

PICT ACM STUDENT CHAPTER  
PRESENTS

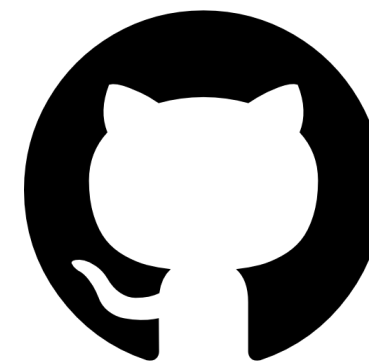
# Git & Github SIG

Let's get visual with our processes!



Git

&



Github

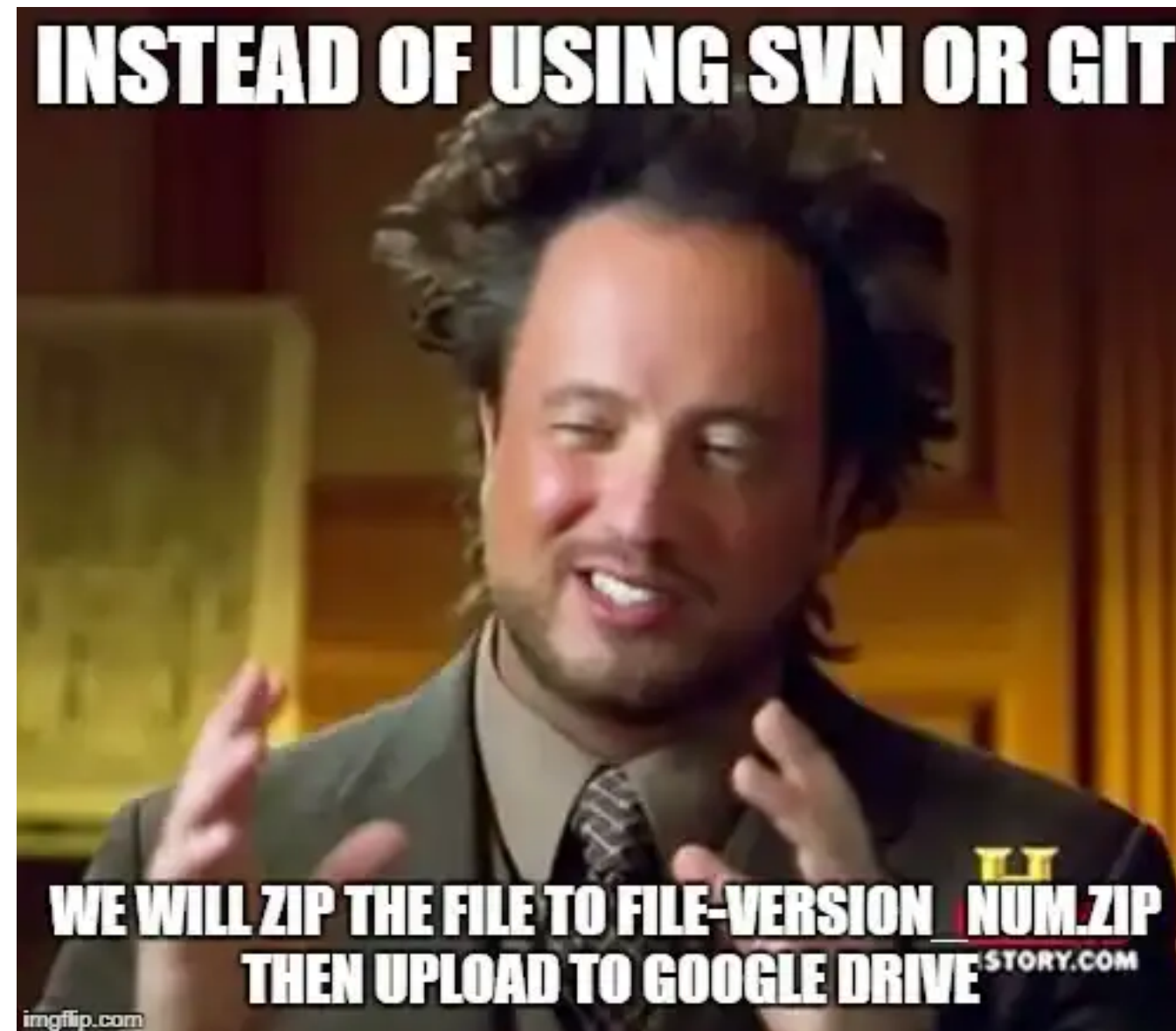


# Topics

- 1.Introduction to Version Control
- 2.Git Basics
- 3.Branching and Merging
- 4.Remote Repositories
- 5.Collaboration
6. Best Practices and Doubts Resolution



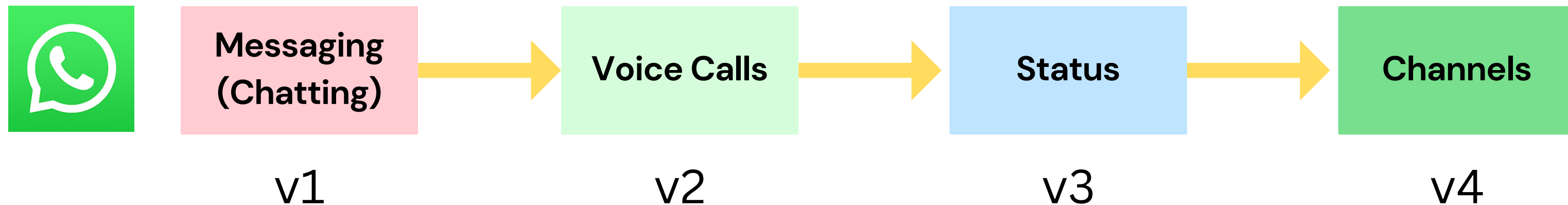
# Why Git and Github 🌐



Even if you have to revert to 6 months back in your project, git makes it easier for you.

# 01. Introduction to Version Control

Version control, also known as source control or revision control, is a system that manages changes to a project's source code, documents, or any set of files over time.





# Installing Git

<https://git-scm.com>



Search entire site...

Git is a [free and open source](#) distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is [easy to learn](#) and has a [tiny footprint with lightning fast performance](#). It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like [cheap local branching](#), convenient [staging areas](#), and [multiple workflows](#).



## About

The advantages of Git compared to other source control systems.



