VM Settings

```
[root@main ~]# cat /etc/hosts
127.0.0.1 localhost localhost.localdomain localhost4
::1 localhost localhost.localdomain localhost6
192.168.142.140 main.example.com main
[root@main ~]#
[root@main ~]# ip a s ens33
2: ens33: <BROADCAST, MULTICAST, UP, LOWER_UP> mtu 1500 q
    link/ether 00:0c:29:49:ba:64 brd ff:ff:ff:ff:ff:ff
    inet 192.168.142.140/24 brd 192.168.142.255 scope
       valid_lft 1469sec preferred_lft 1469sec
    inet6 fe80::20c:29ff:fe49:ba64/64 scope link
       valid_lft forever preferred_lft forever
[root@main ~]#
[root@main ~]# hostname
main.example.com
[root@main ~]#
[root@main ~]# dnsdomainname
example.com
```

Create Linux Users

```
[root@main ~]# groupadd devops
[root@main ~]#
[root@main ~]# useradd -G devops testuser
[root@main ~]# useradd aanya
[root@main ~]# useradd nanu
[root@main ~]#
[root@main ~]# passwd testuser
Changing password for user testuser.
New password:
BAD PASSWORD: The password is a palindrome
Retype new password:
passwd: all authentication tokens updated successfully.
[root@main ~]#
[root@main ~]# passwd aanya
Changing password for user aanya.
New password:
BAD PASSWORD: The password is a palindrome
Retype new password:
passwd: all authentication tokens updated successfully.
[root@main ~]#
[root@main ~]# passwd nanu
Changing password for user nanu.
New password:
BAD PASSWORD: The password is a palindrome
Retype new password:
passwd: all authentication tokens updated successfully.
```

Git Remote Repo Create

```
[testuser@main ~]$ mkdir demo-project.git
[testuser@main ~]$
[testuser@main ~]$ cd demo-project.git/
[testuser@main demo-project.git]$
[testuser@main demo-project.git]$ ls -a
[testuser@main demo-project.git]$
[testuser@main demo-project.git]$ git --bare init
Initialized empty Git repository in /home/testuser/demo-project.git/
[testuser@main demo-project.git]$
[testuser@main demo-project.git]$ ls -a
  .. branches config description HEAD hooks info objects refs
[testuser@main demo-project.git]$
[testuser@main demo-project.git]$ ls
branches config description HEAD hooks info objects refs
[testuser@main demo-project.git]$
```

```
[aanya@main ~]$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/aanya/.ssh/id_rsa):
Created directory '/home/aanya/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/aanya/.ssh/id_rsa.
Your public key has been saved in /home/aanya/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256: CDvT7Kx22eKtPtmYeOvDdCLYHU318AØBGnzx+hFnD7E aanya@main.example.com
The key's randomart image is:
+---[RSA 2048]----+
        ...=00..
       00.= 0 0
    \cdot \circ \cdot \cdot = E
     =... . + 0
   o+.+.S . . .
   . o=+ . . .
      =oX .
    0.%.0
    ..***.
+----[SHA256]----+
[aanya@main ~]$
[aanya@main ~]$ pwd
/home/aanya
[aanya@main ~]$
```

```
[aanya@main ~]$ ssh-copy-id -i .ssh/id_rsa.pub testuser@main.example.com
/bin/ssh-copy-id: INFO: Source of key(s) to be installed: ".ssh/id_rsa.pub"
The authenticity of host 'main.example.com (192.168.142.140)' can't be established.
ECDSA key fingerprint is SHA256:Psp6PgImy0dgke19pb6bMMaYLcsVfx1UlHdpAftECyQ.
ECDSA key fingerprint is MD5:99:43:a0:54:b3:fc:40:cc:61:30:45:2f:0e:1a:6a:0c.
Are you sure you want to continue connecting (yes/no)? yes
/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any
Hed
/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now :
w keys
testuser@main.example.com's password:
Number of key(s) added: 1
```

Now try logging into the machine, with: "ssh 'testuser@main.example.com'" and check to make sure that only the key(s) you wanted were added.

