Submitted by

Sony Sinha

239098

Assignment 1:

ASS -1

1. In your home directory, create sets of empty practice files

- **Create 6 files with names of the form songsX.mp3.**
- **Create 6 files with names of the form snapX.jpg.**
- **Create 6 files with names of the form filmX.avi.**

In each set, replace X with the numbers 1 through 6.

touch songs{1..6}.mp3

```
iacsd@iacsd-VirtualBox:~/qwer$ touch songs{1..6}.mp3
iacsd@iacsd-VirtualBox:~/qwer$ ls
1          3          5          goodm          opp1.txt3  opp.txt        songs4.mp3
1.mp3      3.mp3      5.mp3      hello          opp1.txt4  qsx            songs5.mp3
1opp.txt   3opp.txt   5opp.txt   hello.txt      opps1.txt  songs          songs6.mp3
2          4          6.mp3      lab1.sh        opps2.txt  songs1.mp3     tyt.txt
2.mp3      4.mp3      ankisno.sh opp1.txt1      opps3.txt  songs2.mp3     xsw
2opp.txt   4opp.txt   anksn      opp1.txt2      opps4.txt  songs3.mp3
iacsd@iacsd-VirtualBox:~/qwer$
```

touch snap{1..6}.jpg

```
opp.txt    1opp.txt   anksn           opp1.txt2  opps4.txt  songs3.mp3
iacsd@iacsd-VirtualBox:~/qwer$ touch snap{1..6}.jpeg
iacsd@iacsd-VirtualBox:~/qwer$ ls
1          3.mp3      5opp.txt   lab1.sh        opps3.txt  snap4.jpeg songs4.mp3
1.mp3      3opp.txt   6.mp3      opp1.txt1      opps4.txt  snap5.jpeg songs5.mp3
1opp.txt   4          ankisno.sh opp1.txt2      opp.txt    snap6.jpeg songs6.mp3
2          4.mp3      anksn      opp1.txt3      qsx        songs      tyt.txt
2.mp3      4opp.txt   goodm      opp1.txt4      snap1.jpeg songs1.mp3 xsw
2opp.txt   5          hello      opps1.txt      snap2.jpeg songs2.mp3
3          5.mp3      hello.txt  opps2.txt      snap3.jpeg songs3.mp3
iacsd@iacsd-VirtualBox:~/qwer$
```

touch film{1..6}.avi

```
3          5.mp3      hello.txt  opps2.txt  snap3.jpeg  songs3.mp3
iacsd@iacsd-VirtualBox:~/qwer$ touch film{1..6}.avi
iacsd@iacsd-VirtualBox:~/qwer$ ls
1          3opp.txt   ankisno.sh goodm      opps1.txt  snap3.jpeg  songs4.mp3
1.mp3      4          anksn      hello      opps2.txt  snap4.jpeg  songs5.mp3
1opp.txt   4.mp3      film1.avi  hello.txt  opps3.txt  snap5.jpeg  songs6.mp3
2          4opp.txt   film2.avi  lab1.sh    opps4.txt  snap6.jpeg  tyt.txt
2.mp3      5          film3.avi  opp1.txt1  opp.txt    songs       xsw
2opp.txt   5.mp3      film4.avi  opp1.txt2  qsx        songs1.mp3
3          5opp.txt   film5.avi  opp1.txt3  snap1.jpeg songs2.mp3
3.mp3      6.mp3      film6.avi  opp1.txt4  snap2.jpeg songs3.mp3
iacsd@iacsd-VirtualBox:~/qwer$
```

2. From your home directory,

- **Move songs file into your Music subdirectory.**
- **Move snap file into your Pictures subdirectory.**
- **Move your movie files into Videos subdirectory**

mv songs*.mp3 Music

```
iacsd@iacsd-VirtualBox:~/qwer$ mv songs1.mp3 songsdir
iacsd@iacsd-VirtualBox:~/qwer$ ls
1          3opp.txt   ankisno.sh  goodm      opps1.txt   snap3.jpeg   songs5.mp3
1.mp3      4          anksn       hello      opps2.txt   snap4.jpeg   songs6.mp3
1opp.txt   4.mp3      film1.avi   hello.txt  opps3.txt   snap5.jpeg   songsdir
2          4opp.txt   film2.avi   lab1.sh    opps4.txt   snap6.jpeg   tyt.txt
2.mp3      5          film3.avi   opp1.txt1  opp.txt     songs        xsw
2opp.txt   5.mp3      film4.avi   opp1.txt2  qsx         songs2.mp3
3          5opp.txt   film5.avi   opp1.txt3  snap1.jpeg  songs3.mp3
3.mp3      6.mp3      film6.avi   opp1.txt4  snap2.jpeg  songs4.mp3
iacsd@iacsd-VirtualBox:~/qwer$ cd songsdir
iacsd@iacsd-VirtualBox:~/qwer/songsdir$ ls
songs1.mp3
iacsd@iacsd-VirtualBox:~/qwer/songsdir$
```

mv snap*.jpg Picture

```
iacsd@iacsd-VirtualBox:~/qwer$ mkdir Pictures
iacsd@iacsd-VirtualBox:~/qwer$ ls
1          3opp.txt   ankisno.sh  goodm      opps1.txt   snap2.jpeg   songs4.mp3
1.mp3      4          anksn       hello      opps2.txt   snap3.jpeg   songs5.mp3
1opp.txt   4.mp3      film1.avi   hello.txt  opps3.txt   snap4.jpeg   songs6.mp3
2          4opp.txt   film2.avi   lab1.sh    opps4.txt   snap5.jpeg   songsdir
2.mp3      5          film3.avi   opp1.txt1  opp.txt     snap6.jpeg   tyt.txt
2opp.txt   5.mp3      film4.avi   opp1.txt2  Pictures    songs        xsw
3          5opp.txt   film5.avi   opp1.txt3  qsx         songs2.mp3
3.mp3      6.mp3      film6.avi   opp1.txt4  snap1.jpeg  songs3.mp3
iacsd@iacsd-VirtualBox:~/qwer$ mv snap1.jpeg Pictures
iacsd@iacsd-VirtualBox:~/qwer$ ls
1          3opp.txt   ankisno.sh  goodm      opps1.txt   snap3.jpeg   songs5.mp3
1.mp3      4          anksn       hello      opps2.txt   snap4.jpeg   songs6.mp3
1opp.txt   4.mp3      film1.avi   hello.txt  opps3.txt   snap5.jpeg   songsdir
2          4opp.txt   film2.avi   lab1.sh    opps4.txt   snap6.jpeg   tyt.txt
2.mp3      5          film3.avi   opp1.txt1  opp.txt     songs        xsw
2opp.txt   5.mp3      film4.avi   opp1.txt2  Pictures    songs2.mp3
3          5opp.txt   film5.avi   opp1.txt3  qsx         songs3.mp3
3.mp3      6.mp3      film6.avi   opp1.txt4  snap2.jpeg  songs4.mp3
iacsd@iacsd-VirtualBox:~/qwer$ cd Pictures
iacsd@iacsd-VirtualBox:~/qwer/Pictures$ ls
snap1.jpeg
iacsd@iacsd-VirtualBox:~/qwer/Pictures$
```

mv film*.avi Videos

```
opp.txt  5.mp3      film4.avi   opp1.txt2  Pictures   songs2.mp3  xsw
         5opp.txt   film5.avi   opp1.txt3  qsx        songs3.mp3
.mp3     6.mp3      film6.avi   opp1.txt4  snap2.jpeg songs4.mp3
acsd@iacsd-VirtualBox:~/qwer$ mkdir Videos
acsd@iacsd-VirtualBox:~/qwer$ ls
         3opp.txt   ankisno.sh  goodm      opps1.txt  snap3.jpeg  songs5.mp3
.mp3     4          anksn       hello      opps2.txt  snap4.jpeg  songs6.mp3
opp.txt  4.mp3      film1.avi   hello.txt  opps3.txt  snap5.jpeg  songsdir
         4opp.txt   film2.avi   lab1.sh    opps4.txt  snap6.jpeg  tyt.txt
.mp3     5          film3.avi   opp1.txt1  opp.txt    songs       videos
opp.txt  5.mp3      film4.avi   opp1.txt2  Pictures   songs2.mp3  Videos
         5opp.txt   film5.avi   opp1.txt3  qsx        songs3.mp3  xsw
.mp3     6.mp3      film6.avi   opp1.txt4  snap2.jpeg songs4.mp3
acsd@iacsd-VirtualBox:~/qwer$ mv film1.avi Videos
acsd@iacsd-VirtualBox:~/qwer$ cd Videos
acsd@iacsd-VirtualBox:~/qwer/Videos$ ls
ilm1.avi
acsd@iacsd-VirtualBox:~/qwer/Videos$
```

3. Create 3 subdirectories for organizing your files named friends,family,work

```
iacsd@iacsd-VirtualBox:~/qwer/Videos$ cd ../
iacsd@iacsd-VirtualBox:~/qwer$ mkdir friends
iacsd@iacsd-VirtualBox:~/qwer$ cd friends
iacsd@iacsd-VirtualBox:~/qwer/friends$
```

```
iacsd@iacsd-VirtualBox:~/qwer/friends$ mkdir family
iacsd@iacsd-VirtualBox:~/qwer/friends$ ls
family
iacsd@iacsd-VirtualBox:~/qwer/friends$ cd family
iacsd@iacsd-VirtualBox:~/qwer/friends/family$
```

```
iacsd@iacsd-VirtualBox:~/qwer/friends/family$ mkdir work
iacsd@iacsd-VirtualBox:~/qwer/friends/family$ ls
work
iacsd@iacsd-VirtualBox:~/qwer/friends/family$ cd work
iacsd@iacsd-VirtualBox:~/qwer/friends/family/work$
```

4. Copy files (all types) containing numbers 1 and 2 to the friends folder.

cp *{1,2}.* friends

```
iacsd@iacsd-VirtualBox:~/home$ touch songs2.mp3
iacsd@iacsd-VirtualBox:~/home$ cp songs1.mp3 friend
iacsd@iacsd-VirtualBox:~/home$ cp songs2.mp3 friend
iacsd@iacsd-VirtualBox:~/home$ cp snap1.jpg friend
iacsd@iacsd-VirtualBox:~/home$ cp snap2.jpg friend
iacsd@iacsd-VirtualBox:~/home$ cp film1.avi friend
iacsd@iacsd-VirtualBox:~/home$ cp film2.avi friend
iacsd@iacsd-VirtualBox:~/home$ ls
```

