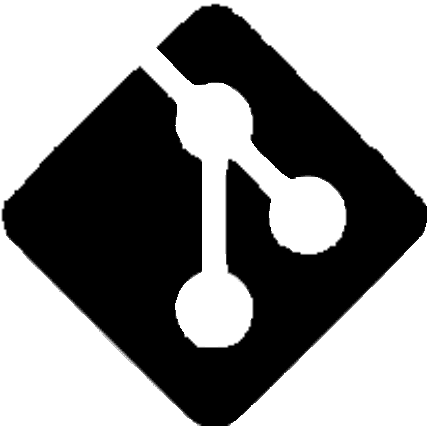
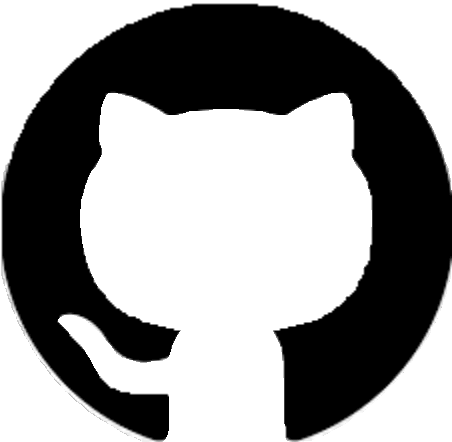
Source Code Management

**Course Code: CSE 2015 Slot: L14 L15**



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**Lab Session 1: Git Fundamentals**

**Computer**

A **computer** is any device capable of performing calculations, whether they are logical or mathematical.

**Program/Code**

A **program** (or **code**) is a set of instructions, often organized as an algorithm, that directs a computer to perform a specific task.

**Need for Managing Source Code**

Modern applications, such as Spotify, consist of multiple programs working together on both the frontend and backend to deliver smooth user experience. Regular updates are essential for:

* **Fixing Bugs:** Quickly resolving errors that may occur.
* **Improving UI/UX:** Enhancing the user interface and overall experience.
* **Optimizing Performance:** Addressing and refining issues for better performance.

For programmers, effective management of source code is crucial because:

* It ensures that all files remain in context throughout the lifecycle of the program.
* It facilitates collaboration, allowing multiple developers to work together on a shared codebase.

**Tools for Source Code Management**

### Git:

A version control system that runs locally on your computer. Git helps track changes and manage versions of your project.

### GitHub:

A global, cloud-based platform that hosts Git repositories, enabling developers to share, collaborate, and contribute to projects from anywhere in the world.

