Lab Assignment 1

Course: CS202 Software Tools and Techniques for CSE
Lab Topic: Introduction to Version Controlling, Git Workflows, and Actions
Date: 09th January 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 (>=30 lines of Python3) and resolve all errors until a green tick (✓) appears.

Resources

- Git Documentation
- GitHub Guides

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