Copy files (all types) containing numbers 3 and 4 to the family folder.

cp *{3,4}.* family

```
iacsd@iacsd-VirtualBox:~/home$ open friend
iacsd@iacsd-VirtualBox:~/home$ cp songs3.mp3 family
iacsd@iacsd-VirtualBox:~/home$ cp songs4.mp3 family
iacsd@iacsd-VirtualBox:~/home$ cp film3.avi family
iacsd@iacsd-VirtualBox:~/home$ cp film4.avi family
iacsd@iacsd-VirtualBox:~/home$ cp snap3.jpg family
iacsd@iacsd-VirtualBox:~/home$ cp snap4.jpg family
iacsd@iacsd-VirtualBox:~/home$
```

Copy files (all types) containing numbers 5 and 6 to the work folder.

cp *{5,6}.* work

```
iacsd@iacsd-VirtualBox:~/home$ cp snap4.jpg family
iacsd@iacsd-VirtualBox:~/home$ cp snap5.jpg work
iacsd@iacsd-VirtualBox:~/home$ cp snap6.jpg work
iacsd@iacsd-VirtualBox:~/home$ cp film5.avi work
iacsd@iacsd-VirtualBox:~/home$ cp film6.avi work
iacsd@iacsd-VirtualBox:~/home$ cp songs5.mp3 work
iacsd@iacsd-VirtualBox:~/home$ cp songs6.mp3 work
iacsd@iacsd-VirtualBox:~/home$
```

6. Delete all files in family subdirectory.

rm -f family

```
iacsd@iacsd-VirtualBox:~/family$ ls
film5.avi  film6.avi  snap5.jpg  snap6.jpg  songs5.mp3  songs6.mp3
iacsd@iacsd-VirtualBox:~/family$ rm -f songs{5,6}.mp3 snap{5,6}.jpg film{5,6}.av
i
iacsd@iacsd-VirtualBox:~/family$ ls
iacsd@iacsd-VirtualBox:~/family$
```

7. Delete friends subdirectory

rm -r friends

```
iacsd@iacsd-VirtualBox:~$ rm -r friends
iacsd@iacsd-VirtualBox:~$ ls
Desktop    Downloads  hi.sh.save  myfiles   Pictures  Templates  work
Documents  family     Music       pictures  Public    Videos
iacsd@iacsd-VirtualBox:~$
```

8. Create user tom , bob , sam , prince

sudo useradd tom

sudo useradd bob

sudo useradd sam

sudo useradd prince

```
iacsd@iacsd-VirtualBox:~$ sudo adduser
adduser: Only one or two names allowed.
iacsd@iacsd-VirtualBox:~$ sudo adduser tom
Adding user `tom' ...
Adding new group `tom' (1001) ...
Adding new user `tom' (1001) with group `tom' ...
Creating home directory `/home/tom' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: The password fails the dictionary check - it is base
d on a dictionary word
Retype new password:
passwd: password updated successfully
Changing the user information for tom
Enter the new value, or press ENTER for the default
        Full Name []:
```

```
 Changing the user information for tom
 Enter the new value, or press ENTER for the default
        Full Name []: tom user
        Room Number []: 1
        Work Phone []: 12345
        Home Phone []: 12345
        Other []:
 Is the information correct? [Y/n] y
iacsd@iacsd-VirtualBox:~$ 
```

```
adduser: Only root may add a user or group to the system.
iacsd@iacsd-VirtualBox:~$ sudo adduser bob
Adding user `bob' ...
Adding new group `bob' (1002) ...
Adding new user `bob' (1002) with group `bob' ...
Creating home directory `/home/bob' ...
Copying files from `/etc/skel' ...
New password:
BAD PASSWORD: The password fails the dictionary check - it is base
d on a dictionary word
Retype new password:
passwd: password updated successfully
Changing the user information for bob
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
```

9. Create Group dac , dbda ,ditiss

sudo groupadd dac

sudo groupadd dbda

sudo groupadd ditiss

```
iacsd@iacsd-VirtualBox:~$ sudo addgroup dac
Adding group `dac' (GID 1003) ...
Done.
iacsd@iacsd-VirtualBox:~$ sudo addgroup dbda
Adding group `dbda' (GID 1004) ...
Done.
iacsd@iacsd-VirtualBox:~$ █
```

10. add user

        Tom in dac
        Bob in dbda
        Sam in ditiss

sudo usermod -aG dac tom

sudo usermod -aG dbda bob

sudo usermod -aG ditiss sam

```
iacsd@iacsd-VirtualBox:~$ sudo usermod -aG dac tom
iacsd@iacsd-VirtualBox:~$ sudo usermod -aG dbda bob
iacsd@iacsd-VirtualBox:~$ groupd dac
Command 'groupd' not found, did you mean:
  command 'groups' from deb coreutils (8.32-4.1ubuntu1)
Try: sudo apt install <deb name>
iacsd@iacsd-VirtualBox:~$ sudo groups dac
[sudo] password for iacsd:
groups: 'dac': no such user
iacsd@iacsd-VirtualBox:~$ sudo groups tom
tom : tom dac
iacsd@iacsd-VirtualBox:~$
```

```
Try: sudo apt install <deb name>
iacsd@iacsd-VirtualBox:~$ sudo groups dac
[sudo] password for iacsd:
groups: 'dac': no such user
iacsd@iacsd-VirtualBox:~$ sudo groups tom
tom : tom dac
iacsd@iacsd-VirtualBox:~$ sudo groups bob
bob : bob dbda
iacsd@iacsd-VirtualBox:~$
```

```
iacsd@iacsd-VirtualBox:~$ sudo adduser sam
adduser: The user `sam' already exists.
iacsd@iacsd-VirtualBox:~$ sudo addgroup dittis
Adding group `dittis' (GID 1006) ...
Done.
iacsd@iacsd-VirtualBox:~$ sudo usermod -aG dittis sam
iacsd@iacsd-VirtualBox:~$ sudo groups sam
sam : sam dittis
iacsd@iacsd-VirtualBox:~$
```

11. login as prince and create iacsd directory in /tmp and create 4 files in iacsd with name project-1 project-2 upto 4

To Login as prince

su - prince

mkdir /tmp/iacsd
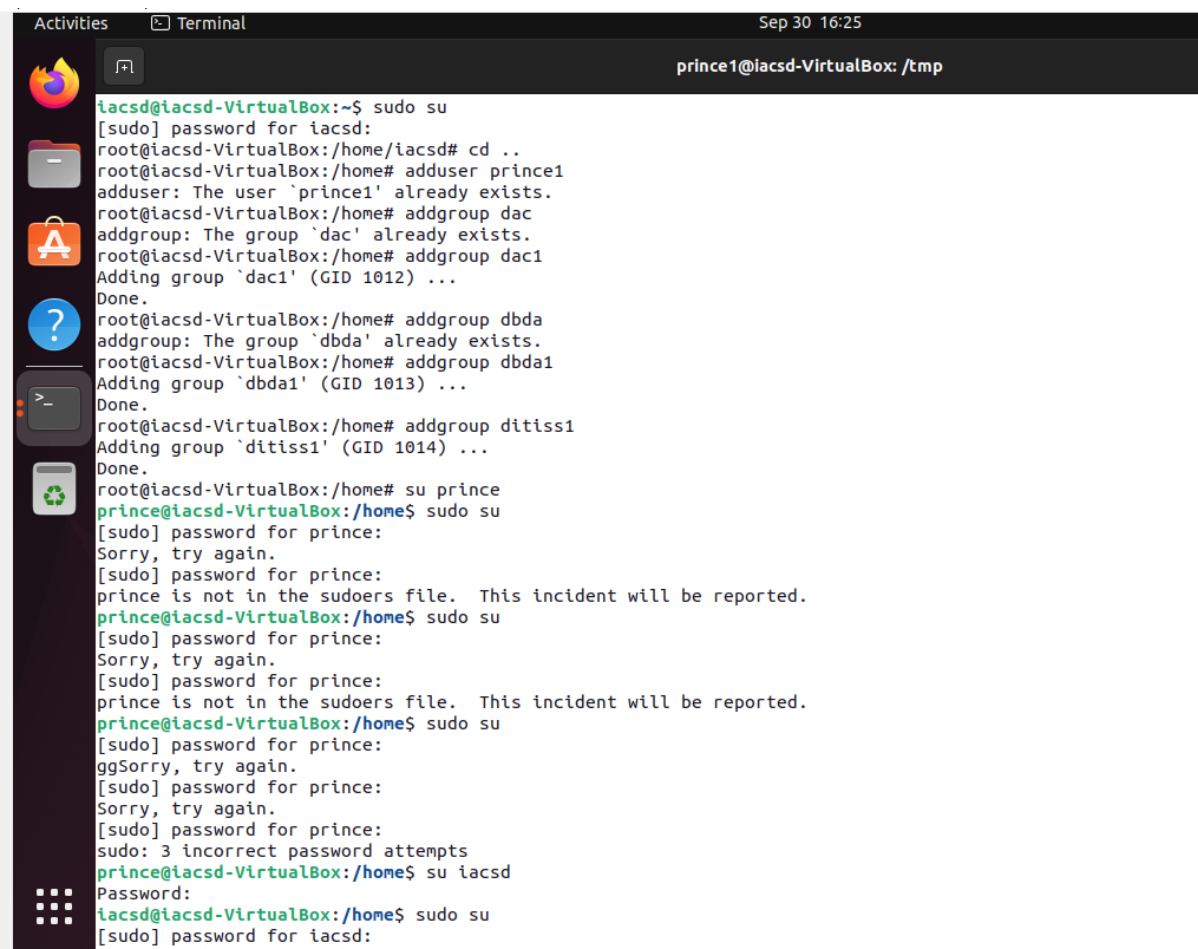
To Create 4 files in the iacsd directory

