GIT EXRECISE

Action	Command Used
Create Repository	git init
Check status	git status
Add untracked files to staging area	git add .
Commit	git commit -m "message"
Add files to staging area and commit in one go	git commit -am "message"
Remove file	git rm <file-name></file-name>
Add .gitignore fle	touch .gitignore
Check difference	git diff <file-name> or git diff head</file-name>
Revert untracked changes	git checkout <file-name></file-name>
Revert tracked changes	git reset
Revert committed changes	git resethard <commit-hash></commit-hash>
Display all commits	git log
Display specific commit	git show <commit-hash></commit-hash>
Create branch	git checkout -b branch-name>
Delete branch	git branch -d <branch-name></branch-name>
Merge branch	git merge <branch-name></branch-name>
Rebase branch	git rebase <branch-name></branch-name>
Stash changes	git stash
Retrieve stashed changes	git stash apply
Add local repository to github	git remote add origin <github-repo-url></github-repo-url>
Push chnages to remote	git push -u origin <branch- names=""></branch->
List all branches(local + remote)	git branch -a
List all remote branches	git branch -r

1. Create a repository

```
C:\>cd C:\Users\Naresh Sharma\Documents\gitTrack
C:\Users\Naresh Sharma\Documents\gitTrack>mkdir exercise1_repo1
C:\Users\Naresh Sharma\Documents\gitTrack>cd exercise1_repo1
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git init
Initialized empty Git repository in C:/Users/Naresh Sharma/Documents/gitTrack/exercise1_repo1/.git/
```

2. Make some changes -- add some files, change content of some files

Added two untracked files.

Added these untracked files to staging area using command git add.

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master

No commits yet
Changes to be committed:
   (use "git rm --cached <file>..." to unstage)

   new file: TestFile.txt
   new file: hello.rb
```

3. commit changes

Committed changes to repository using git commit -m "Initial commit"

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "Initial commit"
[master (root-commit) 59870c0] Initial commit
2 files changed, 2 insertions(+)
create mode 100644 TestFile.txt
create mode 100644 hello.rb
```

Again modified TestFile.txt and checked the diff using git diff TestFile.txt

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff TestFile.txt
diff --git a/TestFile.txt b/TestFile.txt
index ff49900..6394437 100644
--- a/TestFile.txt
+++ b/TestFile.txt
@@ -1 +1 @@
-This is test file.
\ No newline at end of file
+This is modified test file.
\ No newline at end of file
```

commit changes

Added modified file to staging area and the committed.

4. repeat steps 1-3 for 2 more times. try to remove and ignore some files. Use git diff before each commit.

Repeated steps 1-3 first time

```
C:\Users\Naresh Sharma\Documents\gitTrack>mkdir exercise1_repo2
C:\Users\Naresh Sharma\Documents\gitTrack>cd exercise1_repo2
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo2>git init
Initialized empty Git repository in C:/Users/Naresh Sharma/Documents/gitTrack/exercise1_repo2/.git/
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo2>git status
On branch master

No commits yet

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

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

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo2>git add .
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo2>git status
On branch master
No commits yet
Changes to be committed:
   (use "git rm --cached <file>..." to unstage)
        new file: helloWorld.rb
        new file: repoTest.txt
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo2>git commit -m "Initial commit in repo2" [master (root-commit) fb1b9e4] Initial commit in repo2
2 files changed, 2 insertions(+)
create mode 100644 helloWorld.rb
create mode 100644 repoTest.txt
```

Repeated steps 1-3 second time

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo2>cd..
C:\Users\Naresh Sharma\Documents\gitTrack>mkdir exercise1_repo3
C:\Users\Naresh Sharma\Documents\gitTrack>cd exercise1_repo3
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo3>git init
Initialized empty Git repository in C:/Users/Naresh Sharma/Documents/gitTrack/exercise1_repo3/.git/
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo3>git add .
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo3>git status
On branch master

No commits yet
Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

    new file: repo3.rb
    new file: repo3Test.txt
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo3>git commit -m "Initial commit for repo3" [master (root-commit) 790db66] Initial commit for repo3
2 files changed, 2 insertions(+)
create mode 100644 repo3.rb
create mode 100644 repo3Test.txt
```

Remove File from git repository using git rm hello.rb

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git rm hello.rb
rm 'hello.rb'

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "deleted hello.rb file"
[master 896db32] deleted hello.rb file
1 file changed, 1 deletion(-)
delete mode 100644 hello.rb
```

Added .gitignore file to the repository using touch .gitignore

