Q1 : You need to find all files in the current directory and its subdirectories that contain the word "error" in their name. What command would you use?

```
$ grep -r “error” ./
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep -r "error" .
./file1.txt:this file is from "assignment2/" & it contains error keyword
./t2/file3.txt:this file is from "assignment2/t2", and it contains error keyword
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q2 : You want to view the contents of a log file in real-time. What command would you use?

```
$ sudo apt update > log &
$
$ tail -f log
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ sudo apt update > log &
[1] 6733
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
WARNING: apt does not have a stable CLI interface. Use with caution in scripts.


sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ tail -f log
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists...
Building dependency tree...
Reading state information...
All packages are up to date.
```

Q3 : You need to search for a specific string in a file and replace it with another string. What command would you use?

```
$ cat file4.txt
$ sed -i ‘s/cdac mumbai/C-DAC Mumbai/g’ file4.txt
$ cat file4.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat file4.txt
hello user
this is cdac mumbai
welcome to cdac mumbai
it has two campuses, one at juhu
and another one at kharghar
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ sed -i 's/cdac mumbai/C-DAC Mumbai/g' file4.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat file4.txt
hello user
this is C-DAC Mumbai
welcome to C-DAC Mumbai
it has two campuses, one at juhu
and another one at kharghar
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q4 : You need to compress a directory and exclude certain files and directories from the archive. What command would you use?

```
$ ls
$ la t1
$ tar –exclude=”cllickbait.log” -cf t1.tar t1/
$ ls
$ tar -tf t1.tar
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls
file1.txt  file4.txt  log  t1  t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls t1
abc.log  clickbait.log  file2.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ tar --exclude="clickbait.log" -cf t1.tar t1/
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls
file1.txt  file4.txt  log  t1  t1.tar  t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ tar -tf t1.tar
t1/
t1/abc.log
t1/file2.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q5 : You need to download a file from a remote server using the command line. What command would you use?

```
$ ls
$ wget https://ftp.netbsd.org/robots.txt
$ ls
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls
file1.txt  file4.txt  log  t1  t1.tar  t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ wget http://ftp.netbsd.org/robots.txt
--2023-03-24 12:04:00--  http://ftp.netbsd.org/robots.txt
Resolving ftp.netbsd.org (ftp.netbsd.org)... 199.233.217.201, 2001:470:a085:999::21
Connecting to ftp.netbsd.org (ftp.netbsd.org)|199.233.217.201|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 170 [text/plain]
Saving to: ‘robots.txt’

robots.txt                  100%[=========================================>]     170  --.-KB/s    in 0s

2023-03-24 12:04:07 (10.1 MB/s) - ‘robots.txt’ saved [170/170]

sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls
file1.txt  file4.txt  log  robots.txt  t1  t1.tar  t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q6 : You need to monitor the CPU usage of a specific process. What command would you use?

```
$ top -o %CPU
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ top -o %CPU
```

```
top - 13:00:02 up 4 days,  3:52,  0 users,  load average: 0.52, 0.58, 0.59
Tasks:  14 total,   1 running,  13 sleeping,   0 stopped,   0 zombie
%Cpu(s): 14.8 us, 23.7 sy,  0.0 ni, 61.2 id,  0.0 wa,  0.2 hi,  0.0 si,  0.0 st
MiB Mem :  20354.6 total,  10889.8 free,   9240.9 used,    224.0 buff/cache
MiB Swap:  51246.1 total,  51014.9 free,    231.2 used.  10983.2 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
 7430 sdevsinx  20   0   15832   2244   1580 R   0.7   0.0   0:00.06 top
    1 root      20   0    8968    196    120 S   0.0   0.0   0:00.35 init
   10 root      20   0    9308     96     48 S   0.0   0.0   0:00.01 init
   11 sdevsinx  20   0   14916   3520   3220 S   0.0   0.0   0:04.66 bash
   48 root      20   0    9312    100     60 S   0.0   0.0   0:00.00 init
   49 sdevsinx  20   0   14360   1908   1792 S   0.0   0.0   0:00.37 bash
 1649 root      20   0    9312    100     64 S   0.0   0.0   0:00.00 init
 1650 sdevsinx  20   0   15012   4028   3888 S   0.0   0.0   0:07.73 bash
 1766 sdevsinx  20   0   26956   5700   1608 S   0.0   0.0   0:00.81 vim
 1801 root      20   0    9312    100     64 S   0.0   0.0   0:00.00 init
 1802 sdevsinx  20   0   14756   3664   3540 S   0.0   0.0   0:03.74 bash
 2240 root      20   0    9320    104     52 S   0.0   0.0   0:00.00 init
 2241 sdevsinx  20   0   14248   3084   2804 S   0.0   0.0   0:00.30 bash
 5291 sdevsinx  20   0   26964   7868   3760 S   0.0   0.0   0:00.18 vi
```

Q7 : You need to copy a file from one directory to another, while preserving its ownership and permissions. What command would you use?

```
$ ls -l file_root.txt
$ sudo cp -pd file_root.txt t1/
```

```
$ ls -l t1/file_root.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -l file_root.txt
-rw-r--r-- 1 root root 0 Mar 24 12:18 file_root.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ sudo cp -pd file_root.txt t1/
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -l t1/file_root.txt
-rw-r--r-- 1 root root 0 Mar 24 12:18 t1/file_root.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q8 : You need to list all files in a directory, sorted by size in descending order. What command would you use?