## Documentation

Command reference pages, Pro Git book content, videos and other material.



## Downloads

GUI clients and binary releases for all major platforms.



## Community

Get involved! Bug reporting, mailing list, chat, development and more.



## 01. Set git user name



```
git config --global user.name "Your Good Name"
```

```
$ git config --global user.name  
> Your Good Name
```

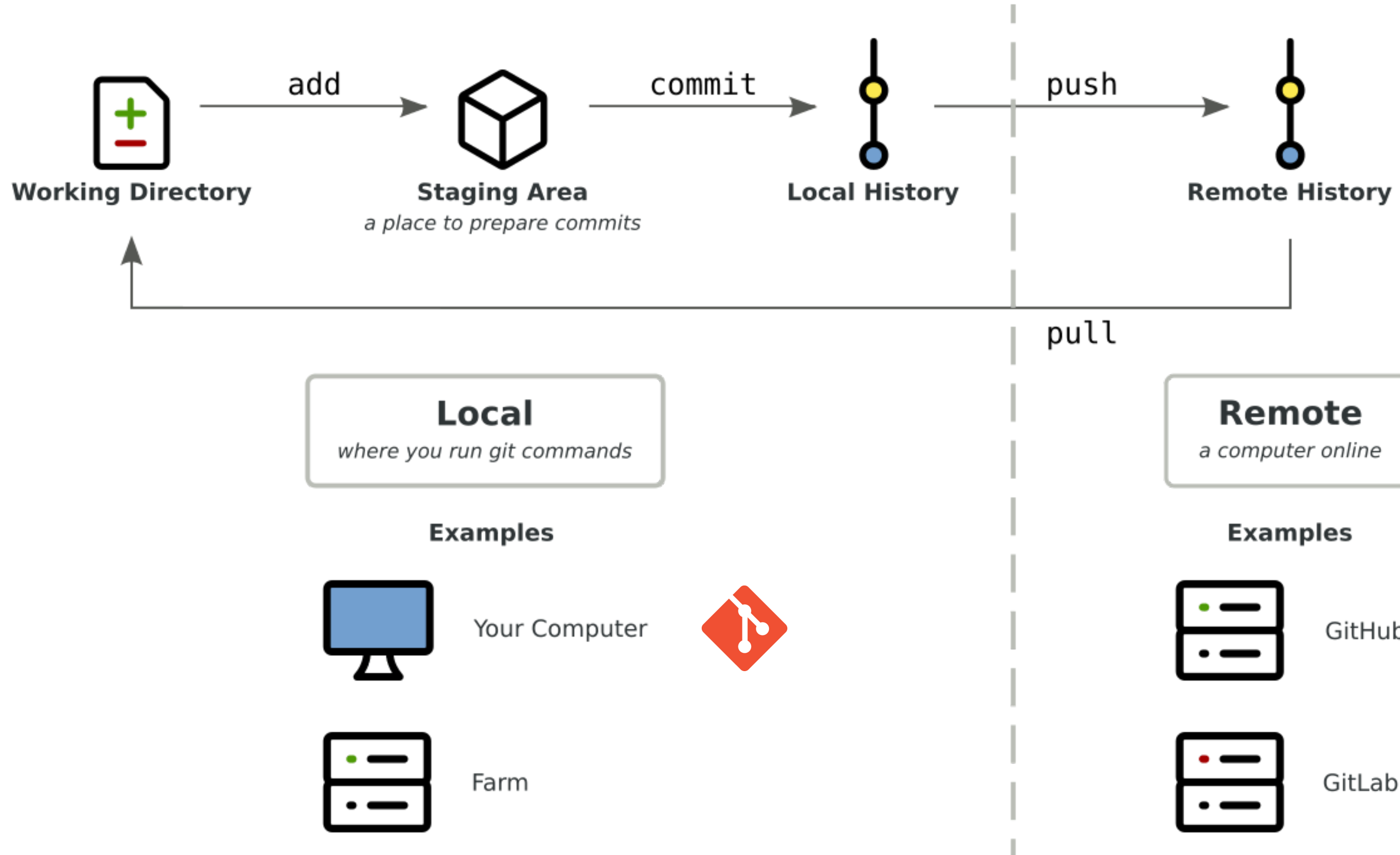
## 02. Setting your email



```
git config --global user.email "your_email@example.com"
```

```
$ git config --global user.email  
> your_email@example.com
```

# 02. Git Basics



# Manging a Project using Git

Let's Learn Git ✨

## Initialize a Repository:

`git init`: Initializes a new Git repository in the current directory.

## Clone a Repository:

`git clone <repository_url>`: Creates a copy of a remote repository on your local machine.

## Check Repository Status:

`git status`: Shows the status of changes as untracked, modified, or staged.

## Add Changes to Staging Area:

`git add <filename>`: Adds specific file(s) to the staging area.

