ASSIGNMENT-1
DEVOPS

GIT WORK FLOW

BITS Pilani
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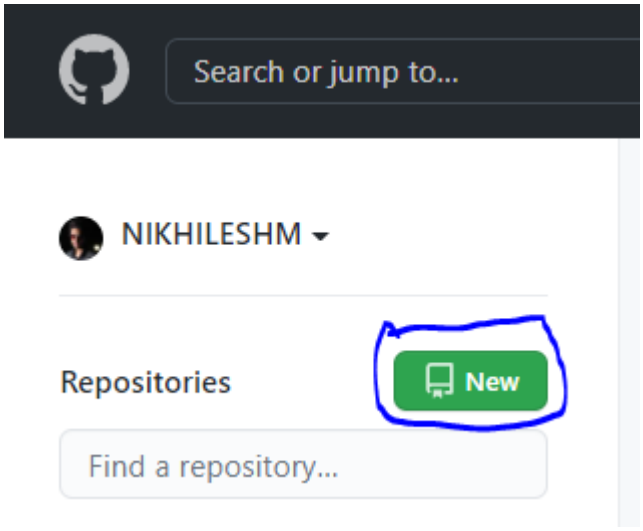
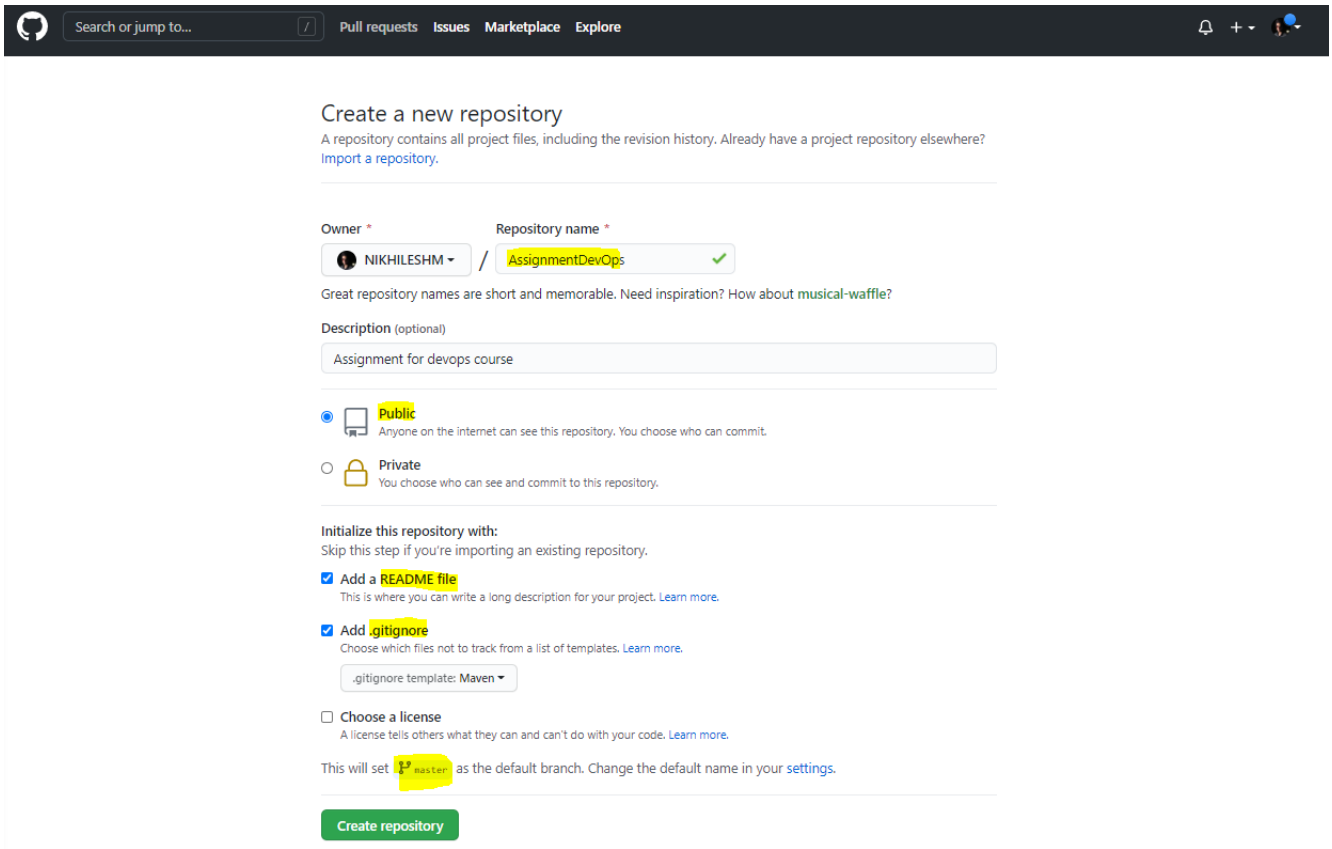
GIT Work Flow

Step 1 - Create Repository

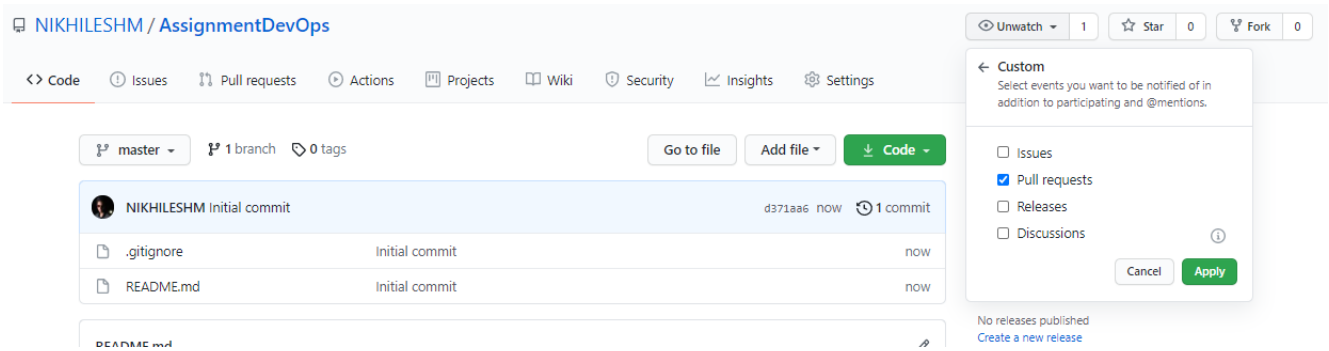
Login to Managers GitHub Account to create Git Repo



