

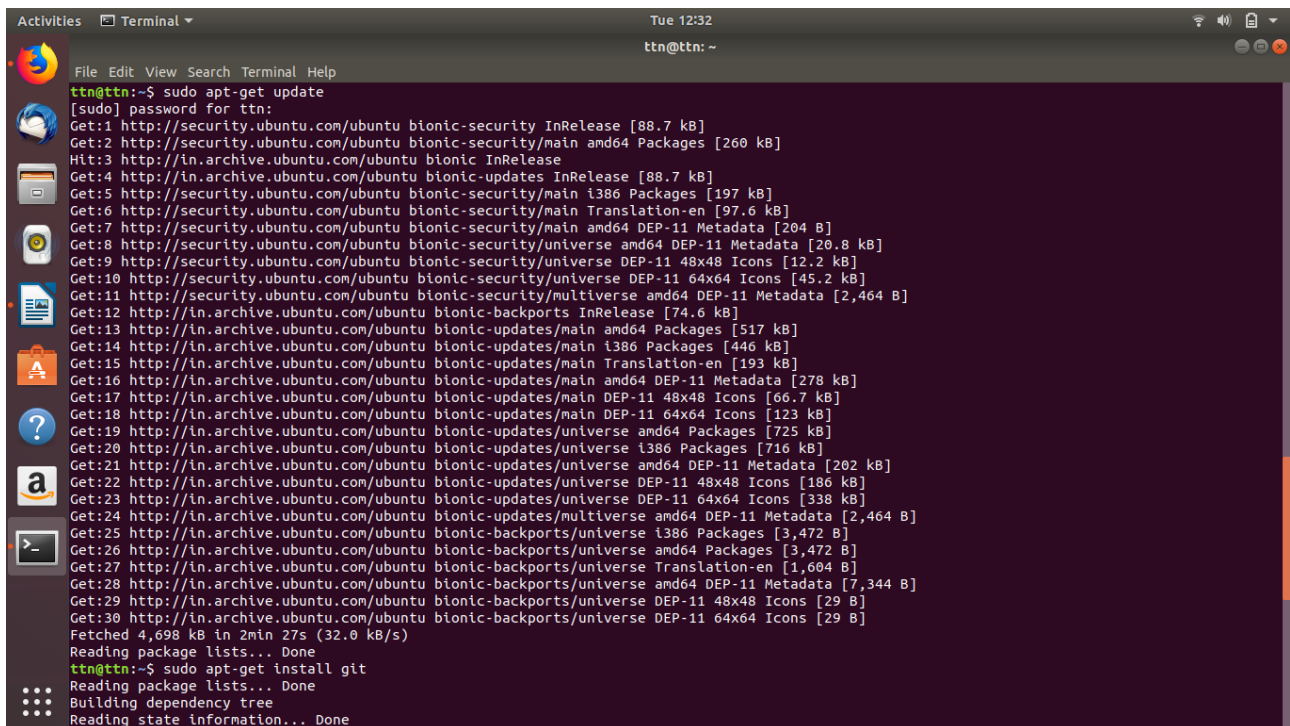
## Q1. Git Setup

Step 1: Install git package with the command  
`sudo apt-get install git`

Step 2: To verify if the installation was successful or not, type the command  
`git --version`

Step 3: Configuring username and email which will be associated with commits created in future, using the commands  
`git config --global user.name <name>`  
`git config --global user.email <email>`

Output:

A terminal window titled 'Terminal' with a dark background and light text. The window shows the output of two commands. The first command is 'sudo apt-get update', which results in a long list of package updates from various sources like security.ubuntu.com and in.archive.ubuntu.com. The second command is 'sudo apt-get install git', which shows the package lists being read and the dependency tree being built. The terminal window has a standard Ubuntu interface with a sidebar on the left showing application icons and a top bar with system status icons.

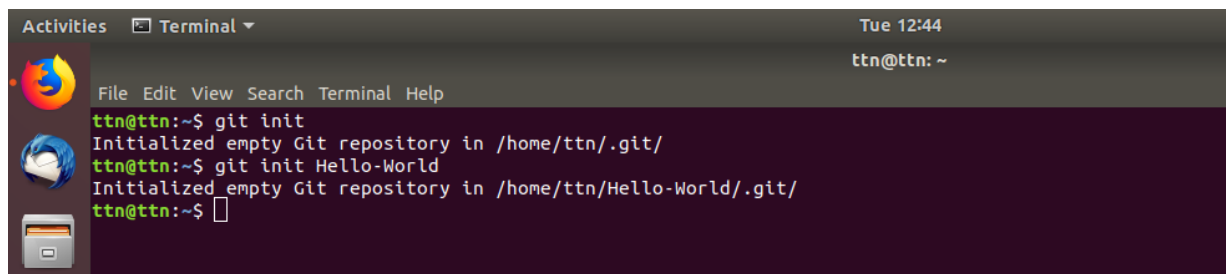
```
ttn@ttn:~$ sudo apt-get update
[sudo] password for ttn:
Get:1 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:2 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [260 kB]
Hit:3 http://in.archive.ubuntu.com/ubuntu bionic InRelease
Get:4 http://in.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:5 http://security.ubuntu.com/ubuntu bionic-security/main i386 Packages [197 kB]
Get:6 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [97.6 kB]
Get:7 http://security.ubuntu.com/ubuntu bionic-security/main amd64 DEP-11 Metadata [204 B]
Get:8 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 DEP-11 Metadata [20.8 kB]
Get:9 http://security.ubuntu.com/ubuntu bionic-security/universe DEP-11 48x48 Icons [12.2 kB]
Get:10 http://security.ubuntu.com/ubuntu bionic-security/universe DEP-11 64x64 Icons [45.2 kB]
Get:11 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 DEP-11 Metadata [2,464 B]
Get:12 http://in.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:13 http://in.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [517 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu bionic-updates/main i386 Packages [446 kB]
Get:15 http://in.archive.ubuntu.com/ubuntu bionic-updates/main Translation-en [193 kB]
Get:16 http://in.archive.ubuntu.com/ubuntu bionic-updates/main amd64 DEP-11 Metadata [278 kB]
Get:17 http://in.archive.ubuntu.com/ubuntu bionic-updates/main DEP-11 48x48 Icons [66.7 kB]
Get:18 http://in.archive.ubuntu.com/ubuntu bionic-updates/main DEP-11 64x64 Icons [123 kB]
Get:19 http://in.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [725 kB]
Get:20 http://in.archive.ubuntu.com/ubuntu bionic-updates/universe i386 Packages [716 kB]
Get:21 http://in.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 DEP-11 Metadata [202 kB]
Get:22 http://in.archive.ubuntu.com/ubuntu bionic-updates/universe DEP-11 48x48 Icons [186 kB]
Get:23 http://in.archive.ubuntu.com/ubuntu bionic-updates/universe DEP-11 64x64 Icons [338 kB]
Get:24 http://in.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 DEP-11 Metadata [2,464 B]
Get:25 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe i386 Packages [3,472 B]
Get:26 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [3,472 B]
Get:27 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [1,604 B]
Get:28 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 DEP-11 Metadata [7,344 B]
Get:29 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe DEP-11 48x48 Icons [29 B]
Get:30 http://in.archive.ubuntu.com/ubuntu bionic-backports/universe DEP-11 64x64 Icons [29 B]
Fetched 4,698 kB in 2min 27s (32.0 kB/s)
Reading package lists... Done
ttn@ttn:~$ sudo apt-get install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

