#### Git starting manual: by Ali Mehdipour



# First of all you should download git from the link below: Git - Downloads (git-scm.com)





#### Start installing git after download



Based on your operating system, download the last version of git and try to install on your device.

#### 3-Git bash and checking version





Open git bash

2

```
Alime@DESKTOP-DA8EMDO MINGW64 ~ (master)
$ git --version|
```

Use git --version in git bash

3

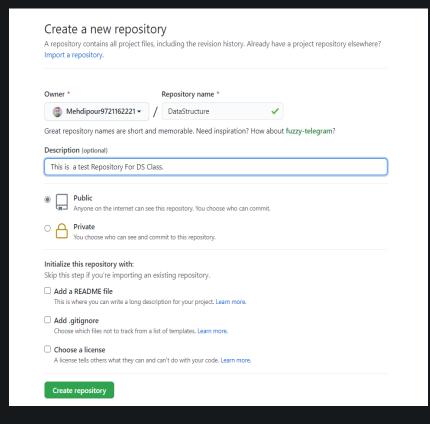
```
Alime@DESKTOP-DA8EMDO MINGW64 ~ (master)
$ git --version
git version 2.31.1.windows.1
```

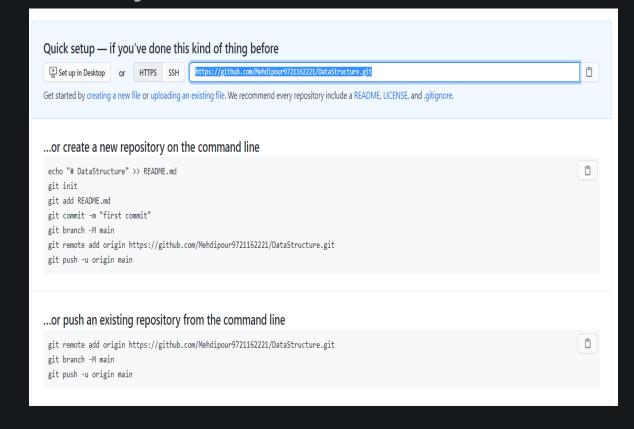
The output should be this.

#### Start Create a Repository on GitHub



1-Sign up on GitHub and login in your account. 2-Create a new Repository on GitHub.





#### Global Setting For Git.



1-use git config --global user.name "YOUR GITHUB-USERNAME"

2-use git config --global user.email "YOUR GITHUB-EMAIL"

```
Alime@DESKTOP-DA8EMDO MINGW64 ~ (master)
$ git config --global user.name"Mehdipour9721162221"

Alime@DESKTOP-DA8EMDO MINGW64 ~ (master)
$ git config --global user.email"mehdipour.ali.9721162221@gmail.com"
```

#### CLONE GitHub repository on your device



1-Copy your GitHub repository https.

For example → https://github.com/Mehdipour9721162221/DataStructure.git

2-Open git-bash and with this command specify the destination for your repository on your local machine.

→ cd Destination Folder => cd F:

→ mkdir Make-Destination => mkdir Datastructure

→ cd Your Directory => cd Datastructure

```
Alime@DESKTOP-DA8EMDO MINGW64 ~/F:Datastructure/Datastructure (master)
$ cd F:

Alime@DESKTOP-DA8EMDO MINGW64 /f
$ mkdir Datastructure

Alime@DESKTOP-DA8EMDO MINGW64 /f
$ cd Datastructure
```

# CLONE GitHub repository on your device



- 3-Now, you can clone GitHub repository into your destination.
- → git clone HTTPs Link
- → git clone https://github.com/Mehdipour9721162221/DataStructure.git

```
Alime@DESKTOP-DA8EMDO MINGW64 ~/F:Datastructure (master)
$ git clone https://github.com/Mehdipour9721162221/DataStructure.git
Cloning into 'DataStructure'...
warning: You appear to have cloned an empty repository.
```

4-In this step you should open Folder of Repository:

- →cd Repository name
- →cd Datastructure

```
Alime@DESKTOP-DA8EMDO MINGW64 ~/F:Datastructure (master)
$ cd Datastructure

Alime@DESKTOP-DA8EMDO MINGW64 ~/F:Datastructure/Datastructure (master)
$ |
```