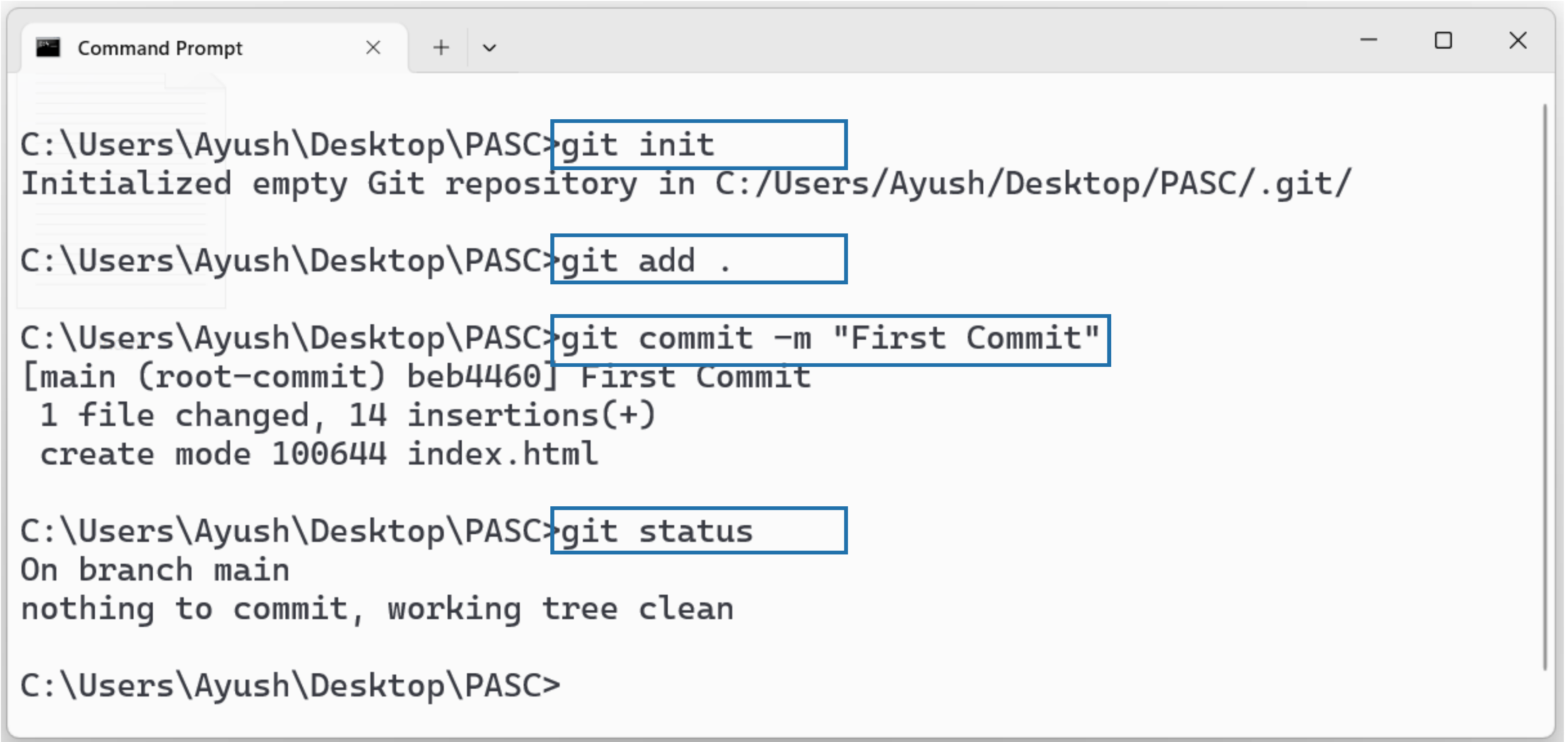
`git add .` or `git add -A`: Adds all changes to the staging area.

## Commit Changes:

`git commit -m "Commit message"`: Commits the changes in the staging area with a descriptive message.



## Example: Setting git in a project



```
Command Prompt
C:\Users\Ayush\Desktop\PASC>git init
Initialized empty Git repository in C:/Users/Ayush/Desktop/PASC/.git/

C:\Users\Ayush\Desktop\PASC>git add .

C:\Users\Ayush\Desktop\PASC>git commit -m "First Commit"
[main (root-commit) beb4460] First Commit
 1 file changed, 14 insertions(+)
 create mode 100644 index.html

C:\Users\Ayush\Desktop\PASC>git status
On branch main
nothing to commit, working tree clean

C:\Users\Ayush\Desktop\PASC>
```

## Example: Checking History

```
Command Prompt
C:\Users\Ayush\Desktop\PASC>git log
commit beb44608d7256758db59054cc199ea7517e064c4 (HEAD -> main)
Author: Ayush-Bulbule <ayushbulbule24@gmail.com>
Date: Thu Jan 18 00:24:19 2024 +0530

    First Commit

C:\Users\Ayush\Desktop\PASC>git log --pretty=online
fatal: invalid --pretty format: online

C:\Users\Ayush\Desktop\PASC>git log --pretty=oneline
beb44608d7256758db59054cc199ea7517e064c4 (HEAD -> main) First Commit

C:\Users\Ayush\Desktop\PASC>
```

