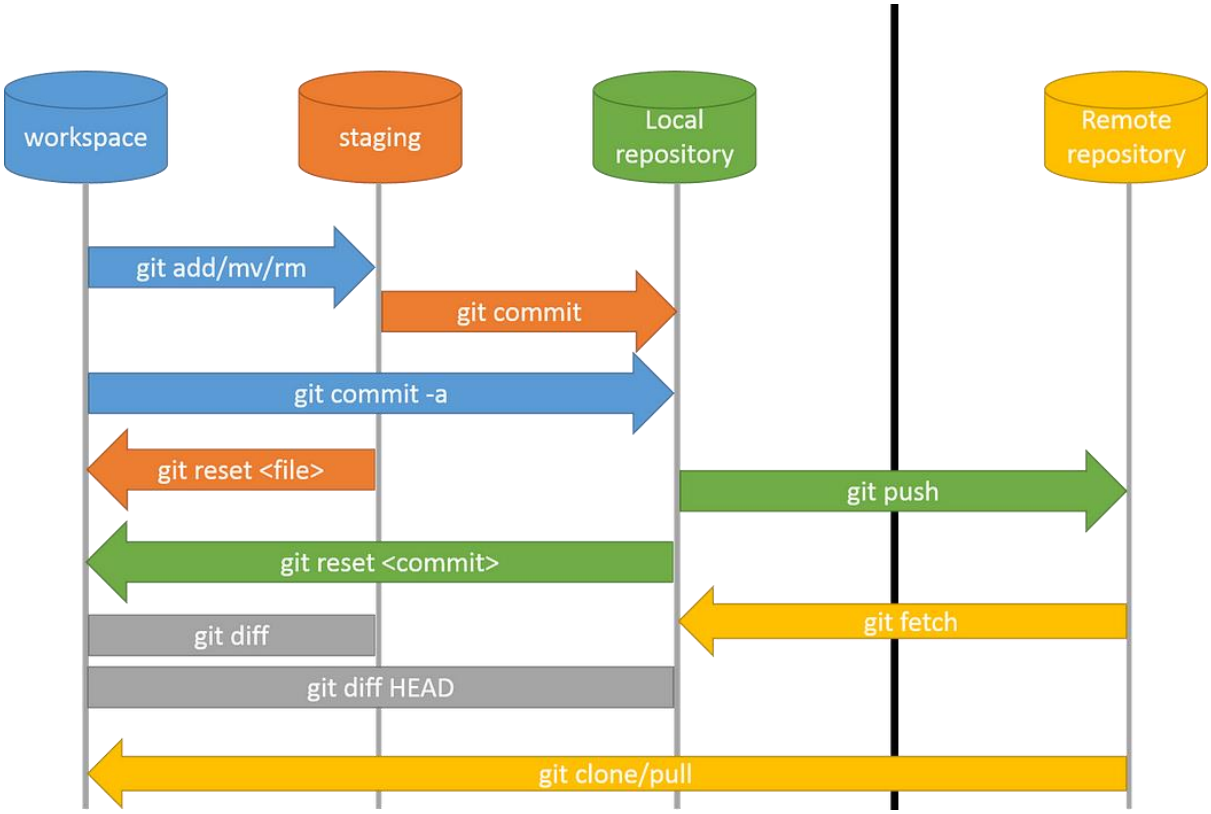
Write the architecture of git with diagram and give some explanation.



Architecture of Git

Git, a distributed version control system, has a well-defined architecture designed to efficiently track changes in a project's files and facilitate collaboration among developers. The architecture is organized into multiple components that work together seamlessly.

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1. Working Directory

- This is the local workspace where files are created, modified, and deleted.
- Files in the working directory can be in one of three states:
    - **Untracked**: Files not yet added to version control.
    - **Modified**: Files that have been edited since the last commit.
    - **Staged**: Files prepared for the next commit.

2. Staging Area (Index)

- The staging area is an intermediate storage area where changes are listed before committing them to the repository.
- It allows selective inclusion of changes in a commit, providing granular control over version history.

3. Local Repository

- The local repository is the .git directory in a project. It contains:
    - **Commits**: Snapshots of the project's state.
    - **Branches**: Pointers to commits.
    - **Tags**: References to specific commits for marking releases.
- It stores all versions of a project and metadata for version control.

4. Remote Repository

- The remote repository is hosted on a server (e.g., GitHub, GitLab) and acts as a central repository shared among developers.
- It enables collaboration by synchronizing changes through push, pull, and fetch operations.

5. Objects in Git

Git uses three key objects to manage data:

- **Blob (Binary Large Object)**: Stores file data.
- **Tree**: Represents a directory structure and contains pointers to blobs and other trees.
- **Commit**: Captures a snapshot of the repository and points to the associated tree.

6. Commands Interaction

- **Working Directory → Staging Area**: git add stages changes.
- **Staging Area → Local Repository**: git commit creates a commit from staged changes.
- **Local Repository → Remote Repository**: git push uploads commits to a remote repository.
- **Remote Repository → Local Repository**: git pull fetches and merges changes from a remote repository.