[aanya@main ~]\$

```
[aanya@main ~]$ ssh testuser@main.example.com
Last login: Sun Jan 24 14:22:04 2021
[testuser@main ~]$
[testuser@main ~]$ logout
Connection to main.example.com closed.
[aanya@main ~]$
```

```
[nanu@main ~]$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/home/nanu/.ssh/id_rsa):
Created directory '/home/nanu/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/nanu/.ssh/id rsa.
Your public key has been saved in /home/nanu/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256: jPG8KVAAHxl16tlNFxUGBLaElU7ZkSUmiVYSVECNon8 nanu@main.example.com
The key's randomart image is:
+---[RSA 2048]----+
   ..++.oB@0BB*=.
    ..0.0=+*+0+
    ..+0 00 .
    .000...
     ..+ S .
      .. Eo
+----[SHA256]----+
[nanu@main ~]$
[nanu@main ~]$ pwd
/home/nanu
```

```
Inanu@main ~1$ ssh-copy-id -i .ssh/id_rsa.pub testuser@main.example.com /bin/ssh-copy-id: INFO: Source of key(s) to be installed: ".ssh/id_rsa.pub" The authenticity of host 'main.example.com (192.168.142.140)' can't be established. ECDSA key fingerprint is SHA256:Psp6PgImy0dgke19pb6bMMaYLcsVfx1UlHdpAftECyQ. ECDSA key fingerprint is MD5:99:43:a0:54:b3:fc:40:cc:61:30:45:2f:0e:1a:6a:0c. Are you sure you want to continue connecting (yes/no)? yes /bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any lled /bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now weys testuser@main.example.com's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'testuser@main.example.com'" and check to make sure that only the key(s) you wanted were added.
```

Inanu@main ~]\$ ssh testuser@main.example.com
Last login: Sun Jan 24 14:34:30 2021 from main.example.com
Itestuser@main ~]\$
Itestuser@main ~]\$ logout
Connection to main.example.com closed.
Inanu@main ~]\$

Create Repo As "Aanya" User

```
[aanya@main ~]$ mkdir aanya-repo
[aanya@main ~]$
[aanya@main ~]$ cd aanya-repo/
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ echo "add content to README" >README
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git status -s
fatal: Not a git repository (or any of the parent directories): .git
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git init
Initialized empty Git repository in /home/aanya/aanya-repo/.git/
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git status -s
?? README
[aanya@main aanya-repo]$
```

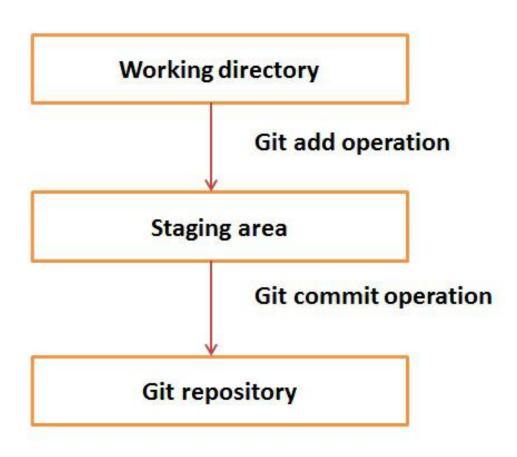
Create Repo As "Aanya" User

```
[aanya@main aanya-repo]$ git config --list
core.repositoryformatversion=0
core.filemode=true
core.bare=false
core.logallrefupdates=true
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git config --global user.name "aanya gupta"
[aanya@main aanya-repo]$ git config --global user.email "aanya@example.com"
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git config --list
user.name=aanya gupta
user.email=aanya@example.com
core.repositoryformatversion=0
core.filemode=true
core.bare=false
core.logallrefupdates=true
[aanya@main aanya-repo]$
```

Create Repo As "Aanya" User

```
[aanya@main aanya-repo]$ git add.
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git status -s
A README.
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git commit -m "initial commit"
[master (root-commit) 7504fcal initial commit
 1 file changed, 1 insertion(+)
 create mode 100644 README
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git log
commit 7504fcad8cc61180c084734430025542a878831d
Author: aanya gupta <aanya@example.com>
        Sun Jan 24 14:55:44 2021 +0530
Date:
    initial commit
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git status -s
[aanya@main aanya-repo]$
```