```
Activities Terminal Tue 12:32 ttn@ttn: ~
File Edit View Search Terminal Help
ttn@ttn:~$ sudo apt-get install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc
  git-el git-email git-gui glib2 gitweb git-cvs
  git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 429 not upgraded.
Need to get 4,733 kB of archives.
After this operation, 33.9 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu bionic/main amd64 liberror-perl all 0.17025-1 [22.8 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu bionic-updates/main amd64 git-man all 1:2.17.1-1ubuntu0.4 [803 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu bionic-updates/main amd64 git amd64 1:2.17.1-1ubuntu0.4 [3,907 kB]
Fetched 4,733 kB in 32s (150 kB/s)
Selecting previously unselected package liberror-perl.
(Reading database ... 130318 files and directories currently installed.)
Preparing to unpack .../liberror-perl_0.17025-1_all.deb ...
Unpacking liberror-perl (0.17025-1) ...
Selecting previously unselected package git-man.
Preparing to unpack .../git-man_1%3a2.17.1-1ubuntu0.4_all.deb ...
Unpacking git-man (1:2.17.1-1ubuntu0.4) ...
Selecting previously unselected package git.
Preparing to unpack .../git_1%3a2.17.1-1ubuntu0.4_amd64.deb ...
Unpacking git (1:2.17.1-1ubuntu0.4) ...
Setting up git-man (1:2.17.1-1ubuntu0.4) ...
Setting up liberror-perl (0.17025-1) ...
Processing triggers for man-db (2.8.3-2) ...
Setting up git (1:2.17.1-1ubuntu0.4) ...
ttn@ttn:~$ git --version
git version 2.17.1
ttn@ttn:~$ git config --global user.name "sanjeevkumarttn"
ttn@ttn:~$ git config --global user.name "sanjeev.kumar@tothenew.com"
```

## Q2. Initialize a Git Repository.

A repository is initialized using the command  
`git init repo-name`

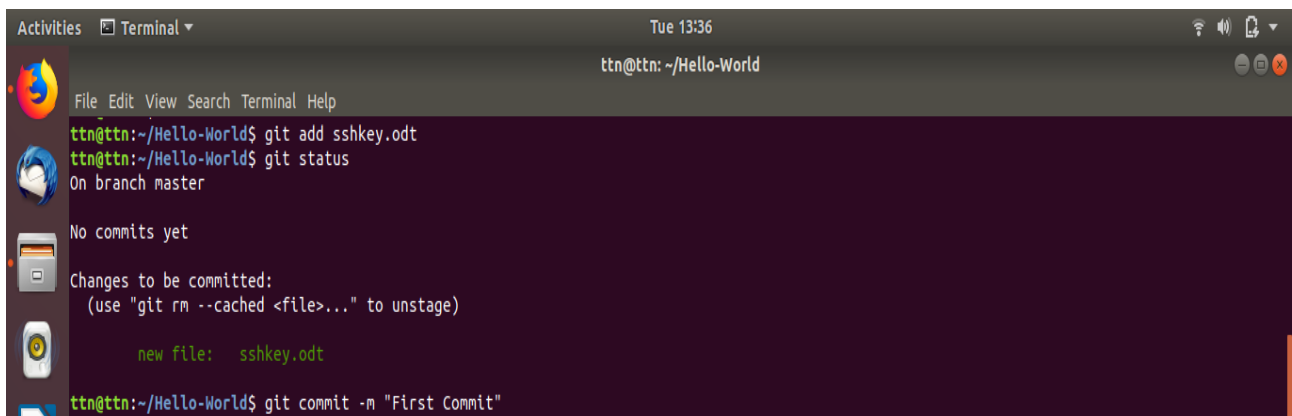
Output:

A terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Tue 12:44, ttn@ttn: ~). The terminal shows the following commands and output:

```
ttn@ttn:~$ git init
Initialized empty Git repository in /home/ttn/.git/
ttn@ttn:~$ git init Hello-World
Initialized empty Git repository in /home/ttn/Hello-World/.git/
ttn@ttn:~$
```

## Q3. Add files to the repository

Output:

A terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Tue 13:36, ttn@ttn: ~/Hello-World). The terminal shows the following commands and output:

```
ttn@ttn:~/Hello-World$ git add sshkey.odt
ttn@ttn:~/Hello-World$ git status
On branch master

No commits yet

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

        new file:   sshkey.odt
ttn@ttn:~/Hello-World$ git commit -m "First Commit"
```

#### Q4. Unstage 1 file

There are two ways to unstage a file:

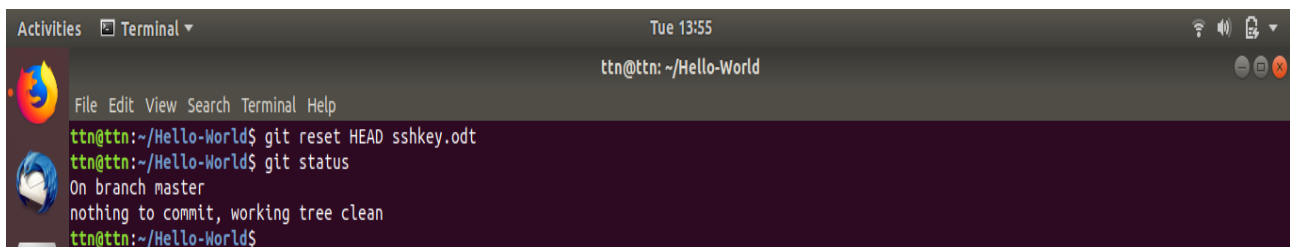
1. Using the command  
`git rm --cached filename`

This command makes git stop tracking the file completely (leaving it in the file system).

2. Using the command  
`git reset HEAD -- filename`

This command unstages any modifications made to the file since the last commit but does not revert them in the filesystem.

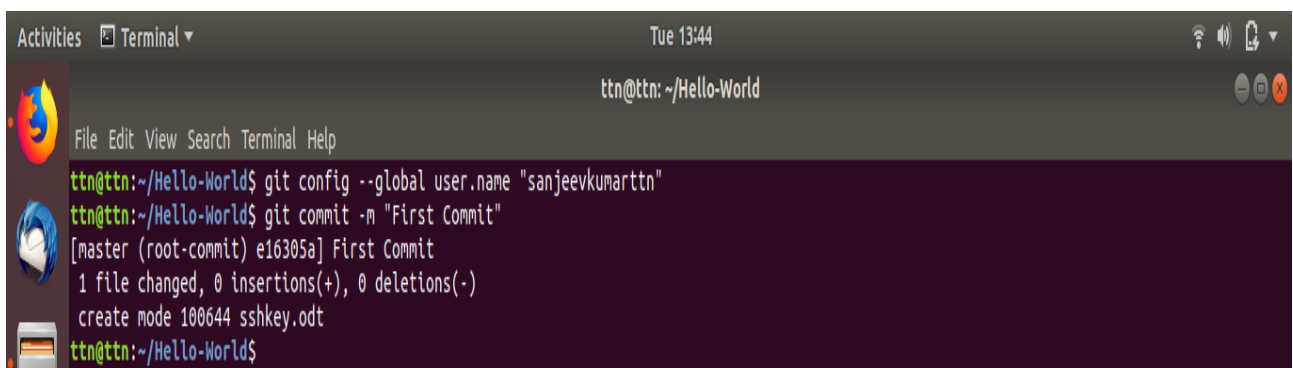
Output:



```
Activities Terminal Tue 13:55
ttn@ttn: ~/Hello-World
File Edit View Search Terminal Help
ttn@ttn:~/Hello-World$ git reset HEAD sshkey.odt
ttn@ttn:~/Hello-World$ git status
On branch master
nothing to commit, working tree clean
ttn@ttn:~/Hello-World$
```

#### Q5. Commit the file

Output:



```
Activities Terminal Tue 13:44
ttn@ttn: ~/Hello-World
File Edit View Search Terminal Help
ttn@ttn:~/Hello-World$ git config --global user.name "sanjeevkumarttn"
ttn@ttn:~/Hello-World$ git commit -m "First Commit"
[master (root-commit) e16305a] First Commit
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 sshkey.odt
ttn@ttn:~/Hello-World$
```

## Q6. Add a remote

This can be done using the command:

`git remote add origin "git@github.com:sanjeevkumarttn/Hello-World.git"`

To verify if remote repository has been added successfully or not, use the command:

`git remote -v`

Output:

A screenshot of a Linux terminal window titled "Terminal" with a dark background. The window shows a series of commands and their outputs. The user is in a directory named ~/Hello-World. The commands executed are: 1. `git remote add origin https://github.com/sanjeevkumarttn/Hello-World.git`, which adds a new remote named 'origin'. 2. `git status`, which shows the current state of the repository as 'On branch master' and 'nothing to commit, working tree clean'. 3. `cd grit`, which fails with the error 'bash: cd: grit: No such file or directory'. 4. `git remote -v`, which lists the remote 'origin' and its URLs for both fetching and pushing, both pointing to 'https://github.com/sanjeevkumarttn/Hello-World.git'. The terminal window includes a menu bar (File, Edit, View, Search, Terminal, Help) and a sidebar with application icons (Firefox, a blue icon, a printer, and a speaker). The top status bar shows the time as 'Tue 14:03' and system icons for network, volume, and battery. The title bar of the terminal window reads 'ttn@ttn: ~/Hello-World'.

## Q7. Undo changes to a particular file

After the file is added to staging, there are 4 ways to undo the local changes:

1. `git reset HEAD <file>`

This will unstage the file to current commit.

2. `git reset`

This will unstage all the files but changes will be retained.

3. `git stash`

This will discard all local changes, but they will be saved for later.

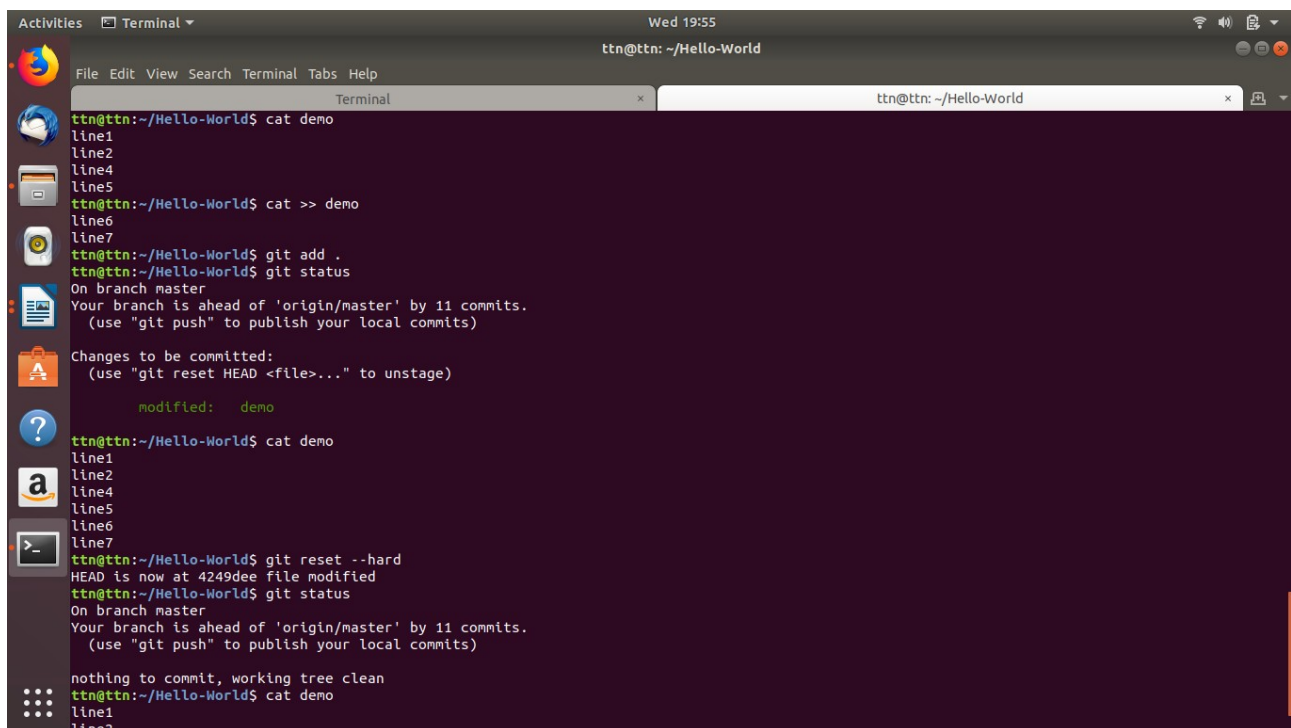
We stash the changes when we don't want to commit what we have been working on yet.

4. `git reset --hard`

To discard every change permanently.

Output:

Using “`git reset --hard`”:



```
Activities  Terminal  Wed 19:55
ttn@ttn: ~/Hello-World

File Edit View Search Terminal Tabs Help

Terminal
ttn@ttn:~/Hello-World$ cat demo
line1
line2
line4
line5
line6
line7
ttn@ttn:~/Hello-World$ cat >> demo
line6
line7
ttn@ttn:~/Hello-World$ git add .
ttn@ttn:~/Hello-World$ git status
On branch master
Your branch is ahead of 'origin/master' by 11 commits.
(use "git push" to publish your local commits)

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   demo
ttn@ttn:~/Hello-World$ cat demo
line1
line2
line4
line5
line6
line7
ttn@ttn:~/Hello-World$ git reset --hard
HEAD is now at 4249dee file modified
ttn@ttn:~/Hello-World$ git status
On branch master
Your branch is ahead of 'origin/master' by 11 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
ttn@ttn:~/Hello-World$ cat demo
line1
line2
```

```
Activities Terminal Wed 19:55
ttn@ttn: ~/Hello-World
File Edit View Search Terminal Tabs Help
Terminal ttn@ttn: ~/Hello-World
ttn@ttn:~/Hello-World$ cat >> demo
line5
line6
line7
ttn@ttn:~/Hello-World$ git add .
ttn@ttn:~/Hello-World$ git status
On branch master
Your branch is ahead of 'origin/master' by 11 commits.
(use "git push" to publish your local commits)

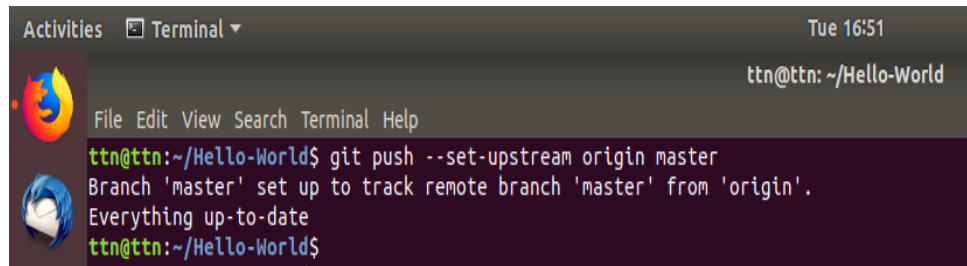
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   demo
ttn@ttn:~/Hello-World$ cat demo
line1
line2
line4
line5
line6
line7
ttn@ttn:~/Hello-World$ git reset --hard
HEAD is now at 4249dee file modified
ttn@ttn:~/Hello-World$ git status
On branch master
Your branch is ahead of 'origin/master' by 11 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
ttn@ttn:~/Hello-World$ cat demo
line1
line2
line4
line5
ttn@ttn:~/Hello-World$
```

## Q8. Push changes to Github

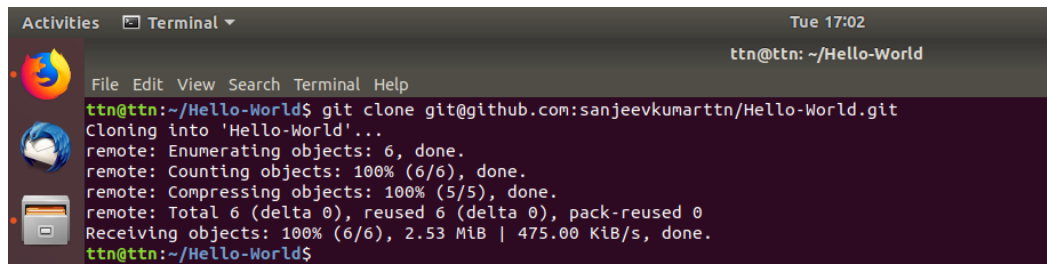
Output:

A terminal window titled 'Terminal' with a dark background. The top bar shows 'Activities' and 'Terminal' with a dropdown arrow. The top right corner displays 'Tue 16:51' and the user's location 'ttn@ttn: ~/Hello-World'. The terminal has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The prompt is 'ttn@ttn:~/Hello-World\$'. The command 'git push --set-upstream origin master' has been entered. The output shows 'Branch 'master' set up to track remote branch 'master' from 'origin'.' and 'Everything up-to-date'. The prompt is now 'ttn@ttn:~/Hello-World\$'.