# 03. Branching and Merging

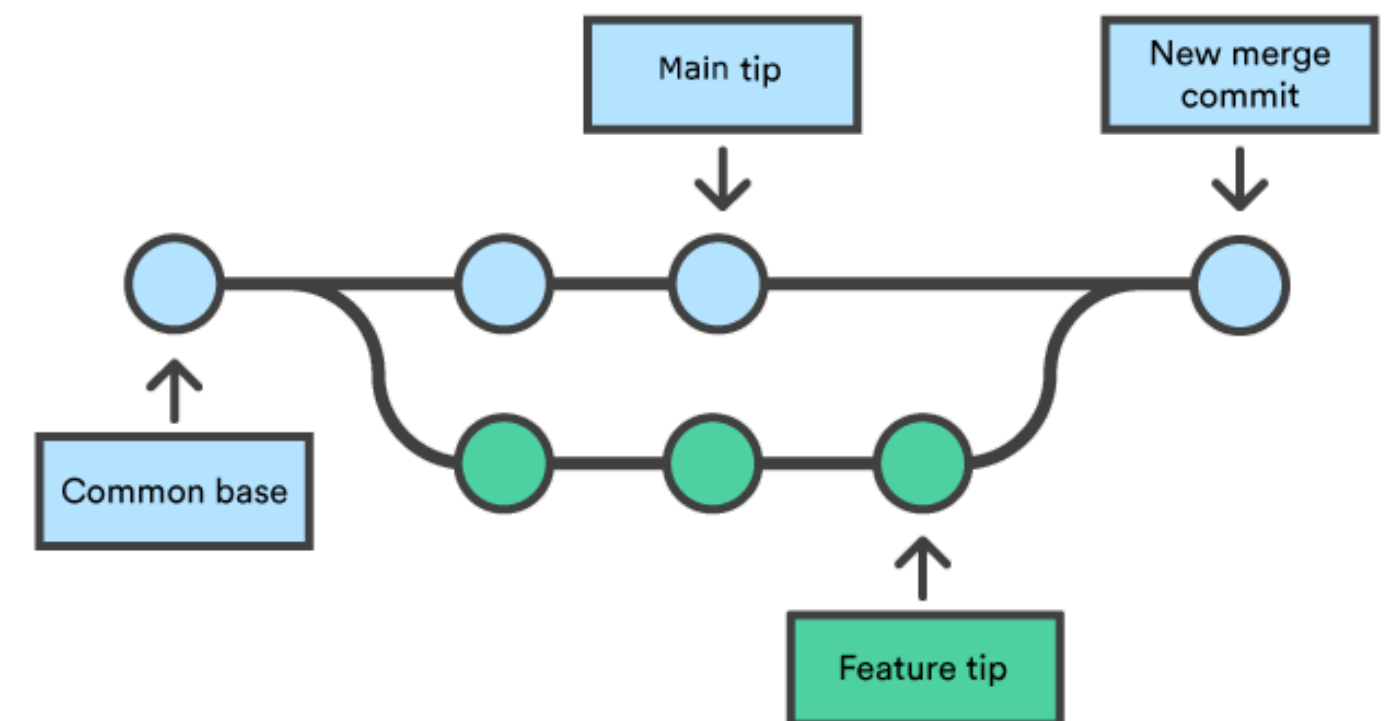
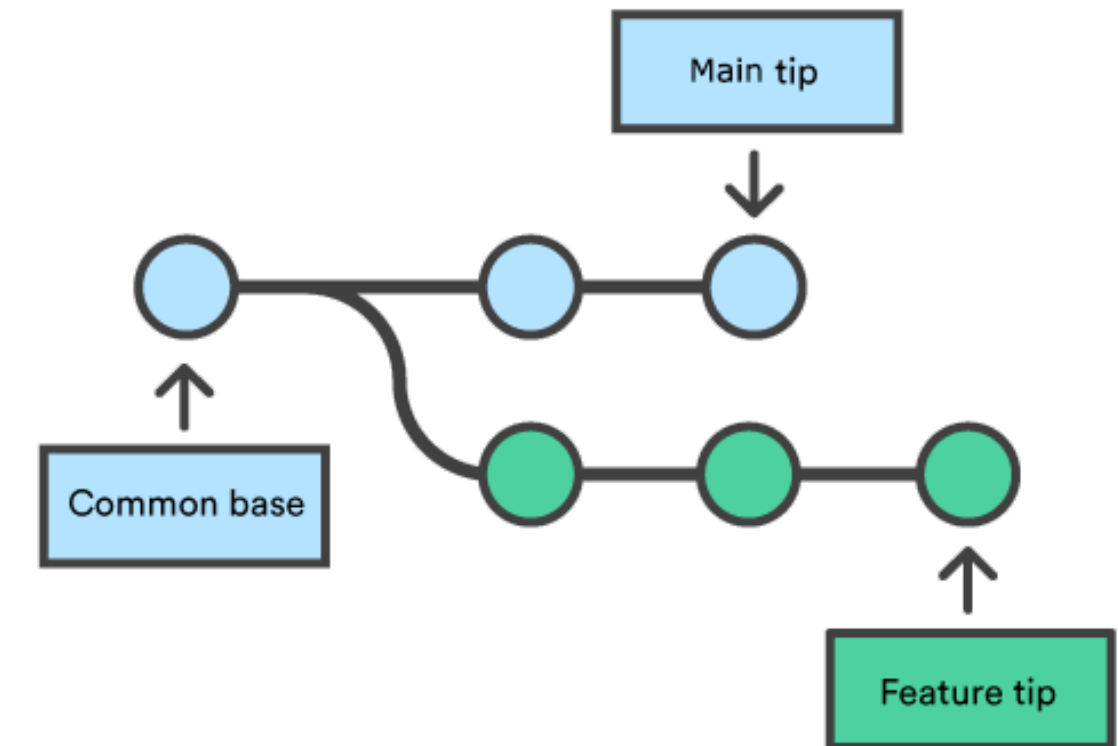
**Branch in Git:** In Git, a branch is like a separate lane on a highway, letting you explore & experiment without affecting the main road (master branch). ✨

```
git branch <new_branch_name>
```

## **Merge in Git:**

In Git, merging is like bringing two separate roads (branches) together into one main highway (master branch). It combines the changes made on different branches to create a unified history of your project ✨

```
git merge <branch_name>
```



### Create a New Branch:

`git branch <branch_name>`: Creates a new branch.

### Create and Switch to a New Branch:

`git checkout -b <branch_name>`: Creates and switches to a new branch in one command.

`git switch -c <branch_name>` (Git 2.23 and later): Creates and switches to a new branch.

### Switch to a Different Branch: (Already Existing Branch)

`git checkout <branch_name>` : Switches to an existing branch.

### List All Branches:

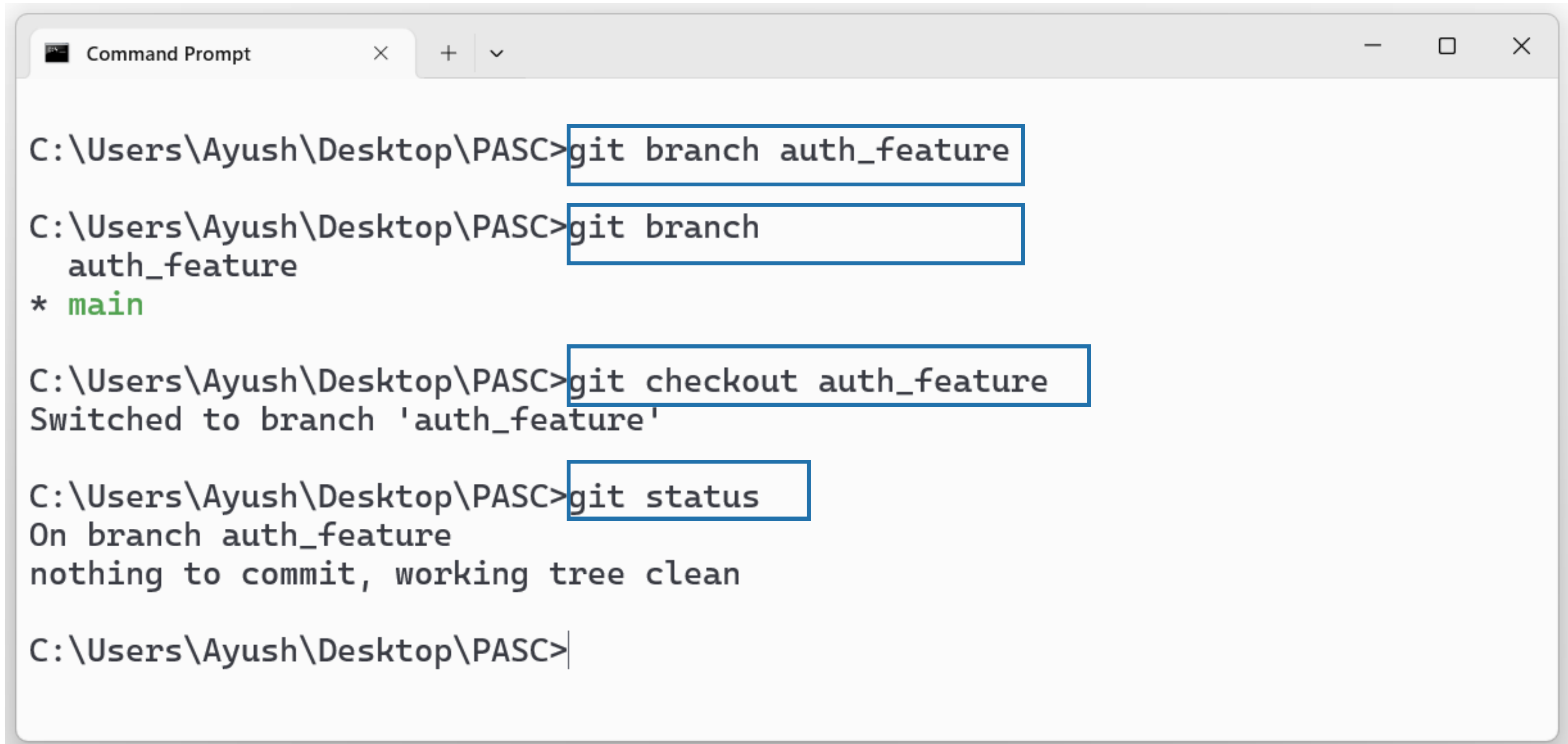
`git branch`: Lists all branches in the repository.