touch /tmp/iacsd/project-1

touch /tmp/iacsd/project-2

touch /tmp/iacsd/project-3

touch /tmp/iacsd/project-4

12. assign permissions to project files as below

      Project-1 – tom should be owner of this

sudo chown tom /tmp/iacsd/project-1

      Project-2 – dac should be owner of this

sudo chown dac /tmp/iacsd/project-2

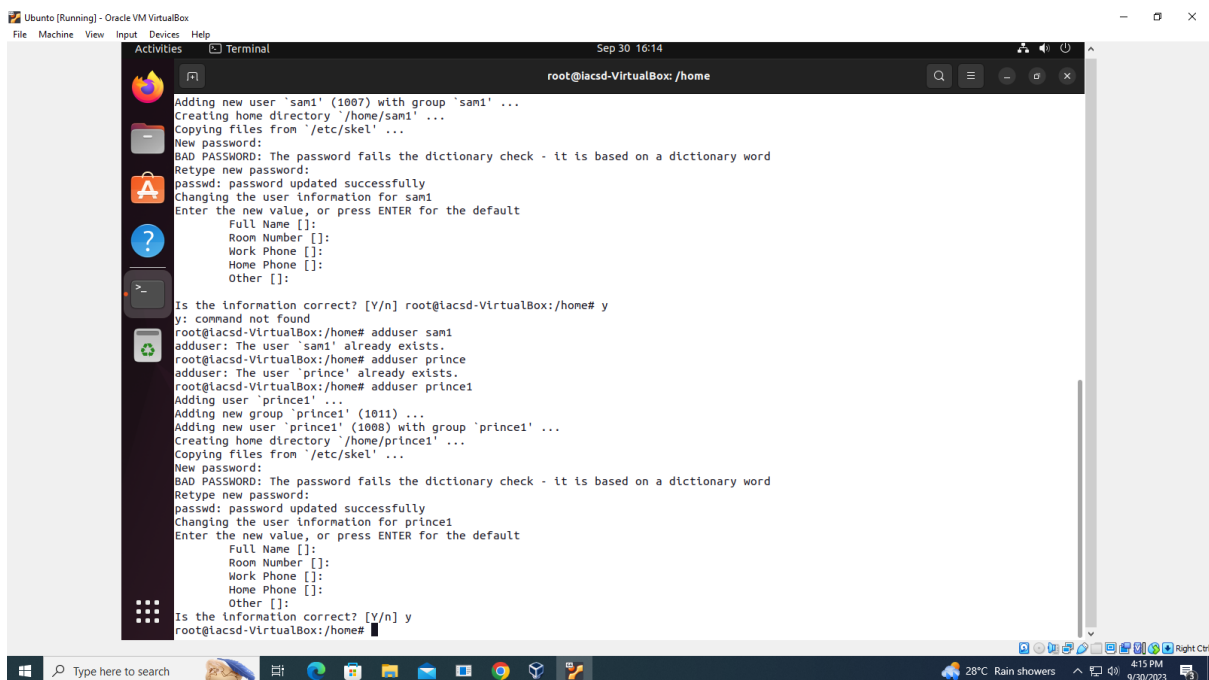   **Project-3 --- others should not have any permission but tom should have rw access**

sudo chmod o-rwx /tmp/iacsd/project-3

sudo chown tom /tmp/iacsd/project-3

      Project-4 – dbda group should have rwx permissions.

sudo chmod g+rwx /tmp/iacsd/project-4

sudo chown :dbda /tmp/iacsd/project-4

```
iacsd@iacsd-VirtualBox:~$ sudo su
[sudo] password for iacsd:
root@iacsd-VirtualBox:/home/iacsd# cd ..
root@iacsd-VirtualBox:/home# adduser prince1
adduser: The user `prince1' already exists.
root@iacsd-VirtualBox:/home# addgroup dac
addgroup: The group `dac' already exists.
root@iacsd-VirtualBox:/home# addgroup dac1
Adding group `dac1' (GID 1012) ...
Done.
root@iacsd-VirtualBox:/home# addgroup dbda
addgroup: The group `dbda' already exists.
root@iacsd-VirtualBox:/home# addgroup dbda1
Adding group `dbda1' (GID 1013) ...
Done.
root@iacsd-VirtualBox:/home# addgroup ditiss1
Adding group `ditiss1' (GID 1014) ...
Done.
root@iacsd-VirtualBox:/home# su prince
prince@iacsd-VirtualBox:/home$ sudo su
[sudo] password for prince:
Sorry, try again.
[sudo] password for prince:
prince is not in the sudoers file.  This incident will be reported.
prince@iacsd-VirtualBox:/home$ sudo su
[sudo] password for prince:
Sorry, try again.
[sudo] password for prince:
prince is not in the sudoers file.  This incident will be reported.
prince@iacsd-VirtualBox:/home$ sudo su
[sudo] password for prince:
ggSorry, try again.
[sudo] password for prince:
Sorry, try again.
[sudo] password for prince:
sudo: 3 incorrect password attempts
prince@iacsd-VirtualBox:/home$ su iacsd
Password:
iacsd@iacsd-VirtualBox:/home$ sudo su
[sudo] password for iacsd:
```
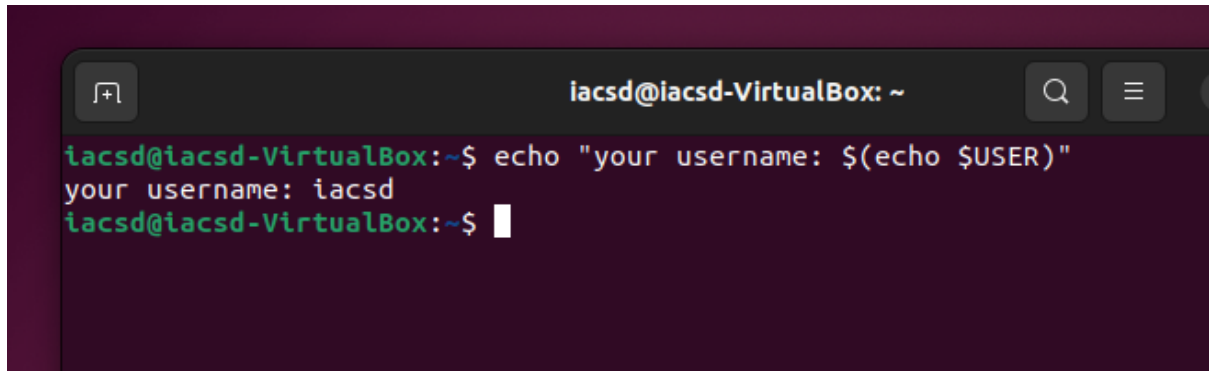
```
[sudo] password for iacsd:
root@iacsd-VirtualBox:/home# su prince1
prince1@iacsd-VirtualBox:/home$ cd prince1/
prince1@iacsd-VirtualBox:~$ cd ..
prince1@iacsd-VirtualBox:/home$ cd /tmp
prince1@iacsd-VirtualBox:/tmp$ mkdir iacsd
prince1@iacsd-VirtualBox:/tmp$ touch project-{1..4}
prince1@iacsd-VirtualBox:/tmp$ ls -l
total 52
drwxrwxr-x 2 prince1 prince1 4096 Sep 30 16:23 iacsd
-rw-rw-r-- 1 prince1 prince1    0 Sep 30 16:24 project-1
-rw-rw-r-- 1 prince1 prince1    0 Sep 30 16:24 project-2
-rw-rw-r-- 1 prince1 prince1    0 Sep 30 16:24 project-3
-rw-rw-r-- 1 prince1 prince1    0 Sep 30 16:24 project-4
drwx------ 4 root    root    4096 Sep 30 16:13 snap-private-tmp
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-colord.service-FE5MgK
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-ModemManager.service-HRjJAz
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-power-profiles-daemon.service-F6h5cH
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-switcheroo-control.service-4LCqzq
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-logind.service-Vm3loc
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-oomd.service-v2nzUi
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-resolved.service-xDe4de
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-timesyncd.service-EIzV3m
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-upower.service-0Ea9sH
drwx------ 2 iacsd   iacsd   4096 Sep 30 16:13 tracker-extract-3-files.1000
drwx------ 2 gdm     gdm     4096 Sep 30 16:04 tracker-extract-3-files.128
prince1@iacsd-VirtualBox:/tmp$
```

```
root@iacsd-VirtualBox:/tmp# ls -l
total 52
drwxrwxr-x 2 prince1 prince1 4096 Sep 30 16:23 iacsd
-rw-rw-r-- 1 tom     prince1    0 Sep 30 16:24 project-1
-rw-rw-r-- 1 prince1 dac        0 Sep 30 16:24 project-2
-rw-rw--w- 1 tom     prince1    0 Sep 30 16:24 project-3
-rw-rw-r-- 1 prince1 prince1    0 Sep 30 16:24 project-4
drwx------ 4 root    root    4096 Sep 30 16:13 snap-private-tmp
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-colord.service-FE5MgK
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-ModemManager.service-HRjJAz
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-power-profiles-daemon.service-F6h5cH
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-switcheroo-control.service-4lCqzq
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-logind.service-Vm3loc
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-oomd.service-v2nzUi
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-resolved.service-xDe4de
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-timesyncd.service-EIzV3m
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-upower.service-0Ea9sH
drwx------ 2 iacsd   iacsd   4096 Sep 30 16:13 tracker-extract-3-files.1000
drwx------ 2 gdm     gdm     4096 Sep 30 16:04 tracker-extract-3-files.128
root@iacsd-VirtualBox:/tmp# chmod 666 project-3
root@iacsd-VirtualBox:/tmp# ls -l
total 52
drwxrwxr-x 2 prince1 prince1 4096 Sep 30 16:23 iacsd
-rw-rw-r-- 1 tom     prince1    0 Sep 30 16:24 project-1
-rw-rw-r-- 1 prince1 dac        0 Sep 30 16:24 project-2
-rw-rw-rw- 1 tom     prince1    0 Sep 30 16:24 project-3
-rw-rw-r-- 1 prince1 prince1    0 Sep 30 16:24 project-4
drwx------ 4 root    root    4096 Sep 30 16:13 snap-private-tmp
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-colord.service-FE5MgK
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-ModemManager.service-HRjJAz
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-power-profiles-daemon.service-F6h5cH
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-switcheroo-control.service-4lCqzq
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-logind.service-Vm3loc
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-oomd.service-v2nzUi
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-resolved.service-xDe4de
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-systemd-timesyncd.service-EIzV3m
drwx------ 3 root    root    4096 Sep 30 16:04 systemd-private-02665ba5bd884d5a817a0161c0e12af3-upower.service-0Ea9sH
drwx------ 2 iacsd   iacsd   4096 Sep 30 16:13 tracker-extract-3-files.1000
drwx------ 2 gdm     gdm     4096 Sep 30 16:04 tracker-extract-3-files.128
root@iacsd-VirtualBox:/tmp#
```
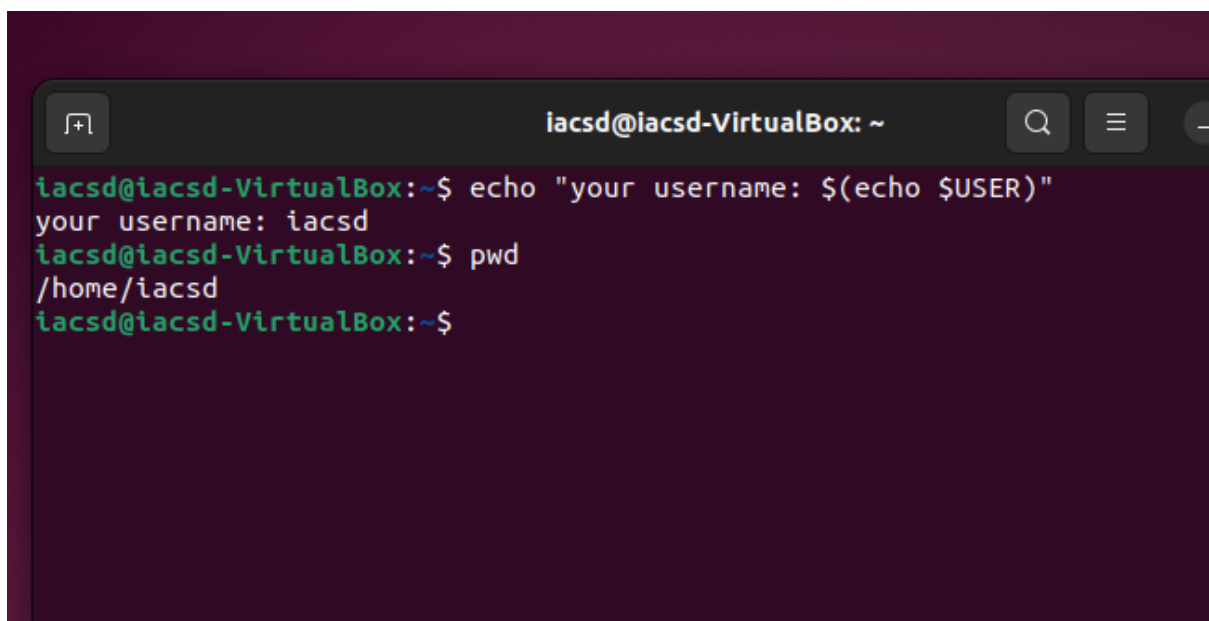
ASS-4