```
Activities Terminal Tue 16:51
ttn@ttn: ~/Hello-World
File Edit View Search Terminal Help
ttn@ttn:~/Hello-World$ git push --set-upstream origin master
Branch 'master' set up to track remote branch 'master' from 'origin'.
Everything up-to-date
ttn@ttn:~/Hello-World$
```

## Q9. Clone the repository

Output:

A terminal window titled 'Terminal' with a dark background. The top bar shows 'Activities' and 'Terminal' with a dropdown arrow. The top right corner displays 'Tue 17:02' and the user's location 'ttn@ttn: ~/Hello-World'. The terminal has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The prompt is 'ttn@ttn:~/Hello-World\$'. The command 'git clone git@github.com:sanjeevkumarttn/Hello-World.git' has been entered. The output shows 'Cloning into 'Hello-World'...' followed by progress for remote objects: 'Enumerating objects: 6, done.', 'Counting objects: 100% (6/6), done.', 'Compressing objects: 100% (5/5), done.', 'Total 6 (delta 0), reused 6 (delta 0), pack-reused 0', and 'Receiving objects: 100% (6/6), 2.53 MiB | 475.00 KiB/s, done.'. The prompt is now 'ttn@ttn:~/Hello-World\$'.

```
Activities Terminal Tue 17:02
ttn@ttn: ~/Hello-World
File Edit View Search Terminal Help
ttn@ttn:~/Hello-World$ git clone git@github.com:sanjeevkumarttn/Hello-World.git
Cloning into 'Hello-World'...
remote: Enumerating objects: 6, done.
remote: Counting objects: 100% (6/6), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 6 (delta 0), reused 6 (delta 0), pack-reused 0
Receiving objects: 100% (6/6), 2.53 MiB | 475.00 KiB/s, done.
ttn@ttn:~/Hello-World$
```



Q10. Add changes to one of the copies and pull the changes in the other.

Output:

```
Activities Terminal Wed 14:48
ttn@ttn: ~/Hello-World

File Edit View Search Terminal Tabs Help

ttn@ttn: ~/Hello-World

ttn@ttn:~/Repo$ cd ..
ttn@ttn:~$ cd Hello-World
ttn@ttn:~/Hello-World$ cat < Hello
bash: Hello: No such file or directory
ttn@ttn:~/Hello-World$ cat < Hello
bash: Hello: No such file or directory
ttn@ttn:~/Hello-World$ vim hello
ttn@ttn:~/Hello-World$ dir
Assignment1.odt hello Hello-World sshkey.odt TempRepo
ttn@ttn:~/Hello-World$ git add hello
ttn@ttn:~/Hello-World$ git status
On branch master
Your branch is ahead of 'origin/master' by 3 commits.
(use "git push" to publish your local commits)

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

    new file:   hello

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

    Hello-World/

ttn@ttn:~/Hello-World$ git commit -m "hello 1st commit"
[master b9e4977] hello 1st commit
1 file changed, 1 insertion(+)
create mode 100644 hello
ttn@ttn:~/Hello-World$ git push origin master
Counting objects: 10, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (8/8), done.
Writing objects: 100% (10/10), 2.52 MiB | 357.00 KiB/s, done.
Total 10 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), done.
```

```
Activities Terminal Wed 14:49
ttn@ttn: ~/Hello-World

File Edit View Search Terminal Tabs Help

ttn@ttn: ~/Hello-World

Total 10 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), done.
To github.com:sanjeevkumarttn/Hello-World.git
   a318dee..b9e4977  master -> master
ttn@ttn:~/Hello-World$ cd ..
ttn@ttn:~$ cd Repo
ttn@ttn:~/Repo$ git clone git@github.com:sanjeevkumarttn/Hello-World.git
Cloning into 'Hello-World'...
remote: Enumerating objects: 15, done.
remote: Counting objects: 100% (15/15), done.
remote: Compressing objects: 100% (11/11), done.
remote: Total 15 (delta 1), reused 15 (delta 1), pack-reused 0
Receiving objects: 100% (15/15), 2.53 MiB | 612.00 KiB/s, done.
Resolving deltas: 100% (1/1), done.
ttn@ttn:~/Repo$ cat Hello-World/hello
This is hello file.
ttn@ttn:~/Repo$ cat << hello
> File edited
> bash: warning: here-document at line 55 delimited by end-of-file (wanted 'hello')
File edited
ttn@ttn:~/Repo$ cat Hello-World/hello
This is hello file.
ttn@ttn:~/Repo$ man tail
ttn@ttn:~/Repo$ man head
ttn@ttn:~/Repo$ man tail
ttn@ttn:~/Repo$ cat Hello-World/hello
This is hello file.
ttn@ttn:~/Repo$ cat >> Hello-World/hello
Edited^Z
[1]+  Stopped                  cat >> Hello-World/hello
ttn@ttn:~/Repo$ cat Hello-World/hello
This is hello file.
ttn@ttn:~/Repo$ cat >> Hello-World/hello
Edited
^Z
[2]+  Stopped                  cat >> Hello-World/hello
ttn@ttn:~/Repo$ cat Hello-World/hello
```

```
Activities Terminal Wed 14:49
ttn@ttn: ~/Hello-World

File Edit View Search Terminal Tabs Help

ttn@ttn: ~/Hello-World
[2]+ Stopped cat >> Hello-World/hello
ttn@ttn:~/Repo$ cat Hello-World/hello
This is hello file.
Edited
ttn@ttn:~/Repo$ git add Hello-World/hello
fatal: pathspec 'hello' did not match any files
ttn@ttn:~/Repo$ ls
Hello-World
ttn@ttn:~/Repo$ git add Hello-World/hello
ttn@ttn:~/Repo$ git commit -m "hello 2nd commit"
[master 5dbef58] hello 2nd commit
1 file changed, 2 insertions(+)
create mode 100644 Repo/Hello-World/hello
ttn@ttn:~/Repo$ git push origin master
Username for 'https://github.com': sanjeevkumarttn
Password for 'https://sanjeevkumarttn@github.com':
To https://github.com/sanjeevkumarttn>Hello-World.git
! [rejected] master -> master (fetch first)
error: failed to push some refs to 'https://github.com/sanjeevkumarttn>Hello-World.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
ttn@ttn:~/Repo$ git push origin master --force
fatal: unable to access 'https://github.com/sanjeevkumarttn>Hello-World.git/': Could not resolve host: github.com
ttn@ttn:~/Repo$ cd Hello-World/
ttn@ttn:~/Repo/Hello-World$ LS

Command 'LS' not found, but can be installed with:

sudo apt install ls

ttn@ttn:~/Repo/Hello-World$ ls
Assignment1.odt hello sshkey.odt TempRepo
ttn@ttn:~/Repo/Hello-World$ git add hello
```

