1. Concept of GIT explaining various terms

Repository: A Git repository is a collection of files, directories, and their version history, residing either locally on your machine or remotely.

Commit: Each commit in Git represents a snapshot capturing changes made to the files in the repository, allowing for efficient tracking of the project's evolution.

Branch: Git branches provide independent lines of development, allowing you to work on features or bug fixes without affecting the main codebase until you're ready to merge.

Merge: Merging in Git combines changes from different branches, typically used to integrate feature branches into the main branch.

Pull Request: In collaborative environments, a pull request (PR) is a mechanism for proposing changes, allowing others to review and approve before merging.

Conflict: Conflicts arise when Git cannot automatically merge changes, necessitating manual intervention for resolution.

2. Basic Commands of GIT

Initialize a Repository: git init

Add Changes to Staging Area: git add <file>

Commit Changes: git commit -m "Commit message"

Create a Branch: git branch <branch_name>

Switch Branch: git checkout <branch_name>

Merge Branches: git merge <branch_name>

Check Repository Status: git status

View Commit History: git log

3. Concepts on GITHUB, GitLab and BitBucket

GITHUB

- A web-based platform for hosting and collaborating on Git repositories.
- Offers features such as issues, pull requests, and actions for continuous integration.

GitLab

- A web-based Git repository manager with source code management and built-in CI/CD pipelines**.**

BitBucket

- A Git repository management solution by Atlassian, supporting both Git and Mercurial.
- Features pull requests, pipelines, and various integrations.

4. Industrial Practices of Using Git

Branching Strategy: Implementing a strategy like GitFlow facilitates effective management of features, releases, and hot fixes.

Continuous Integration (CI): Integrating Git with CI tools automates testing and building processes, ensuring code quality.

Code Reviews: Utilizing pull requests for code review enhances code quality and promotes knowledge sharing among team members.

5. Cloning a Repo to Local

To clone a repository to our local machine use code

git clone <repository_url>

6. Resources

- GitLab Documentation
- BitBucket Documentation
- Open AI