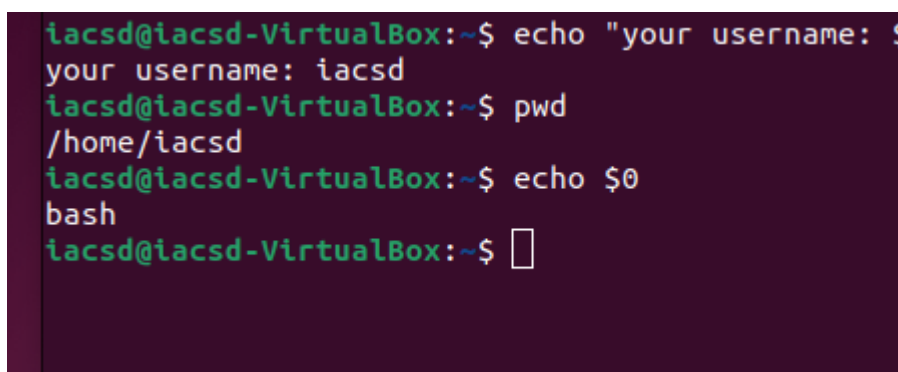**1) Write a shell script tp print**

- **your are logged in as which user**

```
iacsd@iacsd-VirtualBox:~$ echo "your username: $(echo $USER)"
your username: iacsd
iacsd@iacsd-VirtualBox:~$ ▮
```
iacsd@iacsd-VirtualBox: ~

- **in which directory you are**

```
iacsd@iacsd-VirtualBox:~$ echo "your username: $(echo $USER)"
your username: iacsd
iacsd@iacsd-VirtualBox:~$ pwd
/home/iacsd
iacsd@iacsd-VirtualBox:~$
```
iacsd@iacsd-VirtualBox: ~

- **and in which terminal you are working**

```
iacsd@iacsd-VirtualBox:~$ echo "your username: $
your username: iacsd
iacsd@iacsd-VirtualBox:~$ pwd
/home/iacsd
iacsd@iacsd-VirtualBox:~$ echo $0
bash
iacsd@iacsd-VirtualBox:~$ ▯
```

- **total number of files and directories in current directory**

2).Write a shell script to create a menu driven program for adding, deletion or finding a record in a database. Database should have the field like rollno, name, semester and marks of three subjects. Last option of the menu should be to exit the menu.

```bash
#!/bin/bash

while true;
do
echo "Menu:"
echo "1.Add Record"
echo "2.Delete Record"
echo "3.Find Record"
echo "4. Exit"

read choice
case $choice in
1)
# Add Record
echo "Enter roll no:"
read rollno
echo "Enter name:"
read name
echo "Enter semester:"
read sem
echo "Enter sub1:"
read sub1
echo "Enter sub2:"
read sub2
echo "Enter sub3:"
read sub3

echo "$rollno $name $sem $sub1 $sub2 $sub3" >> database.txt
```

```
;;

2)
# Delete Record
echo "Enter the Roll Number of the record to delete:"
read rollno
grep -v "$rollno" database.txt > temp.txt
mv temp.txt database.txt
;;

3)
#Find Record
echo "Enter Roll Number to search for:"
read rollno
found_record=$(grep "$rollno" database.txt)

if [ -n "$found_record" ]; then
echo "Record found: $found_record"
else
echo "Record not found."
fi
;;

4)
exit 0
;;
*)
echo "Invalid choice. Please select a valid option"
;;
esac
done
```

```
n=1;
echo "select 1)add 2)delete 3)find 4)exit"
while [ $n -ne 4 ]
do
    read -p "enter choice: " n
    case $n in
    1)
        read -p "enter roll: " rollno
        read -p "enter name: " name
        read -p "enter sem: " sem
        read -n "$rollno $name $sem ">>marks.txt
        for((i=1;i<4;i++))
        do
            read -p "enter marks $i "
        done
        echo "">>marks.txt
    ;;
    2)
        read -p "enter rollno: " roll
        cat "/roll/d" marks.txt
        cat marks.txt
    ;;
    3)
        read -p "enter rollno: " rollno
        cat marks.txt|grep $r
    ;;
    4)
        echo "exit"
```

```
Press any keymenu
1.ADD RECORD
2 DELETE RECORD
3 FIND RECORD
4 EXIT
 enter your choice4
exit
iacsd@iacsd-VirtualBox:~$
```

```
menu
1.ADD RECORD
2 DELETE RECORD
3 FIND RECORD
4 EXIT
 enter your choice4
exit
iacsd@iacsd-VirtualBox:~$ nano menu1.sh
iacsd@iacsd-VirtualBox:~$ bash menu1.sh
menu
1.ADD RECORD
2 DELETE RECORD
3 FIND RECORD
4 EXIT
 enter your choice1
 enter roll no: 21
enter name: harry
enter semester: 2
 enter marks1: 45
enter marks2: 87
enter marks3: 67
menu1.sh: line 22: : No such file or directory
record  added
press any key to continuemenu
1.ADD RECORD
2 DELETE RECORD
3 FIND RECORD
4 EXIT
 enter your choice1
 enter roll no: 20
enter name: tom
enter semester: 2
 enter marks1: 87
enter marks2: 86
enter marks3: 56
menu1.sh: line 22: : No such file or directory
record  added
press any key to continue
```

3) Write a Linux shell script to accept 10 number and tell how many are +tive, -tive and zero.

#!/bin/bash

positive=0

negative=0

```
zero=0

for ((i=1; i<=10; i++)) do
echo "Enter number $i:"
read num

if [ $num -gt 0 ]
then
positive=$((positive+1))

elif [ $num -lt 0 ]
then
negative=$((negative+1))
else
((zero++))
fi
done

echo "Positive numbers: $positive"
echo "Negative numbers: $negative"
echo "Zero numbers: $zero"
```

```bash
  GNU nano 7.2
#!/bin/bash
read -p "Enter 10 values: " val
positive_count=0
negative_count=0
zero_count=0
for((i=0;i<10;i++))
do
        read -p "The enter number $i: " num
        if((num>0));
        then
        ((positive_count++))
        elif((num<0));
        then
        ((negative_count++))
        else
        ((zero_count++))
        fi
done
echo "Positive numbers: $positive_count"
echo "negative_count: $negative_count"
echo "zeroes: $zero_count"
```

```
$ bash positive.sh
Enter 10 values: 2
The enter number 0: 1
The enter number 1: -6
The enter number 2: 3
The enter number 3: 0
The enter number 4: 78
The enter number 5: -65
The enter number 6: -8
The enter number 7: -3
The enter number 8: 0
The enter number 9: 45
Positive numbers: 4
negative_count: 4
zeroes: 2
```

4) Write a shell script to accept five number and display max and min value.

```bash
#!/bin/bash
min=0
max=0
for((i=1; i<=5; i++));
do
read -p "Enter values at $i: " num
        max=$num
        min=$num
        if [ $num -gt $max ];
        then
                max=$num
        elif [ $num -lt $min ];
        then
                min=$num
        fi
done
echo "$max"
echo "$min"
```

```
$ bash greaternum.sh
Enter values at 1: 3
Enter values at 2: 7
Enter values at 3: 4
Enter values at 4: 5
Enter values at 5: 6
6
```

