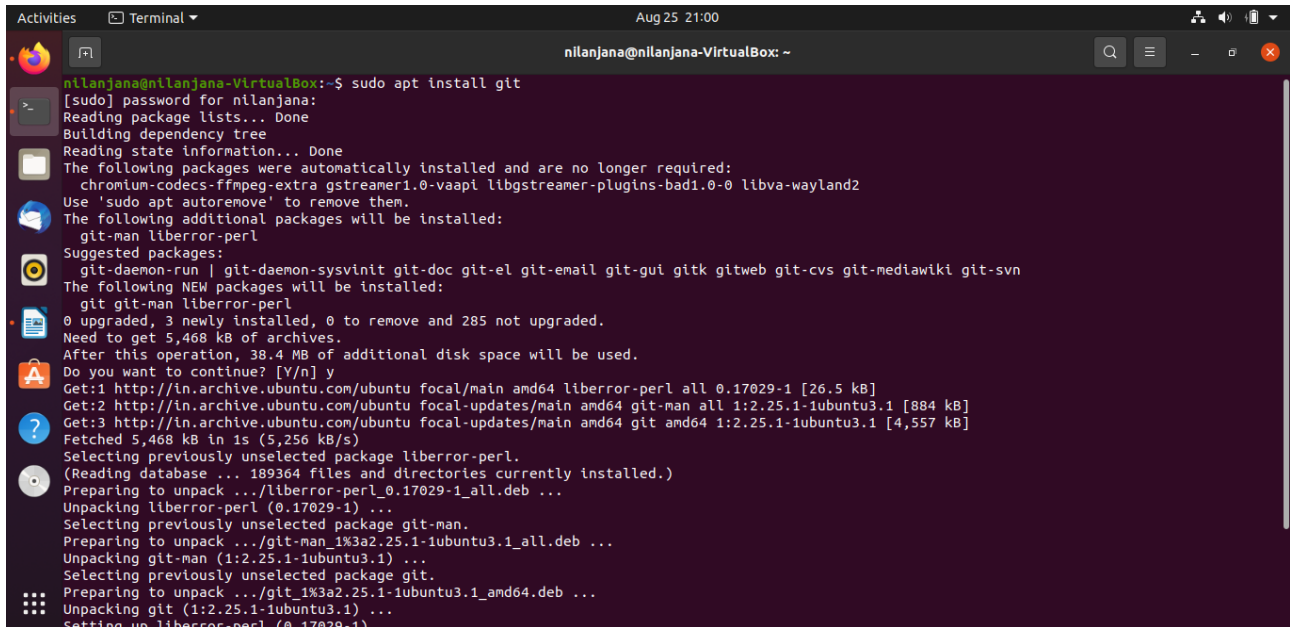


Setup git :

It consists of two steps -

1. install git :

For installing git I typed 'sudo apt install git' command in terminal and pressed enter .

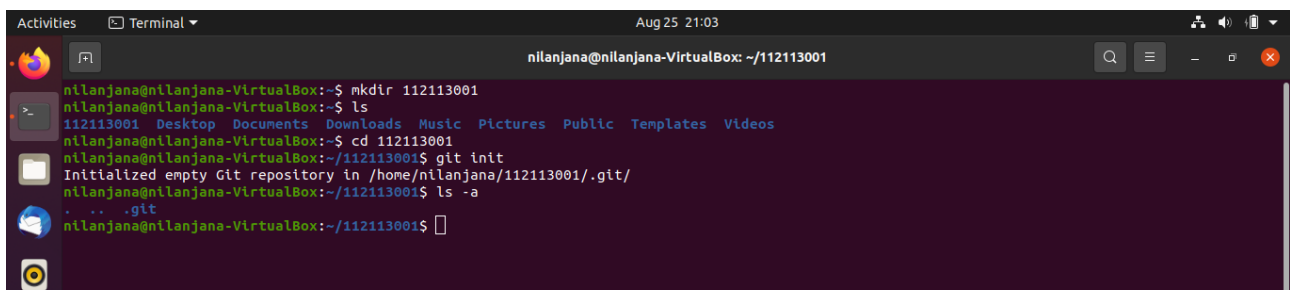


```
Activities Terminal Aug 25 21:00
nilanjana@nilanjana-VirtualBox: ~
nilanjana@nilanjana-VirtualBox:~$ sudo apt install git
[sudo] password for nilanjana:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi libgstreamer-plugins-bad1.0-0 libva-wayland2
Use 'sudo apt autoremove' to remove them.
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 gitk 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 285 not upgraded.
Need to get 5,468 kB of archives.
After this operation, 38.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu focal/main amd64 liberror-perl all 0.17029-1 [26.5 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 git-man all 1:2.25.1-1ubuntu3.1 [884 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 git amd64 1:2.25.1-1ubuntu3.1 [4,557 kB]
Fetched 5,468 kB in 1s (5,256 kB/s)
Selecting previously unselected package liberror-perl.
(Reading database ... 189364 files and directories currently installed.)
Preparing to unpack .../liberror-perl_0.17029-1_all.deb ...
Unpacking liberror-perl (0.17029-1) ...
Selecting previously unselected package git-man.
Preparing to unpack .../git-man_1%3a2.25.1-1ubuntu3.1_all.deb ...
Unpacking git-man (1:2.25.1-1ubuntu3.1) ...
Selecting previously unselected package git.
Preparing to unpack .../git_1%3a2.25.1-1ubuntu3.1_amd64.deb ...
Unpacking git (1:2.25.1-1ubuntu3.1) ...
Setting up liberror-perl (0.17029-1)
```