#### Adding Some Files



- 1-Now you can work with your repository. Its time to set your remote.
- → git remote -v

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure (master)

$ git remote -v
origin https://github.com/Mehdipour9721162221/DataStructure.git (fetch)
origin https://github.com/Mehdipour9721162221/DataStructure.git (push)
```

2-Everything is set! Time to start working .For example add a README.txt To the repository .

.git	4/14/2021 10:40 AM	File folder	
README.txt	4/14/2021 10:39 AM	Text Document	0 KB

## Adding Some Files



3-with this command check git staged or unstaged files:

git status

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure (master)

§ git status
On branch master

No commits yet

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

nothing added to commit but untracked files present (use "git add" to track)
```

4-As you saw I have an Untracked file In repository. Time to stage it:

→git add README.txt

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure (master)
$ git add README.txt
```

## Adding Some Files



5-File added(staged) Check it once again with git status command:

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure (master)

$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file: README.txt
```

- 6-As you see ,this file added to my stage .it means that this file is ready to commit .
- →git commit -m"l Added README.txt File."

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure (master)

$ git commit -m"I Added README.txt File."

[master (root-commit) f961066] I Added README.txt File.

1 file changed, 0 insertions(+), 0 deletions(-)

create mode 100644 README.txt
```

#### Push File to Origin



- 7-Now we can Push our changes on GitHub Server Repository(Origin):
- →git push origin master
- → (or) git push -u origin master

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure (master)

$ git push -u origin master
Enumerating objects: 3, done.

Counting objects: 100% (3/3), done.

Writing objects: 100% (3/3), 237 bytes | 237.00 KiB/s, done.

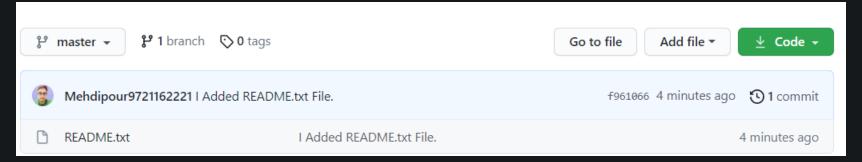
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0

To https://github.com/Mehdipour9721162221/DataStructure.git

* [new branch] master -> master

Branch 'master' set up to track remote branch 'master' from 'origin'.
```

#### 8-WELL DONE! Its time to check github:



#### modify README.txt



1-Its time to add some text in README file and push it again!

2-Check git status! modified: README.txt

\*README.txt - Notepad File Edit Format View Help This is A test Repository For DS Class!

3-commit it directly!(jump from staging(add) part)

Alime@DESKTOP-DA8EMD0 MINGW64 /f/Datastructure/Datastructure (master) \$ git commit -am"ADD text" [master 9a560dd] ADD text 1 file changed, 1 insertion(+)

4-Push on Github server again.

\$ git push Enumerating objects: 5, done. Counting objects: 100% (5/5), done. Writing objects: 100% (3/3), 290 bytes | 290.00 KiB/s, done. Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 To https://github.com/Mehdipour9721162221/DataStructure.git f961066..9a560dd master -> master

5-Perfect! Check GitHub Repository.



#### Add Some Folders to Repository



Name	Date modified	Туре	Size	
📙 .git	4/14/2021 11:02 AM	File folder		
Mehdipour	4/14/2021 11:01 AM	File folder		
Mehdipour2	4/14/2021 11:01 AM	File folder		
Mehdipour3	4/14/2021 11:01 AM	File folder		
README.txt	4/14/2021 10:54 AM	Text Document	1 KB	

1-Add Folders

Name	^	Date modified	Туре	Size
☐ ali.cpp		4/14/2021 11:04 AM	C++ Source	1 KB

2-Add some files

3-Check git status

#### Add Some Folders to Repository



```
Alime@DESKTOP-DA8EMD0 MINGW64 /f/Datastructure/Datastructure (master) $ cd Mehdipour
```

4-open folder that have changes.

