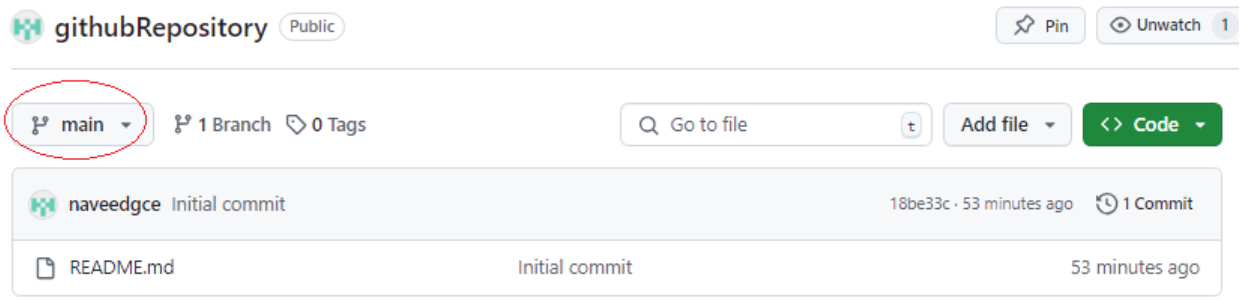
```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$ git add .

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$ git commit -m "Updated README.md file successfully"
[main 2fde9fd] Updated README.md file successfully
 1 file changed, 6 insertions(+), 2 deletions(-)

ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$ 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
```

To push the above into the GitHub repository: Remember the repository that was created in the GitHub account shows main branch not master.



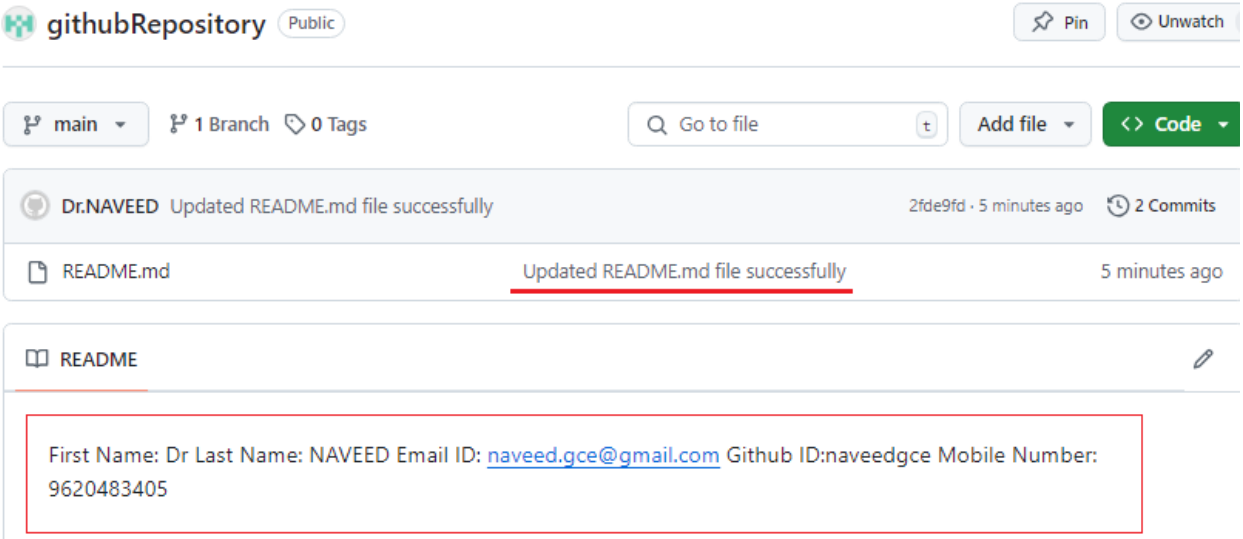
We cannot use master here for coding;

```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$ git push -u origin main
```

If no conflict exists then it will show a successful message.

