



An update has been released!



■ git &gt;

# Everything about GIT - Distributed VCS

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## • Basic commands ↓

- git --version
- git config --global user.name "Jay R"
- git config --global user.email "jay@gmail.com"
- git config --list
- git help <verb>
- git <verb> --help
- git init
- git status
- git add -A
- git add <file-name>
- git reset
- git reset <file-name>
- git commit -m "commit message"
- git log
- git push origin <branch-name>
- git branch

- `git branch -a`
- `git branch <branch-name>`
- `git checkout <branch-name>`
- `git branch --merged`
- `git merge <branch-name>`
- `git branch -d <branch-name>`
- `git push origin --delete <branch-name>`

## • Distributed VCS ↓

## • Installing GIT ↓

## • How to check git version ? ↓

## • How to set git user name / email values ? ↓

- ```
git config --global user.name "Jay Raghu"
git config --global user.email "jay861993@gmail.com"
git config --list
```

```
Command Prompt
C:\Users\Jayanand_Raghuwanshi>git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=openssl
http.sslcainfo=C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
core.autocrlf=true
core.fscache=true
core.symlinks=false
pull.rebase=false
credential.helper=manager-core
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
C:\Users\Jayanand_Raghuwanshi>
```

```

Select Command Prompt

C:\Users\Jayanand_Raghuwanshi>git config --global user.name "Jay"

C:\Users\Jayanand_Raghuwanshi>git config --global user.email "jay861993@gmail.com"

C:\Users\Jayanand_Raghuwanshi>git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=openssl
http.sslcainfo=C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
core.autocrlf=true
core.fscache=true
core.symlinks=false
pull.rebase=false
credential.helper=manager-core
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.name=Jay
user.email=jay861993@gmail.com

C:\Users\Jayanand_Raghuwanshi>

```

## • How to get help from git ? ↓

- ```
git help <verb>
```

```
git <verb> --help
```

## • How to track local code base using git ? ↓

- ```
git init
```

- If you have local codebase without git.
- Go to codebase and execute **git init**
- After **git init** you can see the **.git** directory.

- Localcode ⇒

```

C:\Windows\system32\cmd.exe

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>dir /a
Volume in drive C is OS
Volume Serial Number is F447-898C

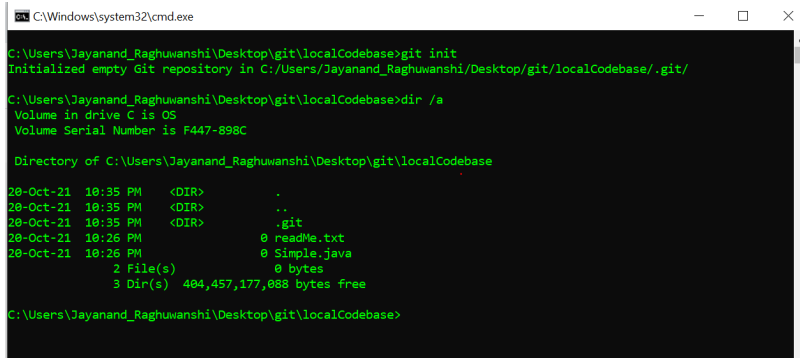
Directory of C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase

10-Oct-21 10:34 PM <DIR>      .
10-Oct-21 10:34 PM <DIR>      ..
10-Oct-21 10:26 PM             0 readme.txt
10-Oct-21 10:26 PM             0 Simple.java
                2 File(s)      0 bytes
                2 Dir(s)      404,530,585,680 bytes free

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>

