Project 1: Branching Model Development

Caltech | *Center for Technology & Management Education* | Simpl¡Learn
Post Graduate Program in DevOps
PG DO - Git and GitHub Training

- Assigned to: Antonio Salazar Gomez (antonio.salazar@ymail.com)
- Updated on: 2022-05-15
- Github repo:
  gitansalaza/devops/git_and_github/project_01/project_01_Branching_Model_Development.md
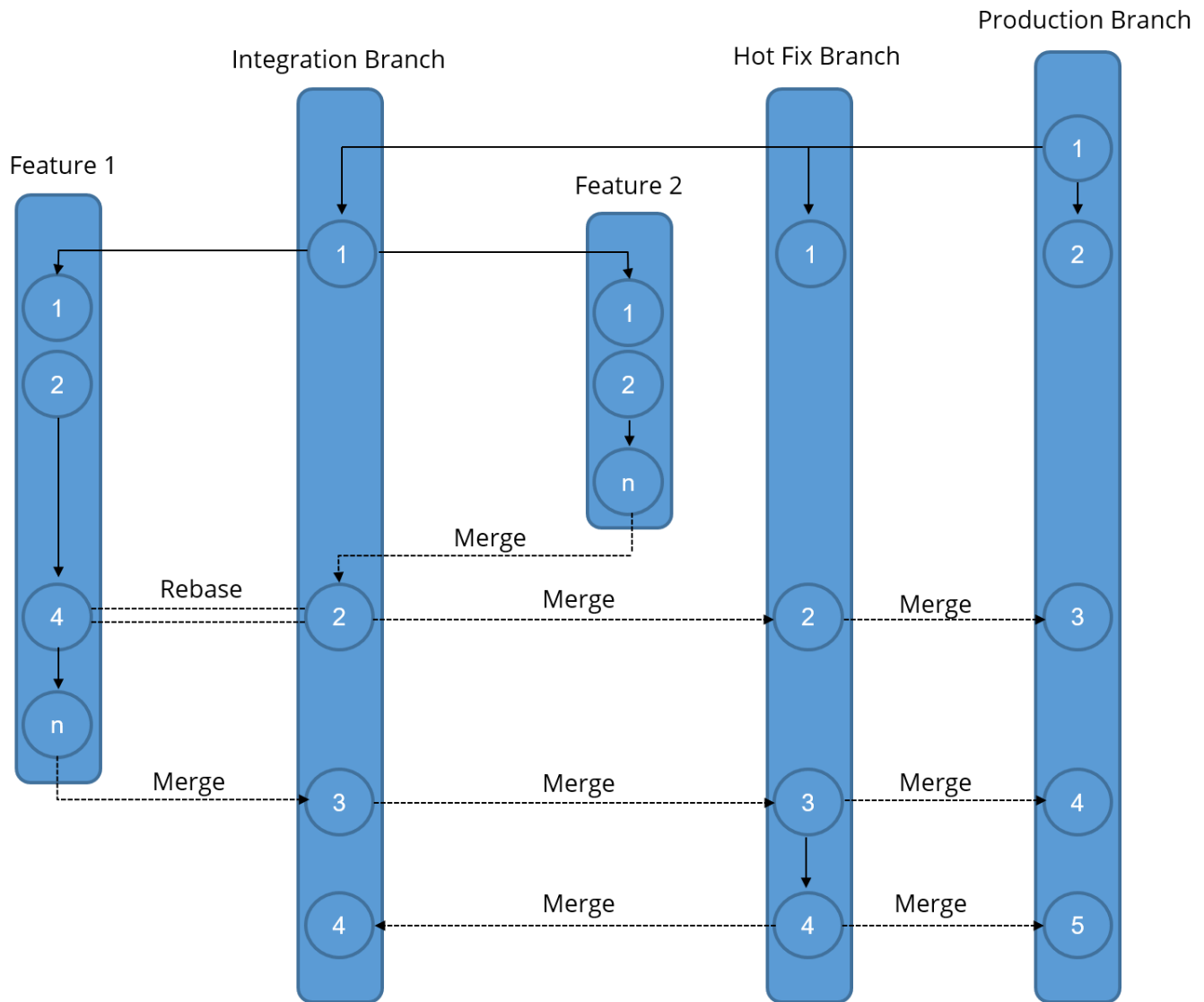
DESCRIPTION

