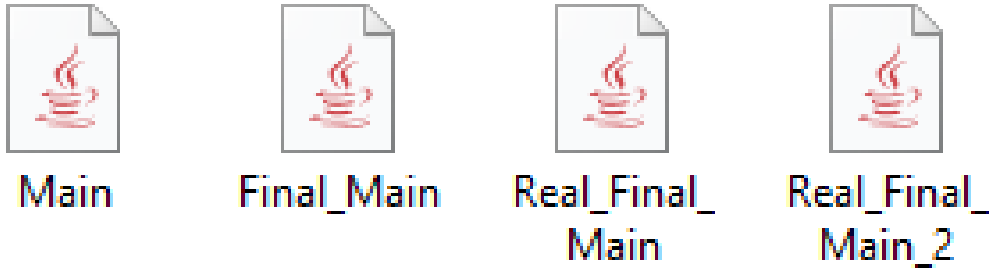
About Git & GitHub

CSCI 3326 OBJECT ORIENTED PROGRAMMING IN JAVA

CSCI 3341 SOFTWARE ENGINEERING II

Topics

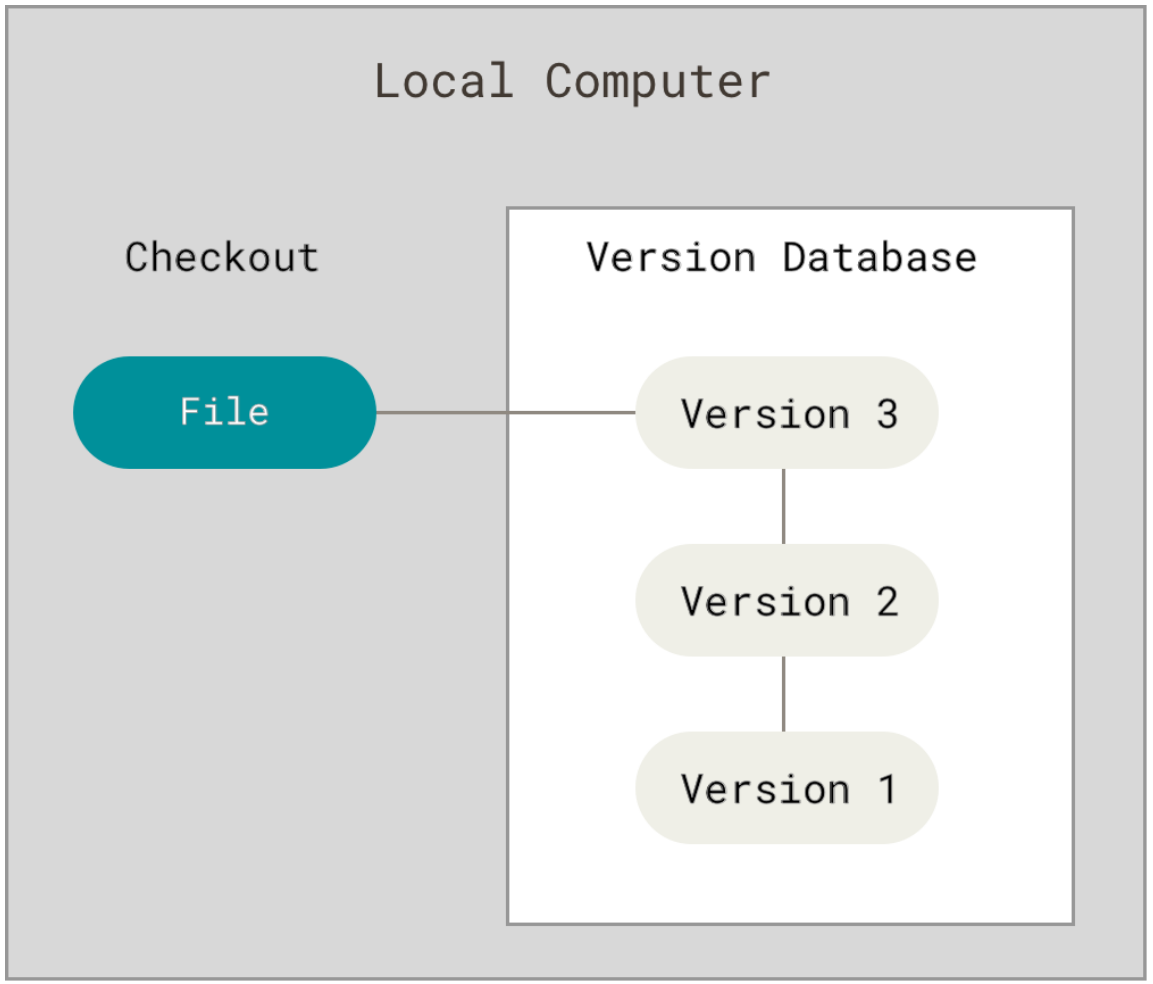
- What is **Version Control**?
- What is a **Version Control System**?
- What is a **Distributed Version Control System**?
- What are **Git & GitHub**?
- How to **Install Git** (Optional)
- Creating a GitHub Account
- What is **GitHub Codespace**?