```

- Execute **git init**



```
C:\Windows\system32\cmd.exe

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git init
Initialized empty Git repository in C:/Users/Jayanand_Raghuwanshi/Desktop/git/localCodebase/.git/

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>dir /a
Volume in drive C is OS
Volume Serial Number is F447-898C

Directory of C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase

28-Oct-21 10:35 PM <DIR>      .
28-Oct-21 10:35 PM <DIR>      ..
28-Oct-21 10:35 PM <DIR>      .git
28-Oct-21 10:26 PM             0 readMe.txt
28-Oct-21 10:26 PM             0 Simple.java
                2 File(s)          0 bytes
                3 Dir(s)  404,457,177,088 bytes free

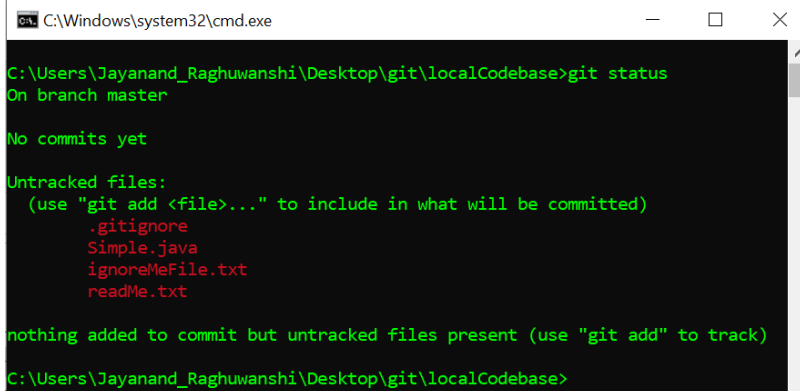
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>
```

- Check .git directory in the localCodebase.
- Contains everything related to git repository.

### • How to ignore files in git ? ↓

- Create .gitignore file
  - Simple text file, includes list of files to ignore.
  - Also can add wildcard

### • .gitignore file is empty



```
C:\Windows\system32\cmd.exe

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .gitignore
        Simple.java
        ignoreMeFile.txt
        readMe.txt

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

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>
```

- Add entry of **ignoreMeFile.txt** in **.gitignore**

- ```

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

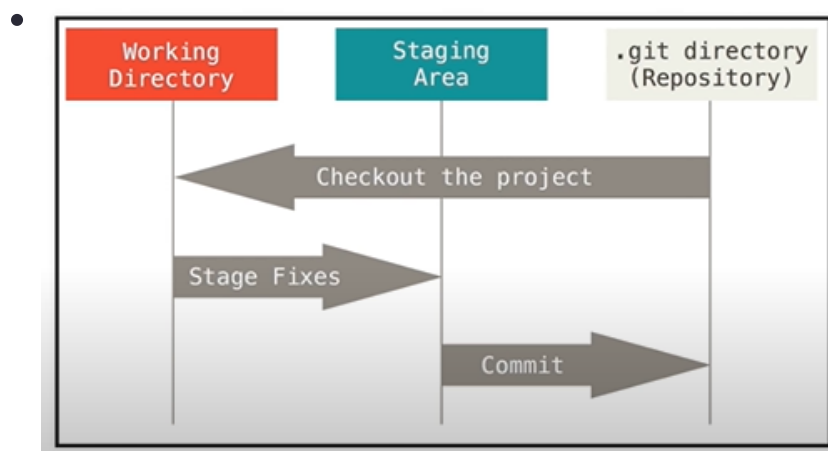
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .gitignore
        Simple.java
        readMe.txt

nothing added to commit but untracked files present (use "git add" to track)
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>

```

- With **git status** command, **ignoreMeFile.txt** file is not coming under untracked files.

### • What is Working Directory ↓



- untracked files in the screenshot are in working directory.

- ```

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

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

nothing added to commit but untracked files present (use "git add" to track)
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>

```

## • How to add files to staging area ? ↓

- We can use below commands to add files to staging area.

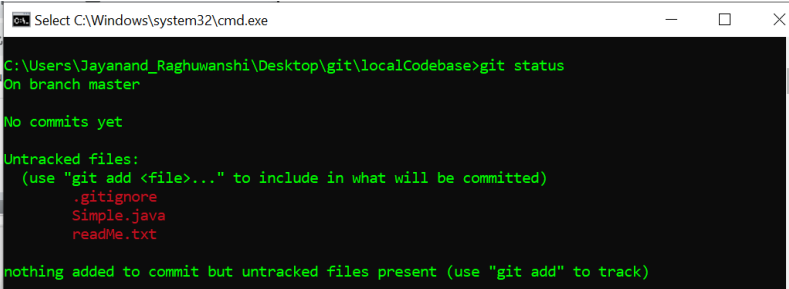
- ```
git add -A      : add all files to staging area
```