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure/Mehdipour (master)
$ git add ali.cpp

Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure/Mehdipour (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file: ali.cpp
```

5-stage file and check status again

```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure/Mehdipour (master)

$ git commit -m"New File And Folders Added"
[master 86e738d] New File And Folders Added

1 file changed, 5 insertions(+)
create mode 100644 Mehdipour/ali.cpp
```

6-commit changes!

## Add Some Folders to Repository



```
Alime@DESKTOP-DA8EMDO MINGW64 /f/Datastructure/Datastructure/Mehdipour (master)

$ git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 427 bytes | 427.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/Mehdipour9721162221/DataStructure.git
9a560dd..86e738d master -> master
```

پ master 🕶 Go to file Add file Mehdipour9721162221 New File And Folders Added 86e738d 3 minutes ago 3 commits Mehdipour New File And Folders Added 3 minutes ago README.txt ADD text 17 minutes ago README.txt This is A test Repository For DS Class! ሥ master ▼ DataStructure / Mehdipour / Add file ▼ Mehdipour9721162221 New File And Folders Added ali.cpp New File And Folders Added 2 minutes ago 7-Push it Finally into Server.

8-WellDone!Worked Perfectly

#### Create New BRANCH



To create new branch we can separate our main workflow from every unique part of the project. It is better to have a Development branch for class repository.

- → git branch NEW branch name
- → git branch
- → git checkout branch name
- →git merge second branch name
- →git switch branch name
- →git branch -d branch name
- →git push origin --delete branch name

- → Make new branch
- → Show All branches list
- → Switch between branches
- → Merge two branch
- → Switch between branches
- → delete a local branch
- → delete a remote branch

#### Make Development Branch



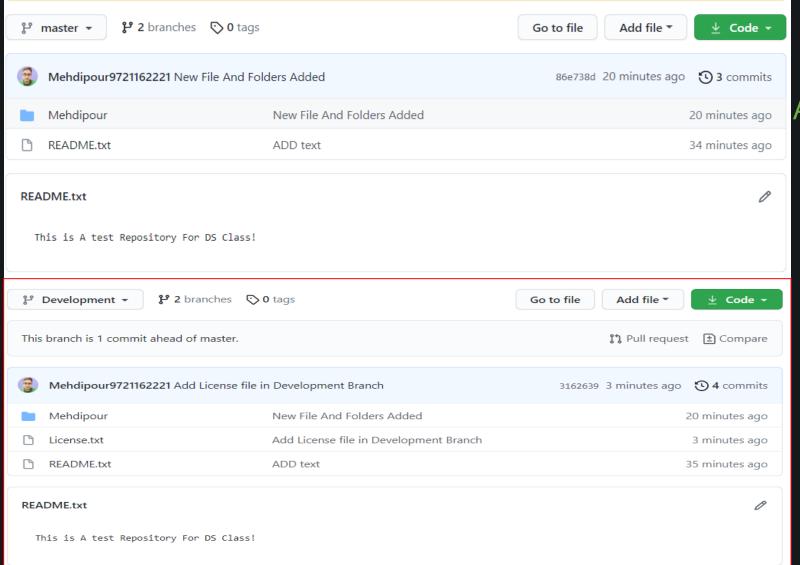
```
Alime@DESKTOP-DA8EMD0 MINGW64 /f/Datastructure/Datastructure/Mehdipour (master)
§ git branch
* master
$ git branch Development
$ git branch
 Development
• master
$ git switch Development
Switched to branch 'Development'
$ git status
On branch Development
Untracked files:
 (use "git add <file>..." to include in what will be committed)
nothing added to commit but untracked files present (use "git add" to track)
Alime@DESKTOP-DA8EMD0 MINGW64 /f/DataStructure/Datastructure (Development)
$ git add License.txt
$ git commit -m"Add License file in Development Branch"
[Development 3162639] Add License file in Development Branch
1 file changed, 1 insertion(+)
create mode 100644 License.txt
$ git push origin Development
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 365 bytes | 365.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'Development' on GitHub by visiting:
         https://github.com/Mehdipour9721162221/DataStructure/pull/new/Development
remote:
To https://github.com/Mehdipour9721162221/DataStructure.git
               Development -> Development
* [new branch]
```

Make development branch.

Make License file in development branch and push to origin

#### Make Development Branch





As you see, we have 2 branches.

Development branch with new file

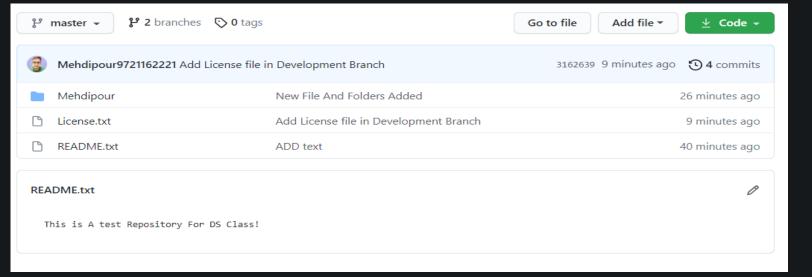
## Time to merge



