**OBJECTIVE**

**1. Branching in Git**

Branching in Git means creating an independent line of development separate from the main project history (usually master or main).

* A branch allows you to work on features, bug fixes, or experiments without affecting the main code.
* Every branch is essentially a pointer to a commit in Git.

**Key Points:**

* The default branch is usually master or main.
* Developers create feature branches or topic branches to isolate work.
* Branches can be merged back into the main branch once the work is complete.

**2. Merging in Git**

Merging is the process of combining the changes from one branch into another.

* Typically, you merge a feature branch into master or main after development is complete.
* Git automatically merges if there are no conflicts; otherwise, you must resolve conflicts manually.

**Types of Merge:**

1. **Fast-forward merge** – Happens when there are no new commits on the target branch since the source branch was created.
2. **Three-way merge** – Used when both branches have diverged.

**3. Creating a Branch in GitLab**

In GitLab, you can create a branch directly from the web interface:

1. Go to your GitLab repository.
2. Click Repository → Branches.
3. Click New branch.
4. Enter:
   * Branch name (e.g., feature-login)
   * Source branch (usually master or main)
5. Click **Create branch**.

**4. Creating a Merge Request in GitLab**

A Merge Request (MR) in GitLab is a request to merge changes from one branch into another.

* MRs are used for code review, discussion, and approval before merging.
* Commonly, you create an MR to merge a feature branch into master.

**Steps in GitLab:**

1. Push your branch to GitLab:

* git push origin feature-login

1. In GitLab, go to Merge Requests → New merge request.
2. Select:
   * Source branch = Your feature branch
   * Target branch = master (or desired branch)
3. Add:
   * Title (short description of the changes)
   * Description (detailed explanation)
4. Assign reviewers (if needed) and click Create merge request.
5. Reviewers approve → Merge is done via Merge button.