

## Lesson 04 Demo 03

### Resolving Merge Conflicts in Git

**Objective:** To demonstrate how to resolve merge conflicts in Git to maintain a clean codebase and project continuity when conflicting changes occur

**Tools required:** Git and GitHub

Steps to be followed:

1. Create a new branch
2. Make changes to the new branch
3. Switch to the main branch and make conflicting changes
4. Merge the new branch and resolve the merge conflicts

#### Step 1: Create a new branch

- 1.1 Execute the following commands to create and modify a new file in the main branch:

```
touch example.txt
```

```
echo "Hello, this is an example file. Here we can write text."> example.txt
```

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ touch example.txt  
echo "Hello, this is an example file. Here we can write text." > example.txt
```

- 1.2 Run the following commands to add and commit the changes:

```
git add example.txt
```

```
git commit -m "Add example file"
```

```
priyanshurajsim@ip-172-31-28-201:~/Priyanshu/lesson-end-project$ git add example.txt  
git commit -m "Add example file"  
[feature-branch 3afa0a8] Add example file  
1 file changed, 1 insertion(+)  
create mode 100644 example.txt  
priyanshurajsim@ip-172-31-28-201:~/Priyanshu/lesson-end-project$
```

1.3 Run the following command to create and switch to a new branch:

```
git checkout -b new-branch
```

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ git checkout -b new-branch
Switched to a new branch 'new-branch'
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

## Step 2: Make changes to the new branch

2.1 Execute the following commands to create a new file in the **new-branch**:

```
touch example.txt
```

```
echo "Hello, this is an example file." > example.txt
```

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ touch example.txt
echo "Hello, this is an example file." > example.txt
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

2.2 Run the following commands to add and commit the changes:

```
git add example.txt
```

```
git commit -m "Add example file"
```

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ git add example.txt
git commit -m "Add example file"
[new-branch (root-commit) a8152eb] Add example file
1 file changed, 1 insertion(+)
create mode 100644 example.txt
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

## Step 3: Switch to the main branch and make conflicting changes

3.1 Execute the following command to switch to the main branch:

```
git checkout master
```

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ git checkout master
Switched to branch 'master'
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

3.2 Execute the following command to delete the **example.txt** file:

rm example.txt

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ rm example.txt
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

3.3 Run the following command to commit the change:

**git commit -am "Delete example file"**

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ git commit -am "Delete example file"
[master 51729d9] Delete example file
1 file changed, 1 deletion(-)
delete mode 100644 example.txt
```

## Step 4: Merge the new branch and resolve the merge conflicts

4.1 Use the command below to merge the new branch into the main branch:

**git merge new-branch**

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ git merge new-branch
CONFLICT (modify/delete): example.txt deleted in HEAD and modified in new-branch. Version new-branch of example.txt left in tree.
Automatic merge failed; fix conflicts and then commit the result.
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

**Note:** Altering the same file differently on two branches will result in a merge conflict. To resolve it, open the conflicted file in a text editor and choose which changes to retain.

4.2 After editing, add the resolved file to the staging area using the following command:

**git add example.txt**

```
6 priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ git add example.txt
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

4.3 Commit the resolved changes:

**git commit -m "Resolved merge conflict"**

```
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$ git commit -m "Resolved merge conflict"
% [master 1c84650] Resolved merge conflict
priyanshurajsim@ip-172-31-69-72:~/Priyanshu$
```

By following these steps, you have successfully resolved a merge conflict caused in Git.