```
Alime@DESKTOP-DA8EMDO MINGW64 /f/DataStructure/Datastructure (Development)
$ git switch master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

Alime@DESKTOP-DA8EMDO MINGW64 /f/DataStructure/Datastructure (master)
$ git merge development
Updating 86e738d..3162639
Fast-forward
License.txt | 1 +
1 file changed, 1 insertion(+)
create mode 100644 License.txt
```

Switch to the master and merge it with development



Now ,master branch has Lincense.txt. it seems worked!

#### Delete the branch



```
Alime@DESKTOP-DA8EMDO MINGW64 /f/DataStructure/Datastructure (master)

$ git push origin --delete development

Alime@DESKTOP-DA8EMDO MINGW64 /f/DataStructure/Datastructure (master)

$ git branch -d development

Deleted branch development (was 3162639).

Alime@DESKTOP-DA8EMDO MINGW64 /f/DataStructure/Datastructure (master)

$ git branch

* master

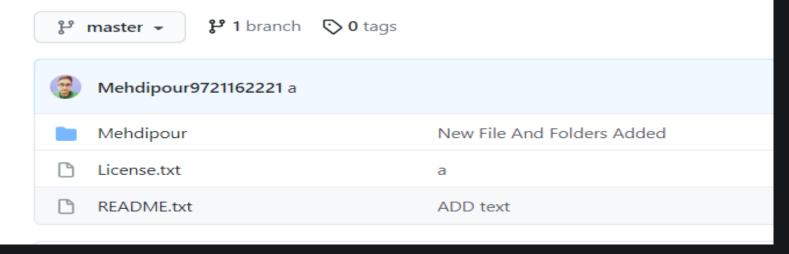
Alime@DESKTOP-DA8EMDO MINGW64 /f/DataStructure/Datastructure (master)

