

# Lab Assignment 1

**Course:** CS202 Software Tools and Techniques for CSE

**Lab Topic:** Introduction to Version Controlling, Git Workflows, and Actions

**Date:** 04<sup>th</sup> August 2025

## Objective

The purpose of this lab is to familiarize students with the basic concepts of version control systems (VCS), understand their importance in software development and testing, and get hands-on experience with Git.

## Learning Outcomes

By the end of this lab, students will be able to:

- ✓ Understand the purpose and benefits of using version control systems.
- ✓ Set up and configure Git on their systems.
- ✓ Perform basic Git operations such as initializing a repository, adding files, committing changes, and viewing the commit history.
- ✓ Learn how to work with remote repositories on GitHub.

## Pre-Lab Requirements

- Any Operating System (Windows, Linux, MacOS, etc.)
- Install Git on your local machine: [Download Git](#).
- Create an account on GitHub: [Sign Up on GitHub](#).
- Install a code editor (e.g., Visual Studio Code or any editor of your choice but VS is preferred).

## Lab Activities

### (a) Understanding Version Control

- TA-led discussion on the importance of version control systems.
- Overview of popular VCS tools like Git
- Key concepts: repository, commit, branch, merge, and remote.

### (b) Git Basics

#### ☐ Setting up Git:

- Configure Git with your name and email
- Verify configuration

#### ☐ Initializing a Local Repository:

- Create a new folder named “Any\_Name”.
- Initialize a Git repository
- ❑ **Adding and Committing Files:**
  - Create a new file README.md and add some content.
  - Add the file to the staging area.
  - Commit the file with a message.
- ❑ **Viewing the Commit History:**
  - View the commit history.

### (c) Working with Remote Repositories

- ❑ **Connecting to GitHub:**
  - Create a new repository on GitHub named “Any\_Name”.
  - Link the local repository to GitHub
- ❑ **Pushing Changes to GitHub:**
  - Push the committed changes to GitHub.
- ❑ **Cloning a Repository:**
  - Clone an existing repository from GitHub to your local machine
- ❑ **Pulling changes:**
  - Demonstrate how to pull updates from the remote repository

(d) Setup a **pylint** workflow (via GitHub Actions), commit your **own** code ( $\geq 30$  lines of Python3) and resolve all errors until a green tick (✓) appears.

### Resources

- [Git Documentation](#)
- [GitHub Guides](#)

**Note:** Please reach out to TAs for any queries/issues.