```
$ ls -aSrl
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -aSrl
total 16
-rw-r--r-- 1 root     root         0 Mar 24 12:18 file_root.txt
-rw-r--r-- 1 sdevsinx sdevsinx     0 Mar 24 12:27 .a.hid
-rw-r--r-- 1 sdevsinx sdevsinx    73 Mar 24 11:40 file1.txt
-rw-r--r-- 1 sdevsinx sdevsinx   117 Mar 24 11:53 file4.txt
-rw-r--r-- 1 sdevsinx sdevsinx   170 May 31  2020 robots.txt
-rw-r--r-- 1 sdevsinx sdevsinx   359 Mar 24 11:48 log
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 11:41 t2
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 12:25 t1
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 11:38 ..
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 12:27 .
-rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 11:58 t1.tar
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q9 : You need to find all files in a directory and its subdirectories that were modified in the last 24 hours. What command would you use?

```
$ find . -mtime -1
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ find . -mtime -1
.
./.a.hid
./file1.txt
./file4.txt
./file_root.txt
./log
./t1
./t1/abc.log
./t1/clickbait.log
./t1/file2.txt
./t1/file_root.txt
./t1.tar
./t2
./t2/file3.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q10 : You need to transfer files securely between two Linux systems using the command line. What command would you use?

```
$ ftp ftp://192.168.137.11:2121/
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment1$ ftp ftp://192.168.137.111:2121/
Connected to 192.168.137.111.
220 Service ready for new user.
331 Guest login okay, send your complete e-mail address as password.
230 User logged in, proceed.
Remote system type is UNIX.
Using binary mode to transfer files.
200 Command TYPE okay.
ftp>
```

```
>put file1.txt
```

```
ftp> put file1.txt
local: file1.txt remote: file1.txt
229 Entering Passive Mode (|||42361|)
150 File status okay; about to open data connection.
    0        0.00 KiB/s
226 Transfer complete.
ftp>
```

`>get testing.txt`

```
ftp> get testing.txt
local: testing.txt remote: testing.txt
229 Entering Passive Mode (|||42839|)
150 File status okay; about to open data connection.
    0        0.00 KiB/s
226 Transfer complete.
ftp>
```

Q11 : You need to find all running processes on the system and display them sorted by memory usage. What command would you use?

`$ top -o %MEM`