2. initializing git:

I want to track a folder named '112113001' for my course assignments, I have done the followings to initialize git.

- Created 112113001 folder using 'mkdir 112113001' command
- Chnaged my working directory to 112113001 using 'cd 112113001' command
- initialized git inside the 112113001 folder using 'git init' command.



```
Activities Terminal Aug 25 21:03
nilanjana@nilanjana-VirtualBox: ~/112113001
nilanjana@nilanjana-VirtualBox:~$ mkdir 112113001
nilanjana@nilanjana-VirtualBox:~$ ls
112113001 Desktop Documents Downloads Music Pictures Public Templates Videos
nilanjana@nilanjana-VirtualBox:~$ cd 112113001
nilanjana@nilanjana-VirtualBox:~/112113001$ git init
Initialized empty Git repository in /home/nilanjana/112113001/.git/
nilanjana@nilanjana-VirtualBox:~/112113001$ ls -a
. .. .git
nilanjana@nilanjana-VirtualBox:~/112113001$
```

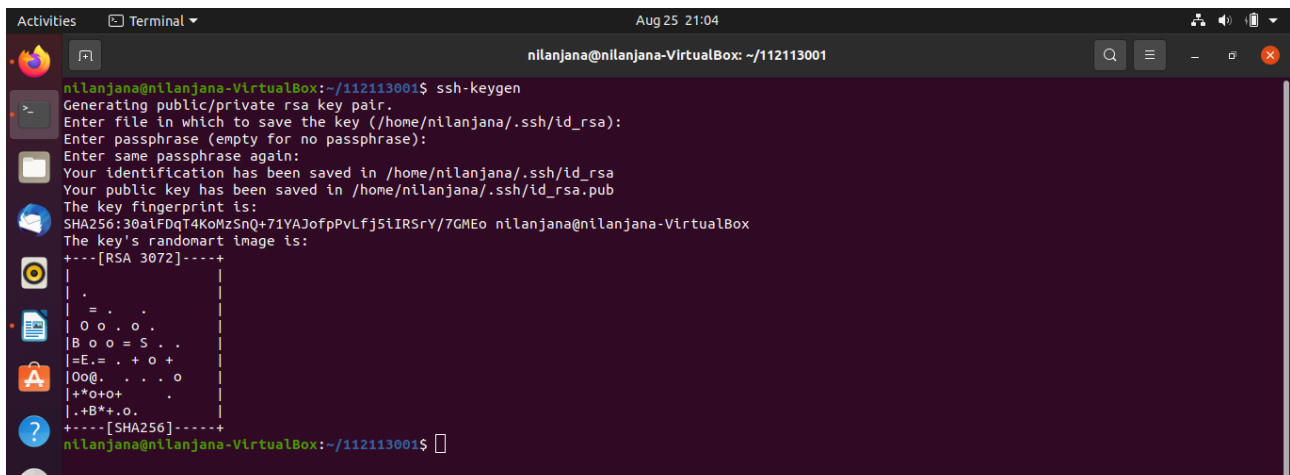
We can see the .git folder created after git initialization.

