Git Rebase and Update Pull Request

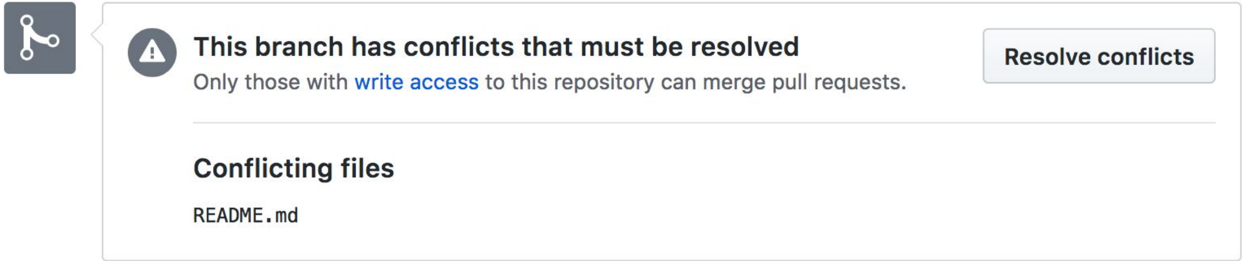
Anjan Debnath

PR Conflict

This may happen

- if the maintainers do not respond to your pull request for a while, or
- if many people are contributing to the project at once.

When this happens and you still want to merge your pull request, you will have to resolve conflicts and rebase your code.

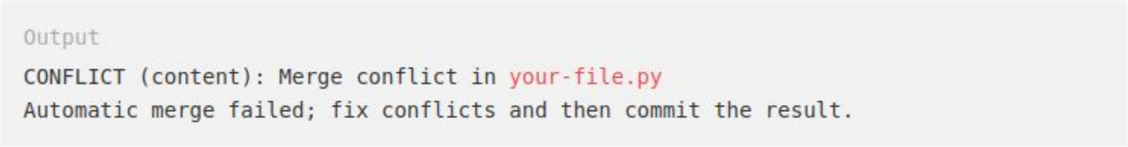


This branch has conflicts that must be resolved

Only those with write access to this repository can merge pull requests.

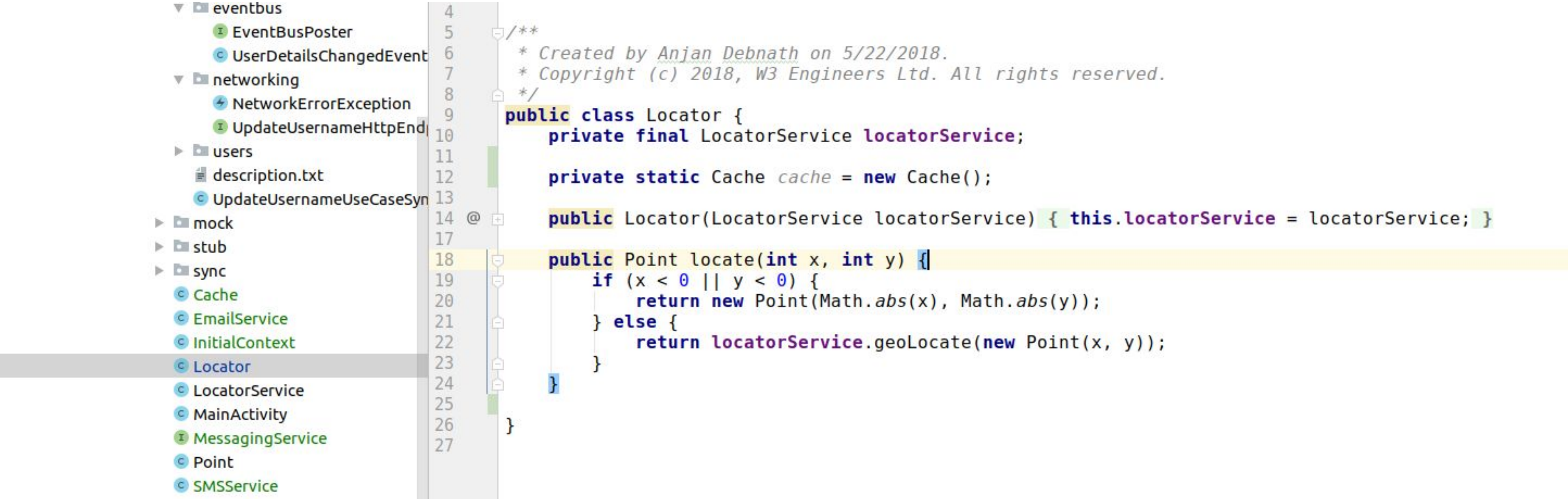
Conflicting files

README.md



```
Output
CONFLICT (content): Merge conflict in your-file.py
Automatic merge failed; fix conflicts and then commit the result.
```

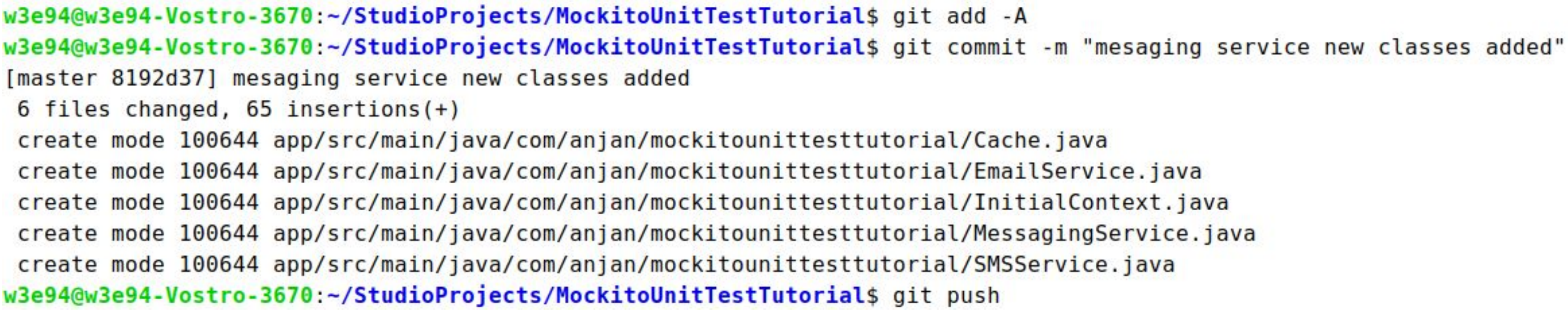
Code changes on Upstream branch



```java

/**
 * Created by Anjan Debnath on 5/22/2018.
 * Copyright (c) 2018, W3 Engineers Ltd. All rights reserved.
 */
public class Locator {
    private final LocatorService locatorService;

    private static Cache cache = new Cache();

    public Locator(LocatorService locatorService) { this.locatorService = locatorService; }

    public Point locate(int x, int y) {
        if (x < 0 || y < 0) {
            return new Point(Math.abs(x), Math.abs(y));
        } else {
            return locatorService.geoLocate(new Point(x, y));
        }
    }

}
```

