

Name – Sanjay Raghuwanshi | mail – raghu1c.sanjay@gmail.com

Project – Branching Model Development

DESCRIPTION

Create a branching model to help your team understand the Git Feature Branch Workflow for faster and efficient integration of work

Steps to perform:

1. Start with the Production branch (master branch), and then create a HotFix and Integration branch
2. Subsequently, create Feature 1 and 2 branches that integrate to the Integration branch as shown in the above figure
3. Commit some changes in the Feature 2 branch and merge it into the Integration branch. Delete this branch once merging is complete
4. Commit some changes in the Feature 1 branch and rebase it to the Integration branch
5. Merge the Integration branch into Hotfix and Production branch to update these branches
6. Commit some changes in Feature 1 branch, and then merge it into Integration, Hotfix, and Production branch. Delete this branch once merging is complete
7. Commit some changes in the Hotfix branch and merge it into the Production as well as the Integration branch

1. Start with the Production branch (master branch), and then create a HotFix and Integration branch
- Create a directory and initiate git.

```
labsuser@ubuntu1804:~$  
labsuser@ubuntu1804:~$ mkdir git_project  
labsuser@ubuntu1804:~$ cd git_project/  
labsuser@ubuntu1804:~/git_project$ ls -ltrh  
total 0  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git init  
Initialized empty Git repository in /home/labsuser/git_project/.git/  
labsuser@ubuntu1804:~/git_project$
```

- Create a file in the local repos-

```
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ vi project.txt  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$
```

- Add the file and perform first commit.

```
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git add .  
labsuser@ubuntu1804:~/git_project$ git commit -am "First Commit"  
[master (root-commit) 695fcae] First Commit  
1 file changed, 1 insertion(+)  
create mode 100644 project.txt  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$
```

- Create another branch hotfix –

```
labsuser@ubuntu1804:~/git_project$ git checkout -b hotfix
Switched to a new branch 'hotfix'
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ ls -latrh
total 16K
-rw-r--r-- 1 labsuser labsuser 58 May 30 16:45 project.txt
drwxrwx--- 26 labsuser      48 4.0K May 30 16:45 ..
drwxr-xr-x  3 labsuser labsuser 4.0K May 30 16:45 .
drwxr-xr-x  8 labsuser labsuser 4.0K May 30 16:50 .git
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$
```

- Created Integration branch –

```
labsuser@ubuntu1804:~/git_project$ git checkout -b Integration
Switched to a new branch 'Integration'
labsuser@ubuntu1804:~/git_project$
```

2. Subsequently, create Feature 1 and 2 branches that integrate to the Integration branch as shown in the above figure

```
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git checkout -b Feature1
Switched to a new branch 'Feature1'
labsuser@ubuntu1804:~/git_project$ git checkout Integration
Switched to branch 'Integration'
labsuser@ubuntu1804:~/git_project$ git checkout -b Feature2
Switched to a new branch 'Feature2'
labsuser@ubuntu1804:~/git_project$
```

3. Commit some changes in the Feature 2 branch and merge it into the Integration branch. Delete this branch once merging is complete

```
labsuser@ubuntu1804:~/git_project$ git branch
  Feature1
  Feature2
  Integration
  hotfix
* master
labsuser@ubuntu1804:~/git_project$ git checkout Feature2
Switched to branch 'Feature2'
labsuser@ubuntu1804:~/git_project$
```

- Did some changes and performed commit –

```
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ vi project.txt
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git commit -am "Feature2 commit"
[Feature2 7317c4d] Feature2 commit
1 file changed, 1 insertion(+)
```

- Checkout Integration branch again and merge Feature2 into Integration –

```
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git checkout Integration
Switched to branch 'Integration'
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git merge Feature2
Updating 695fcae..7317c4d
Fast-forward
 project.txt | 1 +
1 file changed, 1 insertion(+)
labsuser@ubuntu1804:~/git_project$
```

- Delete the branch Feature2 once merge completed –

```
labsuser@ubuntu1804:~/git_project$ git branch Feature2 -d
Deleted branch Feature2 (was 7317c4d).
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$
```

4. Commit some changes in the Feature 1 branch and rebase it to the Integration branch.

```
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git checkout Feature1
Switched to branch 'Feature1'
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ ls -latrh
total 16K
drwxrwx--- 26 labsuser      48 4.0K May 31 13:38 ..
drwxr-xr-x  3 labsuser labsuser 4.0K May 31 13:47 .
-rw-r--r--  1 labsuser labsuser  58 May 31 13:47 project.txt
drwxr-xr-x  8 labsuser labsuser 4.0K May 31 13:47 .git
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git status
On branch Feature1
nothing to commit, working tree clean
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ vim project.txt
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git commit -am "Feature1 commit"
[Feature1 bcd06aa] Feature1 commit
 1 file changed, 1 insertion(+)
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git log
bcd06aa (HEAD -> Feature1) Feature1 commit
695fcae (origin/master, hotfix) First Commit
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$
```