5) Write a script to find out String is palindrome or not.

```
  GNU nano 6.2
echo Enter the string
read s
echo $s>temp
rvs="$(rev temp)"
if [ $s == $rvs ]
then
echo "it is palindrome"
else
echo " it is not a Palindrome"
fi
```

```
ubuntu@ubuntu-VirtualBox:~$ nano tets.sh
ubuntu@ubuntu-VirtualBox:~$ bash tets.sh
Enter the string
tat
it is palindrome
ubuntu@ubuntu-VirtualBox:~$ bash tets.sh
Enter the string
sit
 it is not a Palindrome
ubuntu@ubuntu-VirtualBox:~$
```

6) Write a shell script to print given number's sum of all digits (eg. If number is 123, then it's sum of all digits will be 1+2+3=6)

```
#!/bin/bash
read -p "Enter the number: " num
sum=0
while [ $num -gt 0 ];
do
digit=$((num % 10))
sum=$((sum + digit))
num=$((num / 10))
done
echo "summ of digits: $sum"
```

```
$ bash sumnum.sh
Enter the number: 234
summ of digits: 9
```

7) Create a script to

      Create user , Delete user , Create group , delete Group using case

```
GNU nano 7.2
#!/bin/bash
read -p "Enter the value of num: " val
case $val in
        1) adduser1=$(($adduser Divya))
        echo "User is added: $adduser1" ;;
        2) deluser1=$(($deluser Divya))
        echo "User is deleted: $deluser1" ;;
        3) addgroup1=$(($addgroup sholay))
        echo "Group is added: $addgroup1" ;;
        4) delgroup1=$(($delgroup sholay))
        echo "group is deleted: $delgroup1" ;;
        *) echo "invalid" ;;
esac
```

Assignment 01

one

    apple
    banana
    cat
    dog
    elephant

two

    fish
    gun
    horse
    icecream

three

    jelly
    kitkat
    lolipop
    marshmallow

four

    new
    oppo
    vivo
    china

/home -> mkdir EVERYONE
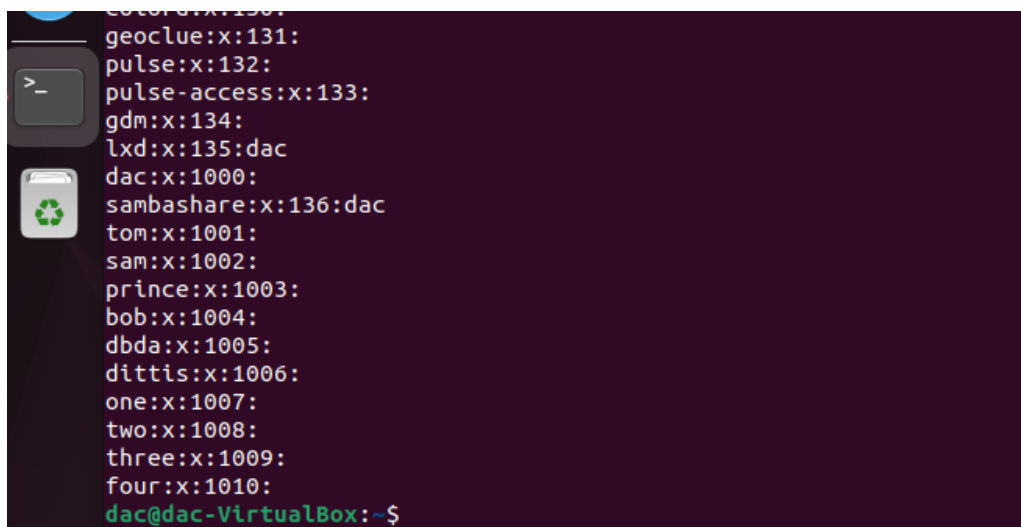chmod 777 EVERYONE
Create a file with every user (whoami >> username.txt)

oppo -> primary group change -> one
vivo -> primary group change -> two

jelly,kitkat, lolipop, marshmallow -> add these users to sudo group

fish,gun -> add these users to one group as well (secondary group)

```
geoclue:x:131:
pulse:x:132:
pulse-access:x:133:
gdm:x:134:
lxd:x:135:dac
dac:x:1000:
sambashare:x:136:dac
tom:x:1001:
sam:x:1002:
prince:x:1003:
bob:x:1004:
dbda:x:1005:
dittis:x:1006:
one:x:1007:
two:x:1008:
three:x:1009:
four:x:1010:
dac@dac-VirtualBox:~$
```

```
colord:x:123:130:colord colour management daemon,,,:/var/lib/color
login
geoclue:x:124:131::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534::/run/gnome-initial-setup/:/bin/fa
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
dac:x:1000:1000:dac,,,:/home/dac:/bin/bash
tom:x:1001:1005:tom,,,:/home/tom:/bin/bash
sam:x:1002:1005:sam,,,:/home/sam:/bin/bash
prince:x:1003:1003:prince,,,:/home/prince:/bin/bash
bob:x:1004:1006:bob,,,:/home/bob:/bin/bash
apple:x:1005:1007:,,,:/home/apple:/bin/bash
banana:x:1006:1007:,,,:/home/banana:/bin/bash
cat:x:1007:1007:,,,:/home/cat:/bin/bash
dog:x:1008:1007:,,,:/home/dog:/bin/bash
elephant:x:1009:1007:,,,:/home/elephant:/bin/bash
fish:x:1010:1008:,,,:/home/fish:/bin/bash
gun:x:1011:1008:,,,:/home/gun:/bin/bash
kitkat:x:1012:1008:,,,:/home/kitkat:/bin/bash
lolipop:x:1013:1008:,,,:/home/lolipop:/bin/bash
marshmallo:x:1014:1008:,,,:/home/marshmallo:/bin/bash
jelly:x:1015:1009:,,,:/home/jelly:/bin/bash
horse:x:1016:1009:,,,:/home/horse:/bin/bash
icecream:x:1017:1009:,,,:/home/icecream:/bin/bash
new:x:1018:1010:,,,:/home/new:/bin/bash
oppo:x:1019:1010:,,,:/home/oppo:/bin/bash
vivo:x:1020:1010:,,,:/home/vivo:/bin/bash
china:x:1021:1010:,,,:/home/china:/bin/bash
dac@dac-VirtualBox:~$
```

Create a file with every user (whoami >> username.txt)

```
lolipop:x:1013:1008:,,,:/home/lolipop:/bin/bash
marshmallo:x:1014:1008:,,,:/home/marshmallo:/bin/bash
jelly:x:1015:1009:,,,:/home/jelly:/bin/bash
horse:x:1016:1009:,,,:/home/horse:/bin/bash
icecream:x:1017:1009:,,,:/home/icecream:/bin/bash
new:x:1018:1010:,,,:/home/new:/bin/bash
oppo:x:1019:1007:,,,:/home/oppo:/bin/bash
vivo:x:1020:1008:,,,:/home/vivo:/bin/bash
china:x:1021:1010:,,,:/home/china:/bin/bash
root@dac-VirtualBox:/home# su apple
apple@dac-VirtualBox:/home$ cd everyone/
apple@dac-VirtualBox:/home/everyone$ ls
apple.txt   cat.txt    dog.txt      fish.txt  horse.txt    jelly.txt   lolipop.txt    new.txt   vivo.txt
banana.txt  china.txt  elephant.txt gun.txt   icecream.txt kitkat.txt  marshmallo.txt oppo.txt
apple@dac-VirtualBox:/home/everyone$
```

oppo -> primary group change -> one
vivo -> primary group change -> two

```
apple:x:1005:1007:,,,:/home/apple:/bin/bash
banana:x:1006:1007:,,,:/home/banana:/bin/bash
cat:x:1007:1007:,,,:/home/cat:/bin/bash
dog:x:1008:1007:,,,:/home/dog:/bin/bash
elephant:x:1009:1007:,,,:/home/elephant:/bin/bash
fish:x:1010:1008:,,,:/home/fish:/bin/bash
gun:x:1011:1008:,,,:/home/gun:/bin/bash
kitkat:x:1012:1008:,,,:/home/kitkat:/bin/bash
lolipop:x:1013:1008:,,,:/home/lolipop:/bin/bash
marshmallo:x:1014:1008:,,,:/home/marshmallo:/bin/bash
jelly:x:1015:1009:,,,:/home/jelly:/bin/bash
horse:x:1016:1009:,,,:/home/horse:/bin/bash
icecream:x:1017:1009:,,,:/home/icecream:/bin/bash
new:x:1018:1010:,,,:/home/new:/bin/bash
oppo:x:1019:1007:,,,:/home/oppo:/bin/bash
vivo:x:1020:1008:,,,:/home/vivo:/bin/bash
china:x:1021:1010:,,,:/home/china:/bin/bash
root@dac-VirtualBox:/home#
```

jelly,kitkat, lolipop, marshmallow -> add these users to sudo group

```
root@dac-VirtualBox:/home# sudo usermod jelly -G sudo
root@dac-VirtualBox:/home# sudo usermod kitkat -G sudo
root@dac-VirtualBox:/home# sudo usermod lolipop -G sudo
root@dac-VirtualBox:/home# sudo usermod marshmallo -G sudo
root@dac-VirtualBox:/home# cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
```

fish,gun -> add these users to one group as well (secondary group)

```
china:x:1021:1010:,,,:/home/china:/bin/bash
root@dac-VirtualBox:/home# sudo usermod fish -G one
root@dac-VirtualBox:/home# sudo usermod gun -G one
root@dac-VirtualBox:/home# tail cat etc/group
==> cat <==
```
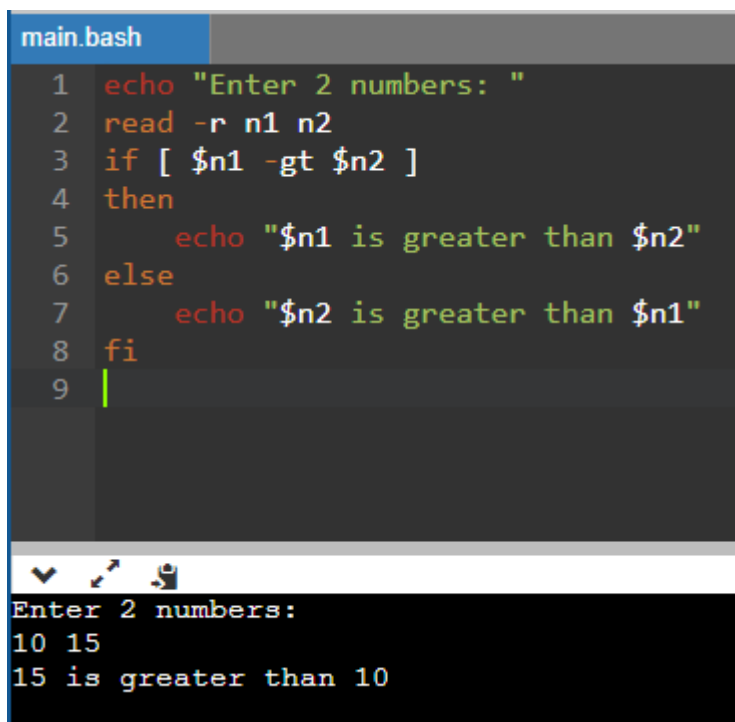
```
==> /etc/group <==
tom:x:1001:
sam:x:1002:
prince:x:1003:
bob:x:1004:
dbda:x:1005:
dittis:x:1006:
one:x:1007:fish,gun
two:x:1008:
three:x:1009:
four:x:1010:
root@dac-VirtualBox:/home#
```

EXERCISE

Kindly write any 10 programs.

