Git and GitHub Tutorial

Name:- Mihir kumar

Regd.no.:- 2141011109

Introduction to Git

Git is a distributed version control system that helps developers manage and track changes to their code over time. It allows multiple developers to work on the same project simultaneously without interfering with each other's work.

GitHub is a cloud-based hosting service for Git repositories. It allows users to store and manage their Git repositories and collaborate on projects.

Git Basics Key Concepts:

Repository (Repo): A project folder that contains all your code and version history.

Commit: A snapshot of changes made to files. Commits are like save points in your project.

Branch: A parallel version of the repository, where developers can work on features independently.

Merge: Combining changes from different branches into a single branch.

Clone: A copy of a repository from GitHub to your local machine.

Using GitHub

Step 1: Create a GitHub Account

- Go to GitHub.com and sign up for a free account.

Step 2: Create a New Repository on GitHub

- Click on the New Repository button.

- Name the repository, set visibility, initialize with README if needed.

- Click Create Repository.

Step 3: Clone the Repository

- Click the green Code button and copy the HTTPS URL.

- Run: git clone <repository-url>

Step 4: Push Changes

- Edit/add/delete files.

- Use git add, git commit, and git push to update GitHub.

Git and GitHub Workflow

Basic Workflow:

- Clone the repository

- Create a new branch

- Make changes, stage, and commit

- Push and create a Pull Request

Pull Request:

- A PR proposes changes to a repository.

- Review and merge via 'Compare & pull request' button.

Git Commands with Examples

Git and GitHub Tutorial

git --version

Displays the Git version.

Usage:

git --version

Example Output:

git version 2.34.1

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

Sets your Git username globally.

Usage:

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

git config --global user.email "youremail@example.com"

Sets your Git email globally.

Usage:

git config --global user.email "youremail@example.com"

git init

Initializes a Git repository.

Usage:

git init

ls -a

Lists all files including hidden ones.

Usage:

ls -a

Example Output:

. .. .git file1.txt file2.txt

git add file.txt

Stages a file.

Usage:

git add file.txt

git status

Shows current status.

Usage:

git status

Example Output:

On branch main

Your branch is up to date with 'origin/main'.

Changes not staged for commit:

modified: file.txt

Untracked files:

hello.txt

git commit -m "file updated"

Commits changes.

Usage:

git commit -m "file updated"

git checkout -f

Discards local changes.

Usage:

git checkout -f

git mv text.txt text1.txt

Renames or moves a file.

Usage:

git mv text.txt text1.txt

git ls-files

Lists tracked files.

Usage:

git ls-files

git log

Shows commit history.

Usage:

git log

Example Output:

commit 1234abcd5678efgh

Author: Your Name <youremail@example.com>

Git and GitHub Tutorial

Date: Mon Oct 5 12:34:56 2025 -0400

file updated

git branch

Lists all branches.

Usage:

git branch

Example Output:

* main

develop

feature-xyz

git branch wipro

Creates a new branch.

Usage:

git branch wipro

git checkout wipro

Switches to the wipro branch.

Usage:

git checkout wipro

git merge wipro

Merges wipro into current branch.

Usage:

git merge wipro

git branch -d wipro

Deletes the wipro branch.

Usage:

git branch -d wipro

To force delete: git branch -D wipro

git clone <repository-url>

Clones a repository.

Usage:

git clone <repository-url>

Example:

git clone https://github.com/username/repository.git

git rm hello.txt

Removes a file and stages deletion.

Usage:

git rm hello.txt

touch hello.txt

Creates a new empty file.

Usage:

touch hello.txt