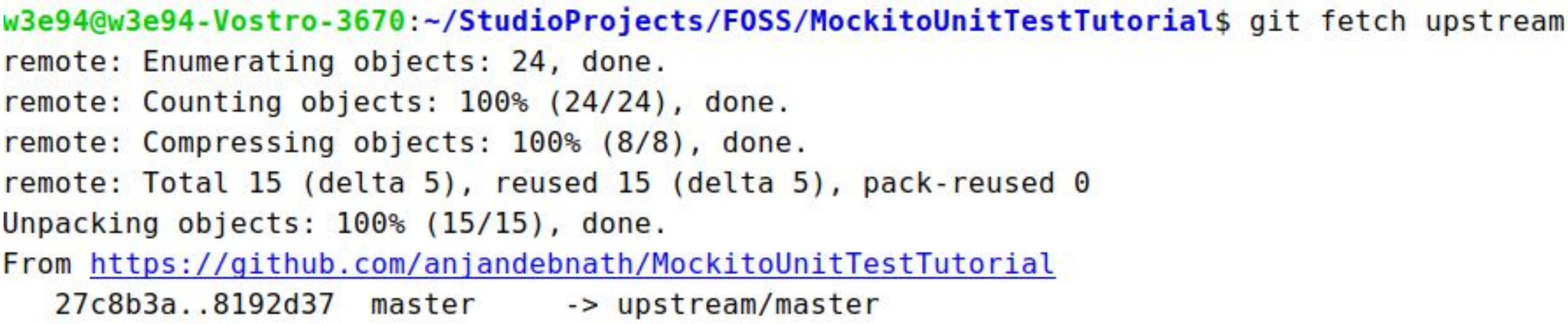
The new classes are added to upstream branch. Then the local master branch will fetch the updates from upstream/master branch

Commit and Push



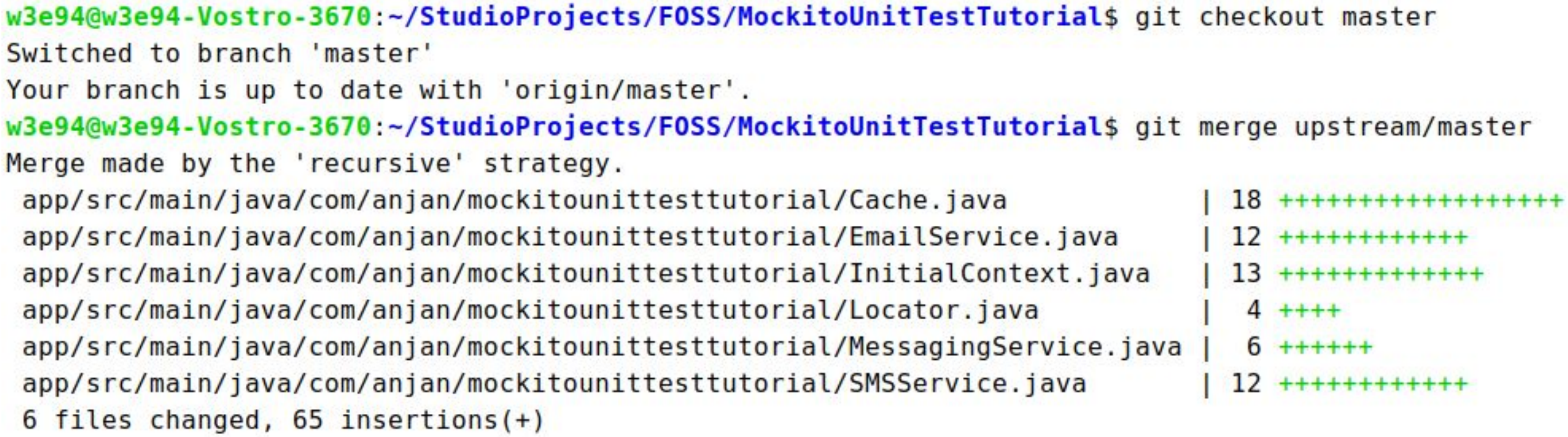
```
w3e94@w3e94-Vostro-3670:~/StudioProjects/MockitoUnitTestTutorial$ git add -A
w3e94@w3e94-Vostro-3670:~/StudioProjects/MockitoUnitTestTutorial$ git commit -m "mesaging service new classes added"
[master 8192d37] mesaging service new classes added
 6 files changed, 65 insertions(+)
 create mode 100644 app/src/main/java/com/anjan/mockitounittesttutorial/Cache.java
 create mode 100644 app/src/main/java/com/anjan/mockitounittesttutorial/EmailService.java
 create mode 100644 app/src/main/java/com/anjan/mockitounittesttutorial/InitialContext.java
 create mode 100644 app/src/main/java/com/anjan/mockitounittesttutorial/MessagingService.java
 create mode 100644 app/src/main/java/com/anjan/mockitounittesttutorial/SMSService.java
w3e94@w3e94-Vostro-3670:~/StudioProjects/MockitoUnitTestTutorial$ git push
```