```
top - 13:01:44 up 4 days,  3:54,  0 users,  load average: 0.52, 0.58, 0.59
Tasks:  14 total,   1 running,  13 sleeping,   0 stopped,   0 zombie
%Cpu(s):  8.4 us, 12.2 sy,  0.0 ni, 77.5 id,  0.0 wa,  1.9 hi,  0.0 si,  0.0 st
MiB Mem :  20354.6 total,  10916.5 free,   9214.1 used,    224.0 buff/cache
MiB Swap:  51246.1 total,  51014.9 free,    231.2 used.  11009.9 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
 5291 sdevsinx  20   0   26964   7868   3760 S   0.0   0.0   0:00.18 vi
 1766 sdevsinx  20   0   26956   5700   1608 S   0.0   0.0   0:00.81 vim
 1650 sdevsinx  20   0   15012   4028   3888 S   0.0   0.0   0:07.78 bash
 1802 sdevsinx  20   0   14756   3664   3540 S   0.0   0.0   0:03.74 bash
   11 sdevsinx  20   0   14916   3520   3220 S   0.0   0.0   0:04.66 bash
 2241 sdevsinx  20   0   14248   3084   2804 S   0.0   0.0   0:00.30 bash
 7437 sdevsinx  20   0   15832   2244   1580 R   0.0   0.0   0:00.04 top
   49 sdevsinx  20   0   14360   1908   1792 S   0.0   0.0   0:00.37 bash
    1 root      20   0    8968    196    120 S   0.0   0.0   0:00.35 init
 2240 root      20   0    9320    104     52 S   0.0   0.0   0:00.00 init
   48 root      20   0    9312    100     60 S   0.0   0.0   0:00.00 init
 1649 root      20   0    9312    100     64 S   0.0   0.0   0:00.00 init
 1801 root      20   0    9312    100     64 S   0.0   0.0   0:00.00 init
   10 root      20   0    9308     96     48 S   0.0   0.0   0:00.01 init
```

Q12 : You need to list all installed packages on a Debian-based system. What command would you use?

`$ apt list --installed`

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ apt list --installed
```

```
ubuntu-wsl/jammy,now 1.481 amd64 [installed]
ucf/jammy,now 3.0043 all [installed,automatic]
udev/jammy-updates,jammy-security,now 249.11-0ubuntu3.7 amd64 [installed,automatic]
ufw/jammy,now 0.36.1-4build1 all [installed,automatic]
unattended-upgrades/jammy,now 2.8ubuntu1 all [installed,automatic]
unzip/jammy-updates,jammy-security,now 6.0-26ubuntu3.1 amd64 [installed,automatic]
update-manager-core/jammy-updates,now 1:22.04.10 all [installed,automatic]
update-motd/jammy,now 3.10 all [installed,automatic]
usb.ids/jammy,now 2022.04.02-1 all [installed,automatic]
usbutils/jammy,now 1:014-1build1 amd64 [installed,automatic]
usrmerge/jammy,now 25ubuntu2 all [installed,automatic]
util-linux/jammy,now 2.37.2-4ubuntu3 amd64 [installed,automatic]
uuid-runtime/jammy,now 2.37.2-4ubuntu3 amd64 [installed,automatic]
vim-common/jammy-updates,jammy-security,now 2:8.2.3995-1ubuntu2.4 all [installed,automatic]
vim-runtime/jammy-updates,jammy-security,now 2:8.2.3995-1ubuntu2.4 all [installed,automatic]
vim-tiny/jammy-updates,jammy-security,now 2:8.2.3995-1ubuntu2.4 amd64 [installed,automatic]
vim/jammy-updates,jammy-security,now 2:8.2.3995-1ubuntu2.4 amd64 [installed]
wget/jammy,now 1.21.2-2ubuntu1 amd64 [installed,automatic]
whiptail/jammy,now 0.52.21-5ubuntu2 amd64 [installed,automatic]
wsl-setup/jammy,now 0.2 amd64 [installed,automatic]
xauth/jammy,now 1:1.1-1build2 amd64 [installed,automatic]
xdg-user-dirs/jammy,now 0.17-2ubuntu4 amd64 [installed,automatic]
xkb-data/jammy,now 2.33-1 all [installed,automatic]
xxd/jammy-updates,jammy-security,now 2:8.2.3995-1ubuntu2.4 amd64 [installed,automatic]
xz-utils/jammy,now 5.2.5-2ubuntu1 amd64 [installed,automatic]
zip/jammy,now 3.0-12build2 amd64 [installed]
zlib1g/jammy-updates,jammy-security,now 1:1.2.11.dfsg-2ubuntu9.2 amd64 [installed,automatic]
```

Q13 : You need to create a symbolic link to a file in another directory. What command would you use?

```
$ ln -s file4.txt t1/file4_sym_lnk
$ ls -l file4.txt t1/file4_sym_lnk
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ln -s file4.txt t1/file4_sym_lnk
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -l file4.txt t1/file4_sym_lnk
-rw-r--r-- 1 sdevsinx sdevsinx 117 Mar 24 11:53 file4.txt
lrwxrwxrwx 1 sdevsinx sdevsinx   9 Mar 24 13:09 t1/file4_sym_lnk -> file4.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q14 : You need to kill a process that is not responding. What command would you use?

```
$ sudo apt update && sudo apt upgrade &
$ jobs
$ kill %1
$ kill 1650
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ sudo apt update && sudo apt upgrade &
[1] 7738
0% [Working]obs-PQJF2L1:~/linux_module/assignment2$ j
[1]+  Running                 sudo apt update && sudo apt upgrade &
0% [Working]1ll-PQJF2L1:~/linux_module/assignment2$
[1]+  Terminated              sudo apt update && sudo apt upgrade
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q15 : You need to display the contents of a file, but exclude lines that contain a specific string. What command would you use?

```
$ cat file5.txt
$ cat file5.txt | grep -v “cdac”
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat file5.txt
hello user
this is contente from file5.txt
this is cdac mumbai
welcome to cdac mumbai
it has two campuses, one at juhu
and another one at kharghar
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat file5.txt | grep -v "cdac"
hello user
this is contente from file5.txt
it has two campuses, one at juhu
and another one at kharghar
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q16 : you need to create a compressed archive of a directory, while excluding certain files and directories. What command would you use?