$ git push

Everything up-to-date
```

Delete development branch on origin.

Delete development branch on local.



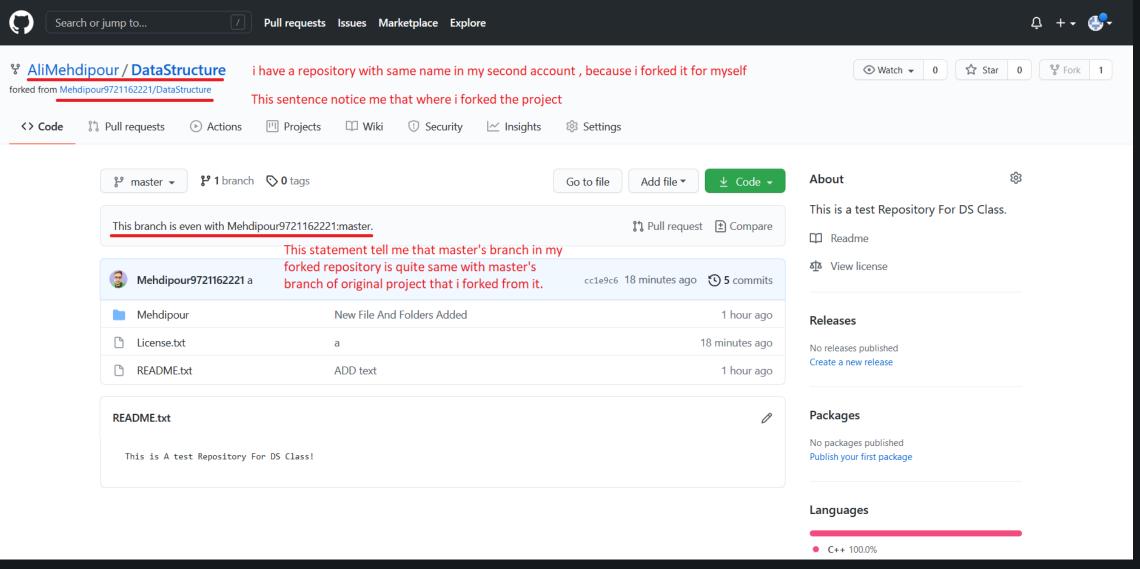
Branch Deleted on origin.



	our9721162221 / DataStructure			Watch ▼ 1		
<> Code	① Issues	Projects Wiki !! Security	✓ Insights	1		
	\$° master ▼ \$° 1 branch		Go to file Add file ▼	About This is a test Repository For DS Class.		
	Mehdipour	New File And Folders Added	44 minutes ago	Readme		
	License.txt	a	14 minutes ago	ৰ্টু View license		
	□ README.txt	ADD text	1 hour ago	Releases		
	README.txt			No releases published		
	This is A test Repository For D5 Class!			Packages  No packages published		
				Languages		
				• C++ 100.0%		

I Forked My repository with another account.





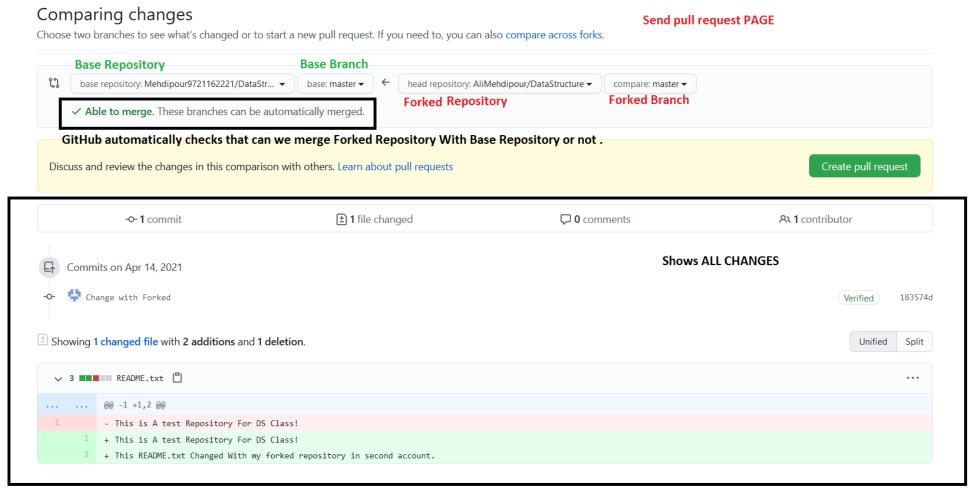


Now lets change something in my second account repository .(Forked repository)

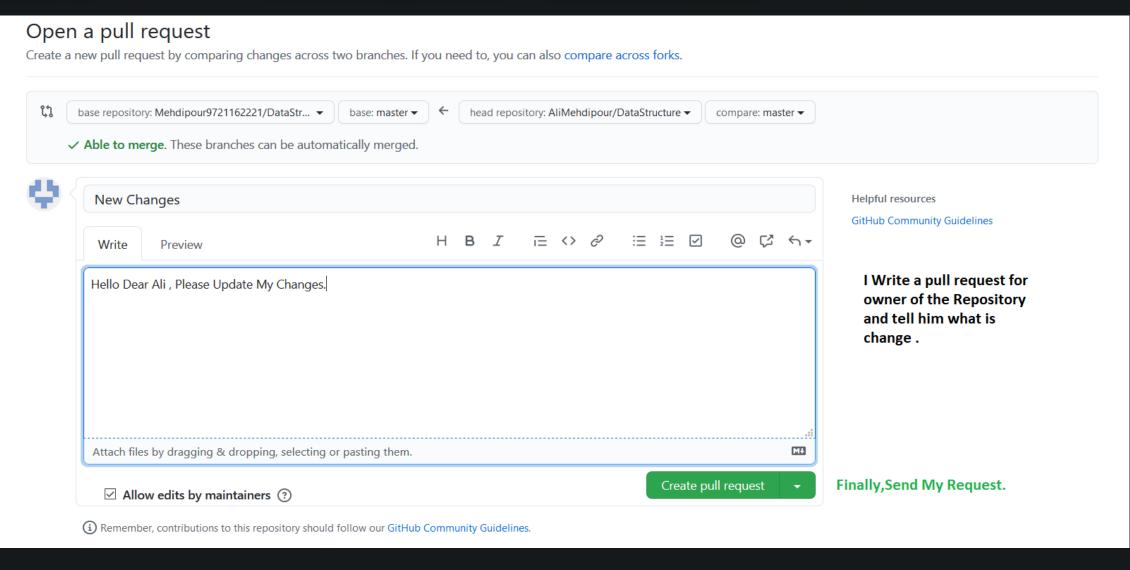
♀ AliMehdipour / DataStructure  forked from Mehdipour9721162221/DataStructure			◆ Watch ▼ 0 ☆ Sta	r 0 @Fork 1
	ects 🕮 Wiki 🕛 Security 🗠 Insigh	nts 🕸 Settings		
<pre> % master</pre>	ıs	Go to file Add file ▼	About	<b>\$</b>
This branch is 1 commit ahead of Mehdip	oour9721162221:master. Hub's tell me that my Forked Repository	ৃী Pull request 👲 Compare	This is a test Repository For DS Clas	5S.
-	ning more than Original repository that if	_	ৰ্ View license	