Working Directory & Staging Area



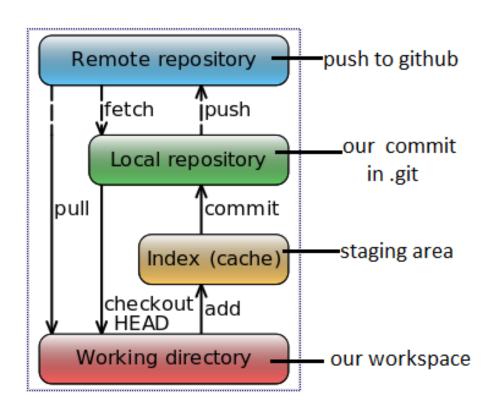
Working Directory & Staging Area



Push Repo To Remote Git Server

```
[aanya@main aanya-repol$ git branch
* master
[aanya@main aanya-repol$ git remote add origin testuser@main.example.com:demo-project.git
[aanya@main aanya-repol$
[aanya@main aanya-repol$ git push origin master
Counting objects: 3, done.
Writing objects: 100% (3/3), 231 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To testuser@main.example.com:demo-project.git
* [new branch] master -> master
[aanya@main aanya-repol$
```

Working Directory & Staging Area



Clone Repo As "Nanu" User

```
[nanu@main ~]$ mkdir nanu-repo
[nanu@main ~]$
[nanu@main ~]$ cd nanu-repo/
[nanu@main nanu-repo]$
[nanu@main nanu-repo]$ git clone testuser@main.example.com:demo-project.git
Cloning into 'demo-project'...
remote: Counting objects: 3, done.
remote: Total 3 (delta 0), reused 0 (delta 0)
Receiving objects: 100% (3/3), done.
[nanu@main nanu-repo]$
[nanu@main nanu-repo]$ ls
demo-project
[nanu@main nanu-repo]$ cd demo-project/
[nanu@main demo-project]$
[nanu@main demo-project]$ ls
README
[nanu@main demo-project]$ cat README
add content to README
[nanu@main demo-project]$
```

Clone Repo As "Nanu" User

```
Inanu@main demo-project1$ git config --list
core.repositoryformatversion=0
core.filemode=true
core.bare=false
core.logallrefupdates=true
remote.origin.url=testuser@main.example.com:demo-project.git
remote.origin.fetch=+refs/heads/*:refs/remotes/origin/*
branch.master.remote=origin
branch.master.merge=refs/heads/master
[nanu@main demo-project]$
[nanu@main demo-project]$ git config --global user.name "nanu gupta"
[nanu@main demo-project]$
[nanu@main demo-project]$ git config --global user.email "nanu@example.com"
[nanu@main demo-project]$
[nanu@main demo-project]$ git config --list
user.name=nanu gupta
user.email=nanu@example.com
core.repositoryformatversion=0
core, filemode=true
core.bare=false
core.logallrefupdates=true
remote.origin.url=testuser@main.example.com:demo-project.git
remote.origin.fetch=+refs/heads/*:refs/remotes/origin/*
branch.master.remote=origin
branch.master.merge=refs/heads/master
[nanu@main demo-project]$
```

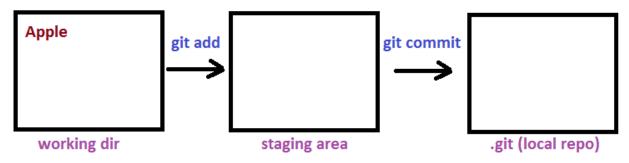
Clone Repo As "Nanu" User

```
[nanu@main demo-project]$ git branch
* master
[nanu@main demo-project]$
[nanu@main demo-project]$ git log
commit 7504fcad8cc61180c084734430025542a878831d
Author: aanya gupta <aanya@example.com>
        Sun Jan 24 14:55:44 2021 +0530
Date:
    initial commit
[nanu@main demo-project]$
[nanu@main demo-project]$ git diff
[nanu@main demo-project]$
[nanu@main demo-project]$ git show
commit 7504fcad8cc61180c084734430025542a878831d
Author: aanya gupta <aanya@example.com>
Date:
        Sun Jan 24 14:55:44 2021 +0530
    initial commit
diff --git a/README b/README
new file mode 100644
index 0000000...3457d3c
--- /dev/null
+++ b/README
@@ -0,0 +1 @@
+add content to README
[nanu@main demo-project]$
```