`git branch -a`: Lists all local and remote branches.

### Delete a Branch:

`git branch -d <branch_name>`: Deletes a local branch (safe delete)

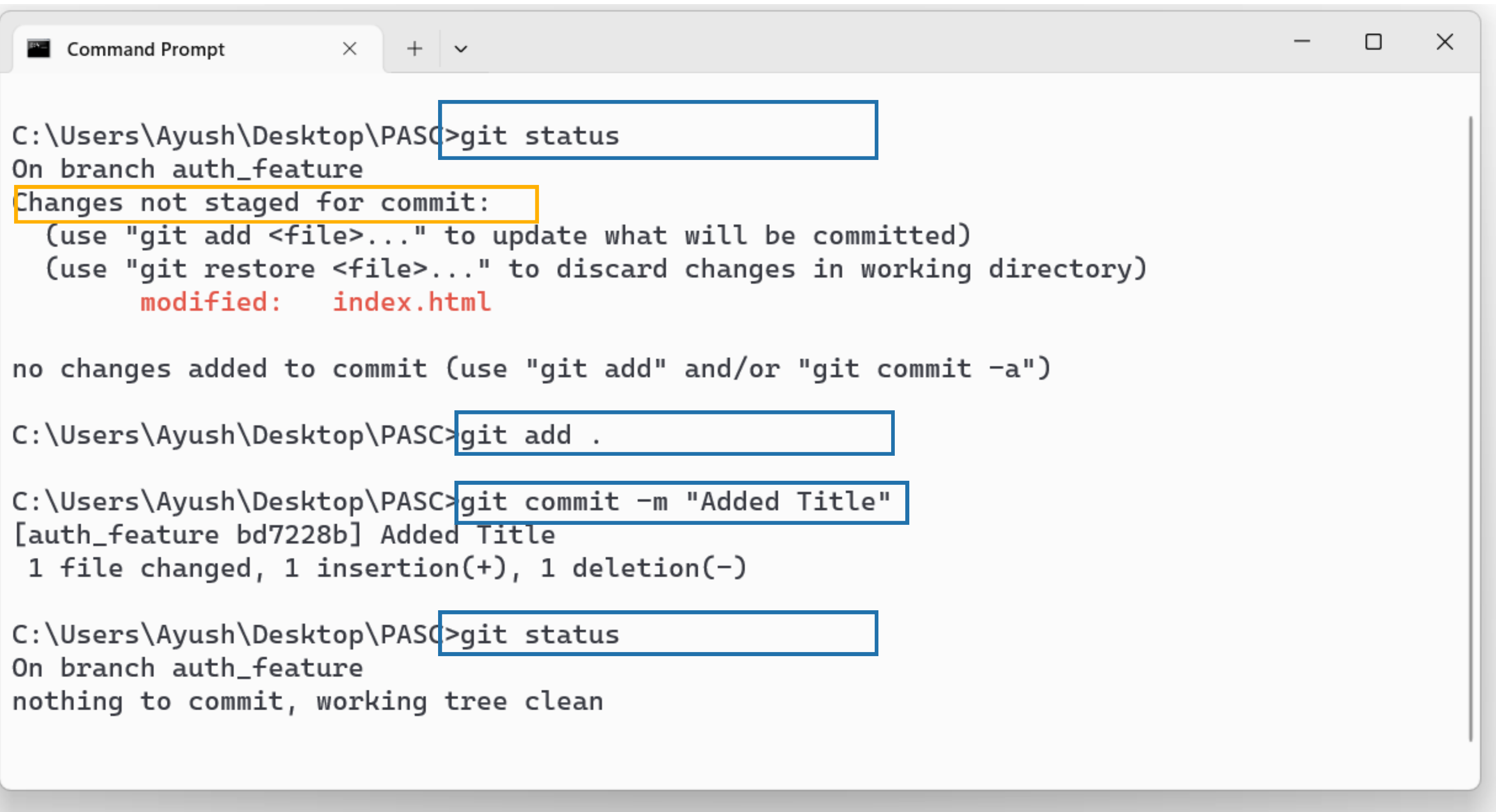
## Example: Creating new branch and switching



```
Command Prompt
C:\Users\Ayush\Desktop\PASC>git branch auth_feature
C:\Users\Ayush\Desktop\PASC>git branch
auth_feature
* main
C:\Users\Ayush\Desktop\PASC>git checkout auth_feature
Switched to branch 'auth_feature'
C:\Users\Ayush\Desktop\PASC>git status
On branch auth_feature
nothing to commit, working tree clean
C:\Users\Ayush\Desktop\PASC>
```