```
Naresh Sharma@LAPTOP-G4VSKO8C MINGW64 ~/Documents/gitTrack/exercise1_repo1 (mast
er)
$ touch .gitignore
```

5. create changes and revert those changes using git when those changes are not added to staging are

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
Changes not staged for commit:
    (use "git add <file>..." to update what will be committed)
    (use "git checkout -- <file>..." to discard changes in working directory)
        modified: TestFile.txt

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

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff TestFile.txt
diff --git a/TestFile.txt b/TestFile.txt
index 6394437..b36a851 100644
--- a/TestFile.txt
+++ b/TestFile.txt
@@ -1 +1,2 @@
-This is modified test file.
\ No newline at end of file
+This is modified test file. FM
+Adding text for reverting changes before staging.
\ No newline at end of file
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git checkout TestFile.txt
Updated 1 path from the index
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
nothing to commit, working tree clean
```

6. create changes and revert those changes after adding changes to staging area

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
Changes not staged for commit:
    (use "git add <file>..." to update what will be committed)
    (use "git checkout -- <file>..." to discard changes in working directory)
        modified: TestFile.txt

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

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff TestFile.txt
diff --git a/TestFile.txt b/TestFile.txt
index 6394437..a058247 100644
--- a/TestFile.txt
+++ b/TestFile.txt
@@ -1 +1,2 @@
-This is modified test file.
\ No newline at end of file
+This is modified test file.
\ No newline at end of file
+Addin text to add to staging area.
\ No newline at end of file
```

7. create change and revert those changes after committing those changes.

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git log
commit 8574a0a9e470bc5cd10dfdb9eb883300daf73f2a (HEAD -> master)
Author: Naresh Sharma <naresh@vinsol.com>
Date:
        Thu Oct 31 18:03:38 2019 +0530
    Added modified content
commit 896db32cc40206c8fdc8c6e3e1798e34e969828d
Author: Naresh Sharma <naresh@vinsol.com>
       Thu Oct 31 17:50:52 2019 +0530
Date:
    deleted hello.rb file
commit 5d03cb475f1fe6697c84b103b29342fa4956f248
Author: Naresh Sharma <naresh@vinsol.com>
       Thu Oct 31 16:45:38 2019 +0530
Date:
    Added modified content
commit 59870c0a95d215856188e5cd345465ccee5142af
Author: Naresh Sharma <naresh@vinsol.com>
        Thu Oct 31 16:34:13 2019 +0530
    Initial commit
```

Command Used: - git reset -hard <commit-hash>

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
nothing to commit, working tree clean
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git reset --hard 5d03cb475f1fe6697c84b103b29342fa4956f248
HEAD is now at 5d03cb4 Added modified content
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git log
commit 5d03cb475f1fe6697c84b103b29342fa4956f248 (HEAD -> master)
Author: Naresh Sharma <naresh@vinsol.com>
Date: Thu Oct 31 16:45:38 2019 +0530

Added modified content

commit 59870c0a95d215856188e5cd345465ccee5142af
Author: Naresh Sharma <naresh@vinsol.com>
Date: Thu Oct 31 16:34:13 2019 +0530

Initial commit
```

8. Check repository status before adding changes to staging area, after adding changes to staging area and after committing changes.

before adding changes to staging area

after adding changes to staging area

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add hello.rb

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
Changes to be committed:
   (use "git reset HEAD <file>..." to unstage)

    modified: hello.rb
```

after committing changes

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "Adding comment to hello.rb file"
[master 4363e70] Adding comment to hello.rb file
1 file changed, 1 insertion(+)
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
nothing to commit, working tree clean
```

9. Display all the commits.

Command :- git log

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git log
commit 4363e709bc3cff419817a0b82402c912396ce160 (HEAD -> master)
Author: Naresh Sharma <naresh@vinsol.com>
       Thu Oct 31 18:25:11 2019 +0530
Date:
    Adding comment to hello.rb file
commit 5d03cb475f1fe6697c84b103b29342fa4956f248
Author: Naresh Sharma <naresh@vinsol.com>
Date:
       Thu Oct 31 16:45:38 2019 +0530
   Added modified content
commit 59870c0a95d215856188e5cd345465ccee5142af
Author: Naresh Sharma <naresh@vinsol.com>
Date:
       Thu Oct 31 16:34:13 2019 +0530
   Initial commit
```