Add Files As "Nanu" User

```
Inanu@main demo-project]$ pwd
/home/nanu/nanu-repo/demo-project
Inanu@main demo-project]$ cat >fruits.c
Apple
Inanu@main demo-project]$ cat fruits.c
Apple
Inanu@main demo-project]$
Inanu@main demo-project]$
Inanu@main demo-project]$ git status
# On branch master
# Untracked files:
# (use "git add <file>..." to include in what will be committed)
#
# fruits.c
nothing added to commit but untracked files present (use "git add" to track)
Inanu@main demo-project]$
```

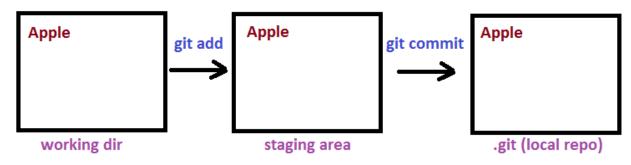
Snap shot of the file fruits.c in 3 different versions



Stage & Commit

```
[nanu@main demo-project]$ git add fruits.c
                                                                   Snap shot of the file fruits.c in 3 different versions
[nanu@main demo-project]$
[nanu@main demo-project]$ git status
                                                                               Apple
                                                            Apple
                                                                        git add
                                                                                           git commit
# On branch master
 Changes to be committed:
    (use "git reset HEAD <file>..." to unstage)
                                                             working dir
                                                                                                    .git (local repo)
                                                                                staging area
        new file:
                      fruits.c
[nanu@main demo-project]$
[nanu@main demo-project]$ git commit -m "created a file fruits.c"
[master f640743] created a file fruits.c
1 file changed, 1 insertion(+)
create mode 100644 fruits.c
[nanu@main demo-project]$
```

Snap shot of the file fruits.c in 3 different versions



Stage & Commit

Inanu@main demo-project1\$ git log
commit f640743b742443097a7e3c1fa9a68b336195ff0c
Author: nanu gupta <nanu@example.com>
Date: Sun Jan 24 15:52:00 2021 +0530

created a file fruits.c

commit 7504fcad8cc61180c084734430025542a878831d Author: aanya gupta <aanya@example.com> Date: Sun Jan 24 14:55:44 2021 +0530

initial commit
[nanu@main demo-project]\$
[nanu@main demo-project]\$ git log --oneline
f640743 created a file fruits.c
7504fca initial commit
[nanu@main demo-project]\$

Stage & Commit

```
[nanu@main demo-project]$ git status
# On branch master
# Your branch is ahead of 'origin/master' by 1 commit.
# (use "git push" to publish your local commits)
#
nothing to commit, working directory clean
[nanu@main demo-project]$
```

Add More Data To File

```
[nanu@main demo-project]$ cat fruits.c
                                                                    Snap shot of the file fruits.c in 3 different versions
Apple
Inanu@main demo-project1$ cat >>fruits.c
                                                           Apple
                                                                                 Apple
                                                                                                         Apple
                                                                                               git commit
                                                                          git add
Pine Apple
[nanu@main demo-project]$ cat fruits.c
Apple
Pine Apple
[nanu@main demo-project]$ git status
                                                             working dir
                                                                                   staging area
                                                                                                          .git (local repo)
# 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 <file>..." to update what will be committed)
    (use "git checkout -- <file>..." to discard changes in working directory)
        modified:
                      fruits.c
no changes added to commit (use "git add" and/or "git commit -a")
[nanu@main demo-project]$
                                                              Snap shot of the file fruits.c in 3 different versions
```

Apple

Pine Apple

working dir

Apple

staging area

git add

Apple

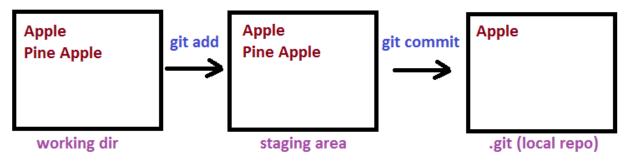
.git (local repo)

git commit

Add File To Staging Area

```
Inanu@main demo-project]$ git add fruits.c
Inanu@main demo-project]$
Inanu@main demo-project]$ 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 reset HEAD <file>..." to unstage)
#
# modified: fruits.c
#
Inanu@main demo-project]$
```