```
Activities Terminal Wed 14:50
ttn@ttn: ~/Hello-World

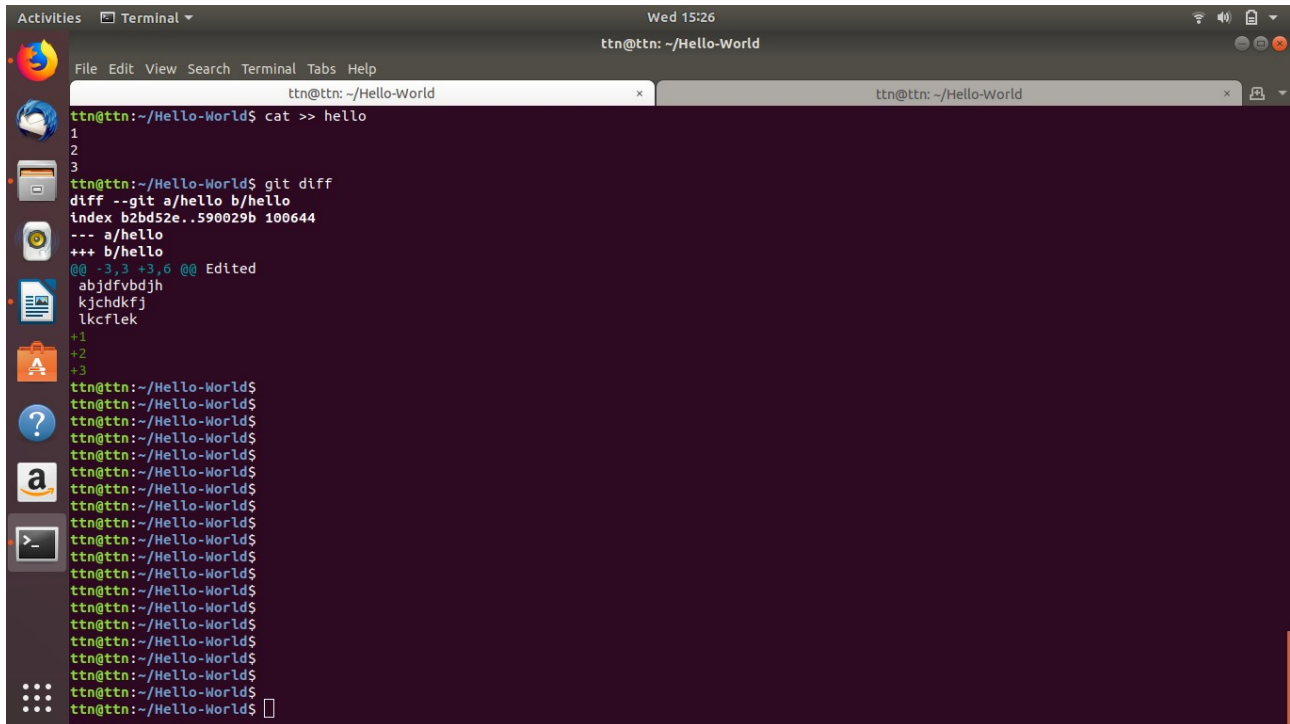
File Edit View Search Terminal Tabs Help

ttn@ttn: ~/Hello-World
Command 'LS' not found, but can be installed with.

sudo apt install ls

ttn@ttn:~/Repo/Hello-World$ ls
Assignment1.odt hello sshkey.odt TempRepo
ttn@ttn:~/Repo/Hello-World$ git add hello
ttn@ttn:~/Repo/Hello-World$ git commit -m "file is entered"
[master 4b250d0] file is entered
1 file changed, 1 insertion(+)
ttn@ttn:~/Repo/Hello-World$ git push origin master
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 289 bytes | 289.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:sanjeevkumarttn>Hello-World.git
b9e4977..4b250d0 master -> master
ttn@ttn:~/Repo/Hello-World$ cd ~
ttn@ttn:~$ cd Hello-World/
ttn@ttn:~/Hello-World$ ls
Assignment1.odt hello Hello-World sshkey.odt TempRepo
ttn@ttn:~/Hello-World$ git pull origin master
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (1/1), done.
remote: Total 3 (delta 1), reused 3 (delta 1), pack-reused 0
Unpacking objects: 100% (3/3), done.
From github.com:sanjeevkumarttn>Hello-World
* branch master -> FETCH_HEAD
b9e4977..4b250d0 master -> origin/master
Updating b9e4977..4b250d0
Fast-forward
 hello | 1 +
1 file changed, 1 insertion(+)
ttn@ttn:~/Hello-World$
```

## Q11. Check differences between a file and its staged version



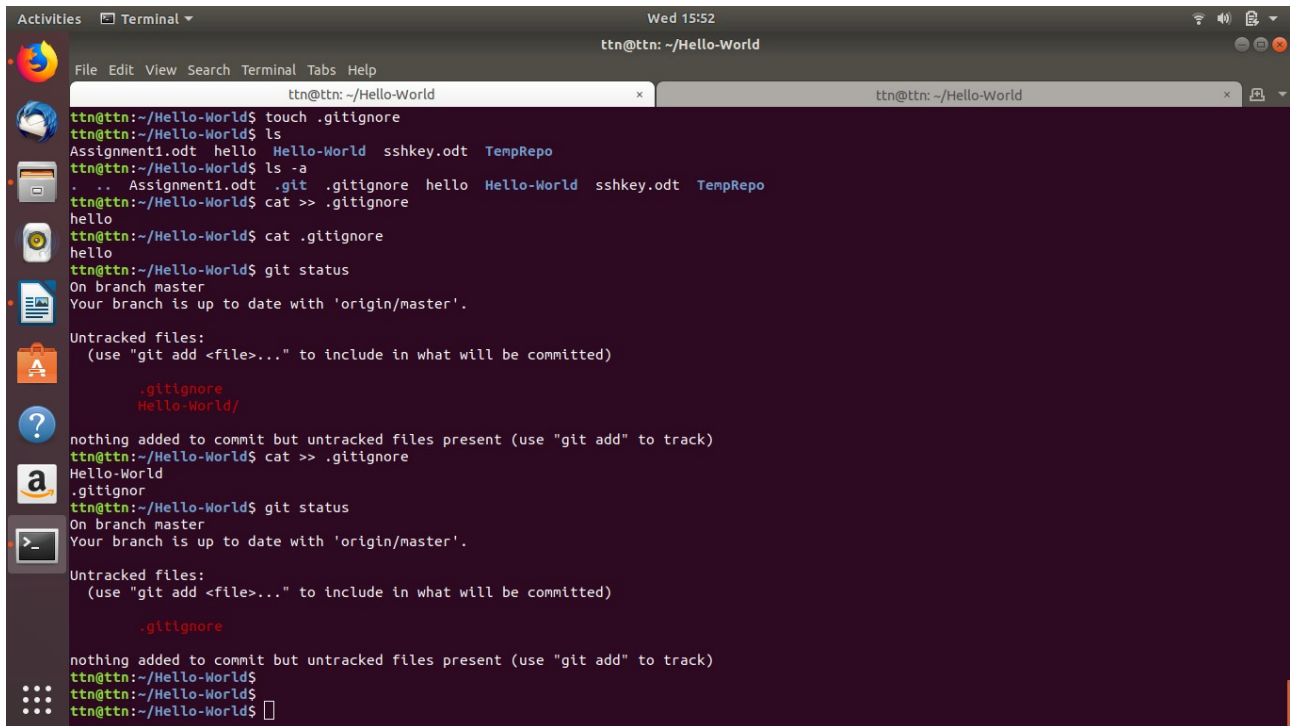
The screenshot shows a terminal window titled "ttn@ttn: ~/Hello-World" with a menu bar (File, Edit, View, Search, Terminal, Tabs, Help). The terminal displays the following commands and output:

```
ttn@ttn:~/Hello-World$ cat >> hello
1
2
3
ttn@ttn:~/Hello-World$ git diff
diff --git a/hello b/hello
index b2bd52e..590029b 100644
--- a/hello
+++ b/hello
@@ -3,3 +3,6 @@ Edited
abjdfvbdjh
kjchdkfj
lkcflk
+1
+2
+3
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
```

The left sidebar of the terminal window contains several application icons, including a web browser, a file manager, a terminal, a help icon, and an Amazon logo.

Q12. Ignore a few files to be checked in

Output:

A terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Tabs, Help) and a status bar (Wed 15:52, ttn@ttn: ~/Hello-World). The terminal shows the following commands and output:

```
ttn@ttn:~/Hello-World$ touch .gitignore
ttn@ttn:~/Hello-World$ ls
Assignment1.odt  hello  Hello-World  sshkey.odt  TempRepo
ttn@ttn:~/Hello-World$ ls -la
.  ..  Assignment1.odt  .git  .gitignore  hello  Hello-World  sshkey.odt  TempRepo
ttn@ttn:~/Hello-World$ cat >> .gitignore
hello
ttn@ttn:~/Hello-World$ cat .gitignore
hello
ttn@ttn:~/Hello-World$ git status
On branch master
Your branch is up to date with 'origin/master'.