```
$ ls
$ tar -exclude=”t1/clickbait.log” -cvf t1_excluded.tar t1/
$ ls t1
$ tar -tf t1_excluded.tar
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls
file1.txt  file4.txt  file5.txt  file_root.txt  log  robots.txt  t1  t1.tar  t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ tar --exclude="t1/clickbait.log" -cvf  t1_excluded.tar t1/
t1/
t1/abc.log
t1/file2.txt
t1/file4_sym_lnk
t1/file_root.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls t1
abc.log  clickbait.log  file2.txt  file4_sym_lnk  file_root.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ tar -tf t1_excluded.tar
t1/
t1/abc.log
t1/file2.txt
t1/file4_sym_lnk
t1/file_root.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q17 : You need to find all files in a directory and its subdirectories that contain a specific string. What command would you use?

```
$ ls
$ grep “file” ./*
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls
file1.txt  file4.txt  file5.txt  file_root.txt  log  robots.txt  t1  t1.tar  t1_excluded.tar  t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep "file" ./*
./file1.txt:this file is from "assignment2/" & it contains error keyword
./file4.txt:this file is from 'assignment2/'
./file5.txt:this is contente from file5.txt
grep: ./t1: Is a directory
grep: ./t1.tar: binary file matches
grep: ./t1_excluded.tar: binary file matches
grep: ./t2: Is a directory
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q18 : You need to view the contents of a log file, but only display the last 20 lines. What command would you use?

```
$ cat log
$ cat log | tail -n 20
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat log
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [107 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [949 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [895 kB]
Fetched 2180 kB in 18s (123 kB/s)
Reading package lists...
Building dependency tree...
Reading state information...
All packages are up to date.
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists...
Building dependency tree...
Reading state information...
All packages are up to date.
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat log | tail -n 10
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat log | tail -n 20
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [107 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [949 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [895 kB]
Fetched 2180 kB in 18s (123 kB/s)
Reading package lists...
Building dependency tree...
Reading state information...
All packages are up to date.
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists...
Building dependency tree...
Reading state information...
All packages are up to date.
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q19 : You need to change the permissions of a file to allow the owner to read, write, and execute it, and allow group members and others to read and execute it. What command would you use?

```
$ ls -l
$ chmod 755 log
$ ls -l log
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -l log
-rw-r--r-- 1 sdevsinx sdevsinx 947 Mar 24 18:55 log
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ chmod 755 log
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -l log
-rwxr-xr-x 1 sdevsinx sdevsinx 947 Mar 24 18:55 log
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q20 : You need to find out which user is currently logged in to the system. What command would you use?

```
$ whaoami
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ whoami
sdevsinx
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q21: List the directory contents date wise sorted. (man ls)

```
$ ls -lStr
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -lStr
total 28
-rw-r--r-- 1 sdevsinx sdevsinx   170 May 31  2020 robots.txt
-rw-r--r-- 1 sdevsinx sdevsinx    73 Mar 24 11:40 file1.txt
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 11:41 t2
-rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 11:58 t1.tar
-rw-r--r-- 1 root     root         0 Mar 24 12:18 file_root.txt
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 13:09 t1
-rw-r--r-- 1 sdevsinx sdevsinx   147 Mar 24 16:39 file5.txt
-rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 18:27 t1_excluded.tar
-rw-r--r-- 1 sdevsinx sdevsinx   150 Mar 24 18:48 file4.txt
-rwxr-xr-x 1 sdevsinx sdevsinx   947 Mar 24 18:55 log
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q22: List the directory contents size wise sorted.(man ls)

```
$ ls -lS -block-size=1
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -lS --block-size=1
total 28672
-rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 11:58 t1.tar
-rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 18:27 t1_excluded.tar
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 13:09 t1
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 11:41 t2
-rwxr-xr-x 1 sdevsinx sdevsinx   947 Mar 24 18:55 log
-rw-r--r-- 1 sdevsinx sdevsinx   170 May 31  2020 robots.txt
-rw-r--r-- 1 sdevsinx sdevsinx   150 Mar 24 18:48 file4.txt
-rw-r--r-- 1 sdevsinx sdevsinx   147 Mar 24 16:39 file5.txt
-rw-r--r-- 1 sdevsinx sdevsinx    73 Mar 24 11:40 file1.txt
-rw-r--r-- 1 root     root         0 Mar 24 12:18 file_root.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q23: List directory contents along with their inode no. (man ls)

```
$ ls -il
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -il
total 28
36591746972736993 -rw-r--r-- 1 sdevsinx sdevsinx    73 Mar 24 11:40 file1.txt
 6473924464885383 -rw-r--r-- 1 sdevsinx sdevsinx   150 Mar 24 18:48 file4.txt
 5066549581336538 -rw-r--r-- 1 sdevsinx sdevsinx   147 Mar 24 16:39 file5.txt
99642141755816424 -rw-r--r-- 1 root     root         0 Mar 24 12:18 file_root.txt
 5629499534754763 -rwxr-xr-x 1 sdevsinx sdevsinx   947 Mar 24 18:55 log
 1407374884095572 -rw-r--r-- 1 sdevsinx sdevsinx   170 May 31  2020 robots.txt
49258120924715884 drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 13:09 t1
12384898975810524 -rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 11:58 t1.tar
11258999068778043 -rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 18:27 t1_excluded.tar
11821949022200051 drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 11:41 t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q24: List the contents of the sub directory.