Snap shot of the file fruits.c in 3 different versions



Add More Data To File

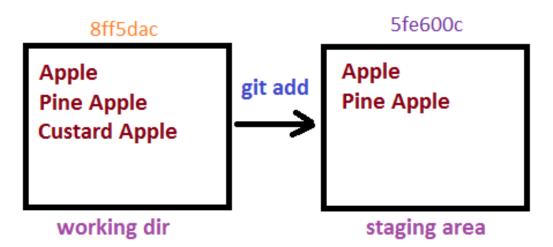
.git (local repo)

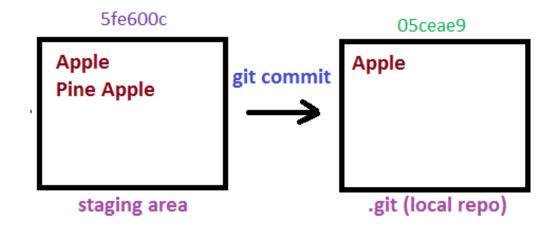
```
Snap shot of the file fruits.c in 3 different versions
Inanu@main demo-project]$ cat fruits.c
Apple
Pine Apple
                                                                           Apple
                                                                                                     Apple
                                                   Apple
                                                                   git add
                                                                                          git commit
Inanu@main demo-project1$ cat >>fruits.c
                                                                           Pine Apple
                                                   Pine Apple
Custard Apple
                                                   Custard Apple
[nanu@main demo-project]$ cat fruits.c
Apple
Pine Apple
Custard Apple
                                                    working dir
                                                                             staging area
[nanu@main demo-project]$ 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 reset HEAD <file>..." to unstage)
        modified:
                     fruits.c
 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:
                     fruits.c
```

[nanu@main demo-project]\$

Git Diff

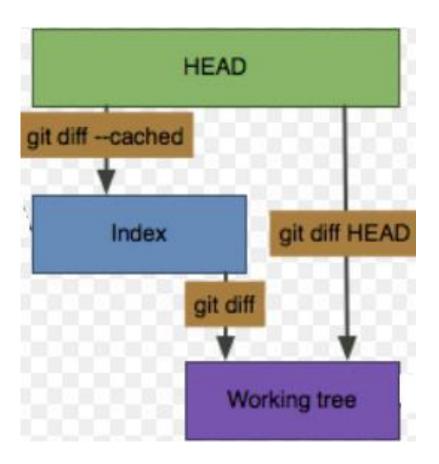
```
[nanu@main demo-project]$ git diff
diff --git a/fruits.c b/fruits.c
index 5fe600c..8ff5dac 100644
--- a/fruits.c
+++ b/fruits.c
00 -1,2 +1,3 00
Apple
Pine Apple
+Custard Apple
[nanu@main demo-project]$
[nanu@main demo-project]$ git diff --cached
diff --git a/fruits.c b/fruits.c
index 05ceae9..5fe600c 100644
--- a/fruits.c
+++ b/fruits.c
00 -1 +1,2 00
Apple
+Pine Apple
[nanu@main demo-project]$
```





Git Diff

```
Inanu@main demo-project]$ git diff HEAD
diff --git a/fruits.c b/fruits.c
index 05ceae9..8ff5dac 100644
--- a/fruits.c
+++ b/fruits.c
@@ -1 +1,3 @@
Apple
+Pine Apple
+Custard Apple
Inanu@main demo-project]$
```



Git Push

Inanu@main demo-projectl\$ git push
warning: push.default is unset; its implicit value is changing in
Git 2.0 from 'matching' to 'simple'. To squelch this message
and maintain the current behavior after the default changes, use:

git config --global push.default matching

To squelch this message and adopt the new behavior now, use:

git config --global push.default simple

See 'git help config' and search for 'push.default' for further information. (the 'simple' mode was introduced in Git 1.7.11. Use the similar mode 'current' instead of 'simple' if you sometimes use older versions of Git)

Counting objects: 4, done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 281 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To testuser@main.example.com:demo-project.git
 7504fca..f640743 master -> master
[nanu@main demo-project]\$

