

Git Feature Branch Workflow

Merging Pull Requests

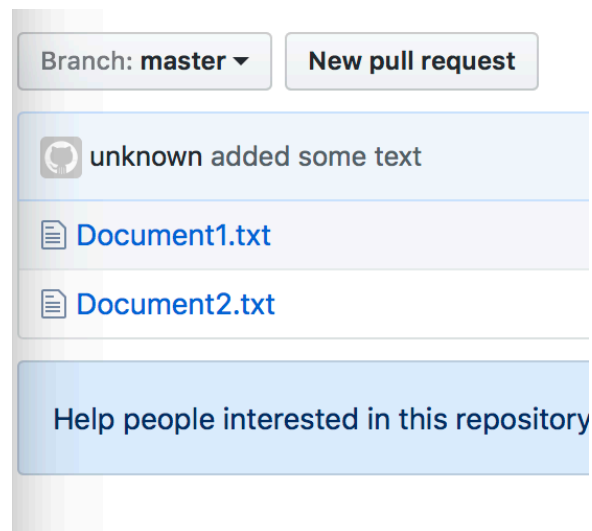
One of the workflows for software development teams using Git is the *feature branch* workflow. In this workflow, developers create short-lived branches for each feature. When a feature is complete, a developer sends a pull request for that branch to be merged into the master branch.

Part A of this document describes a scenario in which a pull request for a feature branch is sent and the branch merged without any conflicts.

Part B of this document describes a scenario in which pull requests for two different feature branches are sent and the second merge results in conflicts.

The starting point

Remote repository



Local Repository

```
iMac:GitPractice birdb$ git status
On branch master
Your branch is up-to-date with 'origin/master'.
nothing to commit, working tree clean
```

Git Feature Branch Workflow

Merging Pull Requests

A. Making changes on a branch that won't conflict when merging

In the local Repository

1. Create a new branch
(This branch will contain all the files currently in the master branch)

```
iMac:GitPractice birdb$ git checkout -b ChangeText  
Switched to a new branch 'ChangeText'
```

2. Edit Document1.txt by changing line 1 from "Document 1" to "Document1.txt"

```
iMac:GitPractice birdb$ vi Document1.txt
```


3. Commit the change to the ChangeText branch




```
iMac:GitPractice birdb$ git commit -a -m "changed line 1"  
[ChangeText 09abe2d] changed line 1  
1 file changed, 1 insertion(+), 1 deletion(-)
```


4. Send a pull request. Note: there is no conflict! This is because no one else made changes to the same file on the master branch after I started my branch.

In the Remote Repository on GitHub

Changed line 1 #4



 **Open** ProfBird wants to merge 1 commit into `master` from `ChangeText`

 Conversation **0**  Commits **1**  Files changed **1**





ProfBird commented 3 minutes ago Owner + 🗨️ ✎️

Please review the change I made to Document1.txt and merge it to master.

  changed line 1 09abe2d

Add more commits by pushing to the **ChangeText** branch on LCC-CIT/GitPractice.



 **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](#).




Git Feature Branch Workflow


Merging Pull Requests

5. Merge the ChangeText branch into the master branch and delete the ChangeText branch (deleting the ChangeText branch is optional)
Note that I set a bad example here. I didn't add a comment before merging the pull request.

Changed line 1 #4

 **Merged** ProfBird merged 1 commit into `master` from `ChangeText` a minute ago



 Conversation 0  Commits 1  Files changed 1






ProfBird commented 13 minutes ago



Owner + 🗨️ ✎️

Please review the change I made to Document1.txt and merge it to master.

  changed line 1 09abe2d

  ProfBird merged commit `10ec28d` into `master` a minute ago [Revert](#)

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Merge your code with confidence using one of our continuous integration providers.