Fetch changes to forked Remote branch



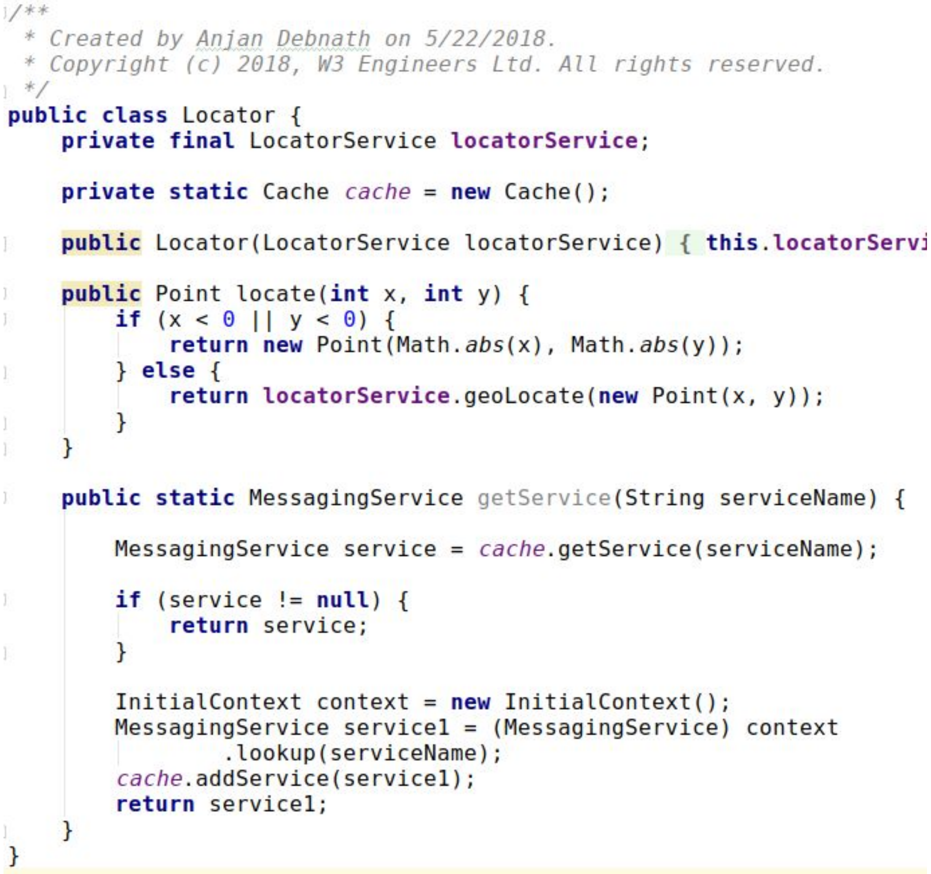
```
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git fetch upstream
remote: Enumerating objects: 24, done.
remote: Counting objects: 100% (24/24), done.
remote: Compressing objects: 100% (8/8), done.
remote: Total 15 (delta 5), reused 15 (delta 5), pack-reused 0
Unpacking objects: 100% (15/15), done.
From https://github.com/anjandebnath/MockitoUnitTestTutorial
   27c8b3a..8192d37  master     -> upstream/master
```

Merge local master with upstream master



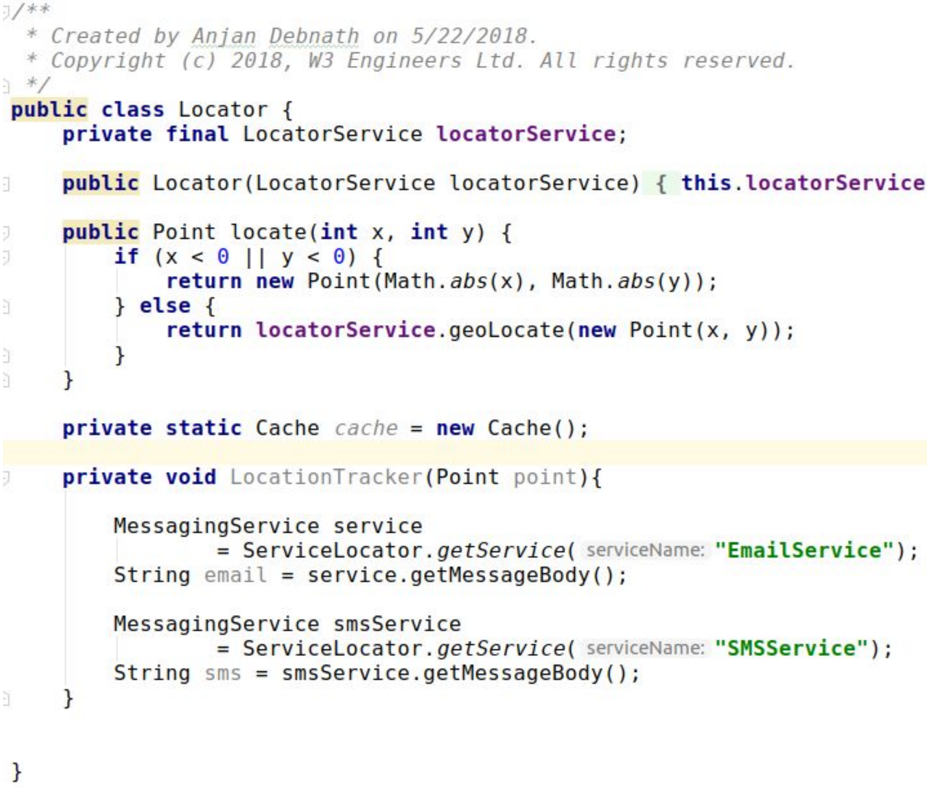
```
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git merge upstream/master
Merge made by the 'recursive' strategy.
 app/src/main/java/com/anjan/mockitounittesttutorial/Cache.java            | 18 ++++++++++++++++++
 app/src/main/java/com/anjan/mockitounittesttutorial/EmailService.java     | 12 ++++++++++++
 app/src/main/java/com/anjan/mockitounittesttutorial/InitialContext.java   | 13 +++++++++++++
 app/src/main/java/com/anjan/mockitounittesttutorial/Locator.java          |  4 ++++
 app/src/main/java/com/anjan/mockitounittesttutorial/MessagingService.java |  6 ++++++
 app/src/main/java/com/anjan/mockitounittesttutorial/SMSService.java       | 12 ++++++++++++
 6 files changed, 65 insertions(+)
```