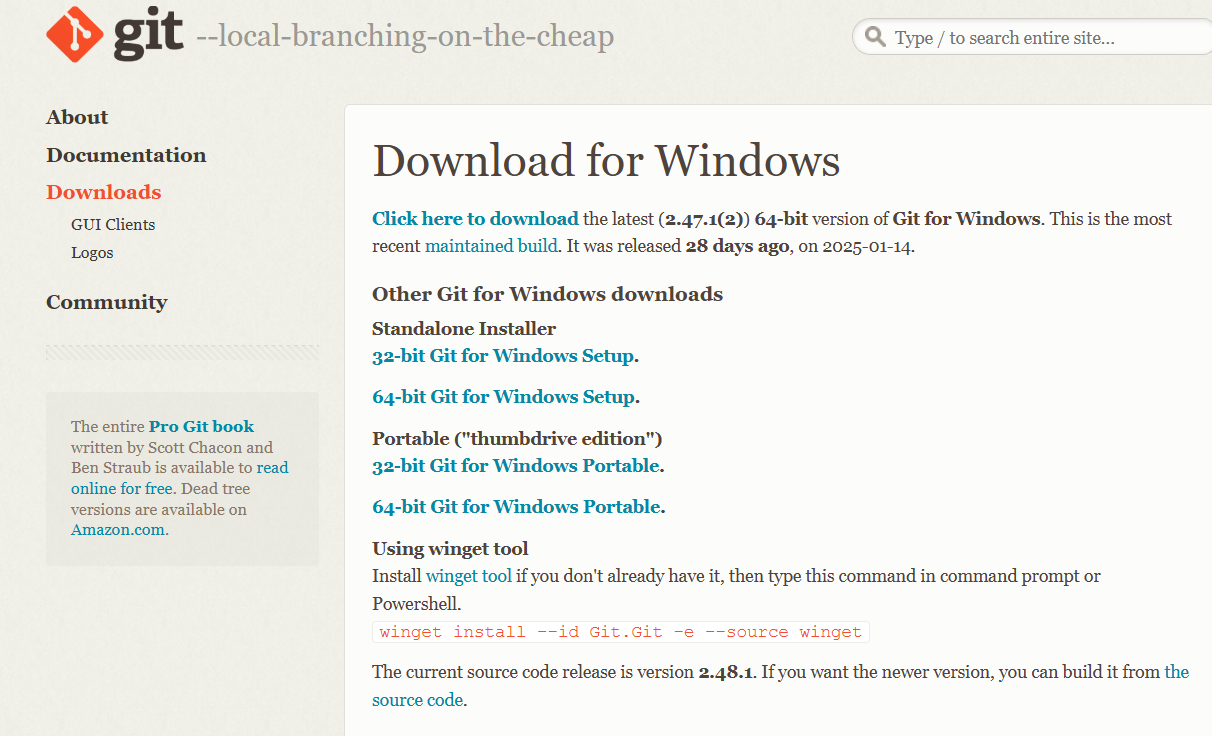
**Version**

A **version** in version control represents a snapshot of your project at a specific moment in time. This snapshot allows you to review, revert, or compare changes made throughout the development process.

# Lab Practical 1

## Installing Git in Windows

Step 1: Visit section 1.5 of pro git document and navigate to Windows section



Step 2: Verify Git Installation:



# Basic CLI Commands

## 1) Command: pwd

**Description:** Prints the directory the user is working in.

A black background with green text

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## 2) Command: ls

**Description:** Lists all files and directories in the current directory.

A screenshot of a computer

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## Command: date

Description: shows the current date and time in a standard format

A black screen with green numbers

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## Command: clear

Description: The clear command in the CLI is used to clear all the current text and output displayed in the terminal window.



## Command: time

Description: The time command in the CLI is used to measure the execution time of a command or program.

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## Command: cd ‘Directory’

**Description:** Changes the current working directory to the desired directory.

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## Command: cd ..

Description: Goes back to the previous directory.

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## Command: mkdir

**Description:** To create a new directory.

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## 9. Command: rmdir

**Description: To delete a directory**

A screenshot of a computer

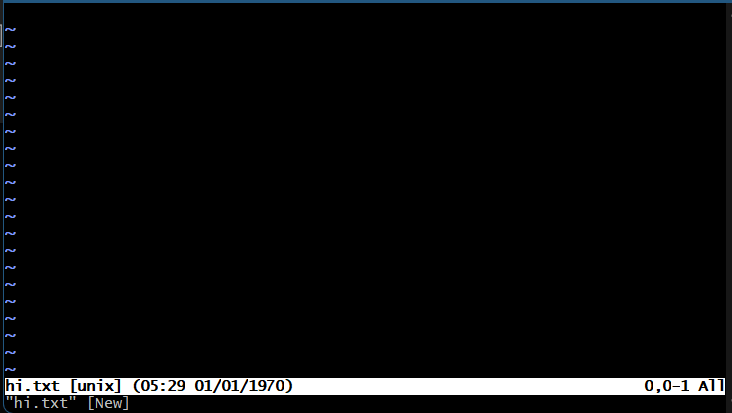
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# 3. Vim Text Editor

