**GIT ASSIGNMENT-1**

**1. Repository Setup**

**git init**

* Purpose: Initializes a new Git repository in your project directory.
* Usage:git init

**git clone <repository-URL>**

* Purpose: Creates a local copy of a remote GitHub repository.
* Usage:git clone https://github.com/user/repository.git

**2. Staging and Committing Changes**

**git status**

* Purpose: Shows the current state of the working directory and staging area.
* Usage:git status

**git add <file> or git add .**

* Purpose: Adds file(s) to the staging area.
* Usage:git add filename.txt # Single file
* git add . # All files

**git commit -m "message"**

* Purpose: Commits the staged changes with a message.
* Usage:git commit -m "Add new feature"

**3. Working with Remote Repositories (GitHub)**

**git remote add origin <url>**

* Purpose: Links your local repo to a GitHub repo.
* Usage:git remote add origin https://github.com/user/repo.git

**git push -u origin main (or master)**

* Purpose: Pushes your local commits to GitHub and sets the upstream branch.
* Usage:git push -u origin main

**git pull**

* Purpose: Fetches and merges changes from GitHub into your local branch.
* Usage:git pull origin main

**git fetch**

* Purpose: Downloads changes from the remote but doesn't merge them.
* Usage:git fetch origin
* **4. Branching and Merging**

**git branch**

* Purpose: Lists all local branches.
* Usage:git branch

**git branch <branch-name>**

* Purpose: Creates a new branch.
* Usage:git branch feature-xyz

**git checkout <branch-name>**

* Purpose: Switches to a different branch.
* Usage:git checkout feature-xyz

**git checkout -b <branch-name>**

* Purpose: Creates and switches to a new branch.
* Usage:git checkout -b feature-xyz

**git merge <branch-name>**

* Purpose: Merges a branch into the current branch.
* Usage:git merge feature-xyz

**5. Undoing Changes**

**git reset <file>**

* Purpose: Unstages a file.
* Usage:git reset filename.txt

**git reset --hard**

* Purpose: Resets everything to the last commit, discarding all changes.
* Usage:git reset --hard

**git revert <commit-id>**

* Purpose: Reverts a specific commit by creating a new inverse commit.
* Usage:git revert a1b2c3d

**7. Viewing History**

**git log**

* Purpose: Shows the commit history.
* Usage:git log

**git show <commit-id>**

* Purpose: Shows details of a specific commit.
* Usage:git show a1b2c3d

**9. GitHub Configuration**

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

* Purpose: Sets your GitHub username.
* Usage:git config --global user.name "John Doe"

**git config --global user.email "your@email.com"**

* Purpose: Sets your GitHub email.
* Usage:git config --global user.email "john@example.com"