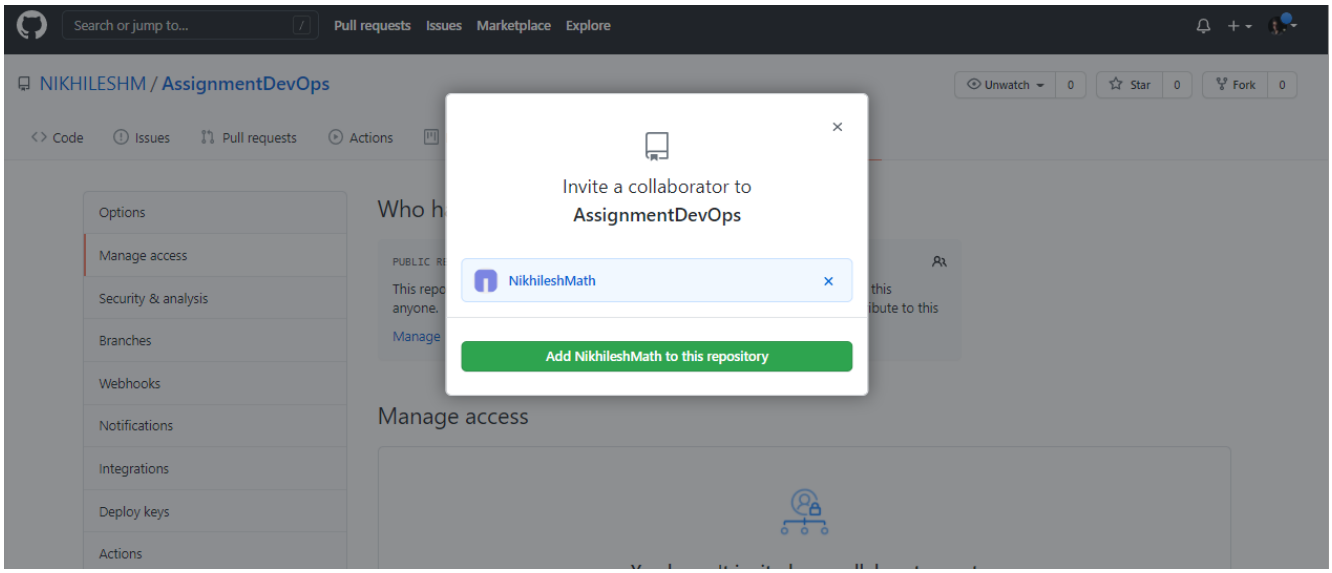
Create Repository

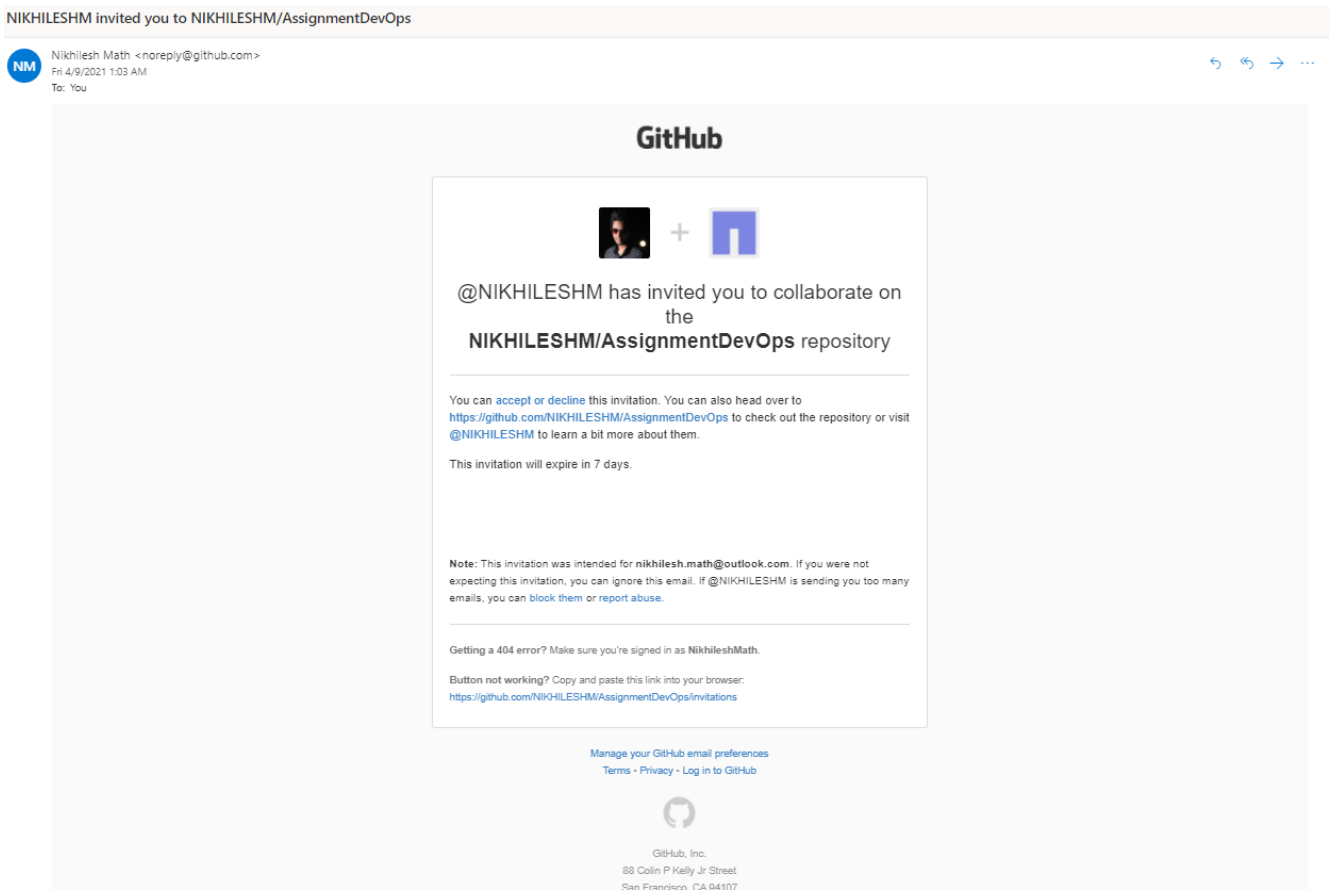


Set up PR Notifications

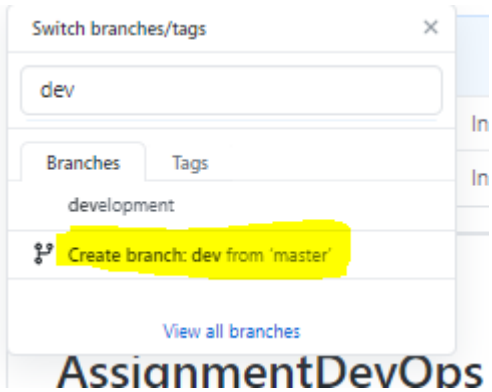


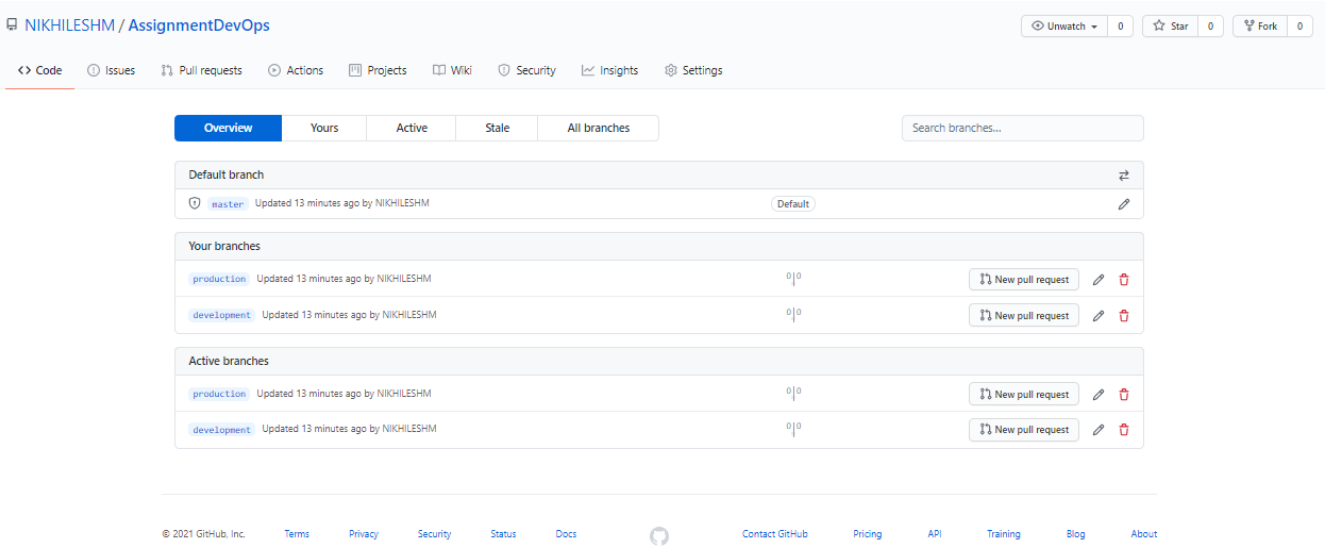
Step 2 – Invite Collaborator



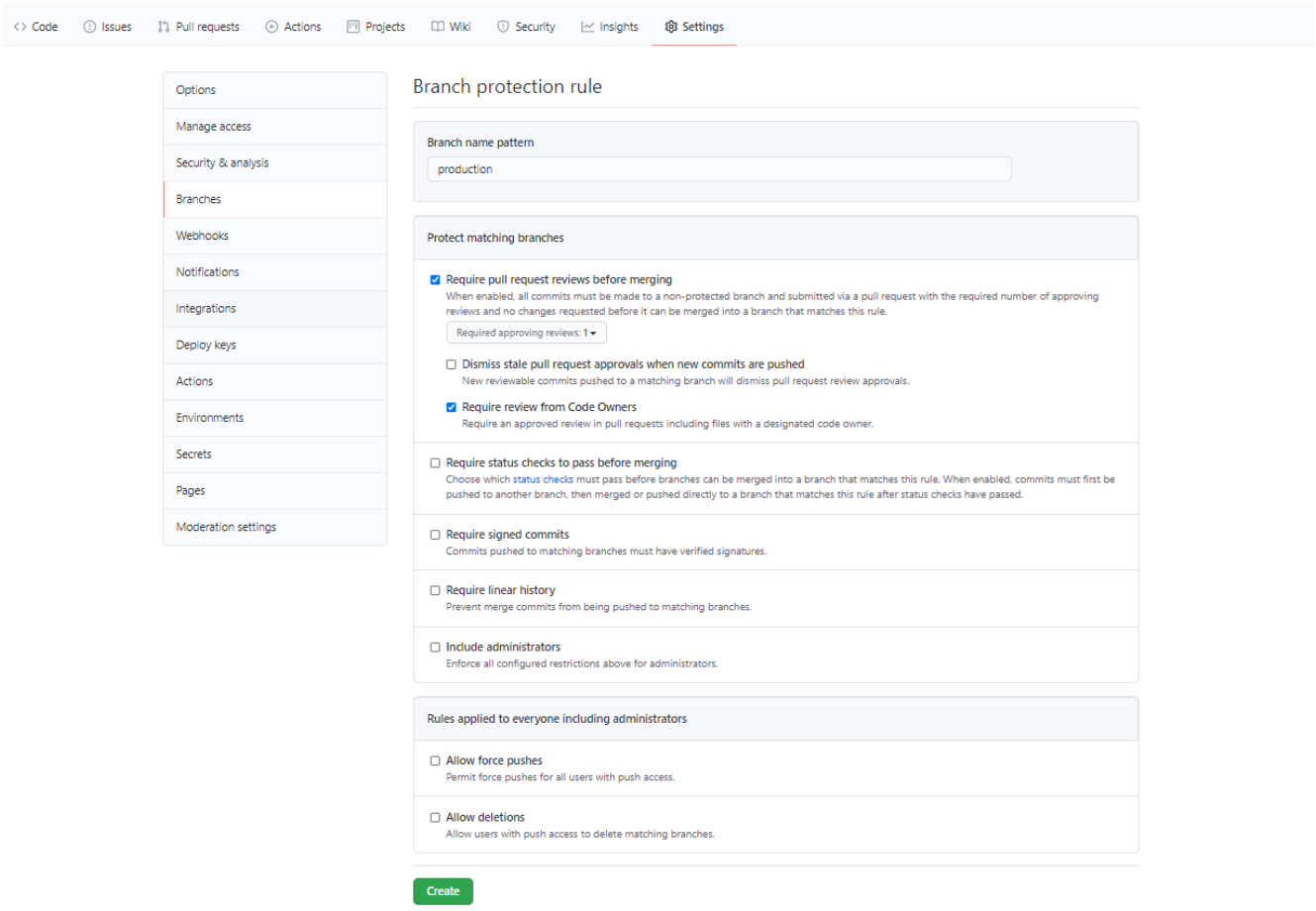


Step 3 – Create Branch and set Branch permissions

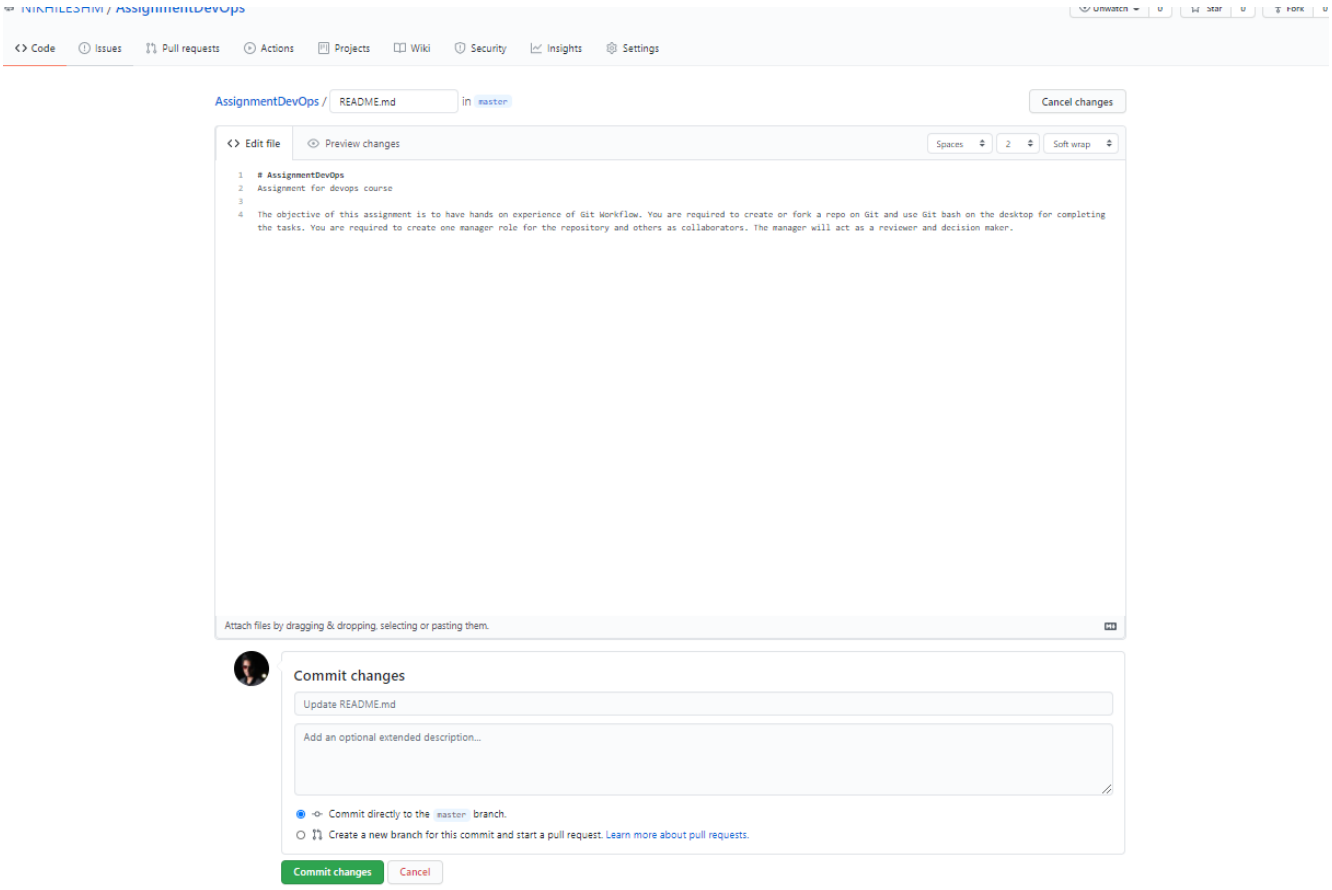