Git Status & Log

```
[nanu@main demo-project]$ git status
# On branch master
# Changes to be committed:
    (use "git reset HEAD <file>..." to unstage)
       modified:
                  fruits.c
 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:
                   fruits.c
                                                           [nanu@main demo-project]$ git log --oneline
[nanu@main demo-project]$
                                                           f640743 created a file fruits.c
[nanu@main demo-project]$ git log --oneline
                                                           7504fca initial commit
f640743 created a file fruits.c
                                                           [nanu@main demo-project]$ git show f640743
7504fca initial commit
                                                           commit f640743b742443097a7e3c1fa9a68b336195ff0c
[nanu@main demo-project]$
                                                           Author: nanu gupta <nanu@example.com>
                                                                   Sun Jan 24 15:52:00 2021 +0530
                                                           Date:
                                                               created a file fruits.c
                                                           diff --git a/fruits.c b/fruits.c
                                                           new file mode 100644
                                                           index 0000000..05ceae9
                                                           --- /dev/null
                                                           +++ b/fruits.c
                                                           @@ -0,0 +1 @@
                                                           +Apple
                                                           [nanu@main demo-project]$
```

Git Pull

```
[aanya@main aanya-repo]$ git remote
origin
[aanya@main aanya-repo]$
[aanya@main aanya-repo]$ git remote -v
origin testuser@main.example.com:demo-project.git (fetch)
origin testuser@main.example.com:demo-project.git (push)
[aanya@main aanya-repo]$
```

Git Pull

```
CentOS Linux 7 (Core)
Kernel 3.10.0-1160.6.1.el7.x86_64 on an x86_64
main login: vipin
Password:
[vipin@main ~]$
[vipin@main ~]$ mkdir vipin-repo
[vipin@main ~]$
[vipin@main ~]$ cd vipin-repo/
[vipin@main vipin-repo]$
[vipin@main vipin-repo]$ cat >colors.java
Red
[vipin@main vipin-repo]$ git init
Initialized empty Git repository in /home/vipin/vipin-repo/.git/
[vipin@main vipin-repo]$
[vipin@main vipin-repo] git config --global user.name "vipin gupta"
[vipin@main vipin-repo]$
[vipin@main vipin-repo] git config --global user.email "vipin2411@gmail.com"
[vipin@main vipin-repo]$
```

```
[vipin@main vipin-repo]$ git status
# On branch master
 Initial commit
 Untracked files:
    (use "git add <file>..." to include in what will be committed)
        colors. java
nothing added to commit but untracked files present (use "git add" to track)
[vipin@main vipin-repo]$
[vipin@main vipin-repo]$ git status -s
?? colors.java
[vipin@main vipin-repo]$ git add colors.java
[vipin@main vipin-repo]$
[vipin@main vipin-repo]$ git status -s
A colors, java
[vipin@main vipin-repo]$
[vipin@main vipin-repo] git commit -m "first commit"
[master (root-commit) c406d72] first commit
1 file changed, 1 insertion(+)
create mode 100644 colors.java
[vipin@main vipin-repo]$
```

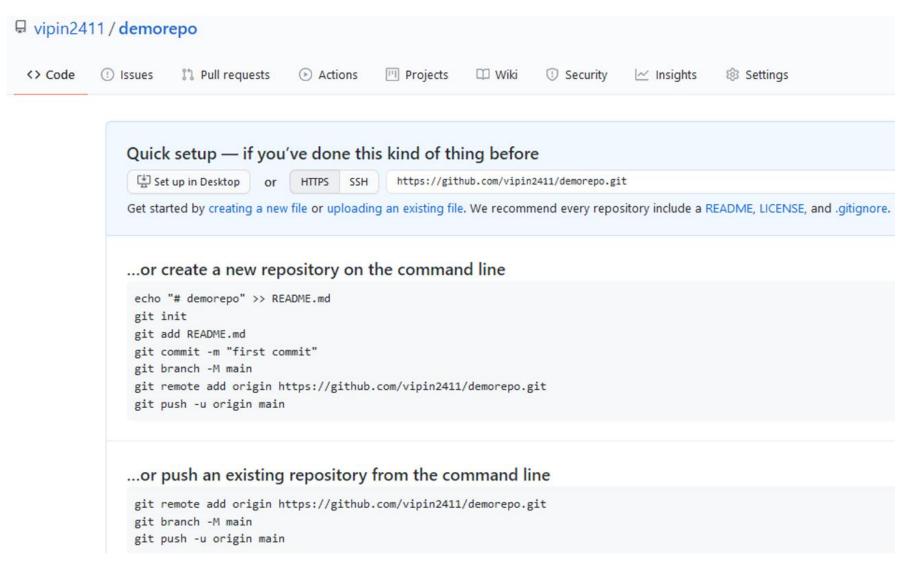
[vipin@main vipin-repo]\$ git log
commit c406d72f9e2e447eef7b84db77ce354986dfe015
Author: vipin gupta <vipin2411@gmail.com>
Date: Sun Jan 24 18:14:18 2021 +0530