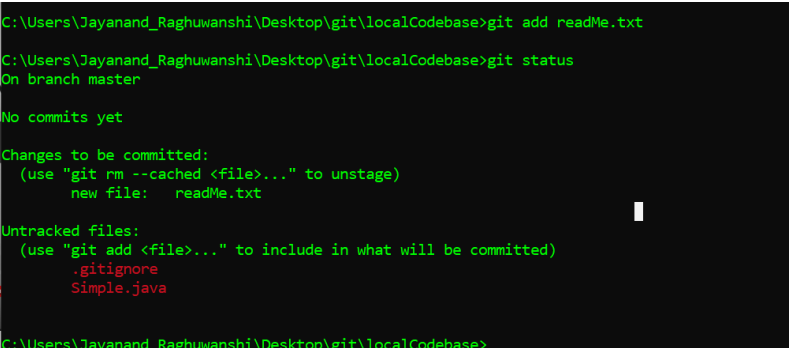
```
git add <file-name> : add file-name to staging area
```

- If we want to commit, then all files from staging area will be committed.

## • step 1 : git status

- 

## • step 2 : git add <file-name> and git status

- 

- git add readMe.txt command will add readMe.txt to staging area (Changes to be committed)
- Rest of the files are still in the untracked files.

- step 3 : git add -A

- All files are now added to the staging area (Changes to be committed)

```

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

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

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

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git add -A
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   .gitignore
        new file:   Simple.java
        new file:   readMe.txt

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>

```

- How to remove files from staging area and move to untracked area ? ↓

- `git reset` : remove everything from staging area to working directory as untracked files
- `git reset <file-name>` : remove a<file-name> from staging area to working directory as untracked files

- step 1 : git reset .gitignore

```

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git reset .gitignore
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

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

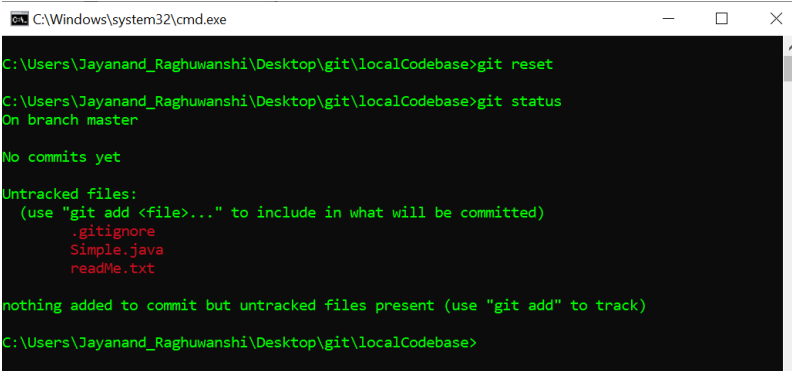
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .gitignore

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>

```

- After `git reset .gitignore` command, `.gitignore` file has moved to working directory untracked files.

- step 2 : git reset

- A terminal window titled "C:\Windows\system32\cmd.exe" showing the following commands and output:

```
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git reset
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

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

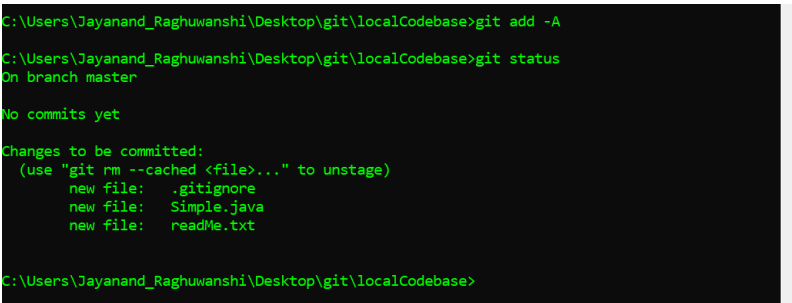
nothing added to commit but untracked files present (use "git add" to track)
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>
```