10. Display a specific commit.

Command :- git show <commit-hash>

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git show 4363e709bc3cff419817a0b82402c912396ce160
commit 4363e709bc3cff419817a0b82402c912396ce160 (HEAD -> master)

Author: Naresh Sharma <naresh@vinsol.com>
Date: Thu Oct 31 18:25:11 2019 +0530

Adding comment to hello.rb file

diff --git a/hello.rb b/hello.rb
index d945f15..e14180a 100644
--- a/hello.rb
+++ b/hello.rb
@ -1 +1,2 @@
+#Adding comment M
puts "hello world"
\ No newline at end of file
```

11. create branches called "feature1" and "feature2" from master.

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git checkout -b feature1
Switched to a new branch 'feature1'
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch feature1
nothing to commit, working tree clean
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git checkout master
Switched to branch 'master'
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git checkout -b feature2
Switched to a new branch 'feature2'
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>
```

Delete branch "feature2".

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git checkout master
Switched to branch 'master'
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git branch -d feature2
Deleted branch feature2 (was 4363e70).
```

12. Make some commits on "feature1".

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff HEAD

diff --git a/TestFile.txt b/TestFile.txt

index 6394437..b070daa 100644
--- a/TestFile.txt
+++ b/TestFile.txt

###

###

No newline at end of file

+This is modified test file.

No newline at end of file

###

###

###

Adding content in feature1 branch.

\ No newline at end of file

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "Adding content for feature branch"

[feature1 8553976] Adding content for feature branch

1 file changed, 3 insertions(+), 1 deletion(-)
```

13. Make some commits on branch "master".

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff head
diff --git a/TestFile.txt b/TestFile.txt
index 6394437..edc9f28 100644
--- a/TestFile.txt
+++ b/TestFile.txt
+++ b/TestFile.txt
@@ -1 +1 @@
-This is modified test file.
\ No newline at end of file
+This is modified test file.Modifying in master to create conflict.
\ No newline at end of file

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "modified content in master to emulate conflict"

[master 04b3fec] modified content in master to emulate conflict
1 file changed, 1 insertion(+), 1 deletion(-)
```

14. merge branch "feature1" in "master" (make some conflicts by changing same file on same line in both the branches)

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git merge feature1
Auto-merging TestFile.txt
CONFLICT (content): Merge conflict in TestFile.txt
Automatic merge failed; fix conflicts and then commit the result.
```

```
☐ TestFileLtd: -Notepad
File Edit Format View Help
k<<<<< HEADThis is modified test file.Modifying in master to create conflict.======This is modified test file. Trying to create conflict. ^
Adding content in feature1 branch.>>>>>> feature1
```

Resolved conflict and then added the file to staging area and then committed which completed the merge operation.

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
You have unmerged paths.
(fix conflicts and run "git commit")
(use "git merge --abort" to abort the merge)
Unmerged paths:
(use "git add <file>..." to mark resolution)

both modified: TestFile.txt

no changes added to commit (use "git add" and/or "git commit -a")
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git status
On branch master
All conflicts fixed but you are still merging.
(use "git commit" to conclude merge)

Changes to be committed:

modified: TestFile.txt

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "Merging feature1 after resolving conflict"
[master e8ec0bd] Merging feature1 after resolving conflict
```

create branch "feature2" from master .

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git checkout -b feature2
Switched to a new branch 'feature2'
```

15. Make some commits on "feature2".

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff head

diff --git a/TestFile.txt b/TestFile.txt
index ff2285a..40b8dd5 100644
--- a/TestFile.txt
+++ b/TestFile.txt
@@ -1,2 +1,2 @@

-This is modified test file.Modifying in master to create conflict.Kept content of master branch.
\ \ \text{No newline at end of file}
\text{+This is modified test file.Modifying in feature2 to create conflict.}
\ \ \ \text{No newline at end of file}

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "modified content in feature2 branch"
[feature2 020472f] modified content in feature2 branch
1 file changed, 1 insertion(+), 1 deletion(-)
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff head
diff --git a/hello.rb b/hello.rb
index e14180a..6132d41 100644
--- a/hello.rb
+++ b/hello.rb
@@ -1,2 +1,3 @@
#Adding comment
## Adding another comment
puts "hello world"
\ No newline at end of file

