CONCEPTS OF GIT

Repository (Repo): A repository is a directory or storage space where your project resides, containing all the files, folders, and the version history of your project.

Commit: A commit is a snapshot of your project at a specific point in time. It records changes made to the files in the repository.

Branch: A branch is a separate line of development within a repository. It allows you to work on different features or fixes simultaneously without affecting the main codebase.

Merge: Merging combines changes from different branches into a single branch. It's often used to incorporate features or bug fixes back into the main branch.

Pull Request (PR): A pull request is a request to merge changes from one branch into another. It's commonly used for code review and collaboration.

Clone: Cloning is the process of creating a copy of a remote repository on your local machine. This allows you to work on the project locally.

Remote: A remote is a version of the repository that is hosted on the internet or a network. Commonly, it refers to the repository on platforms like GitHub, GitLab, or Bitbucket.

Fetch: Fetching involves retrieving changes from a remote repository without merging them into your local branch. This allows you to review changes before merging.

Pull: Pull is a combination of fetch and merge. It fetches changes from a remote repository and automatically merges them into the current branch.

Push: Pushing is the process of uploading your local changes to a remote repository. It updates the remote repository with your latest commits.

GIT COMMANDS

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

2. git clone [repository URL]: Creates a copy of a remote repository on your local machine.

3. git status: Shows the current status of your working directory, including changes and untracked files.

4. git add [file/directory]: Stages changes for the next commit, specifying the file or directory.

5. git add .: Stages all changes in the current directory for the next commit.

6. git commit -m "Commit message": Records staged changes with a descriptive commit message.

7. git branch: Lists all branches in the repository, highlighting the current branch.

8. git push origin [branch name]: Pushes committed changes in the specified branch to the remote repository.

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

GITHUB: GitHub is a widely-used web platform for hosting Git repositories, known for its collaborative features like pull requests, robust issue tracking, and integrated actions. It serves as a social coding hub, promoting open-source contributions and community engagement.

GITLAB: GitLab, a comprehensive DevOps platform, not only manages Git repositories but also offers robust CI/CD capabilities. With integrated features like issue tracking and code review, GitLab streamlines the development process and supports self-hosted installations for organizational flexibility.

BITBUCKET: Bitbucket, an Atlassian product, is a Git repository hosting service with support for Git and Mercurial. It seamlessly integrates with tools like Jira, providing flexibility in version control systems and offering features like branching strategies and CI/CD pipelines for efficient development workflows.

INDUSTRIAL PRACTICES OF USING GIT: In industry, Git is pivotal for version control, enabling effective collaboration through practices like feature branching and code reviews via pull requests.

CLONING: Git cloning is the process of creating a local copy of a remote repository, providing developers with a sandbox for local work. Initiated by the "git clone" command, it establishes a connection between local and remote repositories, facilitating collaborative and distributed development practices.

RESOURCES USED: YouTube, Google, GITHUB docs, ChatGPT