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

        .gitignore
        Hello-World/

nothing added to commit but untracked files present (use "git add" to track)
ttn@ttn:~/Hello-World$ cat >> .gitignore
Hello-World
.gitignor
ttn@ttn:~/Hello-World$ git status
On branch master
Your branch is up to date with 'origin/master'.

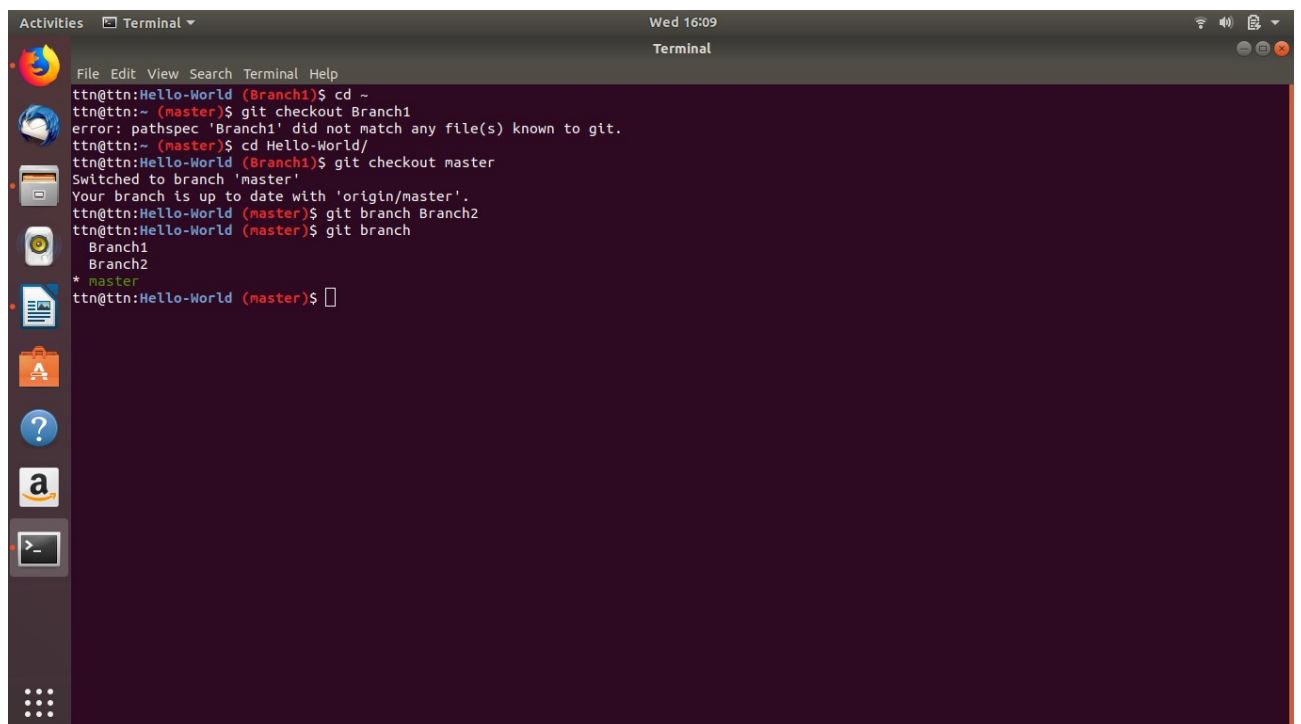
Untracked files:
  (use "git add <file>..." to include in what will be committed)

        .gitignore

nothing added to commit but untracked files present (use "git add" to track)
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
ttn@ttn:~/Hello-World$
```

Q13. Create a new branch.

Output:

A terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Wed 16:09, Terminal). The terminal shows the following commands and output:

```
ttn@ttn:Hello-World (Branch1)$ cd ~
ttn@ttn:~$ git checkout Branch1
error: pathspec 'Branch1' did not match any file(s) known to git.
ttn@ttn:~$ cd Hello-World/
ttn@ttn:Hello-World (Branch1)$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
ttn@ttn:Hello-World (master)$ git branch Branch2
ttn@ttn:Hello-World (master)$ git branch
  Branch1
  Branch2
* master
ttn@ttn:Hello-World (master)$
```



## Q14. Diverge them with commits

Output:

```
Activities Terminal Wed 17:19
File Edit View Search Terminal Help
ttn@ttn:Hello-World (master)$ touch f1
ttn@ttn:Hello-World (master)$ touch f2
ttn@ttn:Hello-World (master)$ git add .
ttn@ttn:Hello-World (master)$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

    new file:   .gitignore
    new file:   f1
    new file:   f2

ttn@ttn:Hello-World (master)$ git -m "file f1 & f2 added"
unknown option: -m
usage: git [--version] [--help] [-C <path>] [-c <name>=<value>]
        [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
        [-p | --paginate | --no-pager] [--no-replace-objects] [--bare]
        [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
        <command> [<args>]

ttn@ttn:Hello-World (master)$ git commit -m "file f1 & f2 added"
[master 8737b51] file f1 & f2 added
 3 files changed, 3 insertions(+)
 create mode 100644 .gitignore
 create mode 100644 f1
 create mode 100644 f2

ttn@ttn:Hello-World (master)$ git checkout Branch1
Switched to branch 'Branch1'
ttn@ttn:Hello-World (Branch1)$ touch ff1
ttn@ttn:Hello-World (Branch1)$ touch ff2
ttn@ttn:Hello-World (Branch1)$ git status
On branch Branch1
Untracked files:
  (use "git add <file>..." to include in what will be committed)

    Hello-World/
    ff1
```

```
Activities Terminal Wed 17:19
File Edit View Search Terminal Help
hint:
hint:   git rm --cached Hello-World
hint:
hint: See "git help submodule" for more information.
ttn@ttn:Hello-World (Branch1)$ git add .
ttn@ttn:Hello-World (Branch1)$ git status
On branch Branch1
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

    new file:   Hello-World
    new file:   ff1
    new file:   ff2

ttn@ttn:Hello-World (Branch1)$ git commit -m "ff1 & ff2 added"
[Branch1 f42b7d5] ff1 & ff2 added
 3 files changed, 1 insertion(+)
 create mode 160000 Hello-World
 create mode 100644 ff1
 create mode 100644 ff2

ttn@ttn:Hello-World (Branch1)$ git log --graph --decorate --oneline --all
* f42b7d5 (HEAD -> Branch1) ff1 & ff2 added
| * 8737b51 (master) file f1 & f2 added
|/
* 39f2b39 (origin/master, Branch2) file changed
* 4b250d0 file is entered
* b9e4977 hello 1st commit
* f78ee84 Merge branch 'master' of github.com:sanjeevkumarttn/Hello-World
|/
* a318dee 3rd commit
* 8be0b6f (refs/stash) WIP on master: 4b118f0 2nd Commit
|/
* 570162c index on master: 4b118f0 2nd Commit
|/
* 4b118f0 2nd Commit
* e16305a First Commit
ttn@ttn:Hello-World (Branch1)$
```

Q15. Edit the same file at the same line on both branches and commit

Output:

This is not possible to do.

Suppose there is a file named file1.txt with some code snippet in it.

A on branch 1 edits file1.txt at line 5 say.

B on branch 2 edits file1.txt also at line 5.

A commits the changes first. When B will attempt to commit the changes made by it, Git will warn that there is a conflict and won't allow the commit to be pushed on to the main repository. B has to update its local repository and fix the conflict in order to commit its own changed version of the snippet.

So, what eventually resides in the repository is

Original version > A's version > B's conflict-fixed version.

Thus, the first commit gets in without any problems, the second to commit must resolve the conflict before getting into the repository.

## Q16. Try merging and resolve merge conflicts

Output:

### Merging Conflicts