Keyless SSH setup:

It consists of two steps -

1. Create Public-Private RSA key pair :

To setup a keyless SSH in a machine , we need public-private RSA key pair.
For creating RSA key pair , I used 'ssh-keygen' command in terminal.



```
nilanjana@nilanjana-VirtualBox: ~/112113001$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/nilanjana/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/nilanjana/.ssh/id_rsa
Your public key has been saved in /home/nilanjana/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:30aIFDqT4k0mZSnQ+71YAJofpPvLfjSiIRsY/7GMEo nilanjana@nilanjana-VirtualBox
The key's randomart image is:
+---[RSA 3072]-----+
|
|  .
|  o o .
|B o o = S .
| =E . . + o +
|Oo@. . . o
|+*o+o+
|.B*+.o.
+---[SHA256]-----+
nilanjana@nilanjana-VirtualBox: ~/112113001$
```

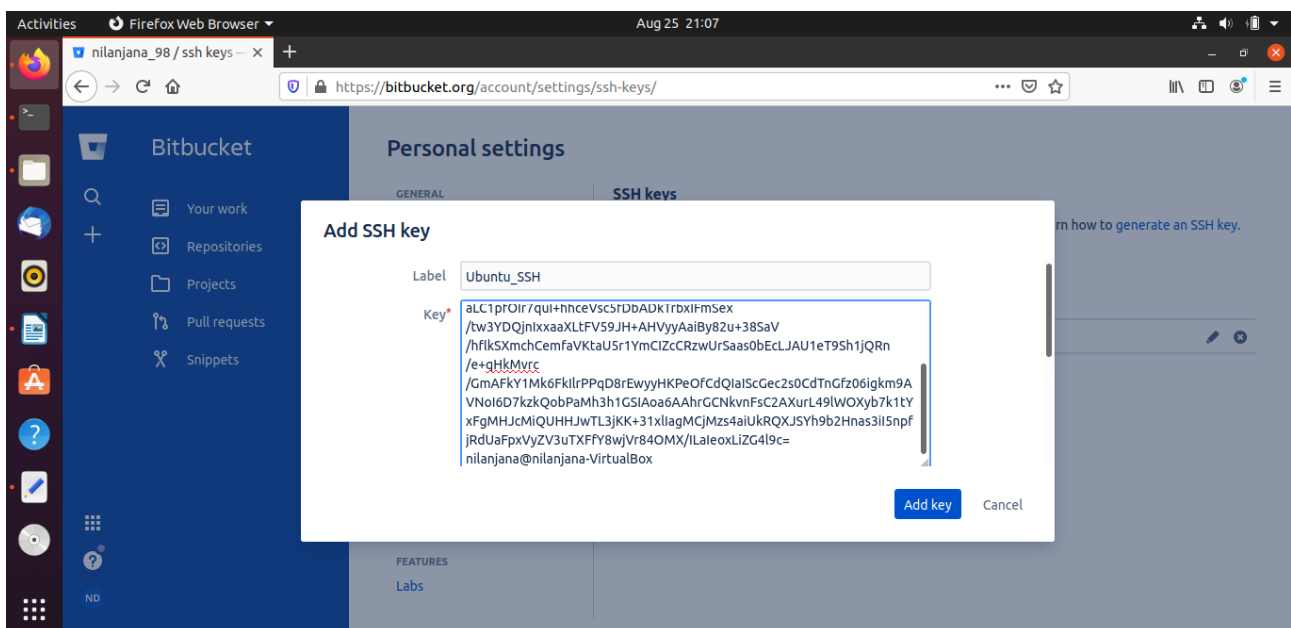
2. Copy the public key and put it on bitbucket :

- I opened the public key file 'id_rsa.pub' in text editor and copied the content.



```
1 ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQGCuFUMyTape+3397Q4w51RmngVyBEVe9/1zzhQca2uh0PvOJ8vKwK8oo24h7WdUBe0Mg
tw3YDQjnIxxaaXLtFV59JH+AHVyyAaiBy82u+38Sav/-
/hfIkSXmchCemfaVKtaU5r1YmCIZcCRzwUrSaas0bEcLJAU1eT9Sh1jQRn/e+qHkMvrc/-
/GmAFkY1Mk6FkIlrPPqD8rEwyyHKPeOfCdQIaIScGec2s0CdTnGfz06igkm9AVNoI6D7kzkQobPaMh3h1GSIaAa6AAhrGCNkvn
ILaIeoxLiZG4l9c= nilanjana@nilanjana-VirtualBox
```