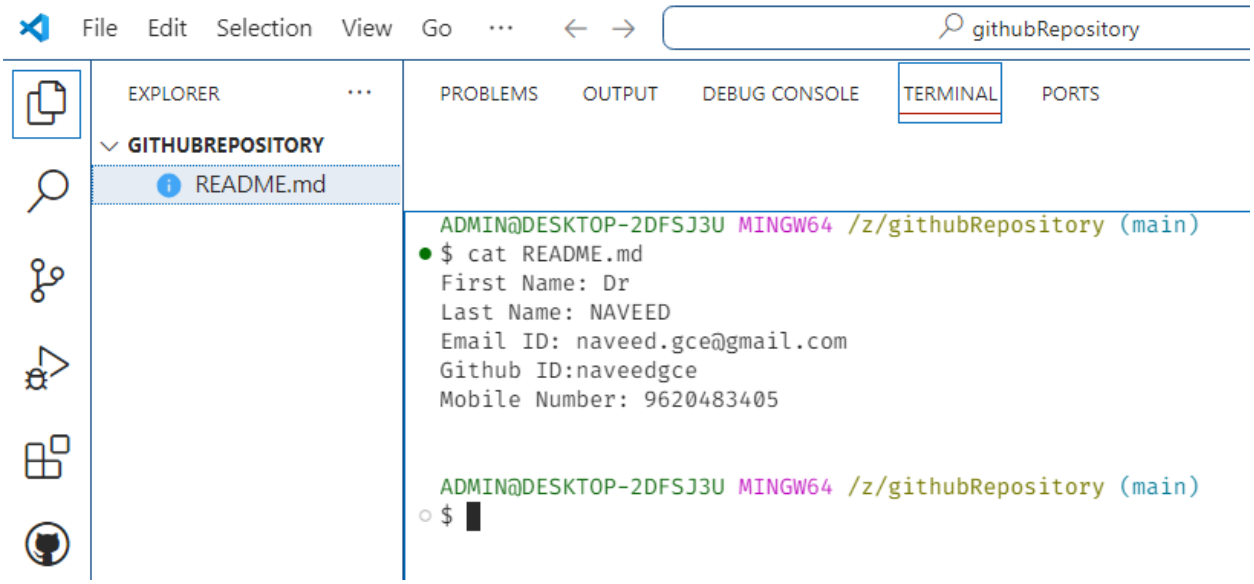
```
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$ git push -u origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 2 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 361 bytes | 361.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/naveedgce/githubRepository.git
   18be33c..2fde9fd  main -> main
branch 'main' set up to track 'origin/main'.
```

Now let us check the GitHub account.



We can see the information is updated. Earlier README.md file was empty. Now it shows the data.

OUTPUT:


File
Edit
Selection
View
Go
githubRepository
EXPLORER
GITHUBREPOSITORY
README.md
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$ cat README.md
First Name: Dr
Last Name: NAVEED
Email ID: naveed.gce@gmail.com
Github ID:naveedgce
Mobile Number: 9620483405
ADMIN@DESKTOP-2DFSJ3U MINGW64 /z/githubRepository (main)
$

ASSIGNMENT

Q1. (EXP-01) Basic Setup and Creation of a New Repository

Aim:

1. To create a new repository "1WT23CS000" under any disc drive such as Z drive and also a sub repository "aboutMyCollege".
2. To make the default branch as master branch in some systems it is main branch.
3. To launch the git and enter the user configurations like name, email ID.