Mehdipour	New File And Folders Added	1 hour ago	Releases	
License.txt	a	32 minutes ago No releases published		
□ README.txt	Change with Forked	13 seconds ago	Create a new release	
README.txt		0	Packages	
This is A test Repository For DS Clas This README.txt Changed With my forke		line to README.txt file in my Forked Repositor	No packages published Publish your first package  TY.	
			Languages	
			• C++ 100.0%	



Now Time to send PULL-REQUEST For Original Repository to updates itself with my changes.





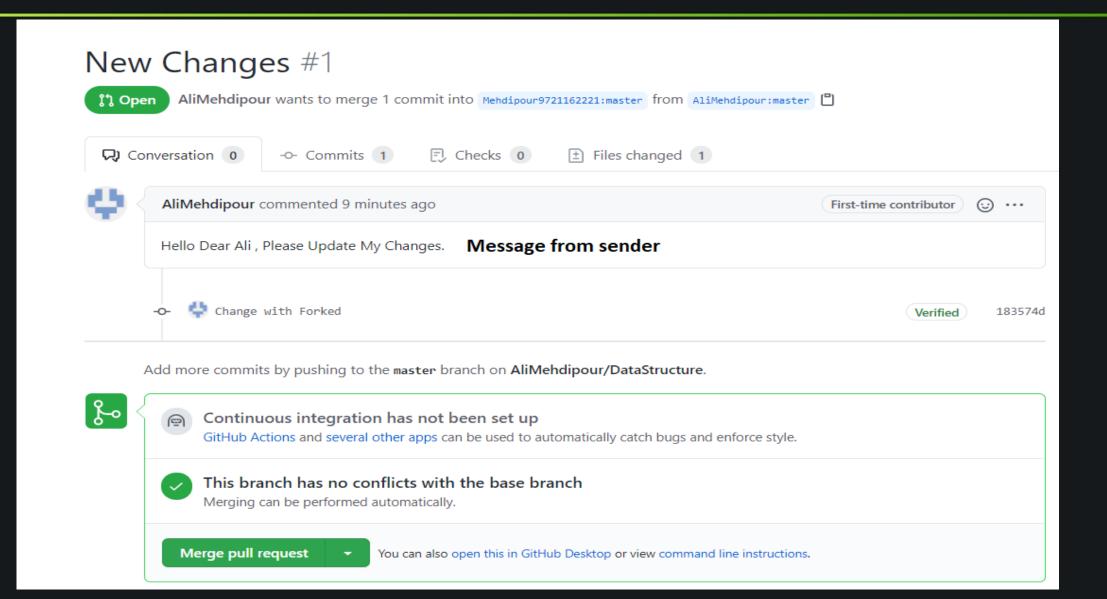




Lets take a look at Base Repository in my First Account . We have a new pull request!

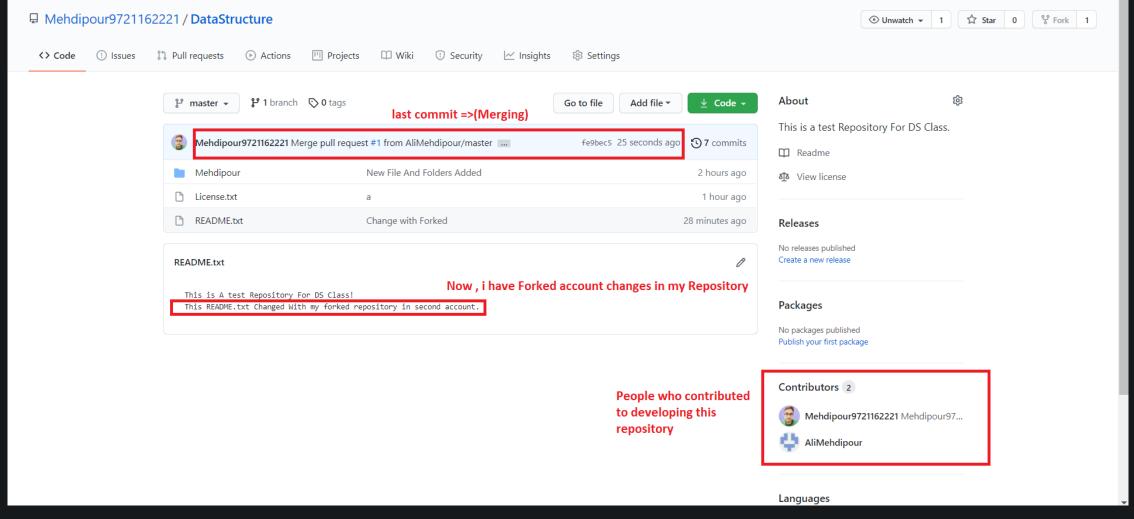
☐ Mehdipour9721162221 / <b>DataStructure</b>									
<> Code	! Issues	11 Pull requests 1	Actions	Projects	₩iki	① Security	<u>✓</u> Insights	Settings	
Filters ▼ Q is:p	or is:open					C Labels 9		New pull i	request
□ \$\frac{1}{2} 1 Open ✓ 0 Closed  Author ▼ Label ▼ Projects ▼ Milestones ▼ Reviews ▼ Assignee ▼ Sort ▼									
□ \$\mathbb{N}\$ New Changes #1 opened 6 minutes ago by AliMehdipour  It seems I have a new pull request.i will open it and take a look at what is changed.									
♀ ProTip! Filter pull requests by the default branch with base:master.									







After I accepted changes and check every change, its time to accept pull request and merge with my base project