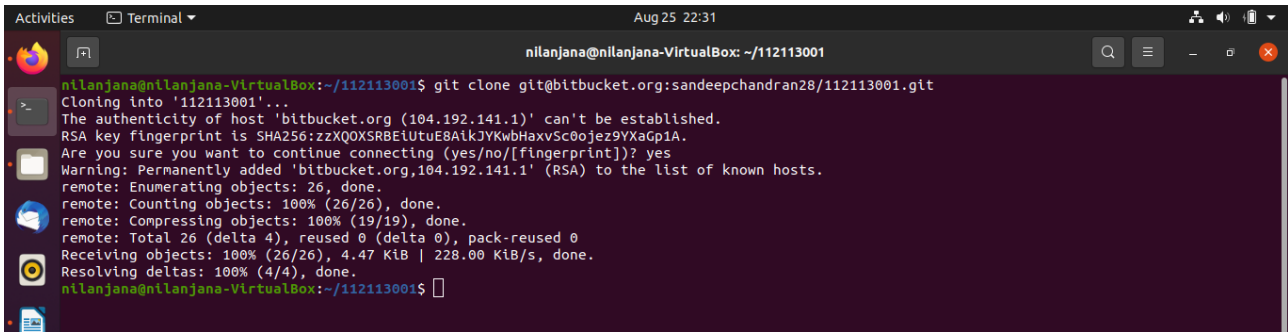
- To add SSH public key in bitbucket, I logged in to my bitbucket account .
- Navigated to settings>personal settings>SSH-keys.
- Clicked on add key button and gave a key name as 'Ubuntu_SSH' and pasted the public RSA in key field.



Git Clone :

I used Git Clone to clone an existing bitbucket repository to my local machine . We can clone a repository either by using Http or SSH . As I already set up SSH , I used SSH for cloning .

- I used ‘git clone [git@bitbucket.org:sandeepchandran28/112113001.git](https://bitbucket.org/sandeepchandran28/112113001.git)’ command to clone the repository using SSH.

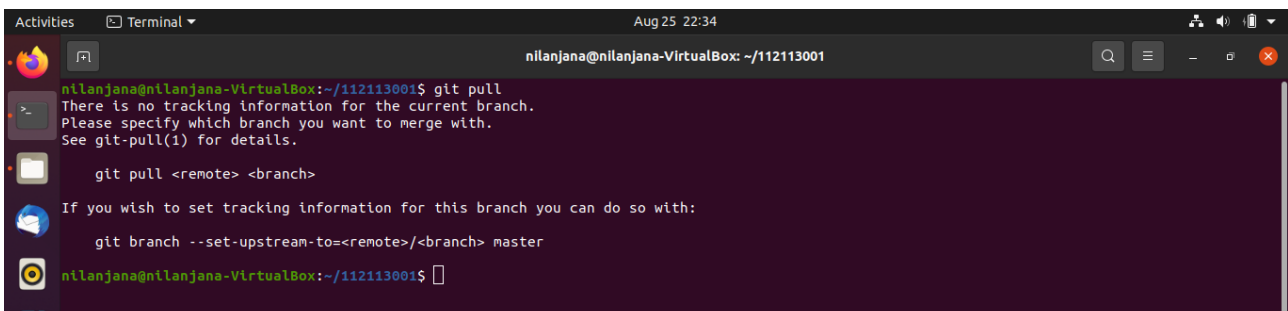


```
Activities Terminal Aug 25 22:31
nilanjana@nilanjana-VirtualBox: ~/112113001
nilanjana@nilanjana-VirtualBox:~/112113001$ git clone git@bitbucket.org:sandeepchandran28/112113001.git
Cloning into '112113001'...
The authenticity of host 'bitbucket.org (104.192.141.1)' can't be established.
RSA key fingerprint is SHA256:zzXQ0XSRBEiUtuE8AikJYKwbHaxvSc00jez9VXaGp1A.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'bitbucket.org,104.192.141.1' (RSA) to the list of known hosts.
remote: Enumerating objects: 26, done.
remote: Counting objects: 100% (26/26), done.
remote: Compressing objects: 100% (19/19), done.
remote: Total 26 (delta 4), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (26/26), 4.47 KiB | 228.00 KiB/s, done.
Resolving deltas: 100% (4/4), done.
nilanjana@nilanjana-VirtualBox:~/112113001$
```

Git Pull :

Git pull is used to pull any changes made in git .