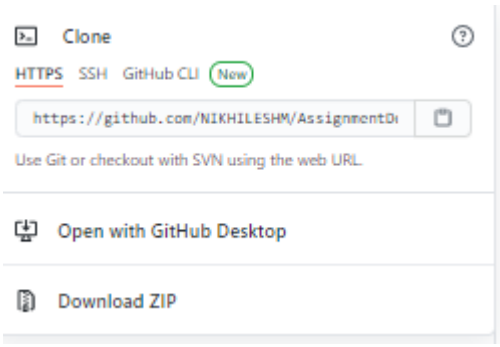
Setup Branch Permissions –

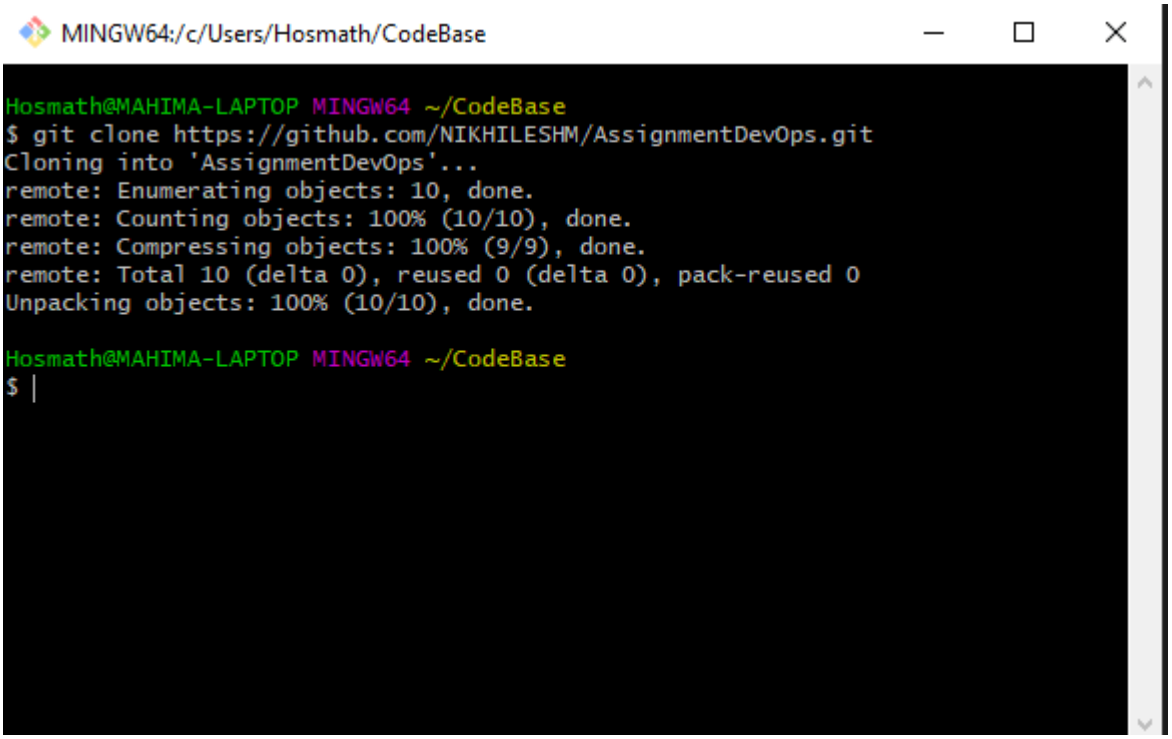


Step 3 – Edit File Readme with Commit



Step 4 – Clone the Repo





Step 5 – Setup Some Code

Create local Branch

```
Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (master)
$ git checkout -b feature
Switched to a new branch 'feature'
M       .gitignore
```