```
Activities Terminal Wed 18:57
Terminal
File Edit View Search Terminal Help
ttn@ttn:Hello-World (master)$ git checkout Branch1
Switched to branch 'Branch1'
ttn@ttn:Hello-World (Branch1)$ cat > File
Line1
Line2
ttn@ttn:Hello-World (Branch1)$ git add file.txt
fatal: pathspec 'file.txt' did not match any files
ttn@ttn:Hello-World (Branch1)$ git add file
fatal: pathspec 'file' did not match any files
ttn@ttn:Hello-World (Branch1)$ git add File
ttn@ttn:Hello-World (Branch1)$ git commit -m "created and added"
[Branch1 e1033b1] created and added
1 file changed, 2 insertions(+)
create mode 100644 File
ttn@ttn:Hello-World (Branch1)$ git checkout Branch2
warning: unable to rmdir 'Hello-World': Directory not empty
Switched to branch 'Branch2'
ttn@ttn:Hello-World (Branch2)$ cat File
cat: File: No such file or directory
ttn@ttn:Hello-World (Branch2)$ cat > File
Line 3
Line 4
ttn@ttn:Hello-World (Branch2)$ git add File
ttn@ttn:Hello-World (Branch2)$ git commit -m "created and added2"
[Branch2 e763588] created and added2
1 file changed, 2 insertions(+)
create mode 100644 File
ttn@ttn:Hello-World (Branch2)$ git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)
ttn@ttn:Hello-World (master)$ git merge Branch2
Merge made by the 'recursive' strategy.
File | 2 ++
1 file changed, 2 insertions(+)
create mode 100644 File
ttn@ttn:Hello-World (master)$ git checkout Branch1
Switched to branch 'Branch1'
```

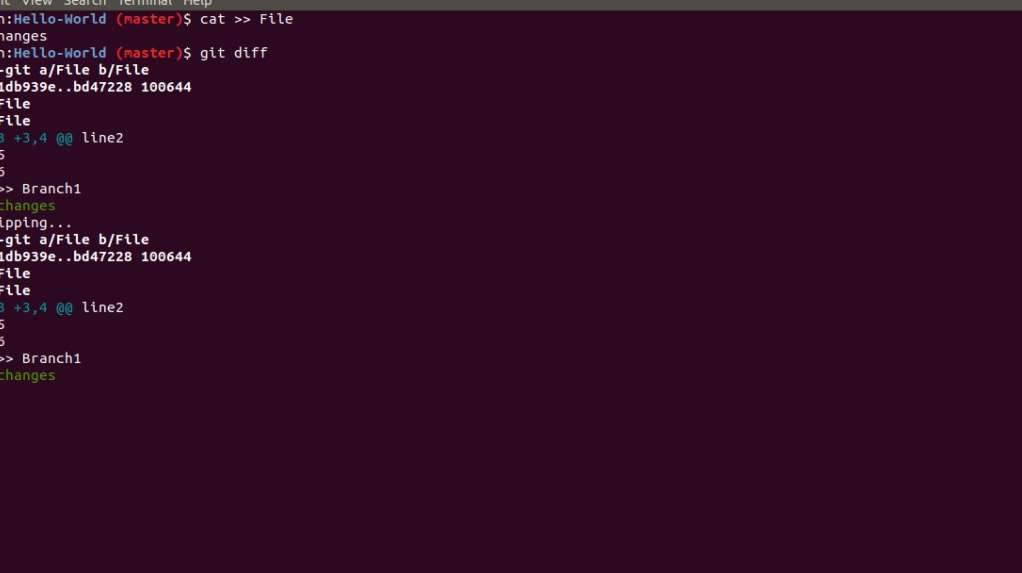
```
Activities Terminal Wed 18:58
Terminal
File Edit View Search Terminal Help
ttn@ttn:Hello-World (Branch2)$ cat File
cat: File: No such file or directory
ttn@ttn:Hello-World (Branch2)$ cat > File
Line 3
Line 4
ttn@ttn:Hello-World (Branch2)$ git add File
ttn@ttn:Hello-World (Branch2)$ git commit -m "created and added2"
[Branch2 e763588] created and added2
1 file changed, 2 insertions(+)
create mode 100644 File
ttn@ttn:Hello-World (Branch2)$ git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)
ttn@ttn:Hello-World (master)$ git merge Branch2
Merge made by the 'recursive' strategy.
File | 2 ++
1 file changed, 2 insertions(+)
create mode 100644 File
ttn@ttn:Hello-World (master)$ git checkout Branch1
Switched to branch 'Branch1'
ttn@ttn:Hello-World (Branch1)$ cat >> File
Line 5
Line 6
ttn@ttn:Hello-World (Branch1)$ git add File
ttn@ttn:Hello-World (Branch1)$ git commit -m "file edited in branch1"
[Branch1 1c686e1] file edited in branch1
1 file changed, 2 insertions(+)
ttn@ttn:Hello-World (Branch1)$ git checkout master
warning: unable to rmdir 'Hello-World': Directory not empty
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 4 commits.
(use "git push" to publish your local commits)
ttn@ttn:Hello-World (master)$ git merge Branch1
Auto-merging File
CONFLICT (add/add): Merge conflict in File
Automatic merge failed; fix conflicts and then commit the result.
ttn@ttn:Hello-World (master)$
```

## Merging Conflict Resolve

```
Activities Terminal Wed 19:08
Terminal
File Edit View Search Terminal Help
ttn@ttn:Hello-World (master)$ cat File
<<<<<< HEAD
Line 3
Line 4
=====
Line1
line2
Line 5
Line 6
>>>>>> Branch1
ttn@ttn:Hello-World (master)$ vim File
ttn@ttn:Hello-World (master)$ git add File
ttn@ttn:Hello-World (master)$ git status
On branch master
Your branch is ahead of 'origin/master' by 4 commits.
(use "git push" to publish your local commits)
All conflicts fixed but you are still merging.
(use "git commit" to conclude merge)
Changes to be committed:
  modified:   File
  new file:   Hello-World
  new file:   ff1
  new file:   ff2
ttn@ttn:Hello-World (master)$ git commit -m "Conflict Resolved"
[master a737b8e] Conflict Resolved
ttn@ttn:Hello-World (master)$ cat File
Line1
line2
Line 5
Line 6
>>>>>> Branch1
ttn@ttn:Hello-World (master)$ git merge Branch1
Already up to date.
ttn@ttn:Hello-World (master)$
```



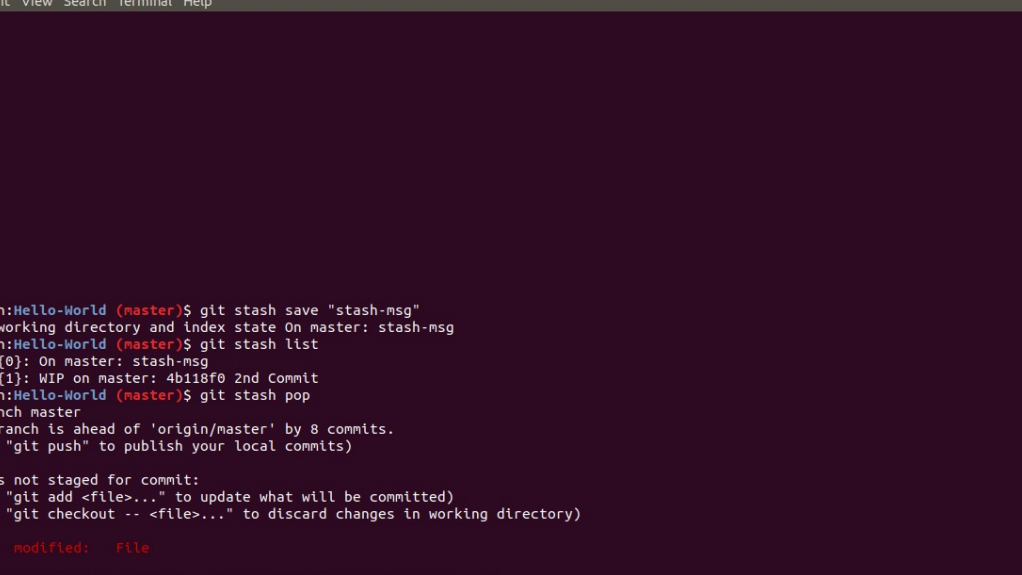
Output:



The screenshot shows a terminal window with a dark purple background. The title bar at the top reads "Wed 19:22" and "Terminal". The terminal content shows a user running a series of commands in a directory named "Hello-World". The commands and their outputs are as follows:

```
ttn@ttn:Hello-World (master)$ cat >> File
made changes
ttn@ttn:Hello-World (master)$ git diff
diff --git a/File b/File
index 1db939e..bd47228 100644
--- a/File
+++ b/File
@@ -3,3 +3,4 @@ line2
Line 5
Line 6
>>>>>> Branch1
+made changes
...skipping...
diff --git a/File b/File
index 1db939e..bd47228 100644
--- a/File
+++ b/File
@@ -3,3 +3,4 @@ line2
Line 5
Line 6
>>>>>> Branch1
+made changes
```

The terminal window has a sidebar on the left with various application icons, including Firefox, a file manager, and a terminal icon. The terminal output shows the details of a git diff, including the file path, the commit hashes (1db939e and bd47228), and the specific changes made to the file (line 2).



The screenshot shows a terminal window with the following content:

```

ttn@ttn:Hello-World (master)$ git stash save "stash-msg"
Saved working directory and index state On master: stash-msg
ttn@ttn:Hello-World (master)$ git stash list
stash@{0}: On master: stash-msg
stash@{1}: WIP on master: 4b118f0 2nd Commit
ttn@ttn:Hello-World (master)$ git stash pop
On branch master
Your branch is ahead of 'origin/master' by 8 commits.
(use "git push" to publish your local commits)

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)

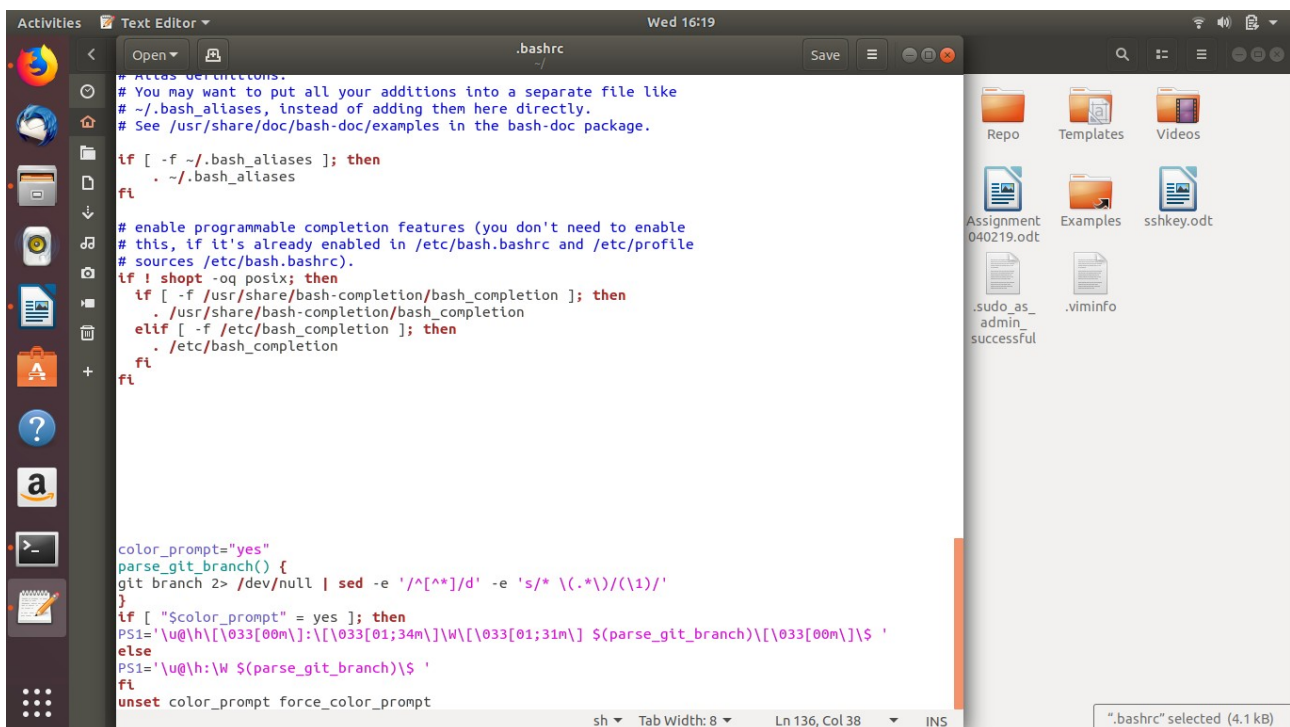
        modified:   File

no changes added to commit (use "git add" and/or "git commit -a")
Dropped refs/stash@{0} (ea074056702d288da587e0cd693fac9e9dfc60dc)
ttn@ttn:Hello-World (master)$ git stash list
stash@{0}: WIP on master: 4b118f0 2nd Commit
ttn@ttn:Hello-World (master)$
  
```

Q18. Add the following code to your .bashrc file : color\_prompt="yes"

```
parse_git_branch() {  
git branch 2> /dev/null | sed -e '/^[^*]/d' -e 's/* \(.*/(\1)/'  
}  
if [ "$color_prompt" = yes ]; then  
PS1='\u@\h\[\033[00m\]:\[\033[  
else  
PS1='\u@\h:\W $(parse_git_branch)\$ '  
fi  
unset color_prompt force_color_prompt
```

Output:



```
Activities Text Editor Wed 16:19  
# Alias definitions.  
# You may want to put all your additions into a separate file like  
# ~/.bash_aliases, instead of adding them here directly.  
# See /usr/share/doc/bash-doc/examples in the bash-doc package.  
  
if [ -f ~/.bash_aliases ]; then  
    . ~/.bash_aliases  
fi  
  
# enable programmable completion features (you don't need to enable  
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile  
# sources /etc/bash.bashrc).  
if ! shopt -oq posix; then  
    if [ -f /usr/share/bash-completion/bash_completion ]; then  
        . /usr/share/bash-completion/bash_completion  
    elif [ -f /etc/bash_completion ]; then  
        . /etc/bash_completion  
    fi  
fi  
  
color_prompt="yes"  
parse_git_branch() {  
git branch 2> /dev/null | sed -e '/^[^*]/d' -e 's/* \(.*/(\1)/'  
}  
if [ "$color_prompt" = yes ]; then  
PS1='\u@\h\[\033[00m\]:\[\033[01;34m\]\W\[\033[01;31m\] $(parse_git_branch)\[\033[00m\]\$ '  
else  
PS1='\u@\h:\W $(parse_git_branch)\$ '  
fi  
unset color_prompt force_color_prompt
```

sh Tab Width: 8 Ln 136, Col 38 INS

Repo Templates Videos  
Assignment 040219.odt Examples sshkey.odt  
.sudo\_as\_admin\_successful .viminfo

“.bashrc” selected (4.1 kB)

Activities Terminal Wed 16:09

File Edit View Search Terminal Help

```
ttn@ttn:Hello-World (Branch1)$ cd -
ttn@ttn:~ (master)$ git checkout Branch1
error: pathspec 'Branch1' did not match any file(s) known to git.
ttn@ttn:~ (master)$ cd Hello-World/
ttn@ttn:Hello-World (Branch1)$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
ttn@ttn:Hello-World (master)$ git branch Branch2
ttn@ttn:Hello-World (master)$ git branch
  Branch1
  Branch2
* master
ttn@ttn:Hello-World (master)$
```