   1. Write a Shell Script to find maximum between two numbers.

```
echo "Enter 2 numbers: "
read -r n1 n2
if [ $n1 -gt $n2 ]
then
    echo "$n1 is greater than $n2"
else
    echo "$n2 is greater than $n1"
fi
```

```
main.bash
 1   echo "Enter 2 numbers: "
 2   read -r n1 n2
 3   if [ $n1 -gt $n2 ]
 4   then
 5       echo "$n1 is greater than $n2"
 6   else
 7       echo "$n2 is greater than $n1"
 8   fi
 9   |
```
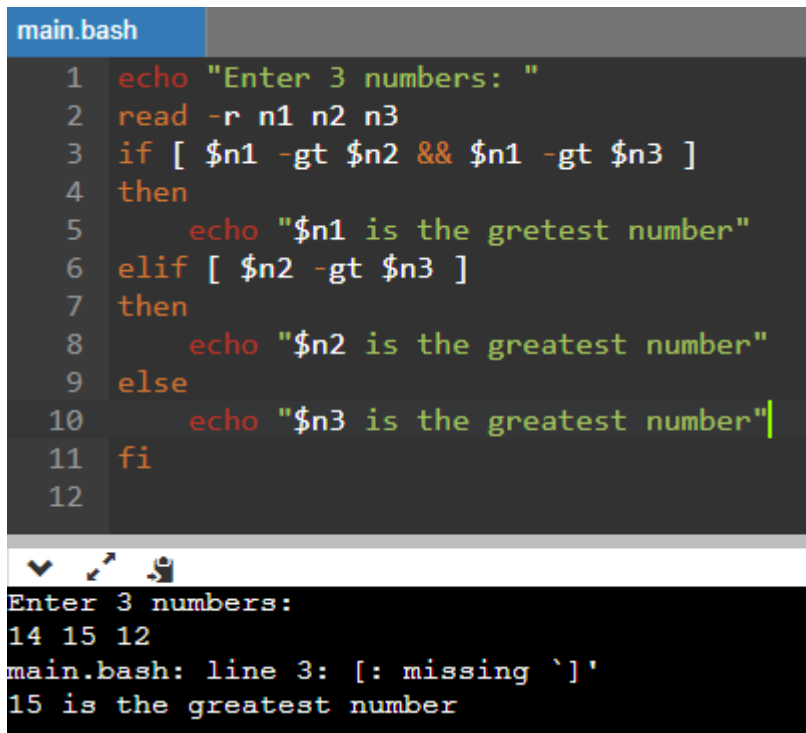
```
Enter 2 numbers:
10 15
15 is greater than 10
```

   2. Write a Shell Script to find maximum between three numbers.

```
echo "Enter 3 numbers: "
read -r n1 n2 n3
if [ $n1 -gt $n2 && $n1 -gt $n3 ]
then
    echo "$n1 is the gretest number"
elif [ $n2 -gt $n3 ]
then
```

```
        echo "$n2 is the greatest number"
else
        echo "$n3 is the greatest number"
fi
```

```
main.bash
  1  echo "Enter 3 numbers: "
  2  read -r n1 n2 n3
  3  if [ $n1 -gt $n2 && $n1 -gt $n3 ]
  4  then
  5      echo "$n1 is the gretest number"
  6  elif [ $n2 -gt $n3 ]
  7  then
  8      echo "$n2 is the greatest number"
  9  else
 10      echo "$n3 is the greatest number"
 11  fi
 12
```

```
Enter 3 numbers:
14 15 12
main.bash: line 3: [: missing `]'
15 is the greatest number
```

3. Write a Shell Script to check whether a number is negative, positive or zero.

```
read -p "Enter a number " num
if [ $num == 0 ]
then
echo "You have entered zero"
elif [ $num -gt 0 ]
then
echo "You have entered positive number"
else
echo "You have entered negative number"
fi
```

```
main.bash
  1  read -p "Enter a number " num
  2  if [ $num == 0 ]
  3  then
  4  echo "You have entered zero"
  5  elif [ $num -gt 0 ]
  6  then
  7  echo "You have entered positive number"
  8  else
  9  echo "You have entered negative number"
 10  fi
```

```
Enter a number 23
You have entered positive number
```

4. Write a Shell Script to check whether a number is divisible by
   5 and 11 or not.

```
read -p "Enter a number: " num
if [ $((num%5)) -eq 0 ]
then
    if [ $((num%11)) -eq 0 ]
    then
    echo "Number is divisible 5 and 11"
    else
    echo "Number is not divisible by 5 and 11"
    fi
fi
```

```
main.bash
1   read -p "Enter a number: " num
2   if [ $((num%5)) -eq 0 ]
3   then
4       if [ $((num%11)) -eq 0 ]
5       then
6       echo "Number is divisible 5 and 11"
7       else
8       echo "Number is not divisible by 5 and 11"
9       fi
10  fi
11
```

```
Enter a number: 55
Number is divisible 5 and 11
```

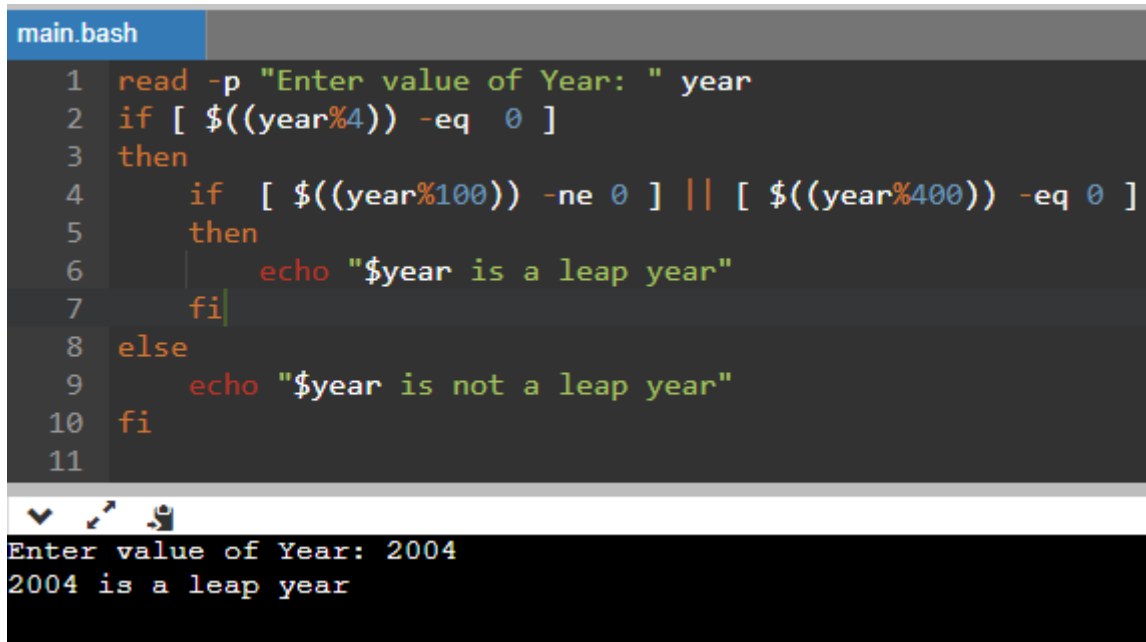5. Write a Shell Script to check whether a number is even or odd.

```
read -p "Enter a number: " num
if [ $((num%2)) -eq  0 ]
then
echo "$num is even number"
else
echo "$num is odd number"
fi
```

```
main.bash
1   read -p "Enter a number: " num
2   if [ $((num%2)) -eq  0 ]
3   then
4   echo "$num is even number"
5   else
6   echo "$num is odd number"
7   fi
8
9
```

```
Enter a number: 23
23 is odd number
```