Q.2 (EXP- 02) To add README.md file into the Repository

Aim:

1. To add README.md file into the repository /z/1WT23CS000/aboutMyCollege under master branch.
2. To add the contents given below:

```
Title: GITW
Full Name: Ghousia Institute of Technology for Women
College Code: WT
Affiliation: VTU, Belagavi
Year of Establishment: 2023
No. of Branches: 03
Departments: CS, IS and EC
Mobile No: 080-25536527
Email ID: principalgitw@gmail.com
Address: DRC post, near Dairy Circle Hosur Road Bangalore-560029
```

3. To commit with a message "Contents updated successfully"

Q.3 (Exp-03) Creating and Managing Branches

Aim:

1. To create a new branch named "feature-branch".
2. To add a text file "aboutMyCollege.txt" into the repository /1WT23CS000/aboutMyCollege .
3. To add the contents into the text file given below:

```
Title: GITW
Full Name: Ghousia Institute of Technology for Women
College Code: WT
Affiliation: VTU, Belagavi
Year of Establishment: 2023
No. of Branches: 03
Departments: CS, IS and EC
Mobile No: 080-25536527
Email ID: principalgitw@gmail.com
Address: DRC post, near Dairy Circle Hosur Road Bangalore-560029
```

4. To commit a message "Added text file aboutMyCollege.txt successfully".

Q.4 (Exp-04) Merging of Feature-Branch into the Master Branch:

Aim:

To merge feature-branch into the master branch

Experiment-05: Updating of files in the Feature-Branch

Aim:

1. To add the Brief Review of GITW in the file "aboutMyCollege.txt" of the feature-branch:

GITW was established in the year 2023, affiliated with Visvesvaraya Technological University (VTU), Belagavi, Karnataka. Recognized by AICTE, New Delhi, and the Government of Karnataka, ranking first in women's minority education in the state. The college provides hostel facilities and organizes diverse programs enhancing students' overall personality. It offers B.E Programs in:

- Computer Science & Engineering
- Information Science & Engineering
- Electronics & Communication Engineering

To commit the above with a message "Added brief review of GITW Successfully"

To merge the feature-branch with the master branch and commit with a message "Merged the feature-branch Successfully and updated the file with review Details".

Q.5(Exp-06) Light Weight and Annotated Tags

Aim:

1. To update the file "README.md" and add "Date of Joining to GITW: 1st Oct-2023" to it under the repository /1WT23CS000/aboutMyCollege under master branch.
2. To commit with a message "My Date of Joining to GITW Updated successfully"
3. To add a light wight tag v1.0 into file "README.md"
4. To add an Annotated tag v2.0 with a message "My Date of Joining to GITW" into the same file

Q.6 (Exp-09) Git in VS Code

Aim:

1. To clone the repository /z/1WT23CS000/aboutMyCollege from Git-Bash to VS code:
2. To add a new file vsFile.txt under VS code. Add the following data:

Vs File details:

- Version: 2.1
- Date of Installation: 30/07/2024
- Author Name: Dr.Naveed

and commit a message "Added vsFile.txt successfully"

SUMMARY OF CODING

EXPERIMENT-01

```
// To start the git and to make master branch as default branch
$ git init
// To register your name (author name) and Email address for the
   new project
$ git config --global user.name “Dr.NAVEED”
$ git config --global user.email naveed.gce@gmail.com
// To check the author name , email address and other data:
$ git config --list
// To check author name of the project
$ git config user.name
// To check email address of the author
$ git config user.email
// To clear the screen of the terminal (Ctrl+L)
$ clear
// T get into the Z drive of the computer hard disk. It can be
   any symbol
$ cd /z
// To create a repository “1WT23CS000”
$ mkdir 1WT23CS000
// To get back to the repository
$ cd 1WT23CS000
// To create another sub-repository “aboutMyself”
$ mkdir aboutMyself
// To get back to aboutMyself
$ cd aboutMyself
// To get back in single shot
$ cd /z/1WT23CS000/aboutMyself
```

EXPERIMENT-02

```
//To make any drive like z drive as a safe directory
$ git config --global --add safe.directory z:/
// To add a new file like README.md as untracked file
$ echo > README.md
// To track the file like README.md
$ git add .
//To commit with a message like Added README.md file successfully
$ git commit -m “committed message”
// To edit the file like README.md in an open screen
$ nano README.md
// To read the contents of a file like README.md under terminal
$ cat README.md
//To check the current status
$ git status
```