```
$ ls -lR
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -lR
.:
total 28
-rw-r--r-- 1 sdevsinx sdevsinx    73 Mar 24 11:40 file1.txt
-rw-r--r-- 1 sdevsinx sdevsinx   150 Mar 24 18:48 file4.txt
-rw-r--r-- 1 sdevsinx sdevsinx   147 Mar 24 16:39 file5.txt
-rw-r--r-- 1 root     root         0 Mar 24 12:18 file_root.txt
-rwxr-xr-x 1 sdevsinx sdevsinx   947 Mar 24 18:55 log
-rw-r--r-- 1 sdevsinx sdevsinx   170 May 31  2020 robots.txt
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 13:09 t1
-rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 11:58 t1.tar
-rw-r--r-- 1 sdevsinx sdevsinx 10240 Mar 24 18:27 t1_excluded.tar
drwxr-xr-x 1 sdevsinx sdevsinx  4096 Mar 24 11:41 t2

./t1:
total 0
-rw-r--r-- 1 sdevsinx sdevsinx   0 Mar 24 11:55 abc.log
-rw-r--r-- 1 sdevsinx sdevsinx   0 Mar 24 11:55 clickbait.log
-rw-r--r-- 1 sdevsinx sdevsinx 113 Mar 24 11:41 file2.txt
lrwxrwxrwx 1 sdevsinx sdevsinx   9 Mar 24 13:09 file4_sym_lnk -> file4.txt
-rw-r--r-- 1 root     root       0 Mar 24 12:18 file_root.txt

./t2:
total 0
-rw-r--r-- 1 sdevsinx sdevsinx 77 Mar 24 11:41 file3.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q25: Create a file , write your surname and name in it and save.

i.now open the same file and add your address in it and save.

ii.reopen the same file and check your name and address in it.

```
$ touch naam.txt
$ ls
$ vi naam.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ touch naam.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls
file1.txt  file4.txt  file5.txt  file_root.txt  log  naam.txt  robots.txt  t1  t1.tar  t1_excluded.tar  t2
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ vi naam.txt
```

```
Dev Singh Jamwal
Surya
~
~
~
~
~
~
~
-- INSERT --                                                    2,6           All
```

```
$ vi naam.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ vi naam.txt
```

```
Dev Singh Jamwal
Surya
C-DAC Hostel, Kharghar, Navi Mumbai
~
~
~
~
~
~
-- INSERT --                                                    3,35          All
```

```
$ vi naam.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ vi naam.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ vi naam.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ vi naam.txt
```

```
Dev Singh Jamwal
Surya
C-DAC Hostel, Kharghar, Navi Mumbai
~
~
~
~
~
~
"naam.txt" 3L, 59B                                                    3,34          All
```

Q26: how to change the timestamp of file (man touch)

```
$ ls -l naam.txt
$ touch naam.txt
$ ls -l naam.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -l naam.txt
-rw-r--r-- 1 sdevsinx sdevsinx 59 Mar 24 19:12 naam.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ touch naam.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ ls -l naam.txt
-rw-r--r-- 1 sdevsinx sdevsinx 59 Mar 24 19:13 naam.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q27: Create directory structure : Give following commands ,

-> mkdir one
-> cd one
-> touch 1.txt 11.txt 111.txt
-> mkdir two
-> cd two
-> touch 2.txt 22.txt 222.txt
-> mkdir three
-> cd three
-> touch 3.txt 33.txt 333.txt
-> mkdir four
-> cd four
-> touch 4.txt 44.txt 444.txt
-> mkdir five
-> cd five
-> touch 5.txt 55.txt 555.txt
-> cd ~ (i.e. go to your home directory)

```
$ mkdir one
$ cd one
$ touch 1.txt 11.txt 111.txt
$ mkdir two
$ cd two
$ touch 2.txt 22.txt 222.txt
$ mkdir three
$ cd three
$ touch 3.txt 33.txt 333.txt
$ mkdir four
$ cd four
```

```
$ touch 4.txt 44.txt 444.txt
$ mkdir five
$ cd five
$ touch 5.txt 55.txt 555.txt
$ cd ../../../../../
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ mkdir one
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cd one
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one$ touch 1.txt 11.txt 111.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one$ mkdir two
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one$ cd two
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two$ touch 2.txt 22.txt 222.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two$ mkdir three
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two$ cd three
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three$ touch 3.txt 33.txt 333.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three$ mkdir four
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three$ cd four
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three/four$ touch 4.txt 44.txt 444.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three/four$ mkdir five
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three/four$ cd five
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three/four/five$ touch 5.txt 55.txt 555.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/one/two/three/four/five$ cd ../../../../../
```