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

Background of the problem statement:

M-theta Technology Solutions hired you as a DevOps Architect. It is undergoing an infrastructural change to implement DevOps to develop and deliver the products. Since M-theta is an Agile organization, they follow the Scrum methodology to develop the projects incrementally. Hence, the company wants to adopt Git as a Source Code Management (SCM) tool for faster integration of work and smooth transition into DevOps.

So, as a DevOps Architect, you have been asked to build a branching model to demonstrate the Git Feature Branch Workflow for the company's engineering team. In the branching model, you are required to create a Production branch which will act as the main (master) branch, an Integration branch which will again have two branches inside it namely Feature 1 and Feature 2, and a Hotfix branch which will be used for fixing any issues that could come up from Integration or Production branches.

You must use the following:

Git: To build the branching model.
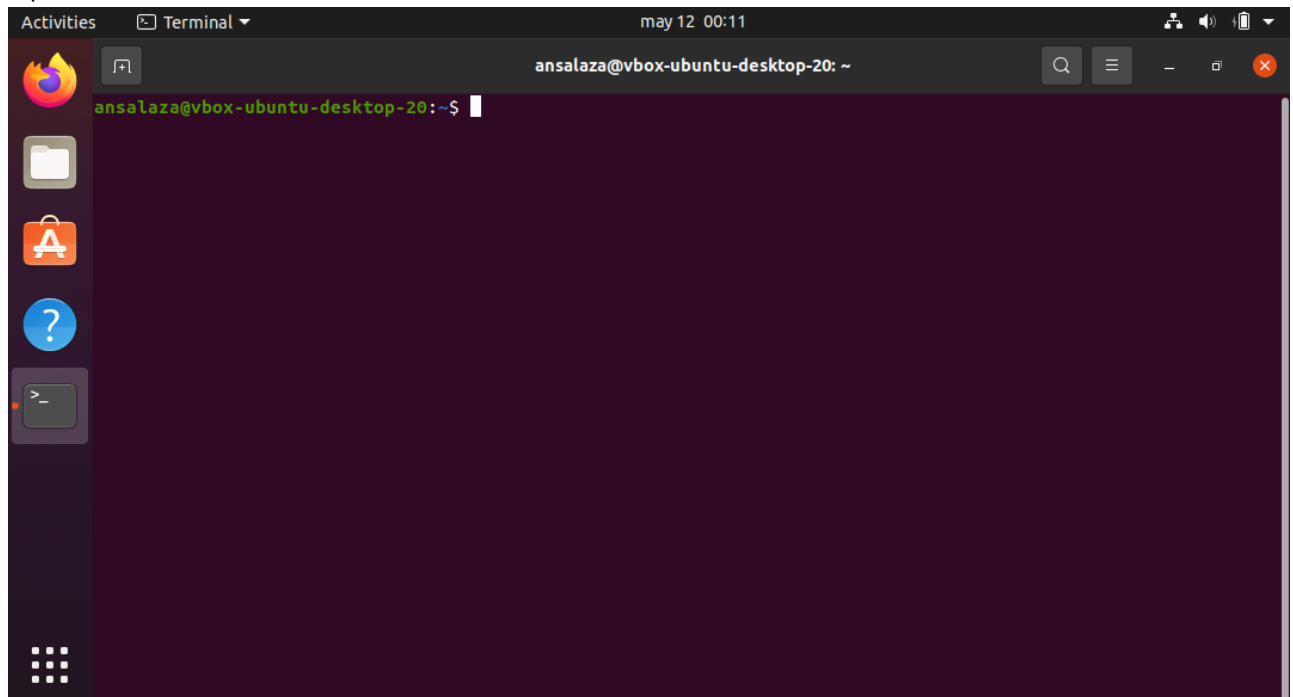
Steps to perform:

Summary

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

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

Steps in detail

Preliminaries: install and set up Git.