Parent repo code

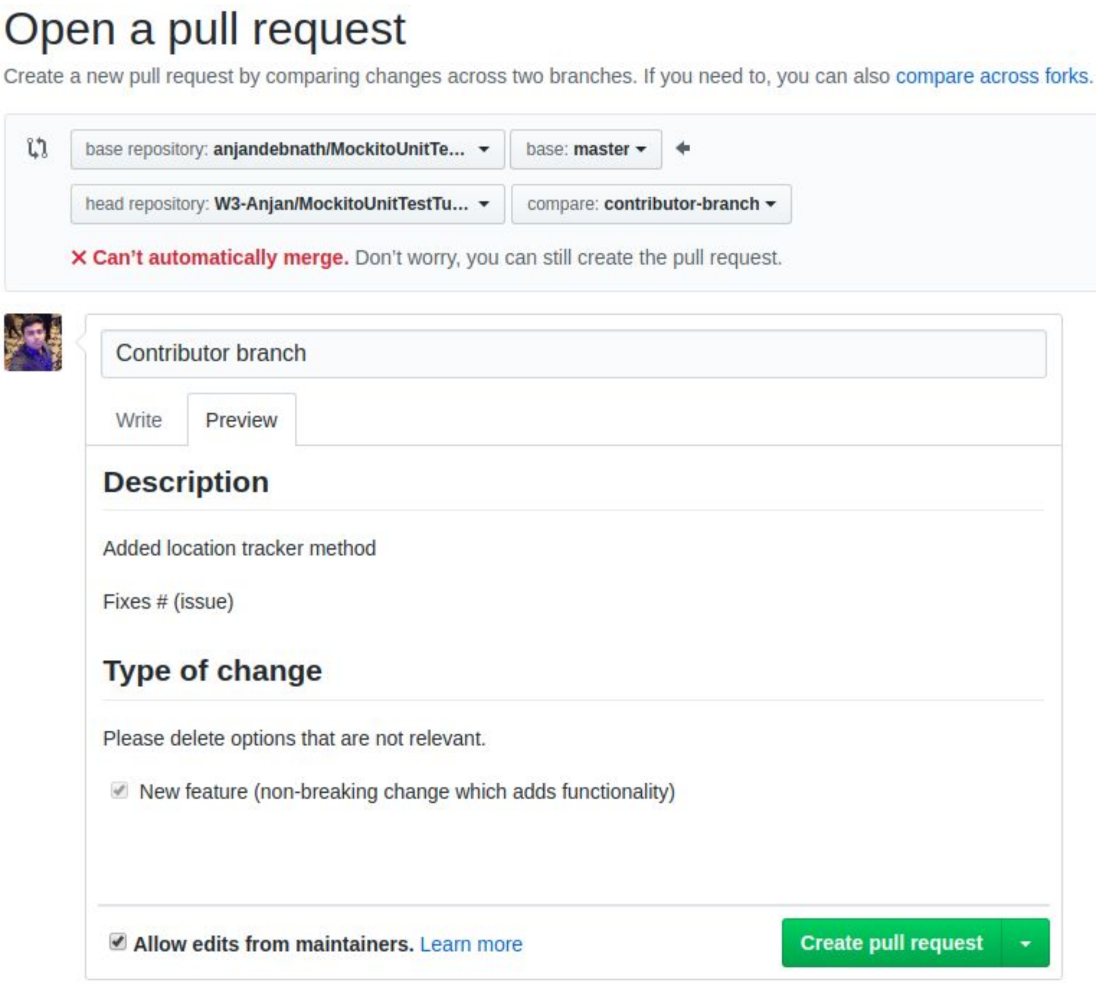


```
/**
 * Created by Anjan Debnath on 5/22/2018.
 * Copyright (c) 2018, W3 Engineers Ltd. All rights reserved.
 */
public class Locator {
    private final LocatorService locatorService;

    private static Cache cache = new Cache();

    public Locator(LocatorService locatorService) { this.locatorServi

    public Point locate(int x, int y) {
        if (x < 0 || y < 0) {
            return new Point(Math.abs(x), Math.abs(y));
        } else {
            return locatorService.geoLocate(new Point(x, y));
        }
    }

    public static MessagingService getService(String serviceName) {

        MessagingService service = cache.getService(serviceName);

        if (service != null) {
            return service;
        }

        InitialContext context = new InitialContext();
        MessagingService service1 = (MessagingService) context
                .lookup(serviceName);
        cache.addService(service1);
        return service1;
    }
}
```

Contributor repo code



```
/**
 * Created by Anjan Debnath on 5/22/2018.
 * Copyright (c) 2018, W3 Engineers Ltd. All rights reserved.
 */
public class Locator {
    private final LocatorService locatorService;

    public Locator(LocatorService locatorService) { this.locatorService

    public Point locate(int x, int y) {
        if (x < 0 || y < 0) {
            return new Point(Math.abs(x), Math.abs(y));
        } else {
            return locatorService.geoLocate(new Point(x, y));
        }
    }

    private static Cache cache = new Cache();

    private void LocationTracker(Point point){

        MessagingService service
                = ServiceLocator.getService( serviceName: "EmailService");
        String email = service.getMessageBody();

        MessagingService smsService
                = ServiceLocator.getService( serviceName: "SMSService");
        String sms = smsService.getMessageBody();
    }


}
```



Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.

base repository: **anjandebnath/MockitoUnitTe...** base: **master**

head repository: **W3-Anjan/MockitoUnitTestTu...** compare: **contributor-branch**

✕ **Can't automatically merge.** Don't worry, you can still create the pull request.

Contributor branch

Description

Added location tracker method

Fixes # (issue)

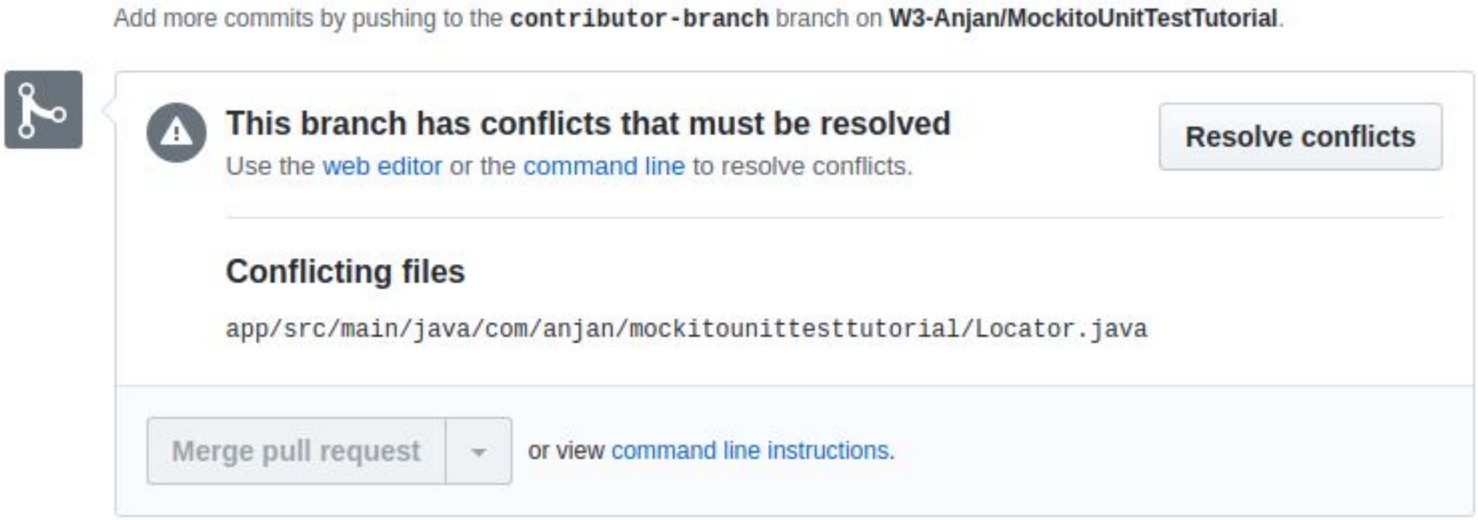
Type of change

Please delete options that are not relevant.

☑ New feature (non-breaking change which adds functionality)

☑ **Allow edits from maintainers.** Learn more

Conflict on Pull Request



Add more commits by pushing to the **contributor-branch** branch on **W3-Anjan/MockitoUnitTestTutorial**.