```
$ tree one
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ tree one
one
├── 1.txt
├── 11.txt
├── 111.txt
└── two
    ├── 2.txt
    ├── 22.txt
    ├── 222.txt
    └── three
        ├── 3.txt
        ├── 33.txt
        ├── 333.txt
        └── four
            ├── 4.txt
            ├── 44.txt
            ├── 444.txt
            └── five
                ├── 5.txt
                ├── 55.txt
                └── 555.txt

4 directories, 15 files
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

```
$ cd ~
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cd  ~
sdevsinx@LAPTOP-PQJF2L1:~$ pwd
/home/sdevsinx
```

```
$ pwd
```

Q28: Considering above directory structure , Do following operations :

i. list the directory contents of directory named "five" from the current directory (i.e. home directory).

```
$ ls one/two/three/four/five
```

```
sdevsinx@LAPTOP-PQJF2L1:~$ ls one/two/three/four/five
5.txt  55.txt  555.txt
sdevsinx@LAPTOP-PQJF2L1:~$
```

ii. write your name in a file named "44.txt" of directory "four" from current directory.

```
$ echo “Surya Dev Singh Jamwal” >> one/two/three/four/44.txt
```

```
$ cat one/two/three/four/44.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~$ echo "Surya Dev Singh Jamwal" >> one/two/three/four/44.txt
sdevsinx@LAPTOP-PQJF2L1:~$ cat one/two/three/four/44.txt
Surya Dev Singh Jamwal
sdevsinx@LAPTOP-PQJF2L1:~$
```

iii.remove the file named "555.txt" from directory "five" from the current directory.

```
$ rm one/two/three/four/five/555.txt
$ ls one/two/three/four/five
```

```
sdevsinx@LAPTOP-PQJF2L1:~$ rm one/two/three/four/five/555.txt
sdevsinx@LAPTOP-PQJF2L1:~$ ls one/two/three/four/five
5.txt  55.txt
sdevsinx@LAPTOP-PQJF2L1:~$
```

iv. change directory to five (i.e. cd one/two/three/four/five/).

```
$ cd one/two/three/four/five/
$ pwd
```

```
sdevsinx@LAPTOP-PQJF2L1:~$ cd one/two/three/four/five/
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ pwd
/home/sdevsinx/one/two/three/four/five
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$
```

v. write your course name in file named "3.txt" which resides in directory "three" from current directory (i.e. five).also read the same file.

```
$ echo “PG-DBDA” >> ../../3.txt
$ cat ../../3.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ echo "PG-DBDA" >> ../../3.txt
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ cat ../../3.txt
PG-DBDA
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$
```

vi. list the contents of directory "two" from current directory (i.e. five).

```
$ ls ../../../
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ ls ../../../
2.txt  22.txt  222.txt  three
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$
```

vii. remove file named "222.txt" which belongs to directory "two" from current directory (i.e. five)

```
$ ls ../../../
$ rm ../../../222.txt
$ ls ../../../
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ ls ../../../
2.txt  22.txt  222.txt  three
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ rm ../../../222.txt
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ ls ../../../
2.txt  22.txt  three
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$
```

viii. now change the directory to "one"

```
$ cd ../../../../
$ pwd
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one/two/three/four/five$ cd ../../../../
sdevsinx@LAPTOP-PQJF2L1:~/one$ pwd
/home/sdevsinx/one
sdevsinx@LAPTOP-PQJF2L1:~/one$
```

ix. remove all files only from directory named "five" from current directory (i.e. one)

```
$ ls two/three/four/five
$ rm two/three/four/five/*
$ ls two/three/four/five
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one$ ls two/three/four/five
5.txt  55.txt
sdevsinx@LAPTOP-PQJF2L1:~/one$ rm two/three/four/five/*
sdevsinx@LAPTOP-PQJF2L1:~/one$ ls two/three/four/five
sdevsinx@LAPTOP-PQJF2L1:~/one$
```

x. remove directory named "five" from current directory (i.e. one)

```
$ ls two/three/four
$ rmdir two/three/four/five
$ ls two/three/four
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one$ ls two/three/four
4.txt  44.txt  444.txt  five
sdevsinx@LAPTOP-PQJF2L1:~/one$ rmdir two/three/four/five
sdevsinx@LAPTOP-PQJF2L1:~/one$ ls two/three/four
4.txt  44.txt  444.txt
sdevsinx@LAPTOP-PQJF2L1:~/one$
```

