**Day 6 Assignment 1**

**1. explain the Architecture of Git**

**Git Architecture:**

Git is a Distributed Version Control System (DVCS), meaning it stores complete copies of the repository (codebase and history) on each user's machine. This allows for:

* **Offline Work:** You can work on your project even without an internet connection.
* **Collaboration:** Multiple users can work on the same project simultaneously on different machines.

Here's a breakdown of key components:

* **Working Directory:** The local directory containing your project's files.
* **Staging Area:** A temporary area where you stage changes to files before committing them.
* **.git Directory:** A hidden directory within your working directory that stores Git metadata, including:
  + **Git Objects:**
    - Blobs: Store raw file content.
    - Trees: Organize blobs into a directory structure.
    - Commits: Reference trees and contain commit messages, timestamps, and author information.
  + **References:**
    - Branches: Pointers to specific commits, enabling parallel development lines. 'master' is the usual main branch.
    - Tags: Named references to specific commits, useful for marking releases or milestones.
    - HEAD: A reference that points to the currently checked-out commit (the "active" commit).