## Example: Staging changes on newly created branch



```
Command Prompt
C:\Users\Ayush\Desktop\PASC>git status
On branch auth_feature
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   index.html

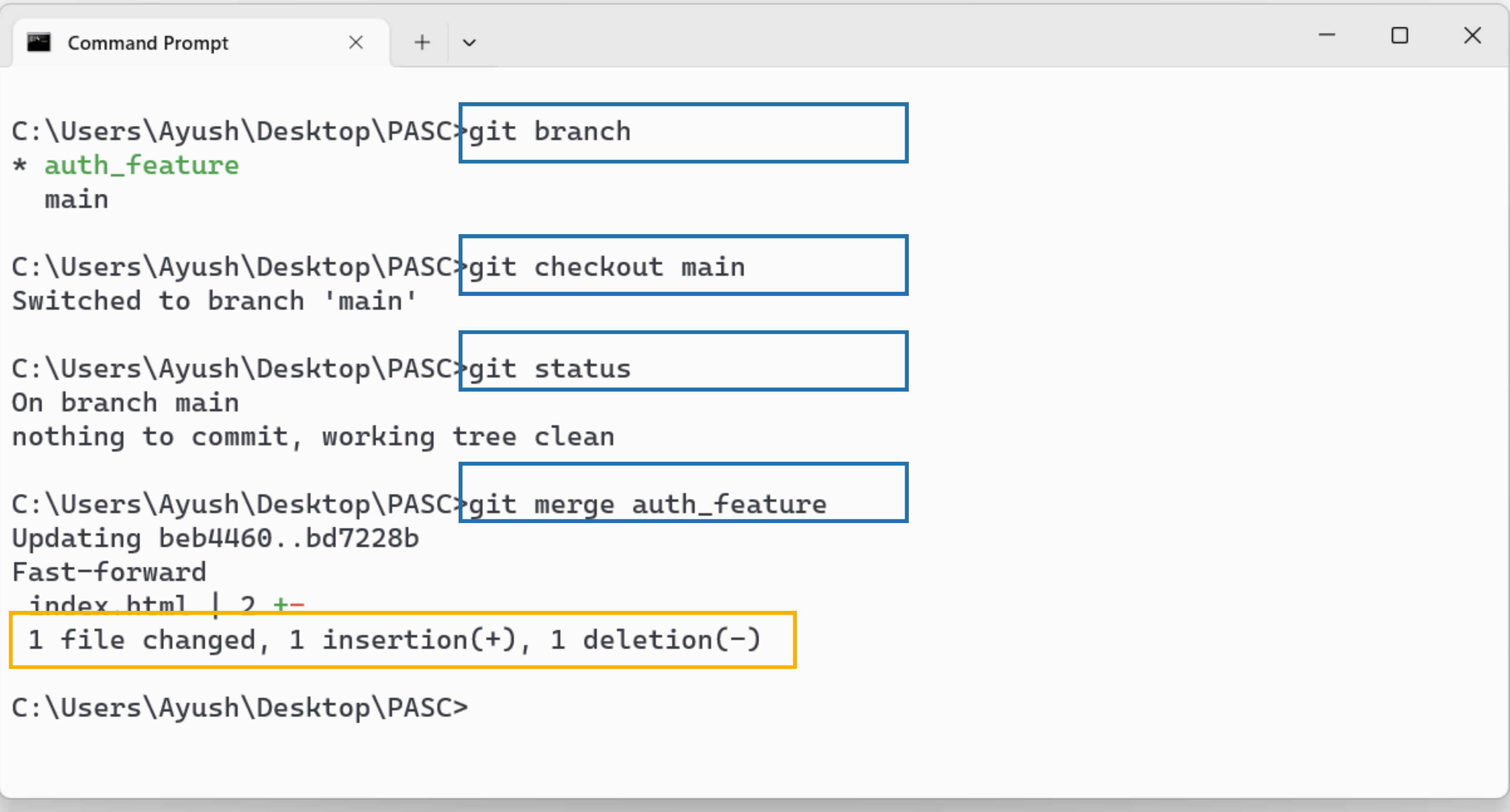
no changes added to commit (use "git add" and/or "git commit -a")

C:\Users\Ayush\Desktop\PASC>git add .

C:\Users\Ayush\Desktop\PASC>git commit -m "Added Title"
[auth_feature bd7228b] Added Title
1 file changed, 1 insertion(+), 1 deletion(-)

C:\Users\Ayush\Desktop\PASC>git status
On branch auth_feature
nothing to commit, working tree clean
```

## Example: Merging two branches



```
Command Prompt
C:\Users\Ayush\Desktop\PASC>git branch
* auth_feature
  main

C:\Users\Ayush\Desktop\PASC>git checkout main
Switched to branch 'main'

C:\Users\Ayush\Desktop\PASC>git status
On branch main
nothing to commit, working tree clean

C:\Users\Ayush\Desktop\PASC>git merge auth_feature
Updating beb4460..bd7228b
Fast-forward
 index.html | 2 + -
1 file changed, 1 insertion(+), 1 deletion(-)

C:\Users\Ayush\Desktop\PASC>
```