xi. remove whole directory named "four" from current directory (i.e. one)

```
$ ls two/three
$ rm -rf ls two/three/four
$ ls two/three
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one$ ls two/three/
3.txt  33.txt  333.txt  four
sdevsinx@LAPTOP-PQJF2L1:~/one$ rm -rf two/three/four
sdevsinx@LAPTOP-PQJF2L1:~/one$ ls two/three/
3.txt  33.txt  333.txt
sdevsinx@LAPTOP-PQJF2L1:~/one$
```

xii. change to your home directory.

```
$ pwd
$ cd
$ pwd
```

```
sdevsinx@LAPTOP-PQJF2L1:~/one$ pwd
/home/sdevsinx/one
sdevsinx@LAPTOP-PQJF2L1:~/one$ cd
sdevsinx@LAPTOP-PQJF2L1:~$ pwd
/home/sdevsinx
sdevsinx@LAPTOP-PQJF2L1:~$
```

Q29: change the time stamp of file named "3.txt" which resides in directory named "three".(man touch)

```
$ ls -l one/two/three/3.txt
$ touch one/two/three/3.txt
$ ls -l one/two/three/3.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~$ ls -l one/two/three/3.txt
-rw-r--r-- 1 sdevsinx sdevsinx 8 Mar 24 21:41 one/two/three/3.txt
sdevsinx@LAPTOP-PQJF2L1:~$ touch one/two/three/3.txt
sdevsinx@LAPTOP-PQJF2L1:~$ ls -l one/two/three/3.txt
-rw-r--r-- 1 sdevsinx sdevsinx 8 Mar 24 21:53 one/two/three/3.txt
sdevsinx@LAPTOP-PQJF2L1:~$
```

Q30: Create a file named "data.txt" and write following 6 lines in it(write as it is).
"Linux is open source.
In linux everything
is file. files have permissions.
files have inode no.
files have size.
there are several types of file"

i. count the no. of words ,characters and lines from above file.(man wc)

```
$ wc -w data.txt
$ wc -c data.txt
$ wc -l data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ wc -w data.txt
25 data.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ wc -c data.txt
145 data.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ wc -l data.txt
6 data.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

ii. list the lines having word "files" (man grep)

```
$ grep “files” data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep "files" data.txt
is file. files have permissions.
files have inode no.
files have size.
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

iii. list the lines having word "file" (man grep)

```
$ grep “file” data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep "file" data.txt
is file. files have permissions.
files have inode no.
files have size.
there are several types of file
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

iv.list the lines which don't have word "files" (man grep)

```
$ grep -v “files” data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep -v "files" data.txt
Linux is open source.
In linux everything
there are several types of file
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

v. list the lines having the word "have" along with count. (man grep)

```
$ grep -c  “have”  data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep -c "have"  data.txt
3
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

vi. list the lines starts with letter "f" (man grep)

```
$ grep "^f" data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep "^f" data.txt
files have inode no.
files have size.
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

vii. list the lines ends with "g" (man grep)

```
$ grep "g$" data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ grep "g$" data.txt
In linux everything
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

viii. list only first two lines.(man head)

```
$ head -n 2 data.txt
$ cat data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ head -n 2 data.txt
Linux is open source.
In linux everything
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat data.txt
Linux is open source.
In linux everything
is file. files have permissions.
files have inode no.
files have size.
there are several types of file
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

ix. list only last three lines.(man tail)

```
$ cat data.txt
$ tail -n 3 data.txt
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat data.txt
Linux is open source.
In linux everything
is file. files have permissions.
files have inode no.
files have size.
there are several types of file
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ tail -n 3 data.txt
files have inode no.
files have size.
there are several types of file
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

x. list line no.3,4 and 5 . (man head and tail)

```
$ cat data.txt
$ head -n 5 data.txt | tail -n 3
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ cat data.txt
Linux is open source.
In linux everything
is file. files have permissions.
files have inode no.
files have size.
there are several types of file
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$ head -n 5 data.txt | tail -n 3
is file. files have permissions.
files have inode no.
files have size.
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2$
```

Q31: Write a shell script to display your LOGIN NAME and HOME directory.