- All files moved to working directory as untracked files

- How to make commit ? ↓

- `git commit -m "commit message"`

- Step 1 : git add -A

- A terminal window showing the following commands and output:

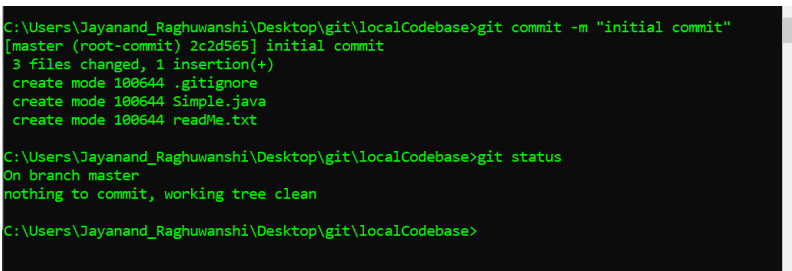
```
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git add -A
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   .gitignore
        new file:   Simple.java
        new file:   readMe.txt

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>
```

- Step 2 : git commit -m "msg"

- A terminal window showing the following commands and output:

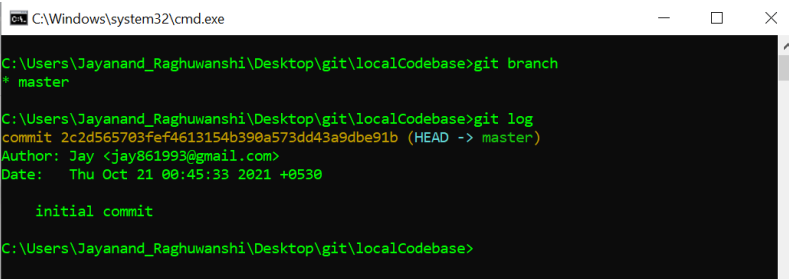
```
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git commit -m "initial commit"
[master (root-commit) 2c2d565] initial commit
3 files changed, 1 insertion(+)
create mode 100644 .gitignore
create mode 100644 Simple.java
create mode 100644 readMe.txt

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git status
On branch master
nothing to commit, working tree clean

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>
```



- Step 3 : now check, git log and check commit details

- A screenshot of a Windows command prompt window titled "C:\Windows\system32\cmd.exe". The window shows the following commands and output:

```
C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git branch
* master

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>git log
commit 2c2d565703fef4613154b390a573dd43a9dbe91b (HEAD -> master)
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 00:45:33 2021 +0530

    initial commit

C:\Users\Jayanand_Raghuwanshi\Desktop\git\localCodebase>
```

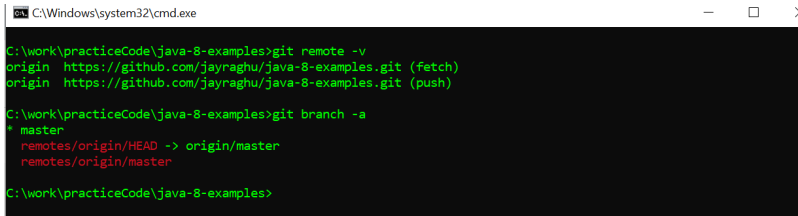
- Details includes,
  - commit with hash of commit
  - author name
  - date

- How to clone remote repository ? ↓

- `git clone <url> <where to clone>`
- `git clone <url> . : { . means current direcoty}`

- How to view information about the Remote Repo ? ↓

- `git remote -v : information`  
`git branch -a : shows the branches from local and remote.`



```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git remote -v
origin  https://github.com/jayraghu/java-8-examples.git (fetch)
origin  https://github.com/jayraghu/java-8-examples.git (push)

C:\work\practiceCode\java-8-examples>git branch -a
* master
remotes/origin/HEAD -> origin/master
remotes/origin/master

C:\work\practiceCode\java-8-examples>
```

- How to commit and push to remote directory ? ↓

- first **Commit**

- ```
git diff
git status
git add -A
git commit -m "message"
```

- then **push**

- ```
git pull origin master
git push origin master
```

- Step 1 : git diff

- Step 2 : git status and git add -A

- do git status to check file/files and add all required files to staging area

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git status
On branch master
Your branch is up to date with 'origin/master'.

