

Concepts of Git

Version Control: Git is a distributed version control system, providing a way to track changes in source code during software development.

Repository : Git repositories store project files and their complete history, enabling collaboration and version tracking.

Commit: A record of changes made to a repository at a specific point in time. It represents a snapshot of the files in the repository, capturing modifications, additions, or deletions.

Branch: A branch is an independent line of development, allowing changes to be made without affecting the main project until they're ready.

Merge: Merging combines changes from different branches into a single branch.

Forking: Forking is the process of creating a personal copy of someone else's repository.

Clone: Cloning is the process of copying a repository from a remote server to a local machine.

Push: Pushing is the process of sending local changes to a remote repository.

Pull: Pulling is the process of fetching changes from a remote repository and merging them into the local branch.

Git Commands

Git init: Initializes a new Git repository in the current directory.

git clone : Creates a copy of a remote repository on your local machine.

git status: Shows the status of changes as untracked, modified, or staged.

git add : Adds changes in a specific file to the staging area.

Git add : Adds all changes to the staging area.

git commit -m "Commit message": Records changes in the staging area with a descriptive message.

git branch : Creates a new branch.

git push origin [branch name]: Pushes changes to a remote repository.

git pull origin [branch name]: Fetches changes from a remote repository and merges them into the current branch.

GitHub: GitHub is a web-based platform that uses Git for version control. It provides features like pull requests, code review, and issue tracking. It's widely used for open-source and collaborative projects.

GitLab: GitLab is a web-based Git repository manager that includes features for continuous integration and deployment. It offers a complete DevOps platform, including project planning and monitoring.

Bitbucket: Bitbucket is a Git repository hosting service by Atlassian. It supports both Git and Mercurial and provides features like pull requests, branching strategies, and integrations with other Atlassian tools.

Industrial Practices of Using Git

Git is a tool used for source code management. It is a free and open-source version control system used to handle small to very large projects efficiently. Git is used to tracking changes in the source code, enabling multiple developers to work together on non-linear development.

Cloning

Cloning a repository to your local machine is the process of creating a local copy of a remote repository. This allows you to work on the project, track changes, and collaborate with others. The git clone command is used for this purpose. When you clone a repository, you download the entire project history, including all branches and commits, to your local machine. This local copy is independent of the remote repository, enabling you to make changes, create branches, and contribute to the project. Cloning is a fundamental step in initiating collaboration and version control in Git-based workflows.

Resources Used : Youtube, ChatGPT, Google