1.GIT INSTALLATION AND SETUP (WINDOWS)

✅ **Step 1: Visit Git Official Website**

- Open your browser and go to: **https://git-scm.com**
- Click on **"Download for Windows"**.

✅ **Step 2: Run the Git Installer**

- Double-click the downloaded installer to run it. The Git Setup Wizard will appear.

✅ **Step 3: Select Installation Location**

- Choose a location or keep the default one. Click **Next**.

✅ **Step 4: Select Components**

- Leave all default options selected. Click **Next**.

✅ **Step 5: Select Default Editor for Git**

- Choose a text editor (e.g., Notepad++, VS Code, Vim). Click **Next**.

✅ **Step 6: Adjust PATH Environment**

- Choose: “Git from the command line and also from 3rd-party software”
- Click **Next**.

✅ Step 7: Choose HTTPS Transport Backend

- Choose the default: “Use the OpenSSL library”
  Click Next.

✅ **Step 8: Configure Line Ending Conversion**

- Select: **“Checkout Windows-style, commit Unix-style line endings”**
- Click **Next**.

✅ **Step 9: Choose Terminal Emulator**

- Choose: **“Use MinTTY (default terminal)”**
  Click **Next**.

✅ **Step 10: Install Git**

- Click **Install** and wait for the installation to complete.

✅ **Step 11: Complete the Setup**

- Click **Finish** once the installation is done.

✅ **Step 12: Verify Git Installation**

- Open Git Bash or Command Prompt, then type:
  git --version

✅ **Step 13: Configure Username and Email**

Type the following commands:

- git config --global user.name "Your Name"
- git config --global user.email "your@example.com"

✅ **Step 14: Confirm Git Configuration**

To confirm the setup, type:

- git config --list

2.GITHUB OPERATIONS

✅ a. Create a Git Repository

- mkdir my-project
- cd my-project
- git init

git init initializes an empty Git repo in your folder.

✅ b. Clone a Repository

- git clone https://github.com/username/repo-name.git
- cd repo-name

✅ c. Make Changes, Stage, and Commit

- 1.Make a file and edit:
  echo "Hello, Git!" > hello.txt
- 2. Stage the changes:
  git add hello.txt
- 3. Commit the change:
  git commit -m "Add hello.txt"
- 4. Pushing file to GIT Hub :
  git push -u origin main

✅ d. Branching and Merging

- 1. Create a new branch:
  git branch b1
- 2. Switch to that branch:
  git checkout b1
- 3. Make changes:
  echo "More content" >> hello.txt
  git add hello.txt
  git commit -m "Updated hello.txt in feature-1 branch"
  git push -u origin b1
- 4. Switch back to main/master:
  git checkout main
- 5. Merge the branch:
  git merge b1
  OR
  git merge –no-ff b1

✅ e. Check Logs, History, and Versions

- 1. Git Log:
  git log
- 2. View a particular commit:
  git show <commit-hash>
- 3. File-specific history:
  git log hello.txt
- 4. Check difference between commits:
  git diff HEAD~1 HEAD