6. Write a Shell Script to check whether a year is leap year or not.

```
read -p "Enter value of Year: " year
if [ $((year%4)) -eq  0 ]
then
    if  [ $((year%100)) -ne 0 ] || [ $((year%400)) -eq 0 ]
    then
        echo "$year is a leap year"
    fi
else
    echo "$year is not a leap year"
fi
```

```
main.bash
 1  read -p "Enter value of Year: " year
 2  if [ $((year%4)) -eq  0 ]
 3  then
 4      if  [ $((year%100)) -ne 0 ] || [ $((year%400)) -eq 0 ]
 5      then
 6          echo "$year is a leap year"
 7      fi
 8  else
 9      echo "$year is not a leap year"
10  fi
11
```

```
Enter value of Year: 2004
2004 is a leap year
```
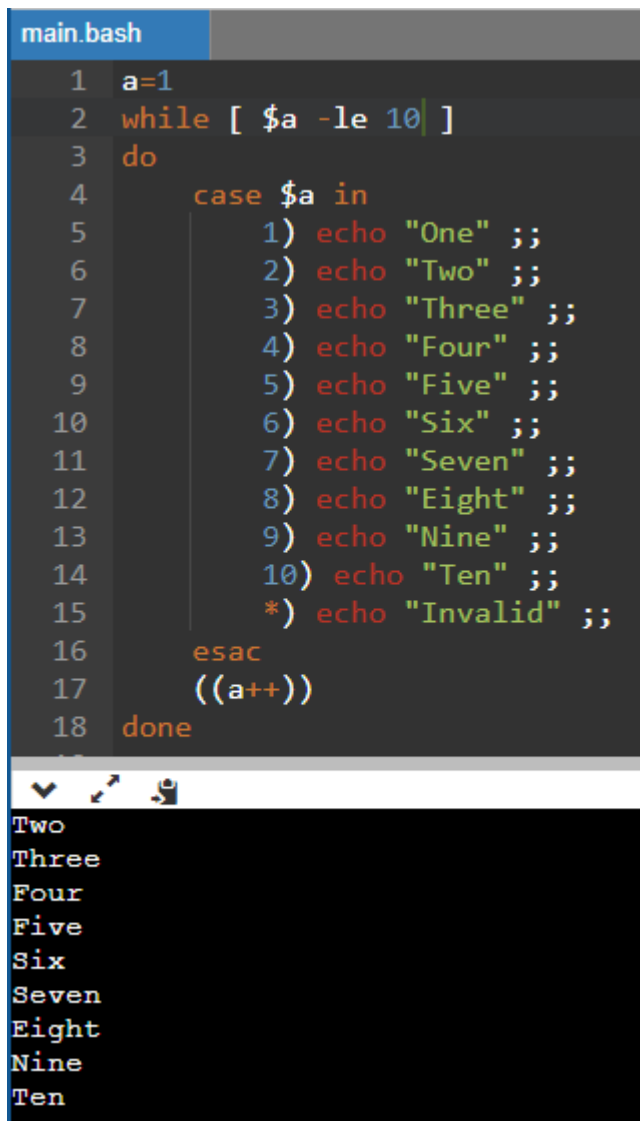
7. Shell Script to print number between 1 to 10 in character format using switch-case.

```
a=1
while [ $a -le 10 ]
do
    case $a in
        1) echo "One" ;;
        2) echo "Two" ;;
        3) echo "Three" ;;
        4) echo "Four" ;;
        5) echo "Five" ;;
        6) echo "Six" ;;
        7) echo "Seven" ;;
```

```
        8) echo "Eight" ;;
        9) echo "Nine" ;;
        10) echo "Ten" ;;
        *) echo "Invalid" ;;
    esac
    ((a++))
done
```

```
main.bash
 1  a=1
 2  while [ $a -le 10 ]
 3  do
 4      case $a in
 5          1) echo "One" ;;
 6          2) echo "Two" ;;
 7          3) echo "Three" ;;
 8          4) echo "Four" ;;
 9          5) echo "Five" ;;
10          6) echo "Six" ;;
11          7) echo "Seven" ;;
12          8) echo "Eight" ;;
13          9) echo "Nine" ;;
14          10) echo "Ten" ;;
15          *) echo "Invalid" ;;
16      esac
17      ((a++))
18  done
```

```
Two
Three
Four
Five
Six
Seven
Eight
Nine
Ten
```

8. Shell Script to accept id from user to confirm department
   using switch-case.

```
read -p "Enter id: " id
case $id in
    10) echo "Id is $id and department is Accounting" ;;
    20) echo "Id is $id and department is Sales" ;;
    30) echo "Id is $id and department is Tax" ;;
     *) echo "Invalid Id" ;;
```

esac

```
main.bash
1  read -p "Enter id: " id
2  case $id in
3      10) echo "Id is $id and department is Accounting" ;;
4      20) echo "Id is $id and department is Sales" ;;
5      30) echo "Id is $id and department is Tax" ;;
6       *) echo "Invalid Id" ;;
7  esac
```

```
Enter id: 20
Id is 20 and department is Sales
```

9. Shell Script to check password is correct or incorrect using switch-case.

```
read -p "Enter password: " password
len=${#password}
case $len in
    8) echo "Correct password" ;;
    9) echo "Correct password" ;;
   10) echo "Correct password" ;;
    *) echo "Incorrect password !!" ;;
esac
```

```
main.bash
1  read -p "Enter password: " password
2  len=${#password}
3  case $len in
4      8) echo "Correct password" ;;
5      9) echo "Correct password" ;;
6     10) echo "Correct password" ;;
7      *) echo "Incorrect password !!" ;;
8  esac
9
```

```
Enter password: admin123
Correct password
```

10. **Shell Script to print day of week using switch-case.**

```
for i in {1..7}
do
case $i in
    1) echo "Monday" ;;
    2) echo "Tuesday" ;;
    3) echo "Wednesday" ;;
    4) echo "Thursday" ;;
    5) echo "Friday" ;;
    6) echo "Saturday" ;;
    7) echo "Sunday" ;;
    *) echo "Invalid choice" ;;
esac
done
```

```
main.bash
 1  for i in {1..7}
 2  do
 3  case $i in
 4      1) echo "Monday" ;;
 5      2) echo "Tuesday" ;;
 6      3) echo "Wednesday" ;;
 7      4) echo "Thursday" ;;
 8      5) echo "Friday" ;;
 9      6) echo "Saturday" ;;
10      7) echo "Sunday" ;;
11      *) echo "Invalid choice" ;;
12  esac
13  done
```

```
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
```

11. Shell Script to create calculator using switch-case.

```
echo "Enter 2 numbers: "
read n1 n2
echo -e "1.Add 2.Sub 3.Mul 4.Div"
read -p "Enter your choice: " choice
case $choice in
    1) a=$((n1+n2))
       echo "Addition : "$a ;;
    2) a=$((n1-n2))
       echo "Substraction : "$a ;;
    3) a=$((n1*n2))
       echo "Multiplication : "$a ;;
    4) a=$((n1/n2))
       echo "Division : "$a ;;
    *) echo "Invalid choice" ;;
```

esac

```bash
echo "Enter 2 numbers: "
read n1 n2
echo -e "1.Add 2.Sub 3.Mul 4.Div"
read -p "Enter your choice: " choice
case $choice in
    1) a=$((n1+n2))
       echo "Addition : "$a ;;
    2) a=$((n1-n2))
       echo "Substraction : "$a ;;
    3) a=$((n1*n2))
       echo "Multiplication : "$a ;;
    4) a=$((n1/n2))
       echo "Division : "$a ;;
    *) echo "Invalid choice" ;;
esac
```

```
Enter 2 numbers:
50 40
1.Add 2.Sub 3.Mul 4.Div
Enter your choice: 3
Multiplication : 2000
```
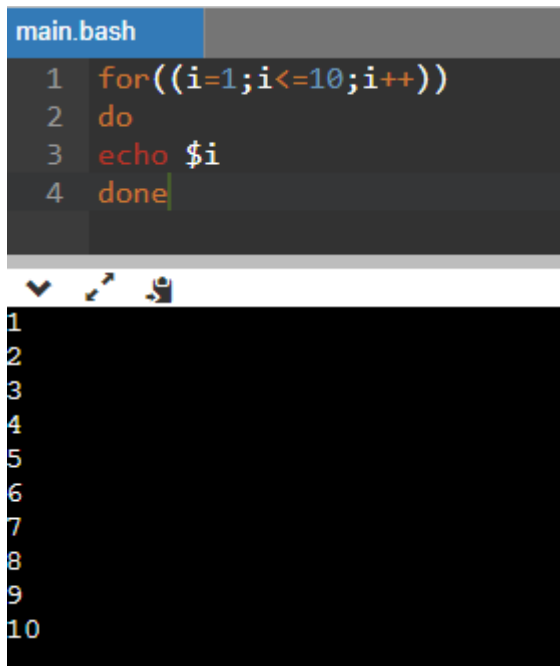
Assignment: Loop

1. Shell Script to display the first 10 natural numbers.
Expected Output :
1 2 3 4 5 6 7 8 9 10

```
for((i=1;i<=10;i++))
do
echo $i
done
```


2. Shell Script to compute the sum of the first 10 natural numbers.
Expected Output :
The first 10 natural number is :
1 2 3 4 5 6 7 8 9 10
The Sum is : 55

```
sum=0
for((i=1;i<=10;i++))
do
 sum=$((sum+i))
done
echo "The sum is: "$sum
```

```bash
main.bash
1    sum=0
2    for((i=1;i<=10;i++))
3    do
4      sum=$((sum+i))
5    done
6
7    echo "The sum is: "$sum
```

```
The sum is: 55
```

3. Shell Script to display n terms of natural numbers and their sum.
Test Data : 7
Expected Output :
The first 7 natural number is :
1 2 3 4 5 6 7
The Sum of Natural Number upto 7 terms : 28


```bash
read -p "Enter value of n: " n
echo "First $n natural number is :"
sum=0
for((i=1;i<=n;i++))
do
echo -n " "$i
sum=$((sum+i))
done
echo " "
echo "The Sum of Natural Number upto $n terms :" $sum
```

```bash
main.bash
 1  read -p "Enter value of n: " n
 2  echo "First $n natural number is :"
 3  sum=0
 4  for((i=1;i<=n;i++))
 5  do
 6  echo -n " "$i
 7  sum=$((sum+i))
 8  done
 9  echo " "
10  echo "The Sum of Natural Number upto $n terms :" $sum
```

```
Enter value of n: 7
First 7 natural number is :
 1 2 3 4 5 6 7
The Sum of Natural Number upto 7 terms : 28
```

4. Shell Script to read 10 numbers from the keyboard and find their sum and average.
Test Data :
Input the 10 numbers :
Number-1 :2
...
Number-10 :2
Expected Output :
The sum of 10 no is : 55
The Average is : 5.500000


```bash
echo "Input 10 Numbers: "
sum=0
for((i=1;i<=10;i++))
do
read -p "Number- $i :" n$i
sum=$((sum+i))
done
echo "The sum of 10 no is :" $sum
n=10
echo "The avg of 10 no is:" `expr $sum / $n`
```

```
main.bash
1  echo "Input 10 Numbers: "
2  sum=0
3  for((i=1;i<=10;i++))
4  do
5  read -p "Number- $i :" n$i
6  sum=$((sum+i))
7  done
8  n=10
9  echo "The avg of 10 no is:" `expr $sum / $n`
```

```
Input 10 Numbers:
Number- 1 :1
Number- 2 :2
Number- 3 :3
Number- 4 :4
Number- 5 :5
Number- 6 :6
Number- 7 :7
Number- 8 :8
Number- 9 :9
Number- 10 :10
The avg of 10 no is: 5
```