# Example: Git reset - Covering your mistakes



```
Command Prompt
commit beb44608d7256758db59054cc199ea7517e064c4
Author: Ayush-Bulbule <ayushbulbule24@gmail.com>
Date: Thu Jan 18 00:24:19 2024 +0530

First Commit

C:\Users\Ayush\Desktop\PASC>git reset beb44608d7256758db59054cc199ea7517e064c4
Unstaged changes after reset:
M      index.html

C:\Users\Ayush\Desktop\PASC>git status
On branch main
Your branch is behind 'origin/main' by 1 commit, and can be fast-forwarded.
  (use "git pull" to update your local 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:   index.html

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

# 04. Remote Repositories

PICT-ACM-Student-Chapter

Repositories 65

Projects 2

Packages

Teams 2

People 679

PICT ACM Student Chapter

164 followers

Pune

<https://pict.acm.org>

@\_pict\_acm\_

Follow

OJ\_Client

Public

Online Judge Platform of PICT ACM Student Chapter (Frontend) 🚀

JavaScript

5

1

OJ\_API

Public

Online Judge Platform of PICT ACM Student Chapter (Backend) 🚀

Python

7

1

MCQ-Server

Public

MCQ Platform of PICT ACM Student Chapter (Backend)

Python

Repositories

Find a repository...

Type

Language

Sort

New

email-templates

Private

HTML

0

0

0

0

Updated last week

View as: Public

You are viewing the README and pinned repositories as a public user.

You can [create a README file](#) visible to anyone.

People

[View all](#)

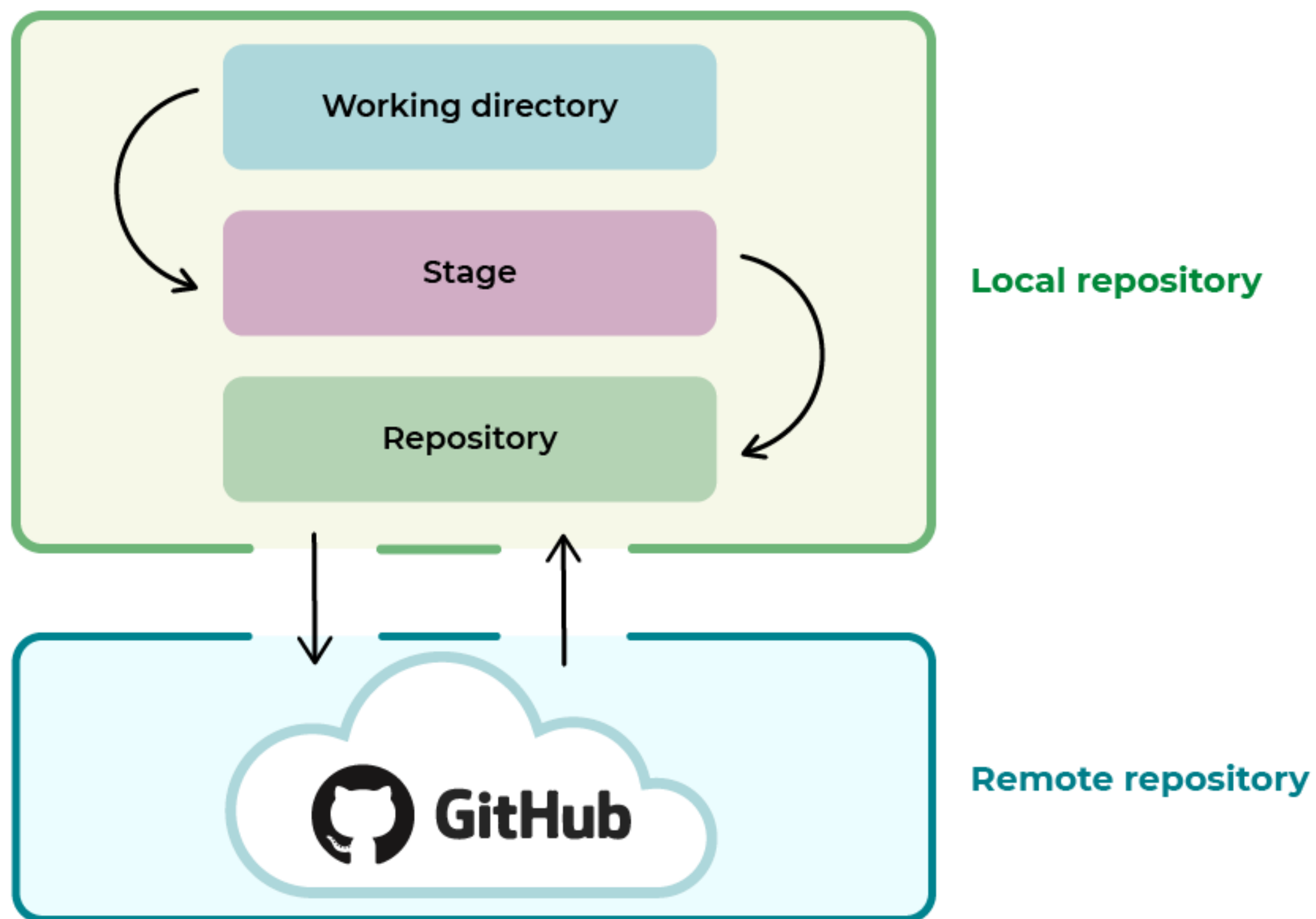
Top languages

JavaScript

Python

Dart

HTML





### Clone a Remote Repository

`git clone <repository_url>` : This command creates a copy of a remote repository on your local machine.

### Add a Remote Repository

`git remote add <remote_name> <repository_url>` : This command adds a reference to a remote repository, allowing you to easily interact with it.

### Push Changes to a Remote Repository:

`git push <remote_name> <branch_name>`: This command pushes your local changes to a remote repository.


### Fetch Changes from a Remote Repository

`git fetch <remote_name>` : This command fetches changes from a remote repository but does not merge them.

### Pull Changes from a Remote Repository

`git pull <remote_name> <branch_name>`: This command fetches and merges changes.

# Example: Creating Github Repo

New repository

Q Type / to search

>

+

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere?  
[Import a repository.](#)


Required fields are marked with an asterisk (\*).

Repository template

No template

Start your repository with a template repository's contents.

Owner \*

Ayush-Bulbule

Repository name \*

PASC Git Sig


✔ Your new repository will be created as PASC-Git-Sig.

The repository name can only contain ASCII letters, digits, and the characters ., -, and \_.

Great repository names are short and memorable. Need inspiration? How about [laughing-parakeet](#) ?


Description (optional)

☒Public

Public

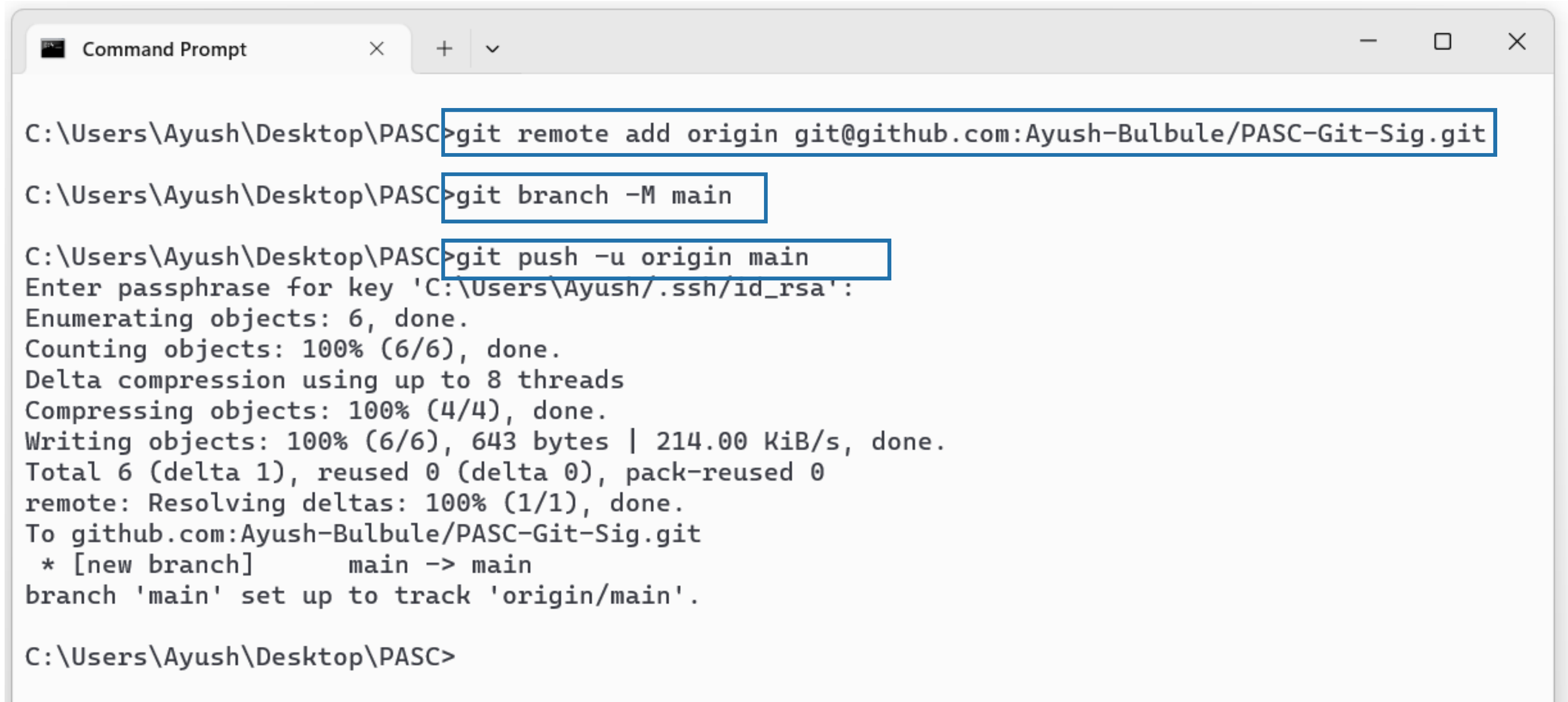
Anyone on the internet can see this repository. You choose who can commit.

☐Private

Private

You choose who can see and commit to this repository.

## Example: Adding code to Remote Repo



