CSE210 | Programming with Classes (Notes)

W01

Software needed for the course:

* Python
* VS Code (IDE)
* Python extension in VS Code
* Python Bindings for Raylib 4.0.0

File and Folder Organization:

It’s not feasible to keep all code in one file, especially for large programs.

Code should be separated into different files. Code that relates to certain concepts or ideas should be placed together (This is called **abstraction**). This also helps when multiple people developing the program together.

The File System:

Data is stored in a hierarchical structure of folders and files. Folders can contain files and other folders.

Version Control System (VCS):

A system that tracks the history of changes as people/teams collaborate on projects together. They also allow any earlier version of the project to be recovered at any time.

Each contributor has a consistent view of the project and project history.

Git is the most popular DVCS (Distributed Version Control System).

Repositories:

A repository (or Git project) encompasses the entire collection of files and folders associated with a project, together with the history. The file history appears as snapshots in time called commits. Commits can be organized into multiple lines of development called branches. A Git repository allows for interaction with the history, cloning the repository, creating branches, committing, merging, comparing changes across versions of code, etc.

Basic Git commands:

git init – initializes a brand-new Git repository and begins tracking an existing directory.

git clone – creates a local copy of a project that already exists remotely.

git add – this command performs staging and takes a snapshot of the changes to include them in the project’s history. Any change that are staged will become a part of the next snapshot and a part of the project’s history.

git commit – saves the snapshot to the project history and completes the change-tracking process. It functions like taking a photo. Anything that’s been staged with git add will become a part of the snapshot with git commit.

git status – shows the status of changes as untracked, modified, or staged.

git branch – shows the branches being worked on locally.

git merge – merges lines of development together. It’s used to combine changes made on two distinct branches.

git pull – updates the local line of development with updates from its remote counterpart. These updates are pulled into the local environment.

git push – updates the remote repository with any commits made locally to a branch.