1. Open a new Linux SSH terminal.

2. Ensure Git is installed.

```
git --version
sudo apt-get update && sudo apt-get install git -y
git --version
```

```
ansalaza@vbox-ubuntu-desktop-20:~$ git --version

Command 'git' not found, but can be installed with:

sudo apt install git

ansalaza@vbox-ubuntu-desktop-20:~$ sudo apt-get update && sudo apt-get install git -y
Hit:1 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:2 http://mx.archive.ubuntu.com/ubuntu focal InRelease
Hit:3 http://mx.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:4 http://mx.archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libfwupdplugin1 libllvm11
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-el git-email git-gui gitk gitweb git-cvs git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 73 not upgraded.
Need to get 5 471 kB of archives.
After this operation, 38.4 MB of additional disk space will be used.
Get:1 http://mx.archive.ubuntu.com/ubuntu focal/main amd64 liberror-perl all 0.17029-1 [26.5 kB]
Get:2 http://mx.archive.ubuntu.com/ubuntu focal-updates/main amd64 git-man all 1:2.25.1-1ubuntu3.4 [885 kB]
Get:3 http://mx.archive.ubuntu.com/ubuntu focal-updates/main amd64 git amd64 1:2.25.1-1ubuntu3.4 [4 560 kB]
Fetched 5 471 kB in 6s (854 kB/s)
Selecting previously unselected package liberror-perl.
(Reading database ... 158449 files and directories currently installed.)
Preparing to unpack .../liberror-perl_0.17029-1_all.deb ...
Unpacking liberror-perl (0.17029-1) ...
Selecting previously unselected package git-man.
Preparing to unpack .../git-man_1%3a2.25.1-1ubuntu3.4_all.deb ...
Unpacking git-man (1:2.25.1-1ubuntu3.4) ...
Selecting previously unselected package git.
Preparing to unpack .../git_1%3a2.25.1-1ubuntu3.4_amd64.deb ...
Unpacking git (1:2.25.1-1ubuntu3.4) ...
Setting up liberror-perl (0.17029-1) ...
Setting up git-man (1:2.25.1-1ubuntu3.4) ...
Setting up git (1:2.25.1-1ubuntu3.4) ...
Processing triggers for man-db (2.9.1-1) ...
ansalaza@vbox-ubuntu-desktop-20:~$ git --version
git version 2.25.1
ansalaza@vbox-ubuntu-desktop-20:~$
```

3. Create the Git repository locally.

```
mkdir -p ~/projects/devops/bmd
cd ~/projects/devops/bmd
git init
```

```
ansalaza@vbox-ubuntu-desktop-20:~$ mkdir -p ~/projects/devops/bmd
ansalaza@vbox-ubuntu-desktop-20:~$ cd ~/projects/devops/bmd
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ pwd
/home/ansalaza/projects/devops/bmd
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git init
Initialized empty Git repository in /home/ansalaza/projects/devops/bmd/.git/
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

4. Configure Git locally.

```
git config --list
git config --global user.name "Antonio Salazar"
git config --global user.email "antonio.salazar@ymail.com"
git config --global color.ui true
git config --global core.editor vi
git config --list
```

- Example:

Start with the Production branch (master branch), and then create a HotFix and Integration branch.

- Verify whether there are anything to commit.

```
git status
```

- Create the **Readme.md** the file within the initial contents.

```
tee Readme.md 0<< EOF
# Project structure
Branches
- Production (master)
- HotFix
- Integration
- Feature1
- Feautre2
EOF
```

- Create the first commit.

```
git status
git add .
git commit -m "First commit"
git log
```

- Example:

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git status
On branch master

No commits yet

nothing to commit (create/copy files and use "git add" to track)
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ tee Readme.md 0<< EOF
> # Project structure
> Branches
> - Production (master)
> - HotFix
> - Integration
> - Feature1
> - Feautre2
> EOF
# Project structure
Branches
- Production (master)
- HotFix
- Integration
- Feature1
- Feautre2
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        Readme.md

nothing added to commit but untracked files present (use "git add" to track)
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git add .
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git commit -m "First commit"
[master (root-commit) bcf3cef] First commit
 1 file changed, 7 insertions(+)
 create mode 100644 Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1 (HEAD -> master)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

- Create the HotFix and Integration branches.

