Assignment 1: explain the Architecture of Git for assignment.

Here's an overview of the Git architecture:

Git Architecture:

Git is a distributed version control system that consists of the following components:

1. Repository (Repo):

The repository is the central location where all the files and history of a project are stored. It contains the entire history of the project, including all commits, branches, and tags.

2. Working Directory (Workspace):

The working directory is the local directory where you work on your files. It's where you make changes, add new files, and delete existing ones.

3. Index (Staging Area):

The index is a temporary storage area that holds the changes you've made in your working directory. It's used to stage changes before committing them to the repository.

4. Local Repository (Local Repo):

The local repository is a clone of the remote repository, stored on your local machine. It contains all the commits, branches, and tags from the remote repository.

5. Remote Repository (Remote Repo):

The remote repository is the central location where the project is stored, often on a server or cloud service like GitHub, GitLab, or Bitbucket.

Git Workflow:

Here's a high-level overview of the Git workflow:

1. **Clone**: Clone the remote repository to create a local repository on your machine.

2. **Checkout**: Checkout a branch or commit to start working on a specific version of the project.

3. **Make Changes:** Make changes to files in your working directory.

4. **Stage:** Stage changes by adding them to the index.

5. **Commit:** Commit changes to the local repository, creating a new commit object.

6. **Push:** Push commits from the local repository to the remote repository.

7. **Pull:** Pull changes from the remote repository to the local repository.

Git Objects:

Git uses several types of objects to store data:

1. **Blobs**: Binary Large OBjects, used to store file contents.

2. **Trees**: Directory listings, used to store file names and permissions.

3. **Commits**: Snapshots of the project at a particular point in time.

4. **Tags**: Named references to specific commits.