  ProfBird deleted the `ChangeText` branch 24 seconds ago [Restore branch](#)

In the local Repository

6. Pull the master branch from the remote repository

```
iMac:GitPractice birdb$ git checkout master
Switched to branch 'master'
our branch is behind 'origin/master' by 2 commits, and can be fast-
forwarded.
  (use "git pull" to update your local branch)

iMac:GitPractice birdb$ git pull origin
Updating a253bfe..10ec28d
Fast-forward
 Document1.txt | 2 +--
 1 file changed, 1 insertion(+), 1 deletion(-)
```

Git Feature Branch Workflow

Merging Pull Requests

7. Delete the local ChangeText branch (optional)

```
iMac:GitPractice birdb$ git branch -d ChangeText  
Deleted branch ChangeText (was 09abe2d).
```

```
1915200-M20158s-iMac:GitPractice birdb$ git status  
On branch master  
Your branch is up-to-date with 'origin/master'.  
nothing to commit, working tree clean
```

B. Making changes on branches that will conflict when merging

In the local Repository

1. Create a new branch off of the master

```
iMac:GitPractice birdb$ git checkout -b AddLines  
Switched to a new branch 'AddLines'
```

2. Add two new lines at the top of Document2.txt:

```
First new line  
Second new line
```

3. Commit the change on the AddLines branch

```
iMac:GitPractice birdb$ git commit -a -m "added two lines at the top"  
[AddLines 7f00390] added two lines at the top  
1 file changed, 4 insertions(+), 1 deletion(-)
```

4. Start another branch off of master

```
iMac:GitPractice birdb$ git checkout master  
Switched to branch 'master'  
  
Your branch is up-to-date with 'origin/master'.  
iMac:GitPractice birdb$ git checkout -b DeleteLine  
Switched to a new branch 'DeleteLine'
```

5. Delete the first line in Document2.txt. The deleted line is:

```
I created this in the working folder for my second local repo.
```

Git Feature Branch Workflow

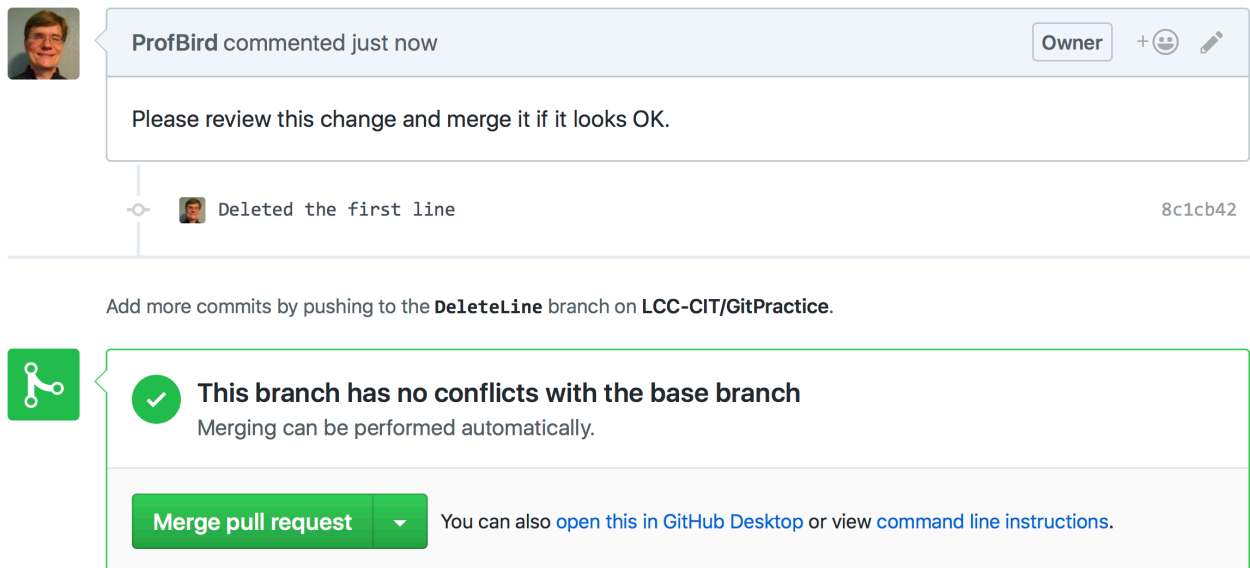
Merging Pull Requests

6. Commit the change on the DeleteLine branch

```
1915200-M20158s-iMac:GitPractice birdb$ git commit -a -m "Deleted the first line"
[DeleteLine e2bf07c] Deleted the first line
1 file changed, 1 insertion(+), 1 deletion(-)
```