```
git branch HotFix
git branch Integration
git branch
git checkout HotFix && ls
git checkout Integration && ls
```

- Example:

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

- Create **Feature1** and **Feature2** branches.

```
git branch Feature1
git branch Feature2
git branch
git checkout Feature1 && ls
git checkout Feature2 && ls
git checkout master && ls
```

- Exmaple:

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git branch Feature1
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git branch Feature2
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git branch
  Feature1
  Feature2
  HotFix
* Integration
  master
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Feature1 && ls
Switched to branch 'Feature1'
Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Feature2 && ls
Switched to branch 'Feature2'
Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout master && ls
Switched to branch 'master'
Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

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

- Select the **Feature2** branch.

```
git checkout Feature2
```

- Edit the **Readme.md** file.

```
echo "---" >> Readme.md
echo "Feature2: edit 1" >> Readme.md
```

- Commit the changes just made.

```
git add .
git commit -m "Feature2: edit-1 over Readme.md"
```

- Review the changes and compare them against the original file.

```
git log
```

- Create a function named **gitd** using `git diff <SHA-1> <SHA-2>` to ease commit comparisons.

```
gitd() {
  first=`git log --oneline | tail -n 1 | cut -f 1 -d " "`;
  last=`git log --oneline | head -n 1 | cut -f 1 -d " "`;
  git diff $first $last ;
}
```

- Example:

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Feature2
Switched to branch 'Feature2'
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ echo "---" >> Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ echo "Feature2: edit 1" >> Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git add .
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git commit -m "Feature2: edit-1 over Readme.md"
[Feature2 76618c4] Feature2: edit-1 over Readme.md
 1 file changed, 2 insertions(+)
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit 76618c45e207d8bb3f284907747a9057c63ab538 (HEAD -> Feature2)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1 (master, Integration, HotFix, Feature1)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ gitd() {
>   first=`git log --oneline | tail -n 1 | cut -f 1 -d " "`;
>   last=`git log --oneline | head -n 1 | cut -f 1 -d " "`;
>   git diff $first $last ;
> }
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ gitd
diff --git a/Readme.md b/Readme.md
index 17a1577..dc18c64 100644
--- a/Readme.md
+++ b/Readme.md
@@ -5,3 +5,5 @@ Branches
 - Integration
 - Feature1
 - Feautre2
+---
+Feature2: edit 1
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

- Merge **Feature2** branch into the **Integration** one.

```
git checkout Integration
git log
git merge Feature2
git log
```

- Review the changes status.

```
git status
```

- Delete **Feature2** branch.

```
git branch -d Feature2
git log
```



```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Integration
Switched to branch 'Integration'
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1 (HEAD -> Integration, master, HotFix, Feature1)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git merge Feature2
Updating bcf3cef..76618c4
Fast-forward
 Readme.md | 2 ++
 1 file changed, 2 insertions(+)
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit 76618c45e207d8bb3f284907747a9057c63ab538 (HEAD -> Integration, Feature2)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1 (master, HotFix, Feature1)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git status
On branch Integration
nothing to commit, working tree clean
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git branch -d Feature2
Deleted branch Feature2 (was 76618c4).
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit 76618c45e207d8bb3f284907747a9057c63ab538 (HEAD -> Integration)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1 (master, HotFix, Feature1)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ 
```

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

- Set **Feature1** branch to work with.

```
git checkout Feature1
```

- Edit the Readme.md file.

```
    echo "---" >> Readme.md
    echo "Feature1: edit 1" >> Readme.md
```

- Commit the changes just done.

```
    git add .
    git commit -m "Feature1: edit-1 over Readme.md"
```

- Review the changes and compare them against the original file.