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "Added another comment in hello.rb"
[feature2 48e10af] Added another comment in hello.rb
1 file changed, 1 insertion(+)
```

16. Make some commits on branch "master".

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git checkout master

Switched to branch 'master'

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff head

diff --git a/TestFile.txt b/TestFile.txt

index ff2285a..bbd2bd5 100644
--- a/TestFile.txt
+++ b/TestFile.txt

e@ -1,2 +1,2 e@

-This is modified test file.Modifying in master to create conflict.Kept content of master branch.

\ No newline at end of file
+This is modified test file.Modifying in master to create conflict.

\ No newline at end of file

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git commit -m "Modified master text file"

[master 060e3e4] Modified master text file

1 file changed, 1 insertion(+), 1 deletion(-)
```

17. rebase branch "master" in "feature2" (make some conflicts by changing same file on same line in both the branches).

Modified conflicting file and resolved conflict. Then used git rebase --continue to complete the merge operation

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git rebase --continue
Applying: Modified master text file
```

18. find the differences between "merge" and "rebase" in above cases.

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git hist

* 897a5ec 2019-11-01 | Modified master text file (HEAD -> master) [Naresh Sharma]

* 48e10af 2019-11-01 | Added another comment in hello.rb (feature2) [Naresh Sharma]

* 020472f 2019-11-01 | modified content in feature2 branch [Naresh Sharma]

* e8ec0bd 2019-11-01 | Merging feature1 after resolving conflict [Naresh Sharma]

| * d22c511 2019-11-01 | trying to create conflict (feature1) [Naresh Sharma]

| * 8553976 2019-11-01 | Adding content for feature branch [Naresh Sharma]

* | 04b3fec 2019-11-01 | modified content in master to emulate conflict [Naresh Sharma]

//

* 4363e70 2019-10-31 | Adding comment to hello.rb file [Naresh Sharma]

* 59870c0 2019-10-31 | Initial commit [Naresh Sharma]
```

19. Use git stash

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff head

diff --git a/TestFile.txt b/TestFile.txt
index 8db2fec..16f742d 100644
--- a/TestFile.txt
+++ b/TestFile.txt
@@ -1 +1,3 @@
-Resolving the conflict.
\ No newline at end of file
+Resolving the conflict.
\M
+M
+Adding content to check stashing.
\ No newline at end of file

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git add .

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git stash
Saved working directory and index state WIP on master: 897a5ec Modified master text file
```

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git diff head diff --git a/TestFile.txt b/TestFile.txt index 8db2fec..16f742d 100644
--- a/TestFile.txt
+++ b/TestFile.txt
@@ -1 +1,3 @@
-Resolving the conflict.
\ No newline at end of file
+Resolving the conflict.
\^M
+^M
+Adding content to check stashing.
\ No newline at end of file
```

20. create a repository on github for your working repository and push changes on remote repository.

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git remote add origin https://github.com/naresh226/gitTrack.git

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git push -u origin master
Enumerating objects: 34, done.

Counting objects: 100% (34/34), done.

Delta compression using up to 8 threads

Compressing objects: 100% (29/29), done.

Writing objects: 100% (34/34), 3.40 KiB | 386.00 KiB/s, done.

Total 34 (delta 0), reused 0 (delta 0)

To https://github.com/naresh226/gitTrack.git

* [new branch] master -> master

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

```
C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git branch -a
feature1
feature2
* master
remotes/origin/master

C:\Users\Naresh Sharma\Documents\gitTrack\exercise1_repo1>git hist
* 89ff668 2019-11-01 | Last commit for now (HEAD -> master, origin/master) [Naresh Sharma]
* 897a5ec 2019-11-01 | Modified master text file [Naresh Sharma]
* 48e10af 2019-11-01 | Added another comment in hello.rb (feature2) [Naresh Sharma]
* 020472f 2019-11-01 | modified content in feature2 branch [Naresh Sharma]
* e8ec0bd 2019-11-01 | Merging feature1 after resolving conflict [Naresh Sharma]

| * d22c511 2019-11-01 | trying to create conflict (feature1) [Naresh Sharma]
| * 8553976 2019-11-01 | Adding content for feature branch [Naresh Sharma]
* | 04b3fec 2019-11-01 | modified content in master to emulate conflict [Naresh Sharma]

* 4363e70 2019-10-31 | Adding comment to hello.rb file [Naresh Sharma]
* 5093cb4 2019-10-31 | Added modified content [Naresh Sharma]
* 59870c0 2019-10-31 | Initial commit [Naresh Sharma]
```