This branch has conflicts that must be resolved

Use the web editor or the command line to resolve conflicts.

Conflicting files

```
app/src/main/java/com/anjan/mockitounittesttutorial/Locator.java
```

or view command line instructions.

Rebase

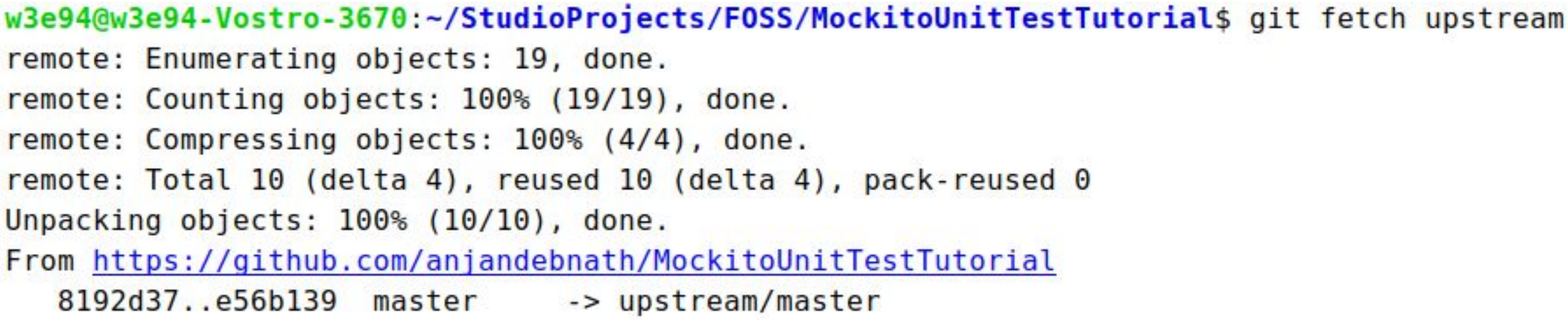
A rebase allows us to **move branches** around **by changing the commit** that they are based on. This way, we can rebase our code to make them based on the master branch's more recent commits.

Moving or combining a sequence of commits to a new base commits.

Steps

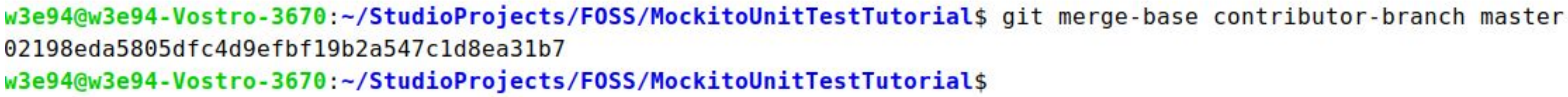
1. We’ll move into the code directory and **fetch the most recent upstream** version of the code.
2. You can clean up your comments **by either squashing or rewording your commit messages** to make them more digestible to the project maintainers.
3. An **interactive rebase** can be used to **edit previous commit messages**, **combine several commits into one**, or d**elete or revert commits** that are not necessary any longer.
4. *To do this, we will need to be able to reference the commits that we have made either **by number of commits** or **by a string that references the base** of our branch.*
5. **Squashing commit** messages is great when we are **combining several smaller commits into one larger one**.
6. **Rewording commit** messages is great for when you **notice a typo**, or you realize **you were not using parallel language for each of your commits**.
7. Update Pull Request with Force-Push and complete the Rebase

Fetch the most recent upstream



```
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git fetch upstream
remote: Enumerating objects: 19, done.
remote: Counting objects: 100% (19/19), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 10 (delta 4), reused 10 (delta 4), pack-reused 0
Unpacking objects: 100% (10/10), done.
From https://github.com/anjandebnath/MockitoUnitTestTutorial
   8192d37..e56b139  master     -> upstream/master
```

Find which commit is the base of your branch

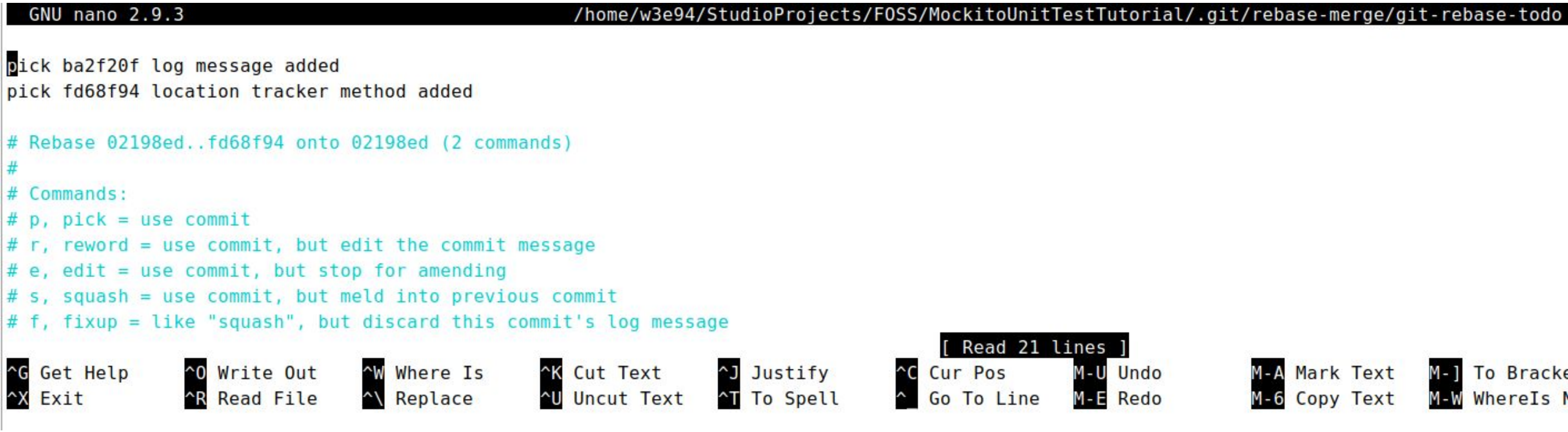


```
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git merge-base contributor-branch master
02198eda5805dfc4d9efbf19b2a547c1d8ea31b7
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$
```

The long string is the commit hash. We will use this commit hash to pass to the git rebase command

```
git rebase -i 02198eda5805dfc4d9efbf19b2a547c1d8ea31b7
```