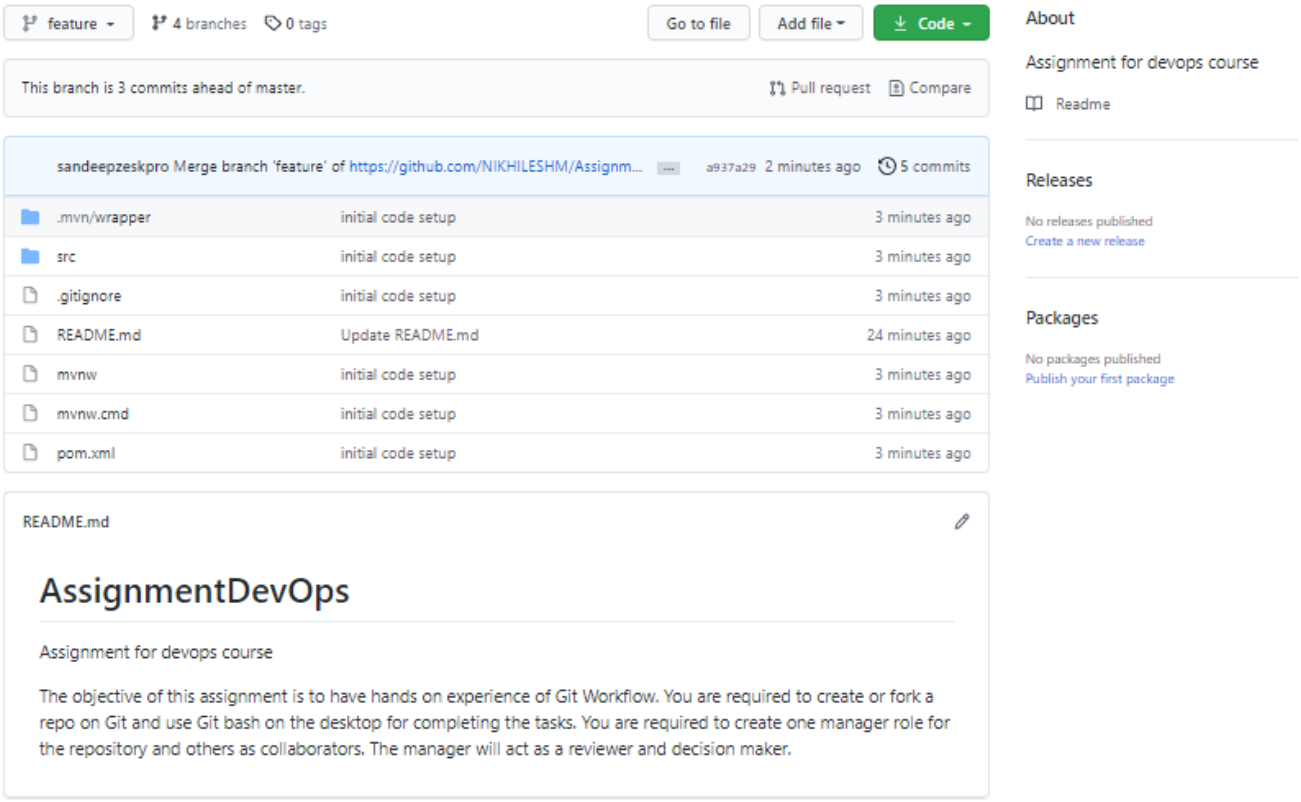
Connect it to origin

```
Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git branch --set-upstream-to=origin/feature
Branch 'feature' set up to track remote branch 'feature' from 'origin'.
```

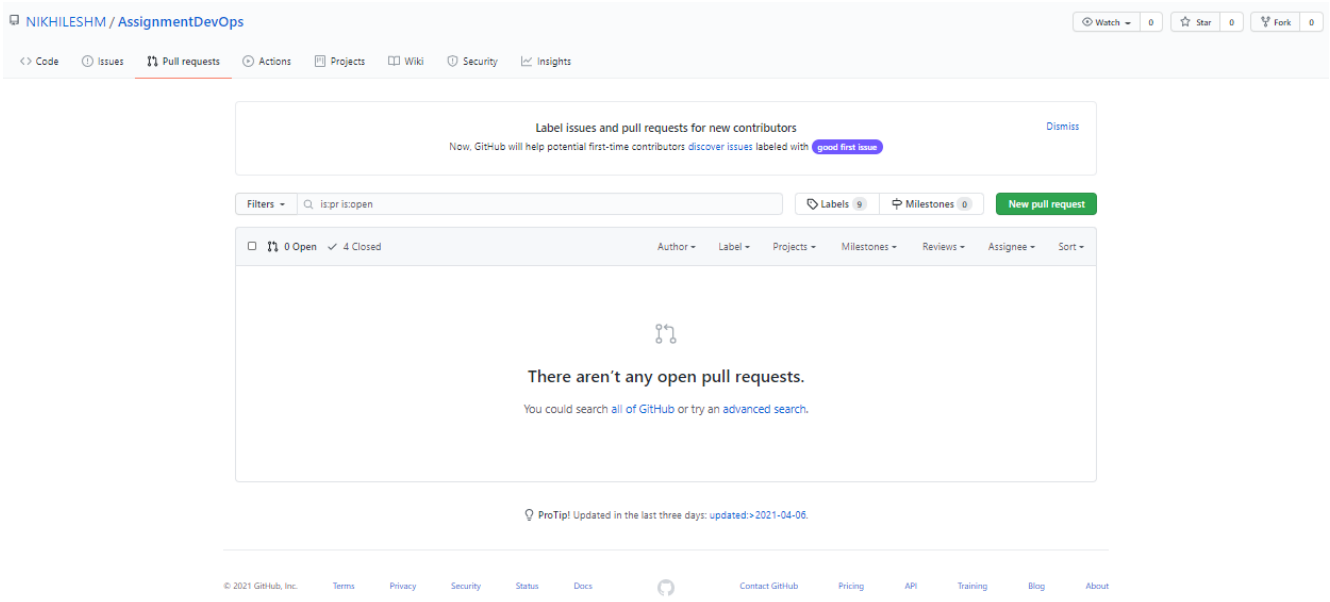
Add and push new code

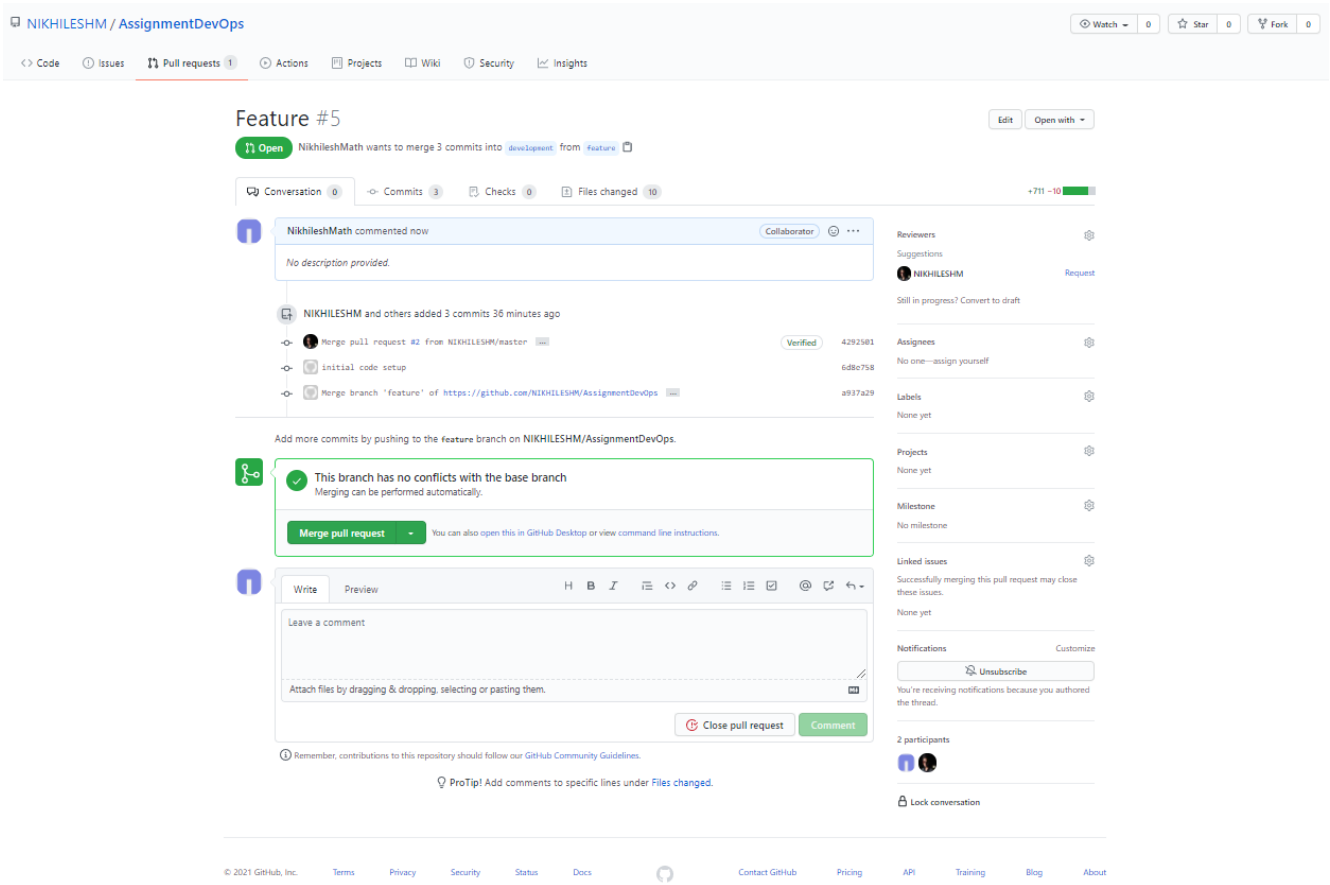
```
Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git add --all
warning: LF will be replaced by CRLF in .gitignore.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in .mvn/wrapper/MavenWrapperDownloader.java.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in .mvn/wrapper/maven-wrapper.properties.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in mvnw.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in mvnw.cmd.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in pom.xml.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/main/java/com/devopsassignment/devops/DevopsApplication.java.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/main/resources/application.properties.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in src/test/java/com/devopsassignment/devops/DevopsApplicationTests.java.
The file will have its original line endings in your working directory

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git commit -m 'initial code setup'
[feature 6d8e758] initial code setup
 10 files changed, 711 insertions(+), 10 deletions(-)
 create mode 100644 .mvn/wrapper/MavenWrapperDownloader.java
 create mode 100644 .mvn/wrapper/maven-wrapper.jar
 create mode 100644 .mvn/wrapper/maven-wrapper.properties
 create mode 100644 mvnw
 create mode 100644 mvnw.cmd
 create mode 100644 pom.xml
 create mode 100644 src/main/java/com/devopsassignment/devops/DevopsApplication.java
 create mode 100644 src/main/resources/application.properties
 create mode 100644 src/test/java/com/devopsassignment/devops/DevopsApplicationTests.java

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git push
Logon failed, use ctrl+c to cancel basic credential prompt.
To https://github.com/NIKHILESHM/AssignmentDevOps.git
 ! [rejected]        feature -> feature (non-fast-forward)
error: failed to push some refs to 'https://github.com/NIKHILESHM/AssignmentDevOps.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. Integrate the remote changes (e.g.
hint: 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git pull
Already up to date!
Merge made by the 'recursive' strategy.

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git push
Logon failed, use ctrl+c to cancel basic credential prompt.
Enumerating objects: 29, done.
Counting objects: 100% (29/29), done.
Delta compression using up to 8 threads
Compressing objects: 100% (18/18), done.
Writing objects: 100% (27/27), 52.62 KiB | 7.52 MiB/s, done.
Total 27 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/NIKHILESHM/AssignmentDevOps.git
   4292501..a937a29  feature -> feature
```