```
    git log
    gitd # calls function declared earlier
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Feature1
Switched to branch 'Feature1'
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ echo "---" >> Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ echo "Feature1: edit 1" >> Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git add .
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git commit -m "Feature1: edit-1 over Readme.md"
[Feature1 16e4f87] Feature1: edit-1 over Readme.md
 1 file changed, 2 insertions(+)
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit 16e4f87cf423b1ccb88d569f92cafad7c89cb589 (HEAD -> Feature1)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:01:32 2022 -0500

    Feature1: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1 (master, HotFix)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ gitd
diff --git a/Readme.md b/Readme.md
index 17a1577..8dd815c 100644
--- a/Readme.md
+++ b/Readme.md
@@ -5,3 +5,5 @@ Branches
 - Integration
 - Feature1
 - Feautre2
+---
+Feature1: edit 1
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ █
```

- Rebase **Feature1** to the **Integration** branch.

```
    git rebase Integration
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git rebase Integration
First, rewinding head to replay your work on top of it...
Applying: Feature1: edit-1 over Readme.md
Using index info to reconstruct a base tree...
M       Readme.md
Falling back to patching base and 3-way merge...
Auto-merging Readme.md
CONFLICT (content): Merge conflict in Readme.md
error: Failed to merge in the changes.
Patch failed at 0001 Feature1: edit-1 over Readme.md
hint: Use 'git am --show-current-patch' to see the failed patch
Resolve all conflicts manually, mark them as resolved with
"git add/rm <conflicted_files>", then run "git rebase --continue".
You can instead skip this commit: run "git rebase --skip".
To abort and get back to the state before "git rebase", run "git rebase --abort".
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

- Fix the conflict manually.

```
vi Readme.md
# 1. Remove the line with '<<<<<< HEAD'
# 2. Replace '=======' by '---'
# 3. Delete the last line '>>>>>>> Feature1: edit-1 over Readme.md'
# 4. Save and exit vi
```

```
# Project structure
Branches
- Production (master)
- HotFix
- Integration
- Feature1
- Feautre2
---
<<<<<< HEAD
Feature2: edit 1
=======
Feature1: edit 1
>>>>>>> Feature1: edit-1 over Readme.md
~
~
~
```

```
git add Readme.md
git rebase --continue
git status
gitd
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git rebase Integration
First, rewinding head to replay your work on top of it...
Applying: Feature1: edit-1 over Readme.md
Using index info to reconstruct a base tree...
M       Readme.md
Falling back to patching base and 3-way merge...
Auto-merging Readme.md
CONFLICT (content): Merge conflict in Readme.md
error: Failed to merge in the changes.
Patch failed at 0001 Feature1: edit-1 over Readme.md
hint: Use 'git am --show-current-patch' to see the failed patch
Resolve all conflicts manually, mark them as resolved with
"git add/rm <conflicted_files>", then run "git rebase --continue".
You can instead skip this commit: run "git rebase --skip".
To abort and get back to the state before "git rebase", run "git rebase --abort".
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ vi Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ cat Readme.md
# Project structure
Branches
- Production (master)
- HotFix
- Integration
- Feature1
- Feautre2
---
Feature2: edit 1
---
Feature1: edit 1
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git add Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git rebase --continue
Applying: Feature1: edit-1 over Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git status
On branch Feature1
nothing to commit, working tree clean
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ gitd
diff --git a/Readme.md b/Readme.md
index 17a1577..488cde0 100644
--- a/Readme.md
+++ b/Readme.md
@@ -5,3 +5,7 @@ Branches
 - Integration
 - Feature1
 - Feautre2
+---
+Feature2: edit 1
+---
+Feature1: edit 1
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

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

```
# Integration into HotFix
git checkout HotFix && git merge Integration && git log
```

```
# Integration into Production
git checkout master && git merge Integration && git log
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout HotFix && git merge Integration && git log
Switched to branch 'HotFix'
Updating bcf3cef..76618c4
Fast-forward
 Readme.md | 2 ++
 1 file changed, 2 insertions(+)
commit 76618c45e207d8bb3f284907747a9057c63ab538 (HEAD -> HotFix, Integration)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1 (master)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout master && git merge Integration && git log
Switched to branch 'master'
Updating bcf3cef..76618c4
Fast-forward
 Readme.md | 2 ++
 1 file changed, 2 insertions(+)
commit 76618c45e207d8bb3f284907747a9057c63ab538 (HEAD -> master, Integration, HotFix)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