EXPERIMENT-03

```
//To check the current branch as well to check out number

  of branches available
$ git branch
// To create a new branch such as feature-branch
$ git branch feature-branch
// To shift the directory to the new branch such as feature-branch

$ git checkout feature-branch

// To shift back the directory to the default master branch

$ git checkout master

// To checkout number of files available in the repository

$ git ls-files
```

EXPERIMENT-04

```
// To merge feature-branch into master branch which will add all
   files of feature-branch into master branch
$ git merge feature-branch
```

EXPERIMENT-05

```
// To delete a branch such as feature-branch
$ git branch -d feature-branch
// To get reference code of deleted branch
$ git reflog
// To restore the deleted branch such as feature-branch with
   the given ref.code
$ git checkout -b feature-branch ref.code
(in updated version ref.code is not needed)
```

EXPERIMENT-06

```
// To add a light weight tag such as v1.0
$ git tag v1.0
// To check the number of tags available

$ git tag

// To check a particular tag such as v1.0

$ git show v1.0

// To add an annotated tag such as v2.0

$ git tag -a v2.0 -m “committed message”
```

EXPERIMENT-07

```
// To check the committed messages in master branch with full details
$ git log master

// To check the committed messages in master branch in brief with just one line
$ git log master --oneline
```

```
//To check committed message of a particular task with the given reference code ID

$ git show ref.code ID

// To check commits of a particular author from date to desired date with full details

$ git log --author=”authorName” --since=”YEAR-MONTH-DAY” until=”YEAR-MONTH-DAY”

// To check commits of a particular author from date to desired date in brief with just one line

$ git log --author=”authorName” --since=”YEAR-MONTH-DAY” until=”YEAR-MONTH-DAY” --oneline
// To check last 5 commits made in master branch with complete details
$ git log master -n 5
// To check last 5 commits made in master branch in brief with just one line.
$ git log master -n 5 --oneline
Note: Press Q to get back to the coding.
```

EXPERIMENT-08

```
// To check the committed messages in feature- branch
$ git log feature-branch --oneline
// To check committed message of feature-branch with ref.ID in master branch
$ git cherry-pick ref.ID
// To open the conflicting file such as aboutMyself.txt

$ vim aboutMyself.txt

//To delete a file such as data1.txt

$ git rm data1.txt

//To modify the committed message with Ref.ID

$ git revert Ref.ID

//To display the committed message with Ref.ID

$ git show Ref.ID
```

EXPERIMENT-09

```
// To get back to the current repository in Z drive such as 1WT23CS000/aboutMyself
$ cd /z/1WT23CS000/aboutMyself
// To clone the above repository in VS code after getting back to the current repository
$ code .
```

EXPERIMENT-10

```
// To clone repository in Z drive such as 1WT23CS000/aboutMyself into the GitHub account
$ git remote add origin URLcodeOfGitHubRepository
//To push the repository into the GitHub account if it is master branch
$ git push -u origin master
//To push the repository into the GitHub account if it is main branch
$ git push -u origin main
//To add a new branch such as feature-branch into GitHub account
$ git push -u origin feature-branch
```

GHOUSIA INSTITUTE OF TECHNOLOGY FOR WOMEN

Near Dairy Circle, Hosur Road, Bengaluru-560029, KARNATAKA
Affiliated to VTU., Belagavi, Recognized by Government of Karnataka & A.I.C.T.E., New Delhi

B.E Programs Offered

- Computer Science & Engineering
- Information Science & Engineering
- Electronics & Communication Engineering.

Contact

9986343109 / 9845954481
080 – 25536527

www.gitw.in

It was established in the year 2023, affiliated with Visvesvaraya Technological University (VTU), Belagavi, Karnataka. Recognized by AICTE, New Delhi, and the Government of Karnataka. It is one among the two engineering colleges for women in the state. The college provides hostel facilities and organizes diverse programs enhancing students' overall personality.