5. Shell Script to display the cube of the number up to an integer.
Test Data :
Input number of terms : 5
Expected Output :
Number is : 1 and cube of the 1 is :1
Number is : 2 and cube of the 2 is :8
Number is : 3 and cube of the 3 is :27
Number is : 4 and cube of the 4 is :64
Number is : 5 and cube of the 5 is :125


```
read -p "Enput number of terms: " n
for((i=1;i<=n;i++))
do
cube=$((i*i*i))
echo "Number is : $i and cube of the $i is: " $cube
done
```

```bash
main.bash
1  read -p "Enput number of terms: " n
2  for((i=1;i<=n;i++))
3  do
4  cube=$((i*i*i))
5  echo "Number is : $i and cube of the $i is: " $cube
6  done
```

```
Enput number of terms: 5
Number is : 1 and cube of the 1 is:  1
Number is : 2 and cube of the 2 is:  8
Number is : 3 and cube of the 3 is:  27
Number is : 4 and cube of the 4 is:  64
Number is : 5 and cube of the 5 is:  125
```

6. Shell Script to display the multiplication table for a given integer.
Test Data :
Input the number (Table to be calculated) : 15
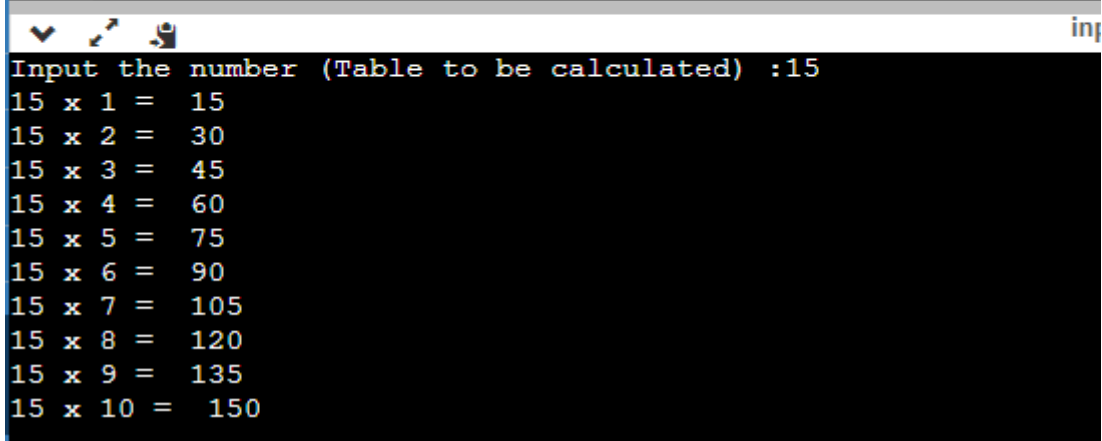Expected Output :
15 X 1 = 15
...
...
15 X 10 = 150


```bash
read -p "Input the number (Table to be calculated) :" n
for((i=1;i<=10;i++))
do
echo "$n x $i = " $((n*i))
done
```

```
main.bash
1  read -p "Input the number (Table to be calculated) :" n
2  for((i=1;i<=10;i++))
3  do
4   echo "$n x $i = " $((n*i))
5  done
```

```
Input the number (Table to be calculated) :15
15 x 1 =  15
15 x 2 =  30
15 x 3 =  45
15 x 4 =  60
15 x 5 =  75
15 x 6 =  90
15 x 7 =  105
15 x 8 =  120
15 x 9 =  135
15 x 10 =  150
```

7. Shell Script to display the multiplier table vertically from 1 to n.

Test Data :

Input upto the table number starting from 1 : 8

Expected Output :

Multiplication table from 1 to 8

1x1 = 1, 2x1 = 2, 3x1 = 3, 4x1 = 4, 5x1 = 5, 6x1 = 6, 7x1 = 7, 8x1 = 8

...

1x10 = 10, 2x10 = 20, 3x10 = 30, 4x10 = 40, 5x10 = 50, 6x10 = 60, 7x10 = 70, 8x10 = 80

```
read -p "Input upto the table number starting from " n1
read -p "to " n2
echo "Multiplication table from $n1 to $n2"
for((i=n1;i<=n2;i++))
do
for((j=1;j<=10;j++))
do
echo -n "$i x $j "= $((i*j))
echo -n ","
done
echo " "
done
```

```
Input upto the table number starting from 1
to 8
Multiplication table from 1 to 8
1 x 1 = 1,1 x 2 = 2,1 x 3 = 3,1 x 4 = 4,1 x 5 = 5,1 x 6 = 6,1 x 7 = 7,1 x 8 = 8,1 x 9 = 9,1 x 10 = 10,
2 x 1 = 2,2 x 2 = 4,2 x 3 = 6,2 x 4 = 8,2 x 5 = 10,2 x 6 = 12,2 x 7 = 14,2 x 8 = 16,2 x 9 = 18,2 x 10 = 20,
3 x 1 = 3,3 x 2 = 6,3 x 3 = 9,3 x 4 = 12,3 x 5 = 15,3 x 6 = 18,3 x 7 = 21,3 x 8 = 24,3 x 9 = 27,3 x 10 = 30,
4 x 1 = 4,4 x 2 = 8,4 x 3 = 12,4 x 4 = 16,4 x 5 = 20,4 x 6 = 24,4 x 7 = 28,4 x 8 = 32,4 x 9 = 36,4 x 10 = 40,
5 x 1 = 5,5 x 2 = 10,5 x 3 = 15,5 x 4 = 20,5 x 5 = 25,5 x 6 = 30,5 x 7 = 35,5 x 8 = 40,5 x 9 = 45,5 x 10 = 50,
6 x 1 = 6,6 x 2 = 12,6 x 3 = 18,6 x 4 = 24,6 x 5 = 30,6 x 6 = 36,6 x 7 = 42,6 x 8 = 48,6 x 9 = 54,6 x 10 = 60,
7 x 1 = 7,7 x 2 = 14,7 x 3 = 21,7 x 4 = 28,7 x 5 = 35,7 x 6 = 42,7 x 7 = 49,7 x 8 = 56,7 x 9 = 63,7 x 10 = 70,
8 x 1 = 8,8 x 2 = 16,8 x 3 = 24,8 x 4 = 32,8 x 5 = 40,8 x 6 = 48,8 x 7 = 56,8 x 8 = 64,8 x 9 = 72,8 x 10 = 80,
```

8. Shell Script to display the n terms of odd natural numbers and their sum.
Test Data
Input number of terms : 10
Expected Output :
The odd numbers are :1 3 5 7 9 11 13 15 17 19
The Sum of odd Natural Number upto 10 terms : 100

```
read -p "Input number of terms : " n
echo -n "The odd numbers are: "
sum=0
for((i=1;i<=n;i++))
do
if [ $(expr $i % 2) -ne 0 ]
then
echo -n " "$i
sum=$((sum+i))
fi
done
echo " "
echo "The Sum of odd Natural Number upto $n terms : " $sum
```

```
1  read -p "Input number of terms : " n
2  echo -n "The odd numbers are: "
3  sum=0
4  for((i=1;i<=n;i++))
5  do
6  if [ $(expr $i % 2) -ne 0 ]
7  then
8  echo -n " "$i
9  sum=$((sum+i))
10 fi
11 done
12 echo " "
13 echo "The Sum of odd Natural Number upto $n terms : " $sum
```

```
Input number of terms : 20
The odd numbers are:  1 3 5 7 9 11 13 15 17 19
The Sum of odd Natural Number upto 20 terms :  100
```

9. Shell Script to display a pattern like a right angle triangle using an asterisk.

The pattern like :

```
*
**
***
****
```

```
for((i=1;i<=4;i++))
do
for((j=i;j>=1;j--))
do
echo -n "*"
done
echo " "
done
```

```
main.bash
1  for((i=1;i<=4;i++))
2  do
3  for((j=i;j>=1;j--))
4  do
5  echo -n "*"
6  done
7  echo " "
8  done
```

```
*
* *
* * *
* * * *
```
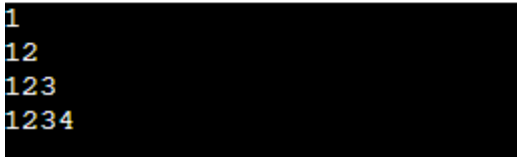
10. Shell Script to display a pattern like a right angle triangle with a number.

The pattern like :

1
12
123
1234

for((i=1;i<=4;i++))
do
for((j=1;j<=i;j++))
do
echo -n "$j"
done
echo " "
done

```
main.bash
1  for((i=1;i<=4;i++))
2  do
3  for((j=1;j<=i;j++))
4  do
5  echo -n "$j"
6  done
7  echo " "
8  done
```

```
1
12
123
1234
```

11. Shell Script to make such a pattern like a right angle triangle with a number which will repeat a number in a row.

The pattern like :

```
 1
 22
 333
 4444
```

```
for((i=1;i<=4;i++))
do
for((j=1;j<=i;j++))
do
echo -n "$i"
done
echo " "
done
```

```
main.bash
1  for((i=1;i<=4;i++))
2  do
3  for((j=1;j<=i;j++))
4  do
5  echo -n "$i"
6  done
7  echo " "
8  done
```
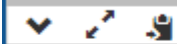
```
1
22
333
4444
```

12. Shell Script to make such a pattern like a right angle triangle with the number increased by 1.

The pattern like :

```
   1
   2 3
   4 5 6
   7 8 9 10
count=0
for((i=1;i<=4;i++))
do
for((j=0;j<i;j++))
do
echo -n "$((count+1))"
count=$((count+1))
echo -n " "
done
echo " "
done
```

```bash
count=0
for((i=1;i<=4;i++))
do
for((j=0;j<i;j++))
do
echo -n "$((count+1))"
count=$((count+1))
echo -n " "
done
echo " "
done
```

```
1
2 3
4 5 6
7 8 9 10


...Program finished with exit code 0
Press ENTER to exit console.
```