# Forking GIT in BASH(Terminal)



- 1-Fork a Repository in GitHub.
- 2-Clone Forked Repository into Local Machine.
- 3-Configure Your Forked Project (Origin Configuring) => git remote –v
- 4-Configure Remote For Base Repository Syncing => git remote add upstream (base rep HTTPs)
- 5- Do => git remote -v
- Now, you can keep your fork synced with the upstream repository with a few Git commands.
- →git fetch upstream master
- 6-Work With Forked Repository (Make our changes)
- 7-Push changes to origin (Forked origin Repository)
- 8-Go to GitHub and Send your Pull Request to Base Repository.

#### APPENDIX



#### Some useful git commands:

- →git log
- →git reset file name
- →git restore file name
- →git revert commit code
- →git init Repository name
- →git remote add origin remote-URL
- →git remote rm Remote Repository name
- →git diff
- → git bisect start
- →git bisect bad commit number
- →git bisect good commit number
- →git bisect reset

- → Show List Of ALL Commits
- → Unstage an added(staged) file
- → Recover a deleted File
- → Undo a commit
- → Create a local git Repository
- → connect local repository to remote
- → disconnect a remote Repository
- → To list down all the present conflicts
- → start binary search commit
- → bad state commit number
- → healthy state commit number
- →end of binary search commit