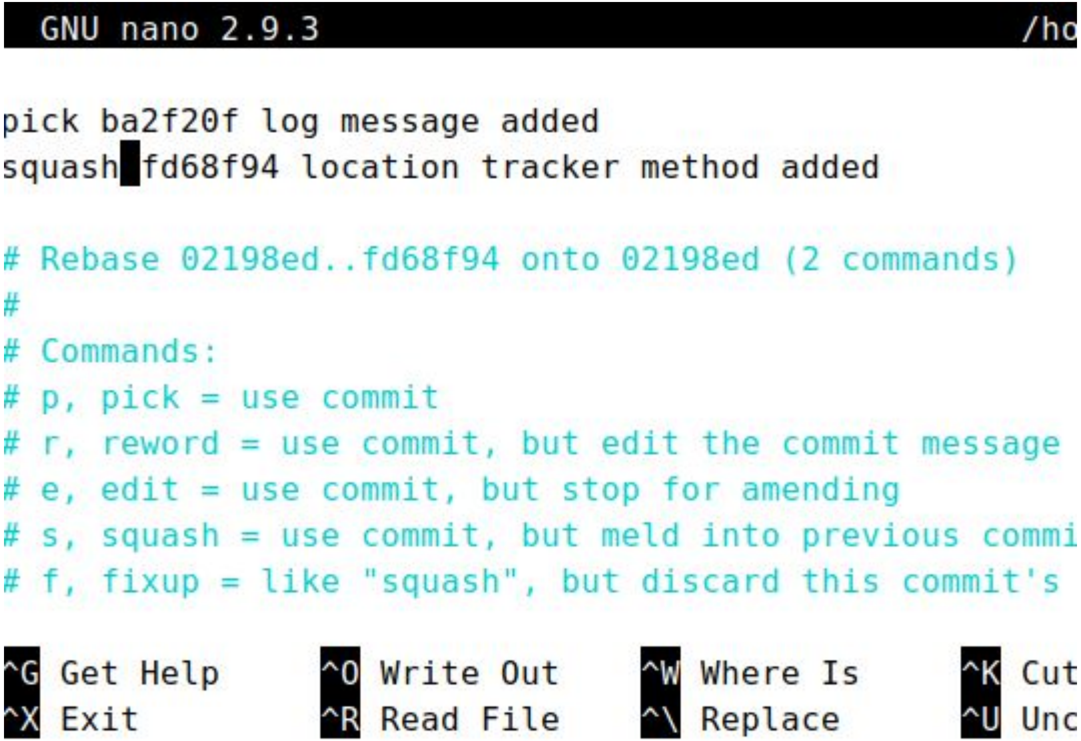
Pass the commit hash to rebase command



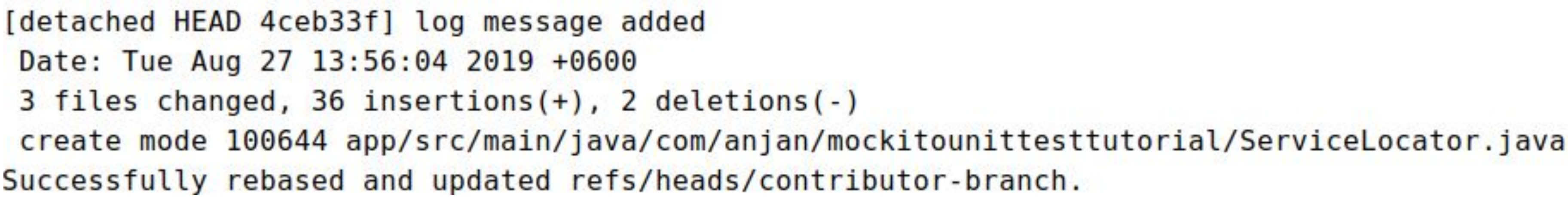
```
  GNU nano 2.9.3                     /home/w3e94/StudioProjects/FOSS/MockitoUnitTestTutorial/.git/rebase-merge/git-rebase-todo

pick ba2f20f log message added
pick fd68f94 location tracker method added

# Rebase 02198ed..fd68f94 onto 02198ed (2 commands)
#
# Commands:
# p, pick = use commit
# r, reword = use commit, but edit the commit message
# e, edit = use commit, but stop for amending
# s, squash = use commit, but meld into previous commit
# f, fixup = like "squash", but discard this commit's log message
                                                                  [ Read 21 lines ]
^G Get Help    ^O Write Out   ^W Where Is    ^K Cut Text    ^J Justify     ^C Cur Pos     M-U Undo       M-A Mark Text  M-] To Bracke
^X Exit        ^R Read File   ^\ Replace     ^U Uncut Text  ^T To Spell    ^_ Go To Line  M-E Redo       M-6 Copy Text  M-W WhereIs N
```

Squash Commits

1. In front of each commit you’ll see the word “pick”
2. Now, for each line of the file except for the first line, you should replace the word “pick” with the word “squash” to combine the commits
3. At this point, you can save and close the file, which will open a new file that combines all the commit messages of all of the commits.



