Lab Experiment 5: How to use Git effectively?

The main objectives of this lab are to:

1. Understand the purpose of version control systems.

2. Learn how to set up and configure Git.

3. Practice essential Git commands for managing code effectively.

4. Explore collaboration workflows with branching and merging.

Key Git Concepts:

● Repository (repo): A storage location for your project.

● Commit: A snapshot of your project at a certain time.

● Branch: A parallel version of your project for isolated development.

● Merge: Integrating changes from one branch into another.

● Remote: A version of your project hosted online (e.g., GitHub).

Procedure

Step 1: Install and Configure Git

```
git --version
```

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

Step 2: Create a New Repository

```
mkdir my_project
cd my_project
git init
```

Step 3: Add and Commit Files

```
echo "Hello Git" > file.txt
git status
git add file.txt
git commit -m "Initial commit with file.txt"
```

Step 4: Create and Switch Branches

git branch new_feature

git checkout new_feature

Step 5: Merge Branches

git checkout main

git merge new_feature

Step 6: Connect to Remote Repository

git remote add origin https://github.com/username/my_project.git

git push -u origin main

Command Description

git init Initialize a repository

git status Show changes status

git add <file> Stage file changes

git commit -m

"msg"

Save staged changes with a

message

git branch List branches

git checkout

<branch>

Switch branches

git merge <branch> Merge a branch into current branch

git push Upload local changes to remote

git pull Download changes from remote