Code in remote branch –

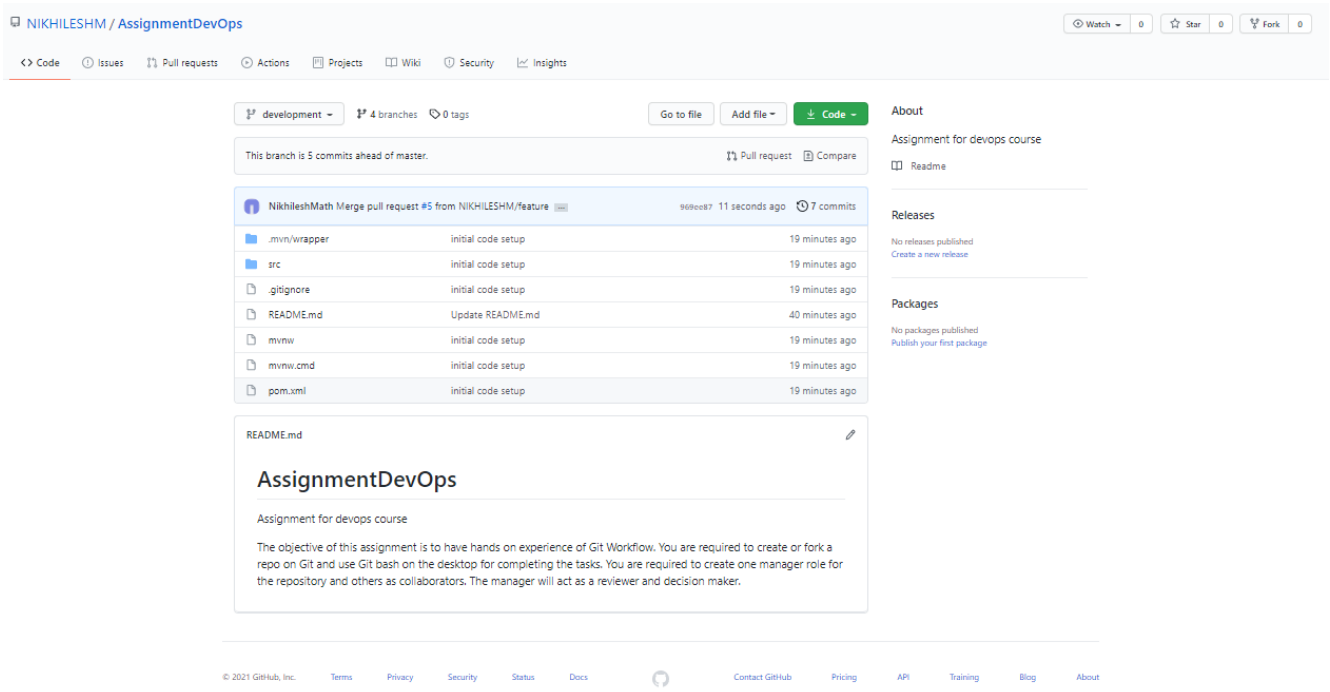


Step 6 – Create Pull Request





Merged into development –

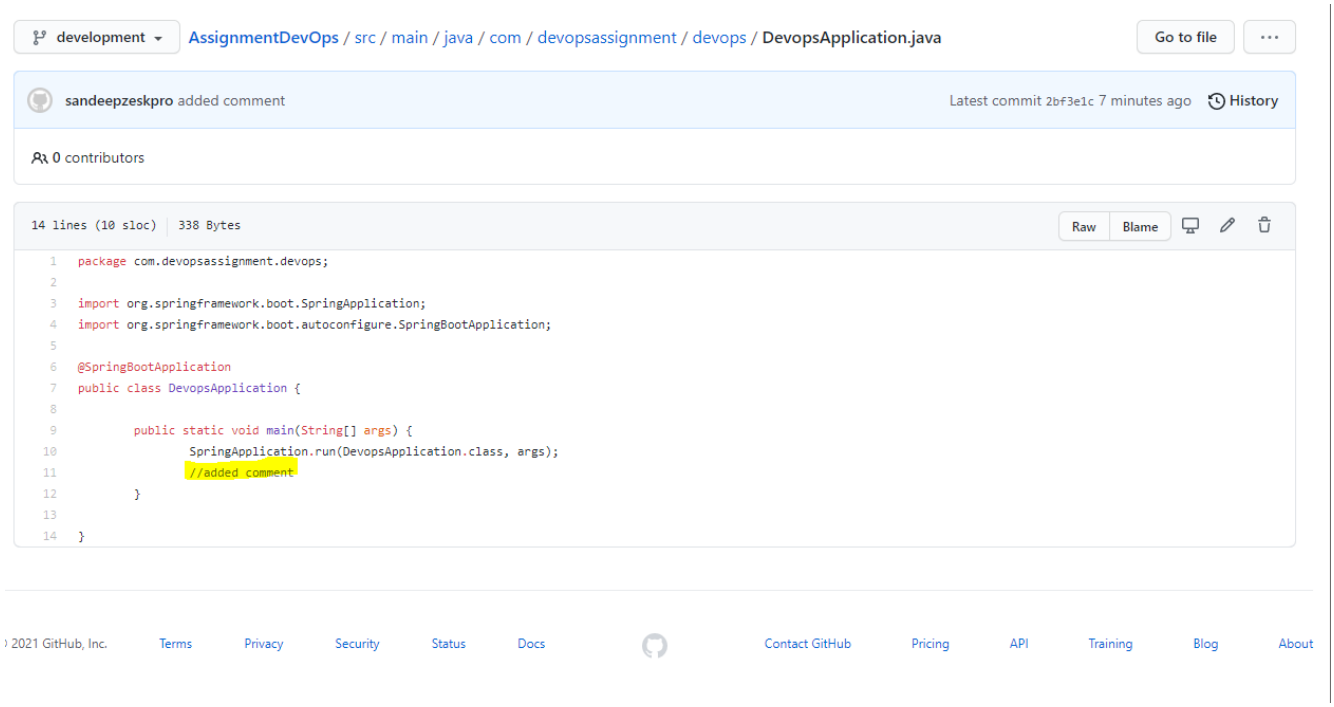


Step 7 – Resolving collaborator conflict

Added change in development branch from manager and added different change in same file in feature branch from collaborator. Will create PR and resolve conflicts

Added development branch change –

```
Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps ((969ee87...))
$ git checkout -b development
Switched to a new branch 'development'

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git branch --set-upstream-to=origin/development
Branch 'development' set up to track remote branch 'development' from 'origin'.

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git pull
Already up to date.

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git status
On branch development
Your branch is up to date with 'origin/development'.

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:   src/main/java/com/devopsassignment/devops/DevopsApplication.java

no changes added to commit (use "git add" and/or "git commit -a")

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ dit add --all
bash: dit: command not found

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git add --all
warning: LF will be replaced by CRLF in src/main/java/com/devopsassignment/devops/DevopsApplication.java.
The file will have its original line endings in your working directory

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git commit -m 'added comment'
[development 2bf3e1c] added comment
 1 file changed, 1 insertion(+)

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git push
Logon failed, use ctrl+c to cancel basic credential prompt.
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 640 bytes | 320.00 KiB/s, done.
Total 9 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/NIKHILESHM/AssignmentDevOps.git
   969ee87..2bf3e1c  development -> development

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git pull
Already up to date.
```



Added Feature Branch change from another collaborator

```
Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git status
On branch feature
Your branch is up to date with 'origin/feature'.

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:   src/main/java/com/devopsassignment/devops/DevopsApplication.java

no changes added to commit (use "git add" and/or "git commit -a")

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git add -all
error: did you mean `--all` (with two dashes ?)

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git add --all
warning: LF will be replaced by CRLF in src/main/java/com/devopsassignment/devops/DevopsApplication.java.
The file will have its original line endings in your working directory

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git commit -m 'conflict merge'
[feature 077ad71] conflict merge
 1 file changed, 1 insertion(+)

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (feature)
$ git push
Logon failed, use ctrl+c to cancel basic credential prompt.
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 8 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 649 bytes | 216.00 KiB/s, done.
Total 9 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/NIKHILESHM/AssignmentDevOps.git
   a937a29..077ad71  feature -> feature
```