Version Control

Version control is the **practice of keeping track of computer files**, primarily source code. This includes details such as authorship and timestamps.

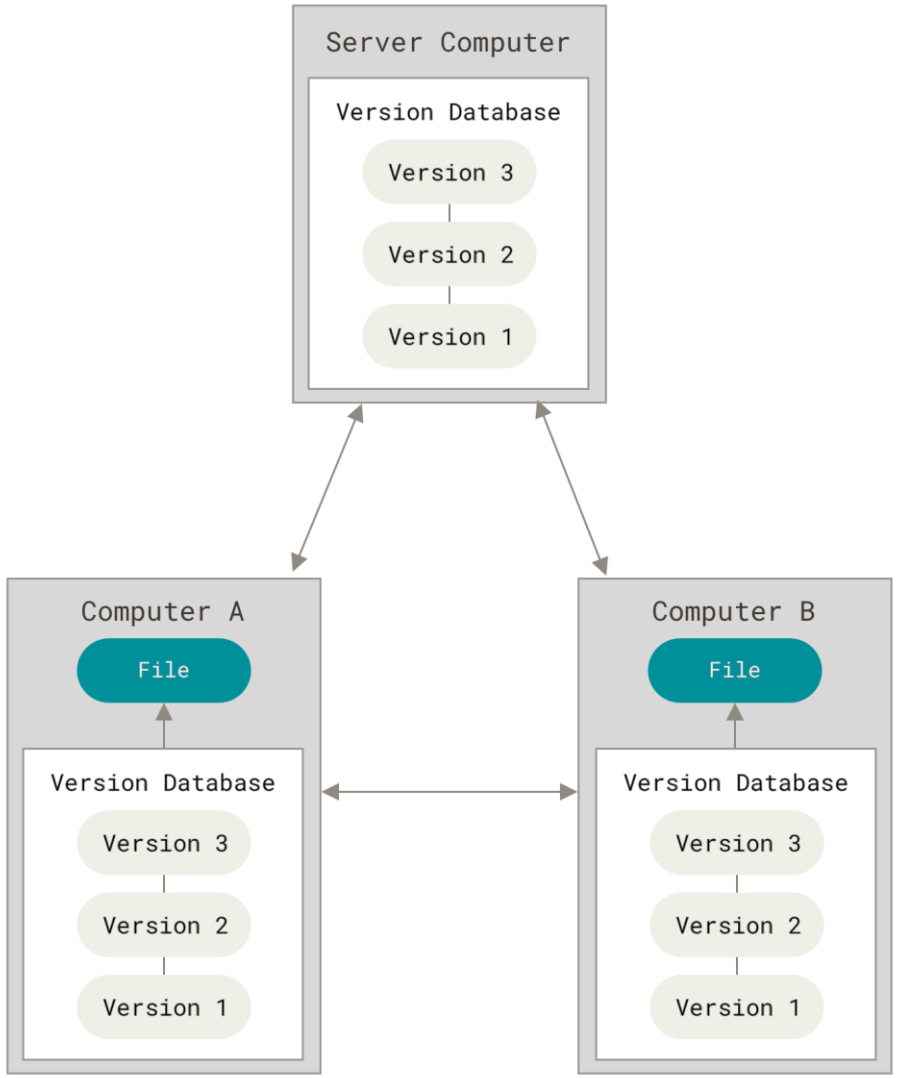
Practicing version control helps developers recover every change made to files and enables them to revert to a previous version.