## Command: vi hi.txt

**Description:** Opens (or creates) the file hi.txt in the Vim text editor.

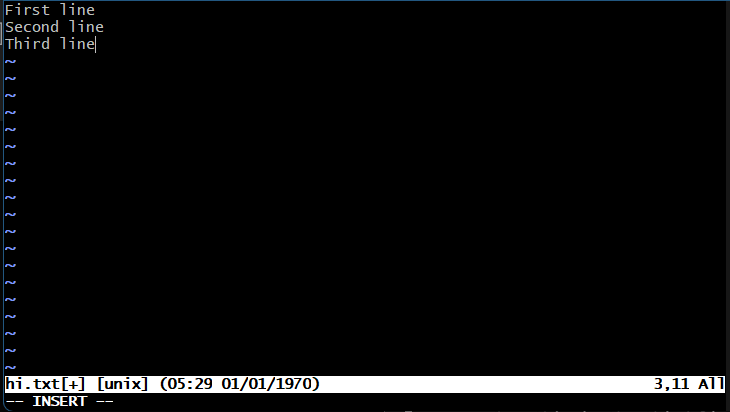




## Command: i (Insert Mode)

**Description:** Enters insert mode in Vim to allow text input.





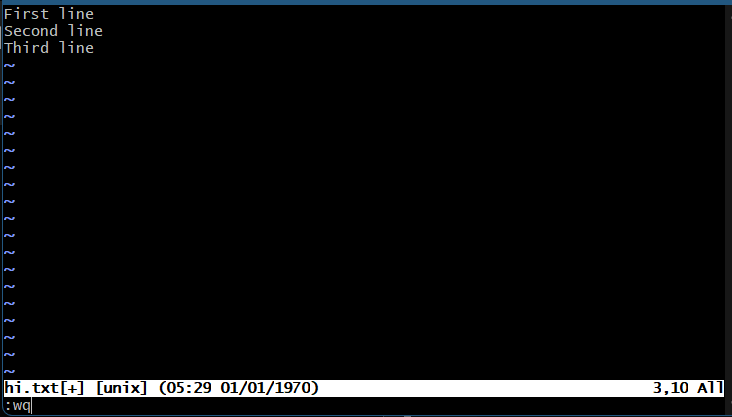
## Command: esc

Description: Used to exit insert mode



1. **Command: :wq**

**Description:** Saves the changes and exits the Vim editor.



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# 4. Git Commands

## Command: git - - version

Description: The git --version command is used to check the installed version of Git on your system.

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1. **Command: git init**

**Description:** Initializes a new Git repository in the current directory.

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1. **Command: git status**

**Description:** Displays the current status of the working directory and staging area.

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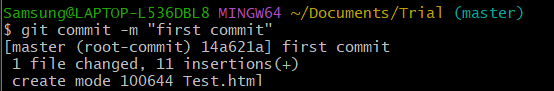
**4. Command: git add Test.c**

**Description:** Add Test.c to the staging area in preparation for a commit.



**5. Command: git commit -m “add file one”**

**Description:** Commits the stage changes with the message “add file one”.



**6. Command: git log**

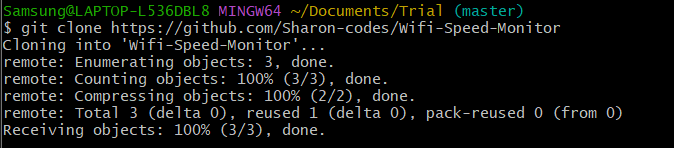
**Description:** Display the commit history of the repository.

A screenshot of a computer

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**7. Command: git clone**

**Description:** To obtain a copy of an existing Git repository.



**8. Command: git log --oneline**

**Description:** For generating shorter commit ID.

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SCM Project

The project was to make a repository in GitHub, make 3 branches and merge it with the main branch and access all 4 team-mate’s repositories, fork it, clone it, make some changes and merge them.

First, make your own repositories and make 3 branches and add files and merge with the main branch.

1. Go to the directory on your computer



1. Clone the GitHub repositories

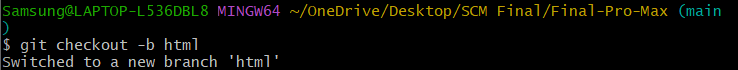
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1. Change to the folder



1. Now that you are in the main branch, make a new branch (html)



1. Create a file, add code and add the file

A black screen with yellow text

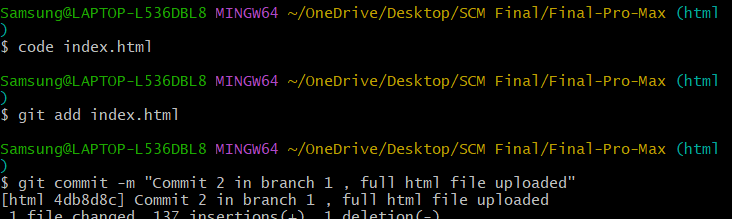
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1. Commit the file as commit 1 in branch 1

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1. Reopen the file, make changes and commit it as commit 2 in branch 1



1. Push the html branch

A screenshot of a computer program

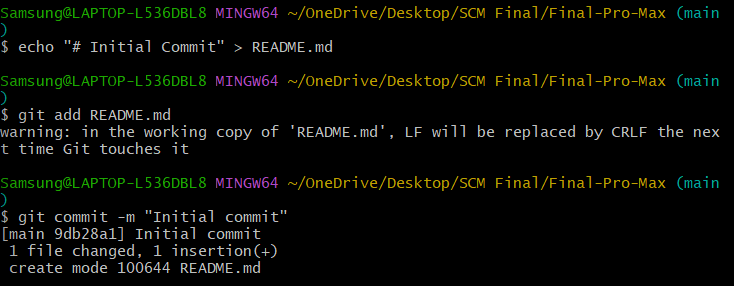
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1. Go back to the main branch