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:   calculator.txt

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

C:\work\practiceCode\java-8-examples>git add -A

C:\work\practiceCode\java-8-examples>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)
        modified:   calculator.txt

C:\work\practiceCode\java-8-examples>
```

- Step 3 : git commit -m "msg"

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git log
commit a21243207e4b4a8b0b9bd9b1362f505501ad58b3 (HEAD -> master, origin/master, ori
in/HEAD)
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 14:04:31 2021 +0530

    calculator dummy file

commit 6dca90797403719448751f4700fb0b7e2dc2d7c2
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 13:59:58 2021 +0530

    updates

commit 8d6bf94b305c424c308d706ada0e2090e086b5de
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 01:04:57 2021 +0530

    filter and map examples

commit ac03b4e2dd9a6163cb0e8c6ac2eda21da264f3bc
Author: Jayanand Raghuvanshi <jayanand_raghuvanshi@epam.com>
Date: Wed Oct 13 20:51:09 2021 +0530

    Initial commit

C:\work\practiceCode\java-8-examples>
```

```

C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git commit -m "multiply method added"
[master 566c9bd] multiply method added
1 file changed, 4 insertions(+)

C:\work\practiceCode\java-8-examples>git log
commit 566c9bdf6bade8aebaa9bb3f60ef7eef5dd2827 (HEAD -> master)
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 14:12:30 2021 +0530

    multiply method added

commit a21243207e4b4a8b0b9bd9b1362f505501ad58b3 (origin/master, origin/HEAD)
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 14:04:31 2021 +0530

    calculator dummy file

commit 6dca90797403719448751f4700fb0b7e2dc2d7c2
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 13:59:58 2021 +0530

    updates

commit 8d6bf94b305c424c308d706ada0e2090e086b5de
Author: Jay <jay861993@gmail.com>
Date: Thu Oct 21 01:04:57 2021 +0530

    filter and map examples

commit ac03b4e2dd9a6163cb0e8c6ac2eda21da264f3bc
Author: Jayanand Raghuvanshi <jayanand_raghuvanshi@epam.com>
Date: Wed Oct 13 20:51:09 2021 +0530

    Initial commit

C:\work\practiceCode\java-8-examples>

```

- we can see the latest commit "multiply method added"

#### • Step 4 : git pull origin master

```

C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git pull origin master
From https://github.com/jayraghu/java-8-examples
 * branch      master      -> FETCH_HEAD
Already up to date.

C:\work\practiceCode\java-8-examples>

```

#### • Step 5 : git push origin master

```

C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git push origin master
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 316 bytes | 316.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/jayraghu/java-8-examples.git
   a212432..566c9bd  master -> master

C:\work\practiceCode\java-8-examples>

```

- Push commit to remote origin master

- origin ↔ name of remote repo
- master ↔ branch

- How to create separate branch and push on remote ? ↓

- ```
git branch <branch-name>

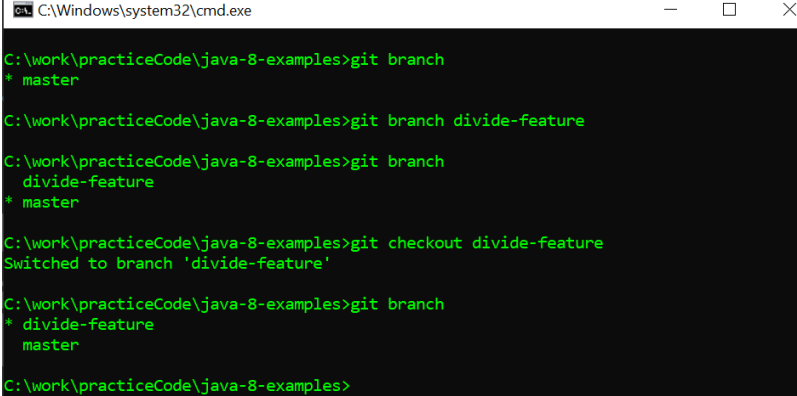
git checkout <branch-name>

git push -u origin <branch-name>
```

- ```
git branch
-list local branches

git branch -a
-list local and remote branches
```