Version Control System

A version control system is **a software tool designed to manage and track changes made to files,** particularly in software development projects.

The location where files and their versions are stored is called a **repository**.



Distributed Version Control System

A distributed version control system (DVCS) **enables multiple developers to collaborate on a single project.** Each collaborator has a full copy of the project's repository in their local computer.

A **DVCS uses the cloud as a central repository** where collaborators can upload and download updates from others. This allows collaborators to synchronize their work.

Git & GitHub

Git is the most popular distributed version control system software used by developers (Skip to slide 7 for how to install). Once installed, you can **use Git by typing commands in the terminal** or by using a UI such as **Visual Studio Code** or **GitHub Desktop**.

GitHub is not a version control system itself, but a **web-based platform for collaborators to host their central repository**. GitHub is the most popular cloud platform for working with Git.

Installing Git (Optional)

Click on the link that applies to your operating system (OS). If are having difficulty following the steps provided in the links below, I suggest you follow a YouTube tutorial.

- Installing Git on a Windows OS
- Installing Git on a Mac OS
- Installing Git on Chrome OS
- Installing Git on a Linux OS

Creating a GitHub Account

For this course, **all assignments will be issued through GitHub Classroom**. You will clone a central repository from the cloud, make changes locally, then upload your changes.

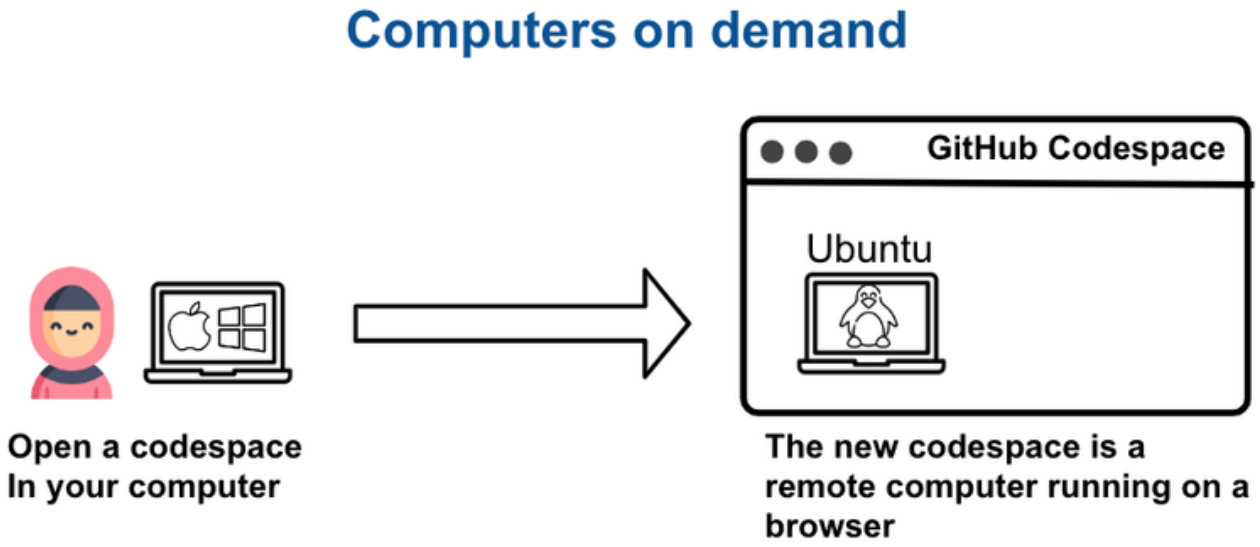
If you do not have a GitHub account, go ahead and Sign Up.

You do not have to use your UTRGV email.

