**What is Git?**

* Overview of Git as a distributed version control system
* Key features: speed, data integrity, and support for distributed workflows
* Historical context: Created by Linus Torvalds in 2005 for Linux kernel development

**Git Terminology**

* Repository (Repo)
* Commit
* Branch
* Merge
* HEAD
* Staging Area

**Basic Git Workflow**

* git init – Initialize a new repository
* git add – Stage changes
* git commit – Commit changes
* git status – Check repository status
* git log – View commit history

**Branching and Merging**

* Creating branches: git branch <branch-name>
* Switching branches: git checkout <branch-name>
* Merging branches: git merge <branch-name>
* Resolving merge conflicts

**What is GitHub?**

* GitHub as a cloud-based Git repository hosting service
* Features: Collaboration, Pull Requests, Issues, Actions
* Difference between Git and GitHub

**Setting Up Git and GitHub**

* Installing Git: [git-scm.com](https://git-scm.com/)
* Creating a GitHub account: [github.com](https://github.com/)
* Configuring Git with user details:

bash

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

git config --global user.email [youremail@example.com](mailto:youremail@example.com)

**GitHub Workflow**

* Creating a new repository on GitHub
* Cloning a repository: git clone <repo-url>
* Pushing changes to GitHub: git push
* Pulling updates from GitHub: git pull

**Collaborating on GitHub**

* Forking repositories
* Creating Pull Requests
* Reviewing and merging Pull Requests
* Managing Issues and Discussions

**Best Practices**

* Writing meaningful commit messages
* Using .gitignore to exclude unnecessary files
* Regularly pulling updates from the main branch
* Keeping branches focused and short-lived
* Uploading files from local to remote
* Working directory – git initialization( git init)
* Adding/staging area – git add . / file-name / foder-name
* Committing area – git commt -m “ m-msg pass related files, m Is flag”
* Remote directory – git push origin main / git push

commands

**git init**

**git add .**

**Git commit -m “ ”**

**Git remote add origin http url**

**Git status**

**Git branch -M main (M – rootbranch)**

**Git push origin main**

**Git config – global user.email “user email”**

**Git config –global user.name “user name”**