first commit
[vipin@main vipin-repo]\$

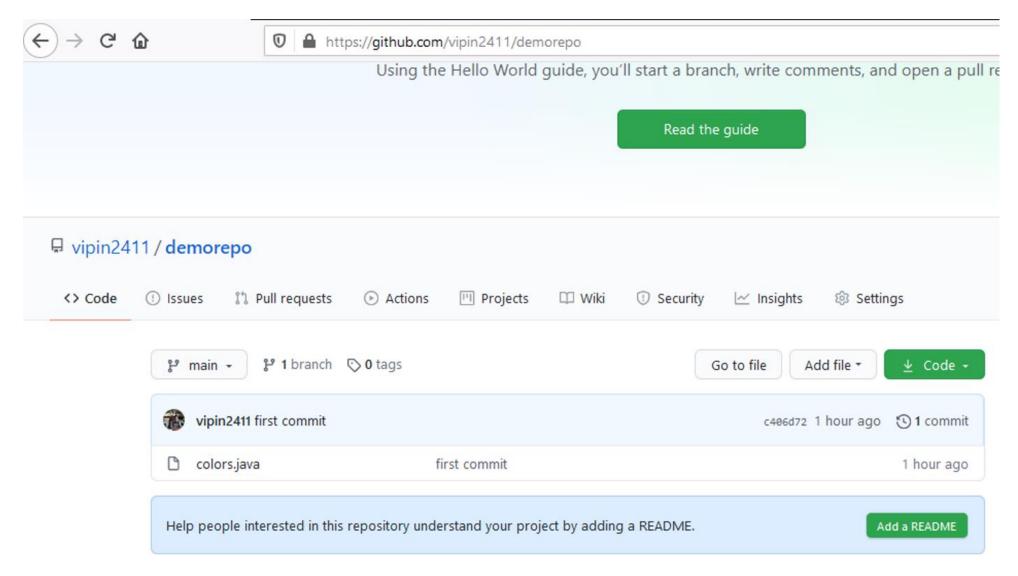
Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Owner *	Repository name *		
vipin2411 → /	demorepo	✓	
Great repository names are short and memorable. Need inspiration? How about glowing-fortnight? Description (optional)			
O A Private	nternet can see this reposit can see and commit to this	ory. You choose who can commit.	
Initialize this repository Skip this step if you're in		pository.	
Add a README file This is where you can w	rite a long description for y	our project. Learn more.	
Add .gitignore Choose which files not	to track from a list of templ	lates. Learn more.	
Choose a license A license tells others wh	nat they can and can't do w	rith your code. Learn more.	
Create repository			



```
[vipin@main vipin-repo]$ git branch
* master
[vipin@main vipin-repo]$
[vipin@main vipin-repo]$ git branch -M main
[vipin@main vipin-repo]$
[vipin@main vipin-repo]$ git branch
* main
[vipin@main vipin-repo]$
[vipin@main vipin-repo]$ git remote add origin https://github.com/vipin2411/demorepo.git
[vipin@main vipin-repo]$
[vipin@main vipin-repo]$ git push -u origin main
Username for 'https://github.com': vipin2411
Password for 'https://vipin2411@github.com':
Counting objects: 3, done.
Writing objects: 100% (3/3), 216 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/vipin2411/demorepo.git
 * [new branch]
                     main -> main
Branch main set up to track remote branch main from origin.
[vipin@main vipin-repo]$
```



Git Work Flow (Life Cycle)