When choosing your username keep in mind it will be visible by other collaborators, the instructor, and possible job recruiters.

Why is installing Git Optional?

This course offers you the option of working with GitHub Codespaces.



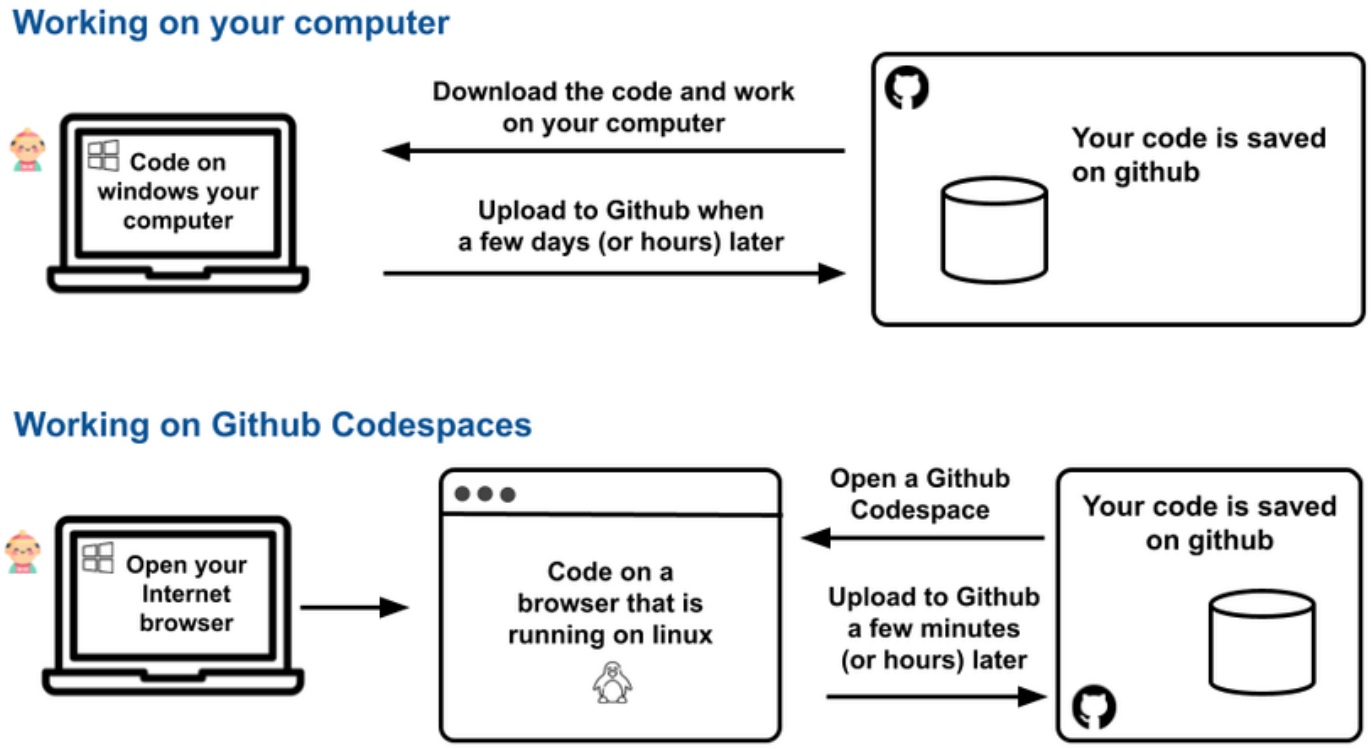
GitHub Codespace

A GitHub Codespace is **a cloud-based development environment that allows developers to write, test, and debug code directly in the cloud** without the need for complex local setups.

It's a remote virtual computer you connect to through your browser.

Pros: You don't have to worry about installing any software.

Cons: Poor internet is a nightmare.



Local Computer vs Codespace

Working in a Codespace is just like working in your local computer, you still need to upload your changes to the central repository.

NOTE: You are **NOT** uploading your changes when saving your work in a codespace. **A CODESPCE IS A SEPARATE COMPUTER IN THE CLOUD**.