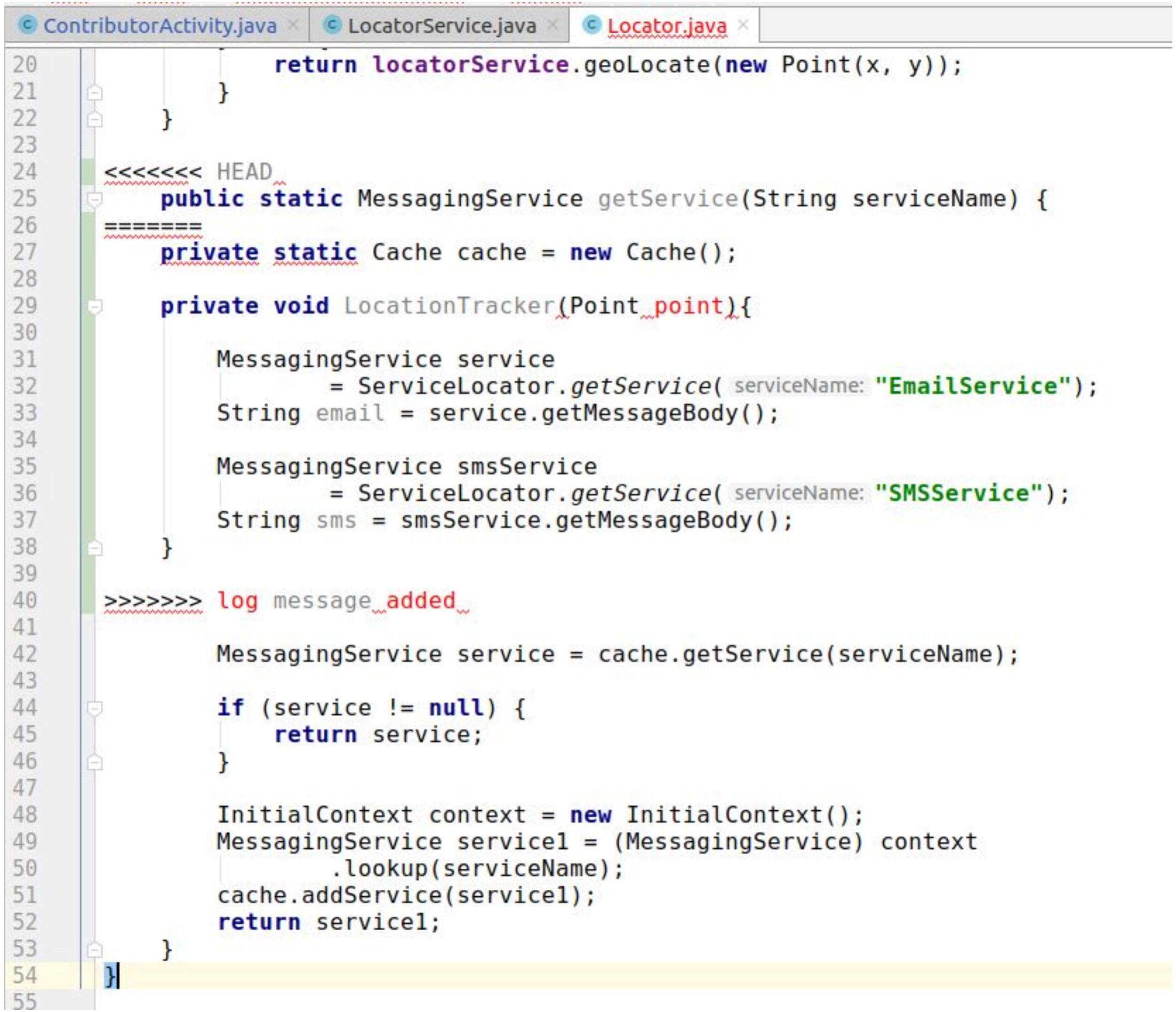
```
pick ba2f20f log message added
squash fd68f94 location tracker method added

# Rebase 02198ed..fd68f94 onto 02198ed (2 commands)
#
# Commands:
# p, pick = use commit
# r, reword = use commit, but edit the commit message
# e, edit = use commit, but stop for amending
# s, squash = use commit, but meld into previous commi
# f, fixup = like "squash", but discard this commit's
```



```
[detached HEAD 4ceb33f] log message added
 Date: Tue Aug 27 13:56:04 2019 +0600
 3 files changed, 36 insertions(+), 2 deletions(-)
 create mode 100644 app/src/main/java/com/anjan/mockitounittesttutorial/ServiceLocator.java
Successfully rebased and updated refs/heads/contributor-branch.
```

Complete the Rebase

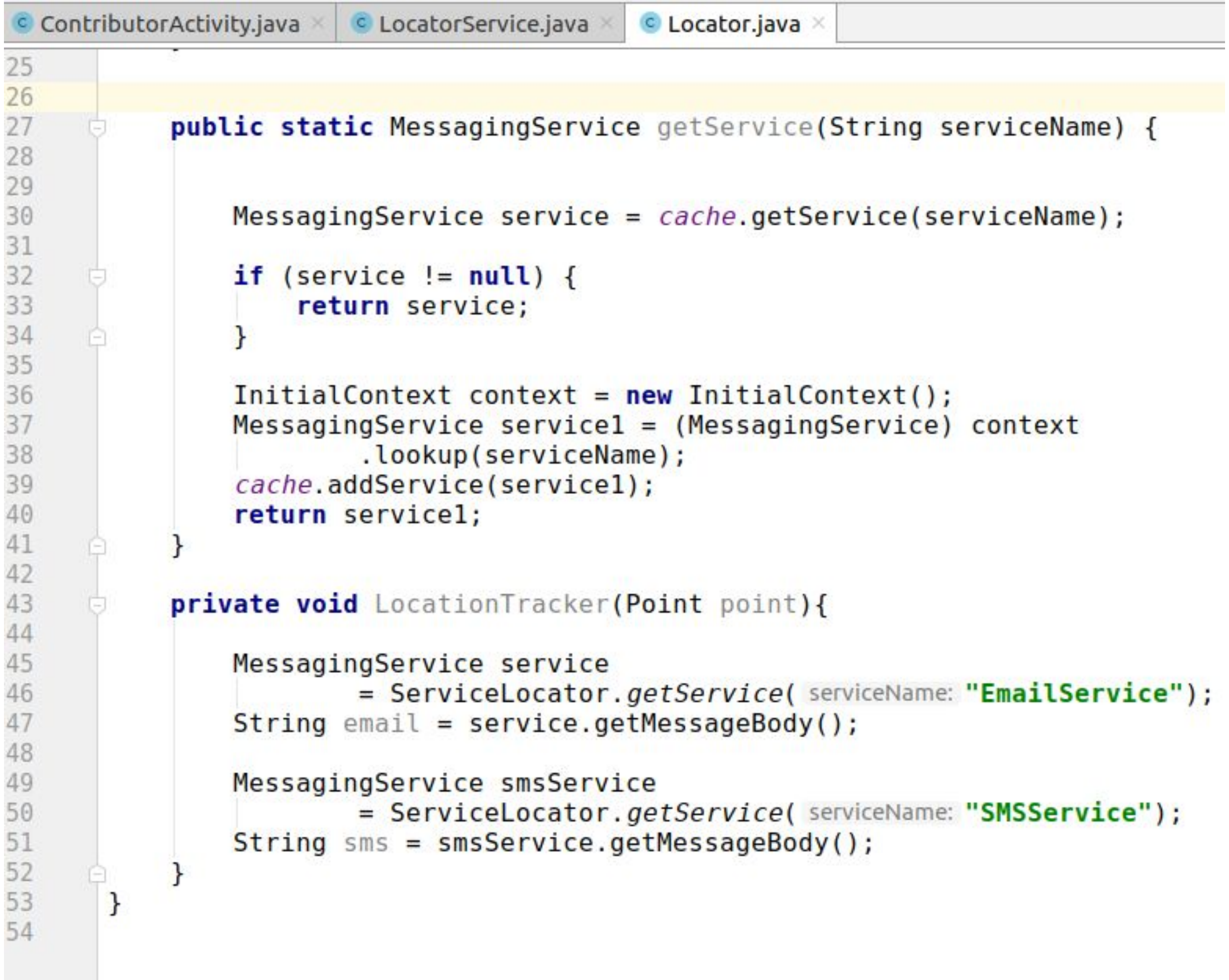
```
$ git rebase upstream/master
```



```
            return locatorService.geoLocate(new Point(x, y));
        }
    }

<<<<<<< HEAD
    public static MessagingService getService(String serviceName) {
=======
    private static Cache cache = new Cache();

    private void LocationTracker(Point point){

        MessagingService service
                = ServiceLocator.getService( serviceName: "EmailService");
        String email = service.getMessageBody();

        MessagingService smsService
                = ServiceLocator.getService( serviceName: "SMSService");
        String sms = smsService.getMessageBody();
    }

>>>>>>> log message added

        MessagingService service = cache.getService(serviceName);

        if (service != null) {
            return service;
        }

        InitialContext context = new InitialContext();
        MessagingService service1 = (MessagingService) context
                .lookup(serviceName);
        cache.addService(service1);
        return service1;
    }
}