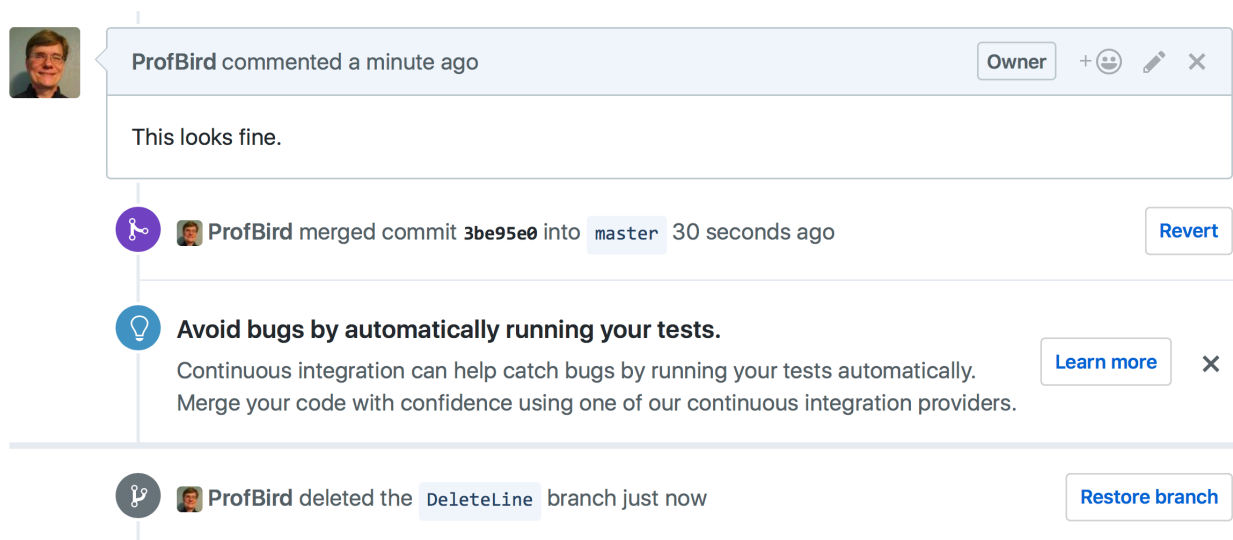
Send a pull request for the DeleteLine branch and delete the branch (deletion is optional)

In the Remote Repository on GitHub



The screenshot shows a GitHub pull request interface. At the top, a comment from 'ProfBird' (Owner) says 'Please review this change and merge it if it looks OK.' Below the comment, a commit titled 'Deleted the first line' by 'ProfBird' is shown with commit hash '8c1cb42'. A message below the commit says 'Add more commits by pushing to the DeleteLine branch on LCC-CIT/GitPractice.' Below this, a green box contains a checkmark icon and the text 'This branch has no conflicts with the base branch. Merging can be performed automatically.' At the bottom of the green box is a green button labeled 'Merge pull request' with a dropdown arrow. To the right of the button, it says 'You can also open this in GitHub Desktop or view command line instructions.'

7. Merge the DeleteLine branch

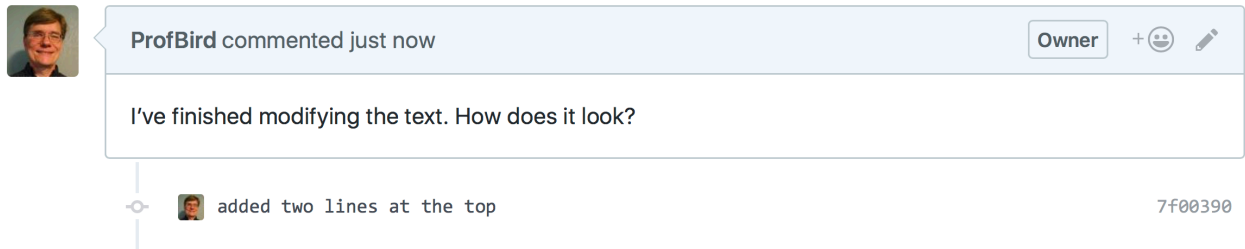


The screenshot shows the GitHub pull request interface after the merge. A comment from 'ProfBird' (Owner) says 'This looks fine.' Below the comment, a merge action is shown: 'ProfBird merged commit 3be95e0 into master 30 seconds ago' with a 'Revert' button. Below the merge action, a light blue box contains a lightbulb icon and the text 'Avoid bugs by automatically running your tests. Continuous integration can help catch bugs by running your tests automatically. Merge your code with confidence using one of our continuous integration providers.' To the right of the box are 'Learn more' and 'X' buttons. At the bottom, a notification says 'ProfBird deleted the DeleteLine branch just now' with a 'Restore branch' button.

