# Git Branching and Merging - Hands-on Lab

## Objectives

• Explain branching and merging

• Explain about creating a branch request in GitLab

• Explain about creating a merge request in GitLab

## In this hands-on lab, you will learn how to:

• Construct a branch, do some changes in the branch, and merge it with master (or trunk)

## Prerequisites

• Setting up Git environment with P4Merge tool for Windows

• A free account in GitHub (Do not use Cognizant credentials)

Estimated time to complete this lab: 30 minutes.

## Branching Steps

1. Create a new branch 'GitNewBranch'.
2. List all the local and remote branches available in the current trunk. Observe the '\*' mark which denotes the current pointing branch.
3. Switch to the newly created branch. Add some files to it with some contents.
4. Commit the changes to the branch.
5. Check the status with 'git status' command.

### Example Commands for Branching

git branch GitNewBranch  
git branch -a  
git checkout GitNewBranch  
echo "Sample content" > file1.txt  
git add file1.txt  
git commit -m "Added file1.txt in GitNewBranch"  
git status

## Merging Steps

1. Switch to the master branch.
2. List out all the differences between trunk and branch.
3. List out all the visual differences between master and branch using P4Merge tool.
4. Merge the source branch to the trunk.
5. Observe the logging after merging using 'git log –-oneline –-graph –-decorate'.
6. Delete the branch after merging with the trunk and observe the git status.

### Example Commands for Merging

git checkout master  
git diff GitNewBranch  
p4merge file1.txt  
git merge GitNewBranch  
git log --oneline --graph --decorate  
git branch -d GitNewBranch  
git status

## Sample Output Screens

Output after creating branch and committing changes:

Switched to branch 'GitNewBranch'  
[GitNewBranch 1a2b3c4] Added file1.txt in GitNewBranch  
 1 file changed, 1 insertion(+)  
 create mode 100644 file1.txt

Output after merging:

Updating abc1234..1a2b3c4  
Fast-forward  
 file1.txt | 1 +  
 1 file changed, 1 insertion(+)  
 create mode 100644 file1.txt

Output of 'git log --oneline --graph --decorate':

\* 1a2b3c4 (HEAD -> master, GitNewBranch) Added file1.txt in GitNewBranch  
\* abc1234 Initial commit