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

- Fix the the typo 'Feautre2' originated from the beginning.

```
git checkout Feature1
sed 's/Feautre2/Feature2/g' Readme.md > Readme.md.new && mv Readme.md.new
Readme.md
cat Readme.md
git add .
git commit -m "Fix: replaced 'Feautre2' by 'Feature2'"
git log
gitd
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Feature1
Switched to branch 'Feature1'
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ sed 's/Feautre2/Feature2/g' Readme.md > Readme.md.new && mv Readme.md.new Readme.md
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ cat Readme.md
# Project structure
Branches
- Production (master)
- HotFix
- Integration
- Feature1
- Feature2
---
Feature2: edit 1
---
Feature1: edit 1
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git add .
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git commit -m "Fix: replaced 'Feautre2' by 'Feature2'"
[Feature1 decc2ea] Fix: replaced 'Feautre2' by 'Feature2'
 1 file changed, 1 insertion(+), 1 deletion(-)
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit decc2ea0e2c28e2df14f191b4edd1ecfffa0cce0 (HEAD -> Feature1)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:18:39 2022 -0500

    Fix: replaced 'Feautre2' by 'Feature2'

commit c01221ed68dfc66308d74e1330c02cc4affd0042
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:01:32 2022 -0500

    Feature1: edit-1 over Readme.md

commit 76618c45e207d8bb3f284907747a9057c63ab538 (master, Integration, HotFix)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ gitd
diff --git a/Readme.md b/Readme.md
index 17a1577..145f4cf 100644
--- a/Readme.md
+++ b/Readme.md
@@ -4,4 +4,8 @@ Branches
 - HotFix
 - Integration
 - Feature1
-- Feautre2
+- Feature2
+---
+Feature2: edit 1
+---
+Feature1: edit 1
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

- Merge **Feature1** into **Integration**, **HotFix** and **Production** branches.

```
# Feature1 into Integration
git checkout Integration && git merge Feature1 && git log --oneline

# Feature1 into HotFix
git checkout HotFix && git merge Feature1 && git log --oneline

# Feature1 into Production
git checkout master && git merge Feature1 && git log --oneline
```

- Delete **Feature1** branch.

```
git branch -d Feature1 && git log --oneline
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Integration && git merge Feature1 && git log --oneline
Switched to branch 'Integration'
Updating 76618c4..decc2ea
Fast-forward
 Readme.md | 4 +++-
 1 file changed, 3 insertions(+), 1 deletion(-)
decc2ea (HEAD -> Integration, Feature1) Fix: replaced 'Feautre2' by 'Feature2'
c01221e Feature1: edit-1 over Readme.md
76618c4 (master, HotFix) Feature2: edit-1 over Readme.md
bcf3cef First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout HotFix && git merge Feature1 && git log --oneline
Switched to branch 'HotFix'
Updating 76618c4..decc2ea
Fast-forward
 Readme.md | 4 +++-
 1 file changed, 3 insertions(+), 1 deletion(-)
decc2ea (HEAD -> HotFix, Integration, Feature1) Fix: replaced 'Feautre2' by 'Feature2'
c01221e Feature1: edit-1 over Readme.md
76618c4 (master) Feature2: edit-1 over Readme.md
bcf3cef First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout master && git merge Feature1 && git log --oneline
Switched to branch 'master'
Updating 76618c4..decc2ea
Fast-forward
 Readme.md | 4 +++-
 1 file changed, 3 insertions(+), 1 deletion(-)
decc2ea (HEAD -> master, Integration, HotFix, Feature1) Fix: replaced 'Feautre2' by 'Feature2'
c01221e Feature1: edit-1 over Readme.md
76618c4 Feature2: edit-1 over Readme.md
bcf3cef First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git branch -d Feature1 && git log --oneline
Deleted branch Feature1 (was decc2ea).
decc2ea (HEAD -> master, Integration, HotFix) Fix: replaced 'Feautre2' by 'Feature2'
c01221e Feature1: edit-1 over Readme.md
76618c4 Feature2: edit-1 over Readme.md
bcf3cef First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