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1. Make an initial commit as a README.md and commit it

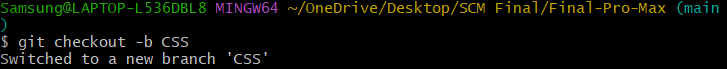


1. Push the main branch

A computer screen shot of a program

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1. Creating a new branch (CSS)



1. Create a file, add code and add the file, Commit the file

A screenshot of a computer program

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1. Reopen the file, make changes and commit it

A computer screen with text

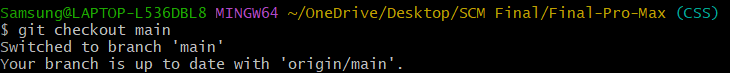
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1. Push the CSS branch

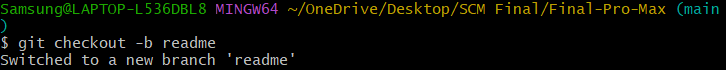
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1. Go back to the main branch



1. Create a new branch (readme)

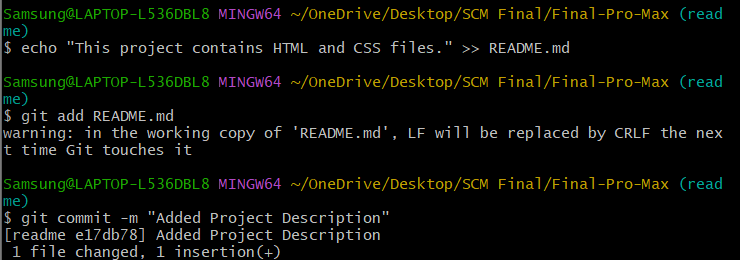


1. Using echo, add some lines and commit it as Added README title

A computer screen with text

AI-generated content may be incorrect.

1. Using echo, add some more edits and commit it as Added Project Description

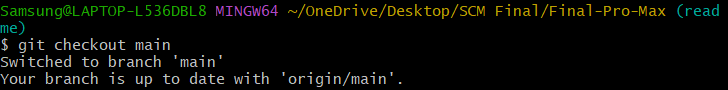


1. Push the readme branch

A computer screen shot of a program

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1. Go back to the main branch



1. Merge html, CSS, readme branches

A computer screen shot of a computer program

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1. Push the main branch

A screenshot of a computer

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Now we will clone the repository of all my Team Members, ADITYA, KHUSHI, ISHRIT and RITVIK

* Aditya

1. Go back to the folder where you want to save the folder



1. Fork the repository
2. Clone it

A computer screen shot of a computer code

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1. Change to the cloned repository folder



1. Git remote add

A screen shot of a computer

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1. Open the file you want to edit and make some changes, add the file and commit it

A screen shot of a computer

AI-generated content may be incorrect.

1. Push the main branch

A screen shot of a computer

AI-generated content may be incorrect.

* Khushi

1. Go back to the folder where you want to save the folder



1. Fork the repository
2. Clone it

A screen shot of a computer

AI-generated content may be incorrect.

1. Change to the cloned repository folder



1. Git remote add

A screen shot of a computer

AI-generated content may be incorrect.

1. Open the file you want to edit and make some changes, add the file and commit it

A screen shot of a computer program

AI-generated content may be incorrect.

1. Push the main branch

A screen shot of a computer

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* Ritvik

1. Go back to the folder where you want to save the folder



1. Fork the repository
2. Clone it

A screen shot of a computer

AI-generated content may be incorrect.

1. Change to the cloned repository folder



1. Git remote add

A screen shot of a computer

AI-generated content may be incorrect.

1. Open the file you want to edit and make some changes, add the file and commit it

A screenshot of a computer program

AI-generated content may be incorrect.

1. Push the main branch

A screen shot of a computer

AI-generated content may be incorrect.

* Ishrit

1. Go back to the folder where you want to save the folder



1. Fork the repository
2. Clone it

A computer screen with white text

AI-generated content may be incorrect.

1. Change to the cloned repository folder



1. Git remote add

A screen shot of a computer

AI-generated content may be incorrect.

1. Open the file you want to edit and make some changes, add the file and commit it

A screen shot of a computer

AI-generated content may be incorrect.

1. Push the main branch

A screen shot of a computer

AI-generated content may be incorrect.