```

Complete Rebase

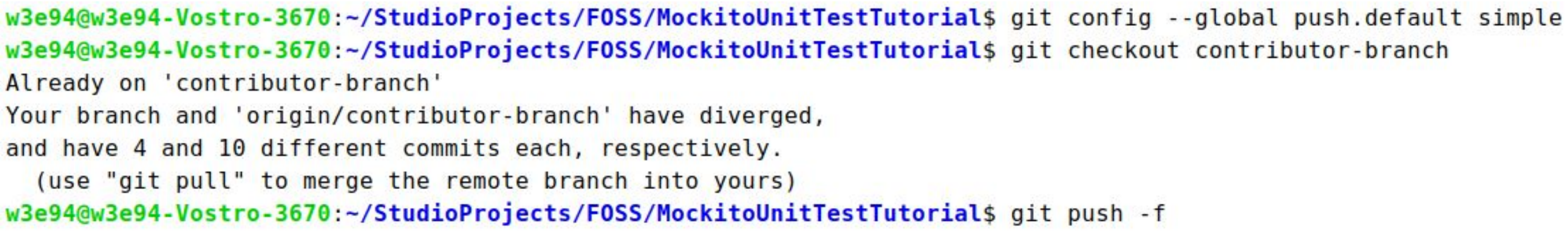
```
$ git add -A
$ git rebase --continue
```



```java


    public static MessagingService getService(String serviceName) {


        MessagingService service = cache.getService(serviceName);

        if (service != null) {
            return service;
        }

        InitialContext context = new InitialContext();
        MessagingService service1 = (MessagingService) context
                .lookup(serviceName);
        cache.addService(service1);
        return service1;
    }

    private void LocationTracker(Point point){

        MessagingService service
                = ServiceLocator.getService( serviceName: "EmailService");
        String email = service.getMessageBody();

        MessagingService smsService
                = ServiceLocator.getService( serviceName: "SMSService");
        String sms = smsService.getMessageBody();
    }
}
```

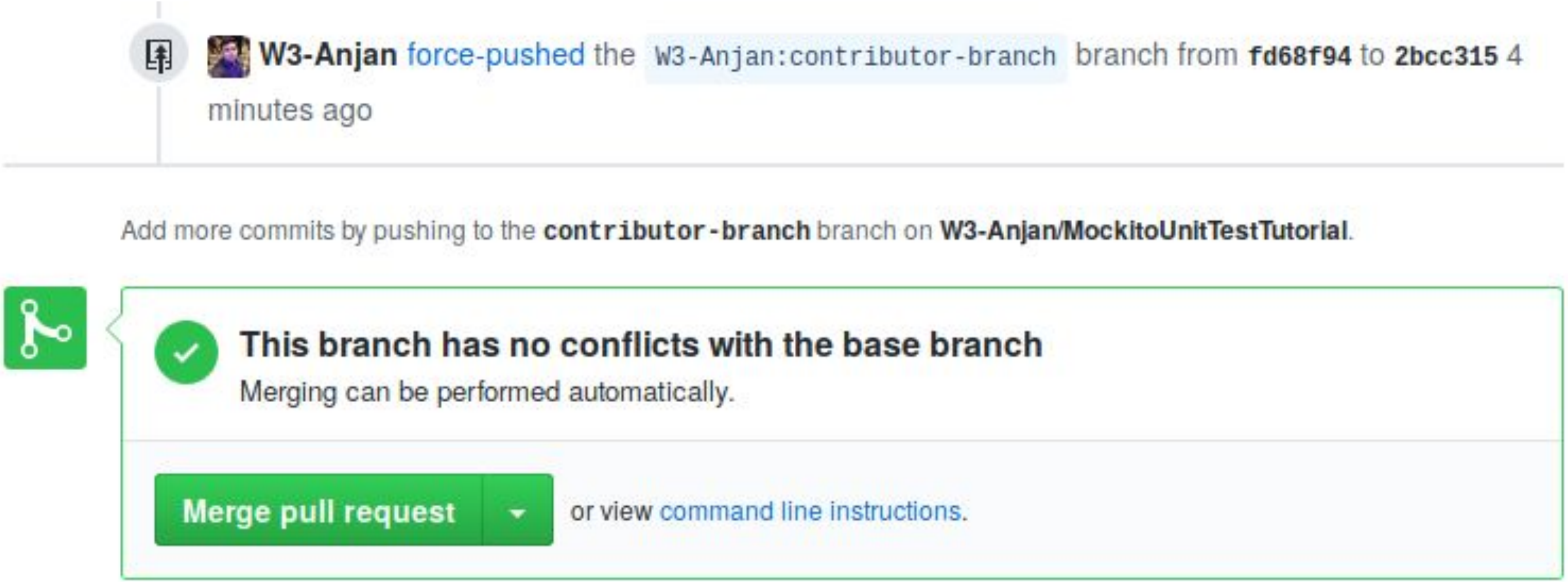
Update PR with Force Push

1. Once you perform a rebase, the history of your branch changes, and you are no longer able to use the git push command because the direct path has been modified.
2. Let’s first insure that our push.default is simple, which is the default in Git 2.0+, by configuring it.
3. Your pull request is now updated.



```
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git config --global push.default simple
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git checkout contributor-branch
Already on 'contributor-branch'
Your branch and 'origin/contributor-branch' have diverged,
and have 4 and 10 different commits each, respectively.
  (use "git pull" to merge the remote branch into yours)
w3e94@w3e94-Vostro-3670:~/StudioProjects/FOSS/MockitoUnitTestTutorial$ git push -f
```

Pull request now updated



W3-Anjan force-pushed the `W3-Anjan:contributor-branch` branch from **fd68f94** to **2bcc315** 4 minutes ago

Add more commits by pushing to the **contributor-branch** branch on **W3-Anjan/MockitoUnitTestTutorial**.

This branch has no conflicts with the base branch

Merging can be performed automatically.

or view command line instructions.

Ref

https://www.digitalocean.com/community/tutorial_series/an-introduction-to-open-source

https://www.digitalocean.com/community/tutorials/how-to-rebase-and-update-a-pull-request

Thanks