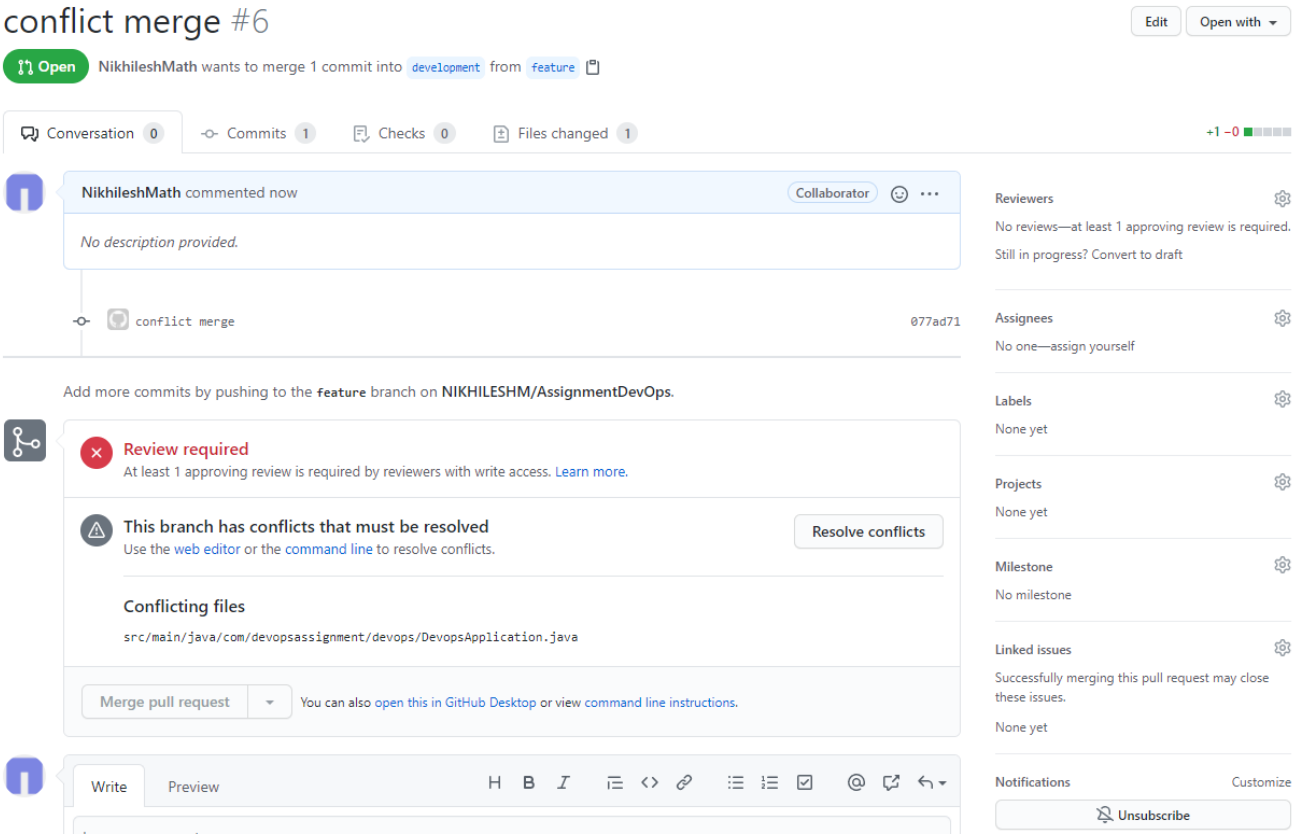
14 lines (10 sloc) | 347 Bytes

Raw Blame

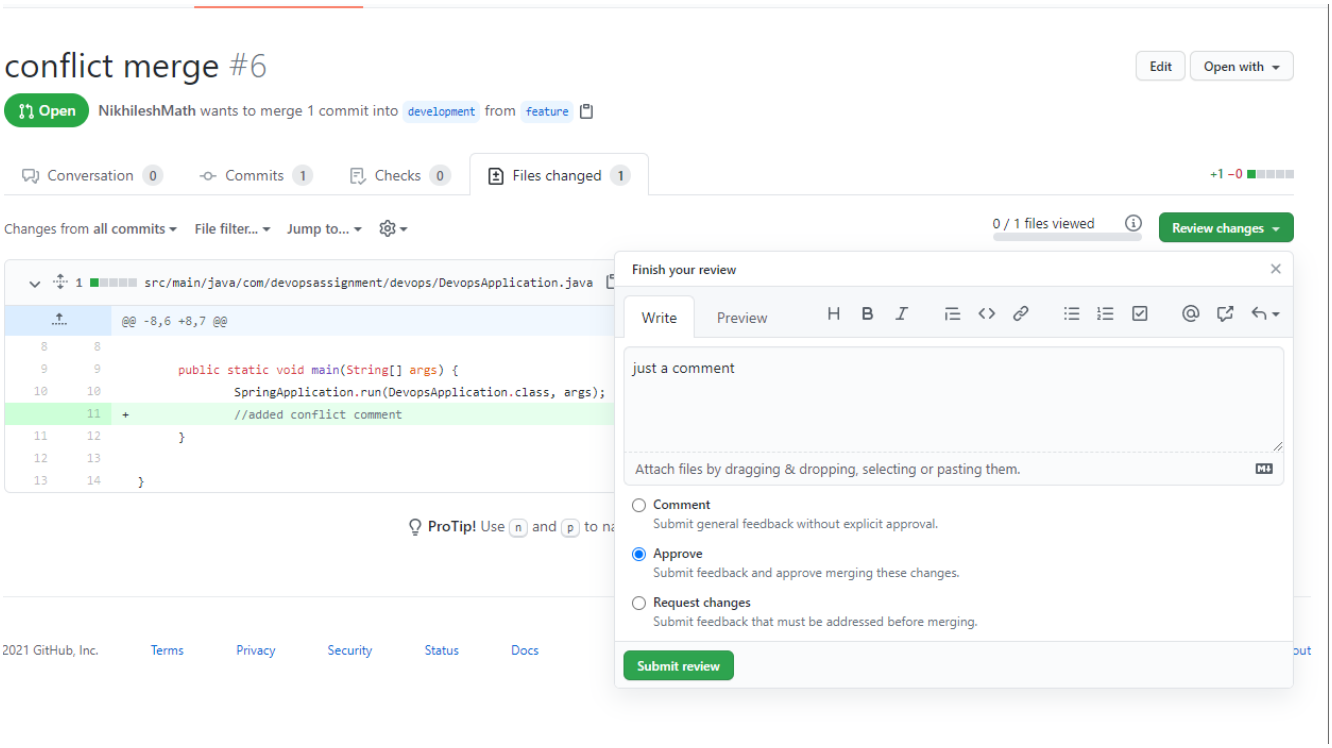
```
1  package com.devopsassignment.devops;
2
3  import org.springframework.boot.SpringApplication;
4  import org.springframework.boot.autoconfigure.SpringBootApplication;
5
6  @SpringBootApplication
7  public class DevopsApplication {
8
9          public static void main(String[] args) {
10                 SpringApplication.run(DevopsApplication.class, args);
11                 //added conflict comment
12         }
13
14 }
```

Create PR from Feature to dev to resolve conflicts

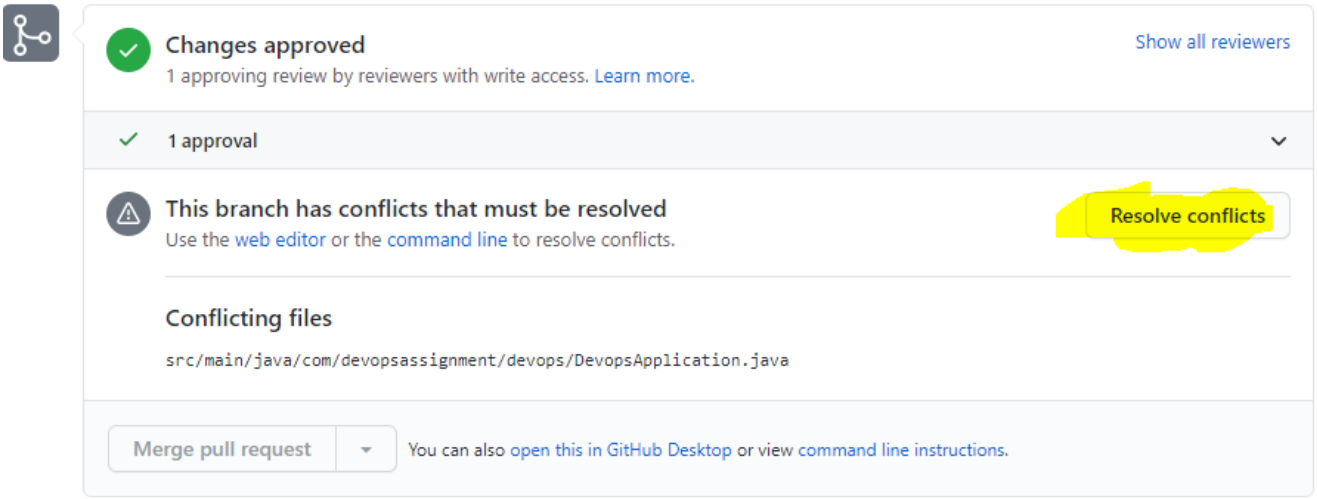
Collaborator created PR – Hence Review is required to merge into development –



Adding review



Resolve conflicts –



conflict merge #6

Resolving conflicts between `feature` and `development` and committing changes → `feature`

1 conflicting file

DevopsApplication.java
...ignment/devops/DevopsApplication.java

src/main/java/com/devopsassignment/devops/DevopsApplication.java 1 conflict Prev Next

```
1   package com.devopsassignment.devops;
2
3   import org.springframework.boot.SpringApplication;
4   import org.springframework.boot.autoconfigure.SpringBootApplication;
5
6   @SpringBootApplication
7   public class DevopsApplication {
8
9     public static void main(String[] args) {
10      SpringApplication.run(DevopsApplication.class, args);
11  <<<<<<< feature
12      //added conflict comment
13  =======
14      //added comment
15  >>>>>>> development
16    }
17
18  }
19
```

Changes approved Show all reviewers

1 approving review by reviewers with write access. Learn more.

