a) Steps for Git Installation and Setup

1. Download Git

- Go to the official Git website: https://git-scm.com
- Choose your operating system (Windows, Linux, or macOS)
- Download the installer

2. Install Git

- Run the installer (Windows: .exe, Linux/macOS: package manager)
- Keep the default settings (recommended)
- Finish the installation

3. Verify Installation

Open terminal (Command Prompt, Git Bash, or Linux terminal) and type:

```
git --version
```

You should see the installed Git version.

4. Initial Setup (Configure Username & Email)

Run these commands:

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

Check config:

```
git config --list
```

b) Performing Operations using Local Git

1. Create a Repository

mkdir my_project
cd my_project
git init

👉 This creates a new repository inside the my_project folder.

2. Clone a Repository

If you already have a remote repository (like GitHub/GitLab), clone it using:

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

3. Making Changes, Staging, and Committing

1. Create a file:
   echo "Hello Git" > file.txt

2. Check status:
   git status

3. Stage the file:
   git add file.txt

4. Commit the changes:
   git commit -m "Added file.txt with Hello Git message"

4. Branching and Merging

1. Create a branch:
   git branch feature1

2. Switch to the branch:
git checkout feature1

3. Make changes, add, and commit

4. Switch back to main:
git checkout main

5. Merge the branch:
git merge feature1

5. Check Log, History, and Versions

1. View commit history:
git log (Press 'q' to quit)

2. Show a simplified one-line log:
git log --oneline

3. Check file changes:
git diff

4. Show file version history:
git show <commit_id>