- I used ‘git pull’ command to make my local repository up to date with bitbucket repository.



```
Activities Terminal Aug 25 22:34
nilanjana@nilanjana-VirtualBox: ~/112113001
nilanjana@nilanjana-VirtualBox:~/112113001$ git pull
There is no tracking information for the current branch.
Please specify which branch you want to merge with.
See git-pull(1) for details.

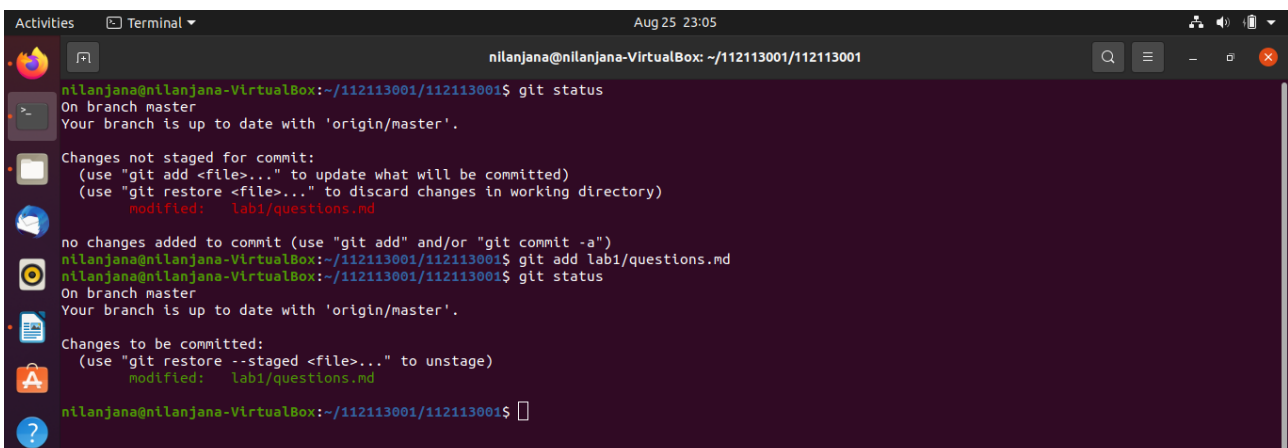
git pull <remote> <branch>

If you wish to set tracking information for this branch you can do so with:

git branch --set-upstream-to=<remote>/<branch> master
nilanjana@nilanjana-VirtualBox:~/112113001$
```

Adding Changes to Git :

- To know the changes made in the folder , I used ‘git status’ command.
- To Add the changes into git , I used ‘ git add lab1/questions.md’ command.



```
Activities Terminal Aug 25 23:05
nilanjana@nilanjana-VirtualBox: ~/112113001/112113001
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ 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:   lab1/questions.md

no changes added to commit (use "git add" and/or "git commit -a")
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git add lab1/questions.md
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git status
On branch master
Your branch is up to date with 'origin/master'.

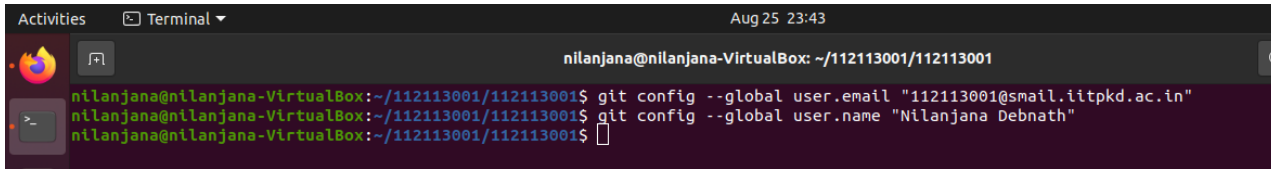
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   lab1/questions.md

nilanjana@nilanjana-VirtualBox:~/112113001/112113001$
```

Git Commit :