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

- Commit changes in HotFix branch.

```
git checkout HotFix
echo "---" >> Readme.md && echo "HotFix: edit-1 on Readme.md" >> Readme.md
&& git status
git add .
git commit -m "Hotfix: edit-1 on Readme"
git status
git log
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout HotFix
Switched to branch 'HotFix'
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ echo "---" >> Readme.md && echo "HotFix: edit-1 on Readme.md" >> Readme.md && git status
On branch HotFix
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   Readme.md

no changes added to commit (use "git add" and/or "git commit -a")
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git add .
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git commit -m "Hotfix: edit-1 on Readme"
[HotFix 94c3efd] Hotfix: edit-1 on Readme
 1 file changed, 2 insertions(+)
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git status
On branch HotFix
nothing to commit, working tree clean
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git log
commit 94c3efd968883beffcf843799ed958dfcde61ad1 (HEAD -> HotFix)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:23:43 2022 -0500

    Hotfix: edit-1 on Readme

commit decc2ea0e2c28e2df14f191b4edd1ecfffa0cce0 (master, Integration)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:18:39 2022 -0500

    Fix: replaced 'Feautre2' by 'Feature2'

commit c01221ed68dfc66308d74e1330c02cc4affd0042
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:01:32 2022 -0500

    Feature1: edit-1 over Readme.md

commit 76618c45e207d8bb3f284907747a9057c63ab538
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$
```

- Merge **HotFix** changes onto **Production** and **Integration** branches.

```
# HotFix merge into Production
git checkout master && git merge HotFix && git log


# HotFix merge into Integration
git checkout Integration && git merge HotFix && git log
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout master && git merge HotFix && git log
Switched to branch 'master'
Updating decc2ea..94c3efd
Fast-forward
 Readme.md | 2 ++
 1 file changed, 2 insertions(+)
commit 94c3efd968883beffcf843799ed958dfcde61ad1 (HEAD -> master, HotFix)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:23:43 2022 -0500

    Hotfix: edit-1 on Readme

commit decc2ea0e2c28e2df14f191b4edd1ecfffa0cce0 (Integration)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:18:39 2022 -0500

    Fix: replaced 'Feautre2' by 'Feature2'

commit c01221ed68dfc66308d74e1330c02cc4affd0042
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:01:32 2022 -0500

    Feature1: edit-1 over Readme.md

commit 76618c45e207d8bb3f284907747a9057c63ab538
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
```

```
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ git checkout Integration && git merge HotFix && git log
Switched to branch 'Integration'
Updating decc2ea..94c3efd
Fast-forward
 Readme.md | 2 ++
 1 file changed, 2 insertions(+)
commit 94c3efd968883beffcf843799ed958dfcde61ad1 (HEAD -> Integration, master, HotFix)
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:23:43 2022 -0500

    Hotfix: edit-1 on Readme

commit decc2ea0e2c28e2df14f191b4edd1ecfffa0cce0
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:18:39 2022 -0500

    Fix: replaced 'Feautre2' by 'Feature2'

commit c01221ed68dfc66308d74e1330c02cc4affd0042
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 23:01:32 2022 -0500

    Feature1: edit-1 over Readme.md

commit 76618c45e207d8bb3f284907747a9057c63ab538
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:32:30 2022 -0500

    Feature2: edit-1 over Readme.md

commit bcf3cef562bd01b40b1bc4f298ff54081b8c04d1
Author: Antonio Salazar <antonio.salazar@ymail.com>
Date:   Sun May 15 22:24:05 2022 -0500

    First commit
ansalaza@vbox-ubuntu-desktop-20:~/projects/devops/bmd$ █
```

Log file

- project_01_branching_model_development.log