- Git logs output from Integration before performing git rebase –

```
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git checkout Integration
Switched to branch 'Integration'
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git log
7317c4d (HEAD -> Integration) Feature2 commit
695fcae (origin/master, hotfix) First Commit
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$
```

- Performed git rebase on Integration branch which results into adding Feature1 commits onto Integration.

```
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git rebase Feature1 Integration
First, rewinding head to replay your work on top of it...
Fast-forwarded Integration to Feature1.
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$
labsuser@ubuntu1804:~/git_project$ git log
246470b (HEAD -> Integration, Feature1) Feature1 commit
7317c4d Feature2 commit
695fcae (origin/master, hotfix) First Commit
labsuser@ubuntu1804:~/git_project$
```

5. Merge the Integration branch into Hotfix and Production branch to update these branches
- Merge the Integration branch into Hotfix -

```
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git checkout hotfix  
Switched to branch 'hotfix'  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git merge Integration  
Updating 695fcae..246470b  
Fast-forward  
 project.txt | 2 ++  
 1 file changed, 2 insertions(+)
```

-
- Merge the Integration branch into master (resolve the conflicts and perform merge) -

```
labsuser@ubuntu1804:~/git_project$ git checkout master  
Switched to branch 'master'  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git merge Integration  
Auto-merging project.txt  
CONFLICT (content): Merge conflict in project.txt  
Automatic merge failed; fix conflicts and then commit the result.  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git commit -am "merge conflicts"  
[master 7e5734a] merge conflicts  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git merge Integration  
Already up to date.  
labsuser@ubuntu1804:~/git_projects$
```

6. Commit some changes in Feature 1 branch, and then merge it into Integration, Hotfix, and Production branch. Delete this branch once merging is complete.

```
labsuser@ubuntu1804:~/git_projects$  
labsuser@ubuntu1804:~/git_projects$ git checkout Feature1  
Switched to branch 'Feature1'  
labsuser@ubuntu1804:~/git_projects$  
labsuser@ubuntu1804:~/git_projects$ vim project.txt  
labsuser@ubuntu1804:~/git_projects$  
labsuser@ubuntu1804:~/git_projects$ git commit -am "step6 commit"  
[Feature1 3f7146c] step6 commit  
 1 file changed, 1 insertion(+)  
labsuser@ubuntu1804:~/git_projects$  
labsuser@ubuntu1804:~/git_projects$ git checkout Integration  
Switched to branch 'Integration'  
labsuser@ubuntu1804:~/git_projects$ git merge Feature1  
Updating 246470b..3f7146c  
Fast-forward  
 project.txt | 1 +  
 1 file changed, 1 insertion(+)  
labsuser@ubuntu1804:~/git_projects$ git checkout hotfix  
Switched to branch 'hotfix'  
labsuser@ubuntu1804:~/git_projects$  
labsuser@ubuntu1804:~/git_projects$ git merge Feature1  
Updating 246470b..3f7146c  
Fast-forward  
 project.txt | 1 +  
 1 file changed, 1 insertion(+)  
labsuser@ubuntu1804:~/git_projects$ git checkout master  
Switched to branch 'master'  
labsuser@ubuntu1804:~/git_projects$  
labsuser@ubuntu1804:~/git_projects$ git merge Feature1  
Merge made by the 'recursive' strategy.  
 project.txt | 1 +  
 1 file changed, 1 insertion(+)  
labsuser@ubuntu1804:~/git_projects$ git branch Feature1 -d  
Deleted branch Feature1 (was 3f7146c).  
labsuser@ubuntu1804:~/git_projects$
```

7. Commit some changes in the Hotfix branch and merge it into the Production as well as the Integration branch

```
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git checkout hotfix  
Switched to branch 'hotfix'  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ vim project.txt  
labsuser@ubuntu1804:~/git_project$ git commit -am "hotfix commit"  
[hotfix 00a9a45] hotfix commit  
1 file changed, 1 insertion(+)  
labsuser@ubuntu1804:~/git_project$ git checkout Integration  
Switched to branch 'Integration'  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git merge hotfix  
Updating 3f7146c..00a9a45  
Fast-forward  
 project.txt | 1 +  
1 file changed, 1 insertion(+)  
labsuser@ubuntu1804:~/git_project$ git checkout master  
Switched to branch 'master'  
labsuser@ubuntu1804:~/git_project$  
labsuser@ubuntu1804:~/git_project$ git merge hotfix  
Merge made by the 'recursive' strategy.  
 project.txt | 1 +  
1 file changed, 1 insertion(+)  
labsuser@ubuntu1804:~/git_project$
```