- Step 1 : create and checkout to new branch

- A screenshot of a Windows command prompt window titled "C:\Windows\system32\cmd.exe". The window shows the following commands and output:

```
C:\work\practiceCode\java-8-examples>git branch
* master

C:\work\practiceCode\java-8-examples>git branch divide-feature

C:\work\practiceCode\java-8-examples>git branch
divide-feature
* master

C:\work\practiceCode\java-8-examples>git checkout divide-feature
Switched to branch 'divide-feature'

C:\work\practiceCode\java-8-examples>git branch
* divide-feature
master

C:\work\practiceCode\java-8-examples>
```

- Step 2 : make changes and push new branch to remote

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git branch
* divide-feature
  master

C:\work\practiceCode\java-8-examples>git status
On branch divide-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:   calculator.txt

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

C:\work\practiceCode\java-8-examples>git diff
diff --git a/calculator.txt b/calculator.txt
index 18e09f1..85f49b3 100644
--- a/calculator.txt
+++ b/calculator.txt
@@ -10,4 +10,8 @@ class Calculator {
     void multiple(){
    }
-}
\ No newline at end of file
+
+    void divide(){
+    }
+}

C:\work\practiceCode\java-8-examples>
```

- Commit changes to new branch

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git add -A

C:\work\practiceCode\java-8-examples>git commit -m "divide method added"
[divide-feature 228d461] divide method added
 1 file changed, 5 insertions(+), 1 deletion(-)

C:\work\practiceCode\java-8-examples>git status
On branch divide-feature
nothing to commit, working tree clean

C:\work\practiceCode\java-8-examples>
```

- Push branch to remote

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git branch -a
* divide-feature
master
remotes/origin/HEAD -> origin/master
remotes/origin/master

C:\work\practiceCode\java-8-examples>git push -u origin divide-feature
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 304 bytes | 304.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
remote:
remote: Create a pull request for 'divide-feature' on GitHub by visiting:
remote:   https://github.com/jayraghu/java-8-examples/pull/new/divide-feature
remote:
To https://github.com/jayraghu/java-8-examples.git
 * [new branch] divide-feature -> divide-feature
Branch 'divide-feature' set up to track remote branch 'divide-feature' from 'origin'
.

C:\work\practiceCode\java-8-examples>
C:\work\practiceCode\java-8-examples>git branch -a
* divide-feature
master
remotes/origin/HEAD -> origin/master
remotes/origin/divide-feature
remotes/origin/master

C:\work\practiceCode\java-8-examples>
```

- You can see the branch on remote now.

## • How to merge branches to master branch ? ↓

- We are now pushing(merge) change (new branch code ) to master branch.

- ```
git branch <branch-name>

git checkout <branch-name>

git push -u origin <branch-name>

-----

git checkout master

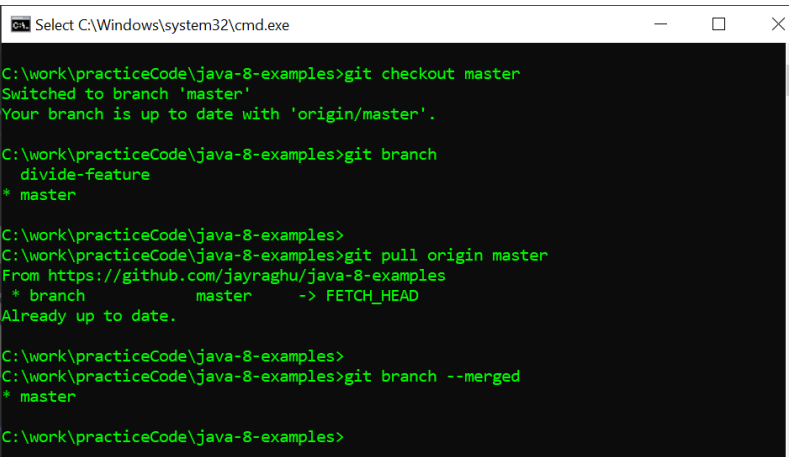
git pull origin master

git branch --merged      : list merged branches

git merge <branch-name>

git push origin master
```

- Step 1 : checkout to master, take latest code from remote/origin/master, and verify merged branches using --merged

- A screenshot of a Windows command prompt window titled "Select C:\Windows\system32\cmd.exe". The window shows the following commands and output:

```
C:\work\practiceCode\java-8-examples>git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

C:\work\practiceCode\java-8-examples>git branch
  divide-feature
* master

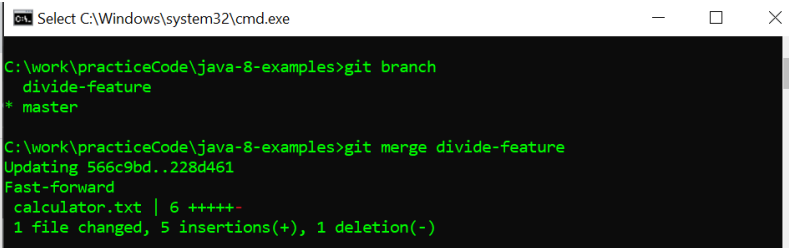
C:\work\practiceCode\java-8-examples>
C:\work\practiceCode\java-8-examples>git pull origin master
From https://github.com/jayraghu/java-8-examples
* branch      master      -> FETCH_HEAD
Already up to date.

C:\work\practiceCode\java-8-examples>
C:\work\practiceCode\java-8-examples>git branch --merged
* master

C:\work\practiceCode\java-8-examples>
```

- Step 2 : git merge <branch-name>




- 

```
Select C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git branch
  divide-feature
* master

C:\work\practiceCode\java-8-examples>git merge divide-feature
Updating 566c9bd..228d461
Fast-forward
 calculator.txt | 6 +++++
 1 file changed, 5 insertions(+), 1 deletion(-)
```

- Step 3 : verify using **git branch --merged**

- 

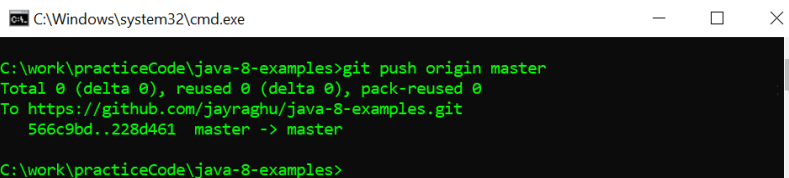
```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git branch --merged
  divide-feature
* master

C:\work\practiceCode\java-8-examples>
```

- we can see the merged branch names

- Step 4 : now push changes to remote origin master

- 

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git push origin master
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/jayraghu/java-8-examples.git
 566c9bd..228d461 master -> master

C:\work\practiceCode\java-8-examples>
```

- How to delete branch ? ↓

- ```
git branch --merged

git branch -d <branch-name>

git branch

git branch -a

git push origin --delete <branch-name>
```

- Step 1 : delete branch from local repo

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git branch -a
divide-feature
* master
remotes/origin/HEAD -> origin/master
remotes/origin/divide-feature
remotes/origin/master

C:\work\practiceCode\java-8-examples>git branch -d divide-feature
Deleted branch divide-feature (was 228d461).

C:\work\practiceCode\java-8-examples>
C:\work\practiceCode\java-8-examples>git branch -a
* master
remotes/origin/HEAD -> origin/master
remotes/origin/divide-feature
remotes/origin/master

C:\work\practiceCode\java-8-examples>git branch
* master

C:\work\practiceCode\java-8-examples>
```

- Step 2 : push change to remote

```
C:\Windows\system32\cmd.exe

C:\work\practiceCode\java-8-examples>git branch -a
* master
remotes/origin/HEAD -> origin/master
remotes/origin/divide-feature
remotes/origin/master

C:\work\practiceCode\java-8-examples>git push origin --delete divide-feature
To https://github.com/jayraghu/java-8-examples.git
- [deleted]          divide-feature

C:\work\practiceCode\java-8-examples>
C:\work\practiceCode\java-8-examples>git branch -a
* master
remotes/origin/HEAD -> origin/master
remotes/origin/master

C:\work\practiceCode\java-8-examples>
```