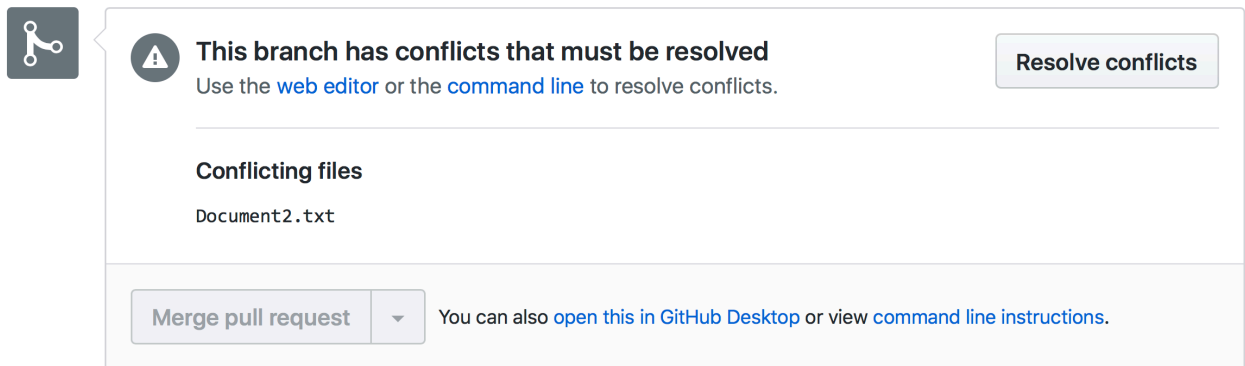
Git Feature Branch Workflow

Merging Pull Requests

- Send a pull request for the change on the AddLines branch
Notice that this time I do have conflicts, because I made changes on another branch that branched from the master after this one did.



Add more commits by pushing to the **AddLines** branch on **LCC-CIT/GitPractice**.



- Click on “Resolve Conflicts” and view the conflicting lines in Document2.txt
The empty space between the ===== and >>>>>>> shows that for the section shown above, there is nothing in the master.



Git Feature Branch Workflow

Merging Pull Requests


10. Decide how you want to resolve the conflict and edit the file. Then click “Mark as resolved”

cts ✓ Resolved all conflicts Commit changes


Document2.txt ✓ Resolved


1 First new line
2 Second new line
3
4 My first change.
5


11. Commit the changes, add a comment, merge the pull request, and delete the branch (deletion is optional).

 **ProfBird** commented 14 seconds ago Owner + 🗨️ ✎️ ✕

I incorporated both of the changes: kept the new lines, deleted the original first line.

 **ProfBird** merged commit **7050730** into **master** just now Revert

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 **ProfBird** deleted the **AddLines** branch just now Restore branch

Git Feature Branch Workflow

Merging Pull Requests

In the local Repository

12. Pull the master branch from the remote repository

```
iMac:GitPractice birdb$ git checkout master
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.
```

```
iMac:GitPractice birdb$ git pull origin
Updating 3be95e0..7050730
Fast-forward
 Document2.txt | 3 ++-
 1 file changed, 2 insertions(+), 1 deletion(-)
```

```
iMac:GitPractice birdb$ git status
On branch master
Your branch is up-to-date with 'origin/master'.
nothing to commit, working tree clean
```

13. Delete the local feature branches (optional)

```
iMac:GitPractice birdb$ git branch -d AddLines
Deleted branch AddLines (was 7f00390).
```

```
iMac:GitPractice birdb$ git branch -d DeleteLine
Deleted branch DeleteLine (was 8c1cb42)
```

```
iMac:GitPractice birdb$ git status
On branch master
Your branch is up-to-date with 'origin/master'.
nothing to commit, working tree clean
```