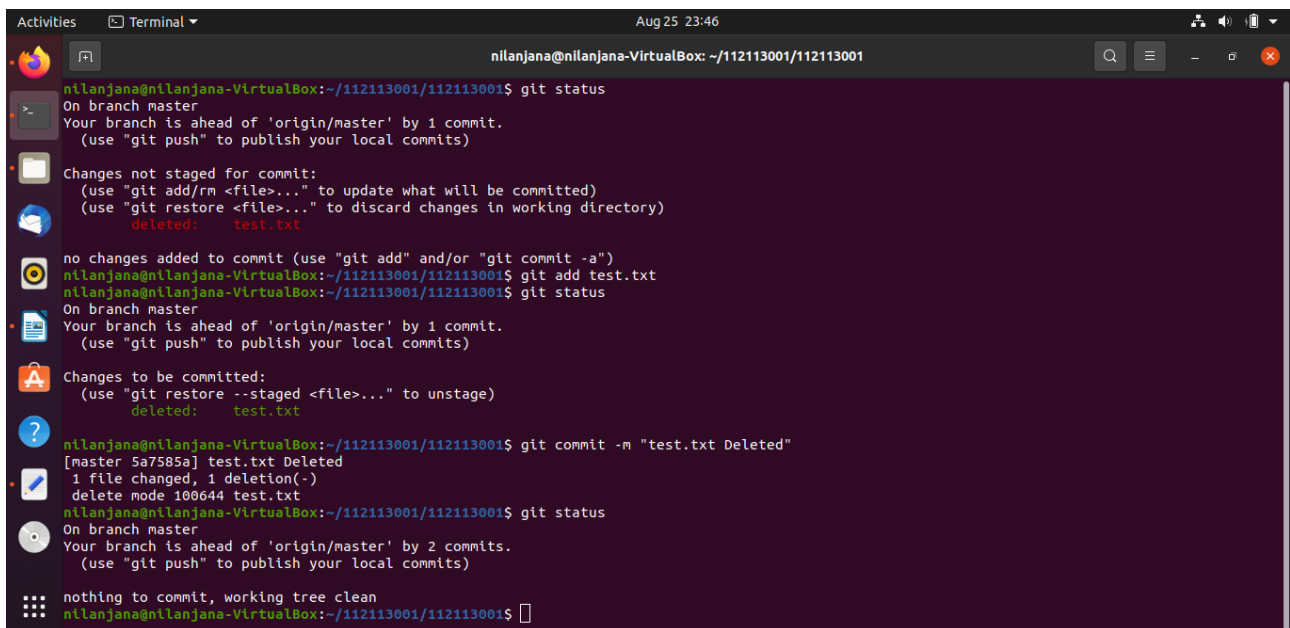
To save the changes made in git locally , we have to commit .

- For the first time Commit , We need to configure git .
 - For configuring git I used the following commands shown in below screenshot.



```
nilanjana@nilanjana-VirtualBox: ~/112113001/112113001
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git config --global user.email "112113001@smail.iitpkd.ac.in"
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git config --global user.name "Nilanjana Debnath"
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$
```

- After Configuration, perform Commit.



```
nilanjana@nilanjana-VirtualBox: ~/112113001/112113001
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
(use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        deleted:    test.txt

no changes added to commit (use "git add" and/or "git commit -a")
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git add test.txt
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
(use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        deleted:    test.txt

nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git commit -m "test.txt Deleted"
[master 5a7585a] test.txt Deleted
 1 file changed, 1 deletion(-)
 delete mode 100644 test.txt
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git status
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)

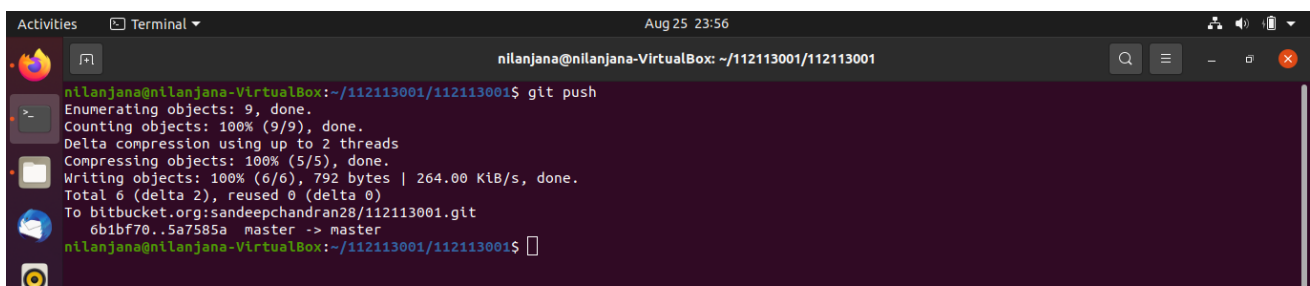
nothing to commit, working tree clean
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$
```

But the changes are made to local git only . To see changes in bitbucket , we have to push the changes to bitbucket to actually see it on bitbucket.

Git Push :

Git push is used for pushing all the changes done in local repository to remote repository in bitbucket.

- I used 'git push' command to push the changes to remote repository .



```
nilanjana@nilanjana-VirtualBox: ~/112113001/112113001
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$ git push
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 792 bytes | 264.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0)
To bitbucket.org:sandeepchandran28/112113001.git
 6b1bf70..5a7585a master -> master
nilanjana@nilanjana-VirtualBox:~/112113001/112113001$
```