✓ 1 approval

Continuous integration has not been set up

GitHub Actions and several other apps can be used to automatically catch bugs and enforce style.

This branch has no conflicts with the base branch

Merging can be performed automatically.

Merge pull request ▾ You can also open this in GitHub Desktop or view command line instructions.

Pull request successfully merged and closed

You're all set—the `feature` branch can be safely deleted.

Delete branch

development AssignmentDevOps / src / main / java / com / devopsassignment / devops / DevopsApplication.java

NIKHILESHM Merge branch 'development' into feature Latest commit

1 contributor

15 lines (11 sloc) 365 Bytes

```java
package com.devopsassignment.devops;

import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication
public class DevopsApplication {

	public static void main(String[] args) {
		SpringApplication.run(DevopsApplication.class, args);
		//added conflict comment
		//added comment
	}

}
```

Step 8 – Creating Tags

```
Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git tag v1.0.0

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git push --tags
Logon failed, use ctrl+c to cancel basic credential prompt.
Total 0 (delta 0), reused 0 (delta 0)
To https://github.com/NIKHILESHM/AssignmentDevOps.git
 * [new tag]         v1.0.0 -> v1.0.0
```

NIKHILESHM / AssignmentDevOps

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Releases Tags

Tags

v1.0.0 ... Verified

9 minutes ago 8e0c568 zip tar.gz

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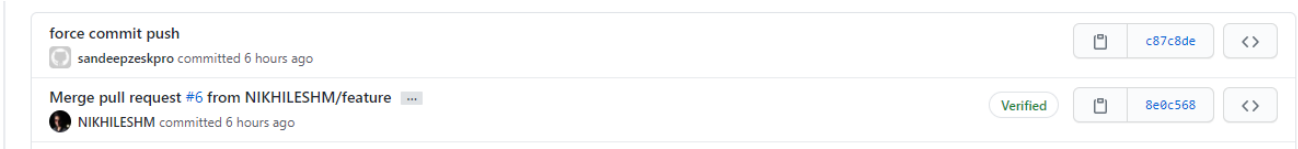
Step 9 – Do a force push and then later reset the changes

```
Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git add --all

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git status
On branch development
Your branch is up to date with 'origin/development'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   src/main/java/com/devopsassignment/devops/DevopsApplication.java


Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git commit -m "force push commit"
[development 2fd9629] force push commit
 1 file changed, 1 insertion(+), 1 deletion(-)

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git push
Logon failed, use ctrl+c to cancel basic credential prompt.
error: unable to read askpass response from 'C:/Program Files/Git/mingw64/libexec/git-core/git-gui--askpass'
Username for 'https://github.com': nikhileshm9@gmail.com
error: unable to read askpass response from 'C:/Program Files/Git/mingw64/libexec/git-core/git-gui--askpass'
Password for 'https://nikhileshm9@gmail.com@github.com':
To https://github.com/NIKHILESHM/AssignmentDevOps.git
 ! [rejected]        development -> development (fetch first)
error: failed to push some refs to 'https://github.com/NIKHILESHM/AssignmentDevOps.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git push -f
Logon failed, use ctrl+c to cancel basic credential prompt.
error: unable to read askpass response from 'C:/Program Files/Git/mingw64/libexec/git-core/git-gui--askpass'
Username for 'https://github.com': nikhileshm9@gmail.com
Enumerating objects: 26, done.
Counting objects: 100% (26/26), done.
Delta compression using up to 8 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (18/18), 1.23 KiB | 251.00 KiB/s, done.
Total 18 (delta 4), reused 0 (delta 0)
remote: Resolving deltas: 100% (4/4), completed with 2 local objects.
remote: error: GH006: Protected branch update failed for refs/heads/development.
remote: error: Cannot force-push to this protected branch
To https://github.com/NIKHILESHM/AssignmentDevOps.git
 ! [remote rejected] development -> development (protected branch hook declined)
error: failed to push some refs to 'https://github.com/NIKHILESHM/AssignmentDevOps.git'

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git push -f
Logon failed, use ctrl+c to cancel basic credential prompt.
Enumerating objects: 26, done.
Counting objects: 100% (26/26), done.
Delta compression using up to 8 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (18/18), 1.23 KiB | 313.00 KiB/s, done.
Total 18 (delta 4), reused 0 (delta 0)
remote: Resolving deltas: 100% (4/4), completed with 2 local objects.
To https://github.com/NIKHILESHM/AssignmentDevOps.git
 + ec54a4f...2fd9629 development -> development (forced update)

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$
```

I Reset to my previous commit and did another force push

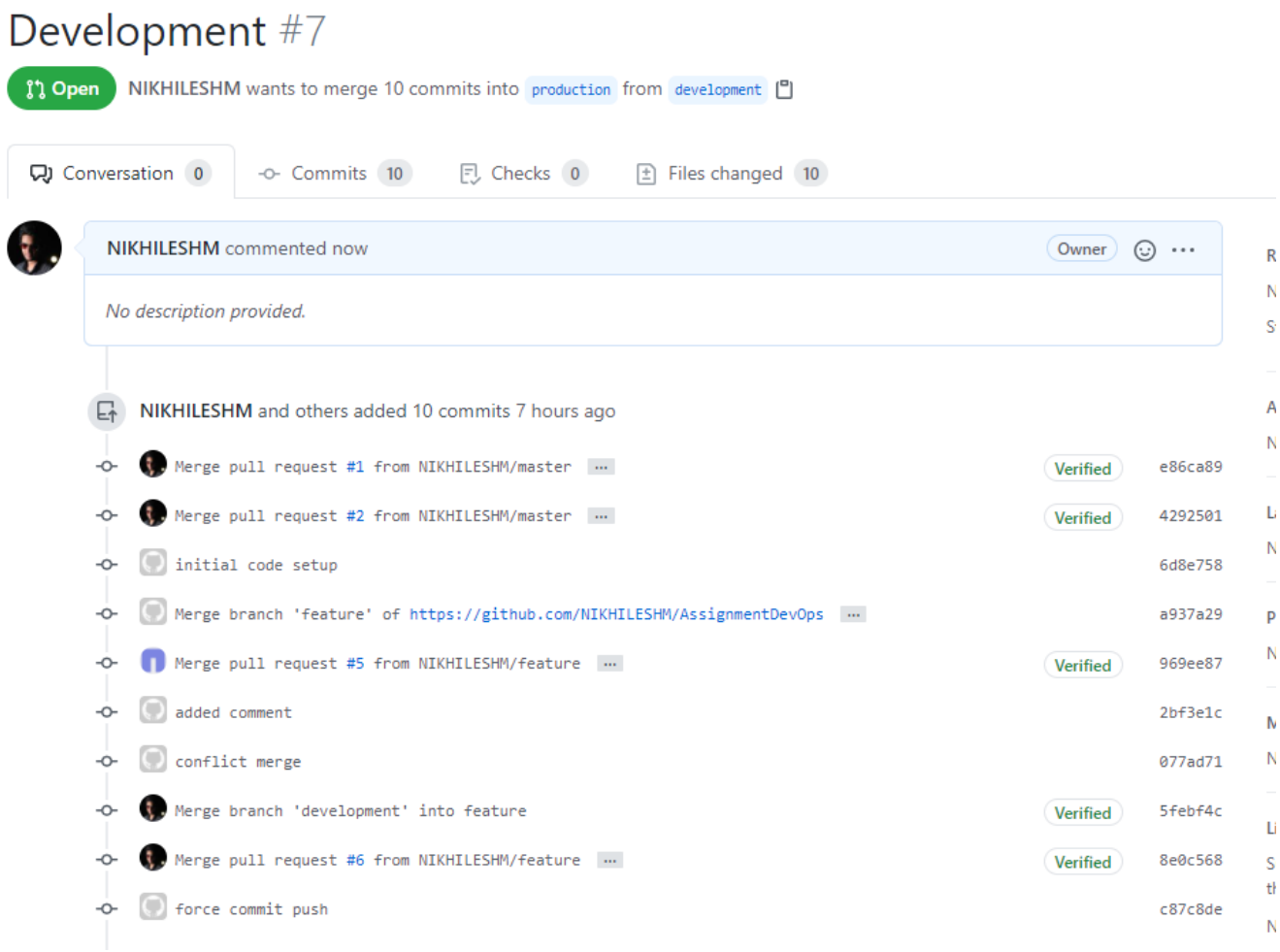
```
    feature

commit a937a296981957011f58c3e0d00da61e3ecaa7ce
Merge: 6d8e758 4292501
Author: sandeepzeskpro <info@zeskpro.com>
Date:   Fri Apr 9 14:13:27 2021 +0530

    Merge branch 'feature' of https://github.com/NIKHILESHM/AssignmentDevOps into feature

commit 6d8e758f52e7c0aacdef5c8b30fcc9bf3607a14d
Author: sandeepzeskpro <info@zeskpro.com>
Date:   Fri Apr 9 14:12:33 2021 +0530

    initial code setup

commit 42925011a09baa064daa5657c8df127e9449e39a
Merge: d371aa6 6f9a4c2
Author: Nikhilesh Math <nikhileshm9@gmail.com>
Date:   Fri Apr 9 13:53:54 2021 +0530

    Merge pull request #2 from NIKHILESHM/master

    Update README.md

commit e86ca89bc475ce5a42dd9fcc3f9e1c925639efff
Merge: d371aa6 6f9a4c2
Author: Nikhilesh Math <nikhileshm9@gmail.com>
Date:   Fri Apr 9 13:53:15 2021 +0530

    Merge pull request #1 from NIKHILESHM/master

    Update README.md

commit 6f9a4c20b8ae5bda29f65148f77afa88eb50a700 (origin/master, origin/HEAD, master)
Author: Nikhilesh Math <nikhileshm9@gmail.com>
Date:   Fri Apr 9 13:52:05 2021 +0530

    Update README.md

commit d371aa6077762c1f8c7114d3934109da2d81ae85
Author: Nikhilesh Math <nikhileshm9@gmail.com>
Date:   Fri Apr 9 13:30:20 2021 +0530

    Initial commit

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git reset --hard c87c8de4b307588e9b8ba10a7adc297c433ebbe7
HEAD is now at c87c8de force commit push

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$ git push -f
Logon failed, use ctrl+c to cancel basic credential prompt.
Total 0 (delta 0), reused 0 (delta 0)
To https://github.com/NIKHILESHM/AssignmentDevOps.git
 + 2fd9629...c87c8de development -> development (forced update)

Hosmath@MAHIMA-LAPTOP MINGW64 ~/CodeBase/AssignmentDevOps (development)
$
```