```
Command Prompt
C:\Users\Ayush\Desktop\PASC>git remote add origin git@github.com:Ayush-Bulbule/PASC-Git-Sig.git
C:\Users\Ayush\Desktop\PASC>git branch -M main
C:\Users\Ayush\Desktop\PASC>git push -u origin main
Enter passphrase for key 'C:\Users\Ayush/.ssh/id_rsa':
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 643 bytes | 214.00 KiB/s, done.
Total 6 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To github.com:Ayush-Bulbule/PASC-Git-Sig.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

C:\Users\Ayush\Desktop\PASC>
```

PICT-ACM-Student-Chapter / **ems-24-client**

<> Code

Issues

Pull requests

Actions

Projects

Security

Insights

ems-24-client

Private

Watch 0

Fork 0

Star 0

main

Go to file

+

<> Code

AdityaMore7000

fix team page

59e8be7 · last month

🕒 158 Commits

client

fix team page

last month

README

Add a README

Help people interested in this repository understand your project by adding a README.

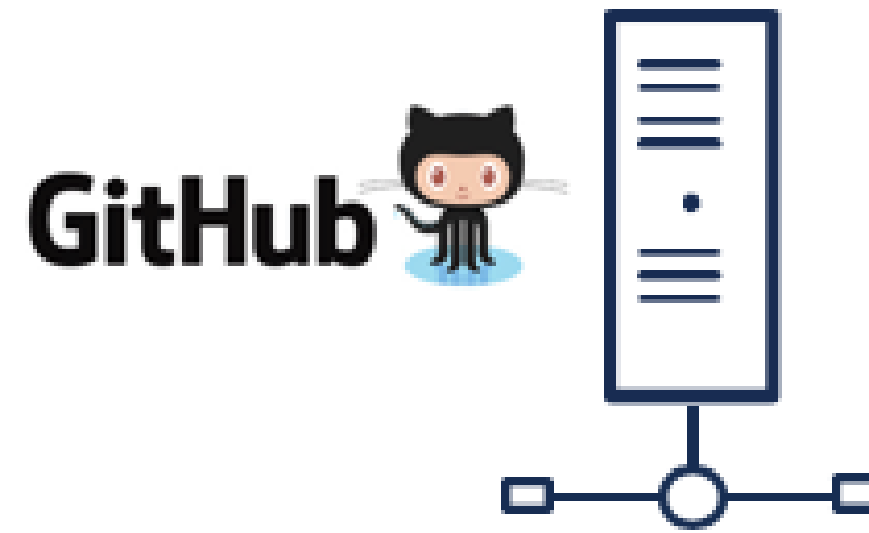
Contributors 11

Languages

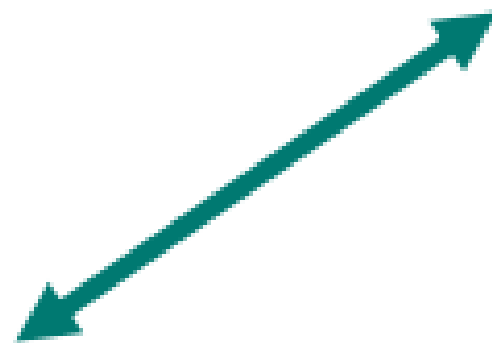
JavaScript 89.5%

CSS 10.0%

Other 0.5%



Remote repository on GitHub



Chan's machine



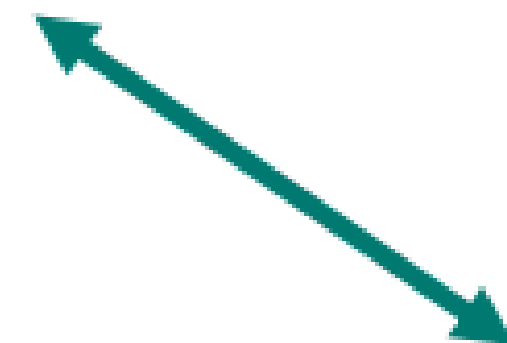
Local clone of repo



Maria's machine



Local clone of repo



D'Angelo's machine



Local clone of repo



## 06. Doubts Resolution

# Your Turn!

Ask your doubts....

