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***Branching and Merging in Git :***

To merge branches locally, use git checkout to switch to the branch you want to merge into. This branch is typically the main branch. Next, use git merge and specify the name of the other branch to bring into this branch.

git checkout main

If you create a branch in your local repository, the remote repository is not aware of the branch’s existence. Before you can push the branch code in the remote repository, you set the remote repository as the upstream branch using the git push command. This command simultaneously sets the upstream branch and pushes the branch contents to the remote repository

git push --set-upstream origin <branch name>

While you are working on your branch, other developers may update the main branch with their branch. This action means your branch is now out of date of the main branch and missing content. You can merge the main branch into your branch by checking out your branch and using the same git merge command.

git checkout <branch name>

git merge main

***What is CI in git?***

Continuous integration (CI) **involves the test automation of feature branches before they are merged to the main Git branch in a project**. This ensures that a codebase does not get updated with changes that could break something

***Use of CI:***

CI **enables organizations to scale in engineering team size, codebase size, and infrastructure**. By minimizing code integration bureaucracy and communication overhead, CI helps build DevOps and agile workflows. It allows each team member to own a new code change through to release.

CI enables scaling by removing any organizational dependencies between development of individual features. Developers can now work on features in an isolated silo and have assurances that their code will seamlessly integrate with the rest of the codebase, which is a core DevOps process.