I reset the commit in remote

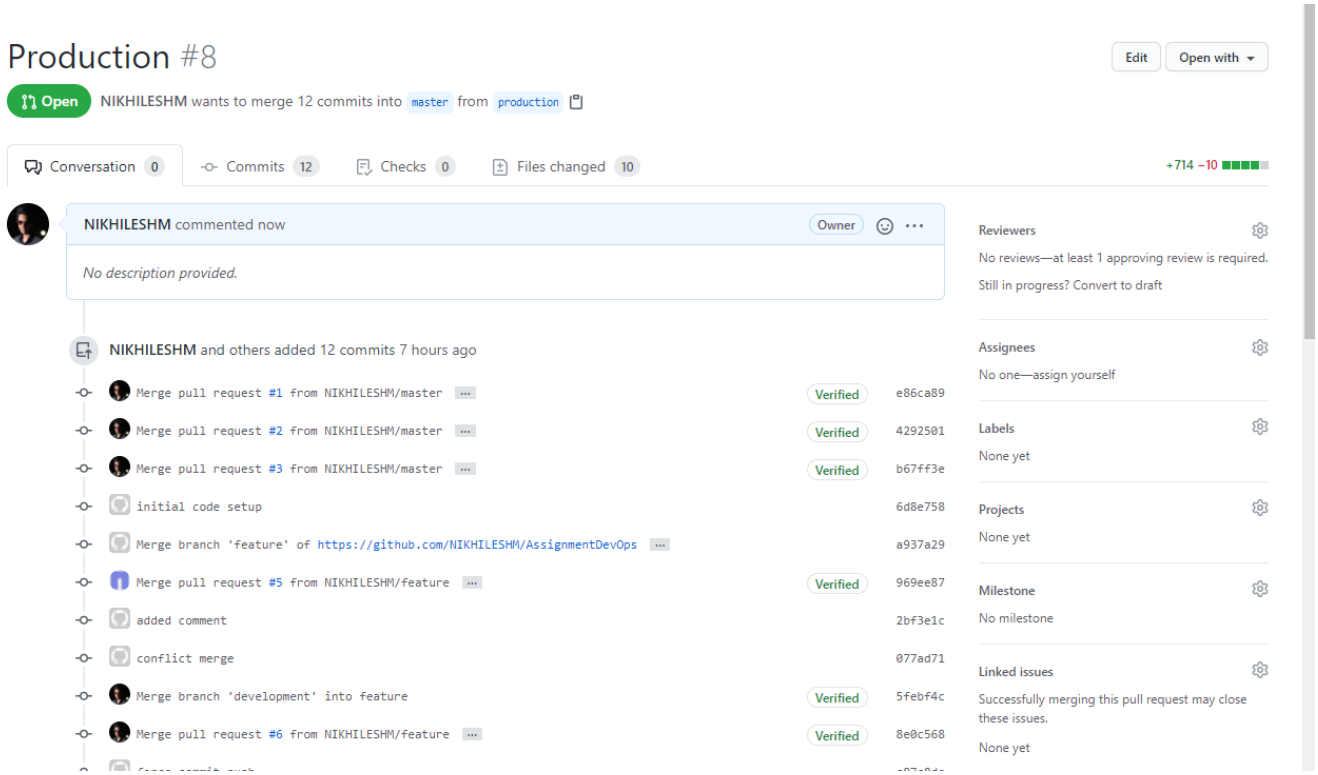


Step 10 – Staging Development to Production

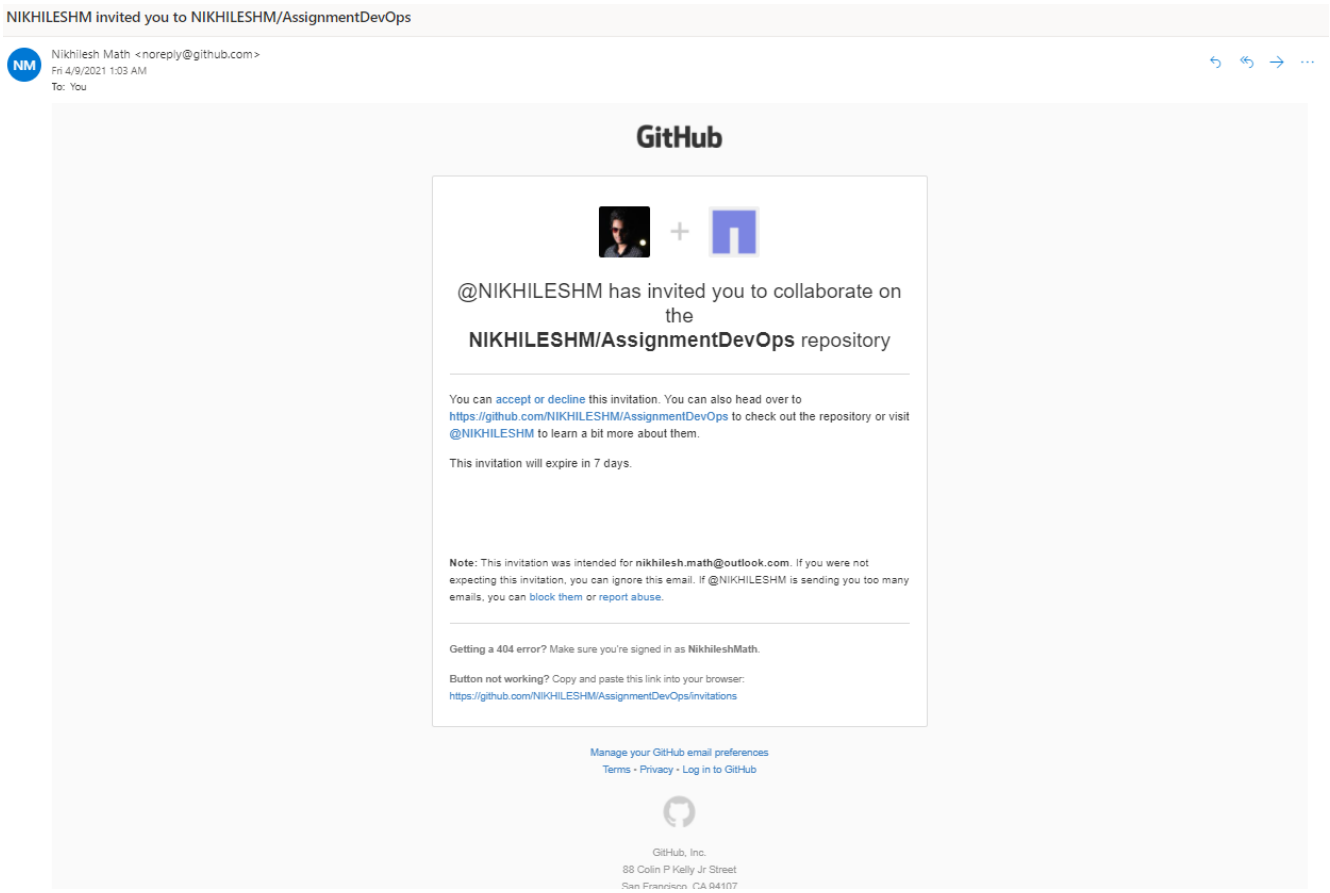
Here we do it using pull request from development to production



Step 11 – released merging production to master branch



Step 12 – Bonus Point Email notification to manager



Importance of readme and git Ignore

Readme provides the user with the overview of the Git Repository and the code it contains. It is really important to provide all the details required to kick start and using this repo for a starter.

.gitignore files play a really important role where unwanted or intermediate/locally generated/setup code such as .mvn or nodemodules are ignored by the git so that only Important code is pushed into the remote