```
$ vi q31.sh
#!/bin/bash
whoami
echo "$HOME"
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q31.sh
sdevsinx
/home/sdevsinx
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q32: Write a shell script to display a menu like “1. Date, 2. Cal, 3. Ls, 4. Pwd, 5. Exit” and execute the commands depending on user choice.

```
$ vi q32.sh
#!/bin/bash
echo "Enter your choice from menu:\n1. date\n2. cal\n3. ls\n4.
pwd\n5.exit "
read inp
if [ $inp == 1 ]
then
      #echo "entered 1" #debug
      date
elif [ $inp == 2 ]
then
      #echo "entered 2" #debug
      cal
elif [ $inp == 3 ]
then
      #echo "entered 3" #debug
      ls
elif [ $inp == 4 ]
then
      #echo "entered 4" #debug
      pwd
else
      #echo "entered 5" #debug
      echo "Entered 5, Exiting Program" #debug
      exit 0
```

```
fi
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q32.sh
Enter your choice from menu:\n1. date\n2. cal\n3. ls\n4. pwd\n5.exit
1
Fri Mar 24 22:27:31 IST 2023
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q32.sh
Enter your choice from menu:\n1. date\n2. cal\n3. ls\n4. pwd\n5.exit
2
     March 2023
Su Mo Tu We Th Fr Sa
          1  2  3  4
 5  6  7  8  9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31

sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q32.sh
Enter your choice from menu:\n1. date\n2. cal\n3. ls\n4. pwd\n5.exit
3
q.sh  q31.sh  q32.sh
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q32.sh
Enter your choice from menu:\n1. date\n2. cal\n3. ls\n4. pwd\n5.exit
4
/home/sdevsinx/linux_module/assignment2/q31_46
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q32.sh
Enter your choice from menu:\n1. date\n2. cal\n3. ls\n4. pwd\n5.exit
5
Entered 5, Exiting Program
```

Q33: Write a shell script to accept the name from the user and check whether user entered name is file or directory. If name is file display its size and if it is directory display its contents.

```
$ vi q33.sh
#!/bin/bash
# pass search path as commandline arg $1
echo "Enter a name : "
read naam
#echo $naam #debug
dirchk=$(ls -l $1 | grep "$naam" | grep -o "^d")
#echo $dirchk #debug
filechk=$(ls -l $1 | grep "$naam" | grep -o "^-")
#echo $filechk #debug
if [[ $dirchk == 'd' ]]
then
      echo "directory"
elif [[ $filechk == '-' ]]
then
      echo "normal file"
else
      echo "exiting else block, $naam file/dir does not exist"
fi
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ ls -R *
q.sh  q31.sh  q32.sh  q33.sh

surya:
surya
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q33.sh .
Enter a name :
surya
directory
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q33.sh ./surya/
Enter a name :
surya
normal file
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q33.sh ./surya/
Enter a name :
abc
exiting else block, abc file/dir does not exist
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q34: Write a shell script to determine whether a given number is prime or not

```
$ vi q34.sh
#!/bin/bash
echo "Enter a number : "
read num
for ((i=2; i<=$num/2; i++))
do
      rem=$((num%i))
      if [ $rem -eq 0 ]
      then
            echo "non-Prime Number"
            exit 0
      fi
done
echo "Prime Number"
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q34.sh
Enter a number :
23
Prime Number
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q34.sh
Enter a number :
44
non-Prime Number
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q35: Write a Program to find the greatest of three numbers

```
$ vi q35.sh
#!/bin/bash
echo "Enter three numbers : "
read a b c
if [ $a -gt $b -a $a -gt $c ]
then
      echo "$a is greatest"
elif [ $b  -gt $a -a $b -gt $c ]
then
      echo "$b is greatest"
```

```
elif [ $c -gt $a -a $c -gt $b ]
then
      echo "$c is greatest"
elif [ $a -eq $b -a $a -eq $c -a $c -eq $b ]
then
      echo "all three numbers are equal"
else
      echo "any two numbers are equal"
fi
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q35.sh
Enter three numbers :
1 2 3
3 is greatest
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q35.sh
Enter three numbers :
1 2 1
2 is greatest
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q35.sh
Enter three numbers :
2 1 2
any two numbers are equal
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q35.sh
Enter three numbers :
2 2 2
all three numbers are equal
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q36: Write a Program to find whether a given year is a leap year or not

```
$ vi q36.sh
#!/bin/bash
echo "Enter a year to check leap year : "
read yr
if [[ $((yr%100)) == 0 ]]
then
      echo "Non-Leap year"
else
      if [ $((yr%4)) == 0 ]
      then
            echo "Leap year"
      else
            echo "Non-Leap year"
      fi
fi
```

```
Enter a year to check leap year :
2004
Leap year
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q36.sh
Enter a year to check leap year :
200
Non-Leap year
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q36.sh
Enter a year to check leap year :
875
Non-Leap year
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q36.sh
Enter a year to check leap year :
1200
Non-Leap year
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q37: Write a Program to find whether a given number is positive or negative

```
$ vi q37.sh
#!/bin/bash
echo "Enter a number to check positive or negative : "
read num
if [[ $num -gt 0 ]]
then
      echo "positive number"
elif [[ $num -lt 0 ]]
then
      echo "negative number"
else
      echo "Zero"
fi
```

```
Enter a number to check positive or negative :
5
positive number
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q37.sh
Enter a number to check positive or negative :
0
Zero
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q37.sh
Enter a number to check positive or negative :
-4
negative number
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q38: Write a program to print the table of a given number.

```
$ vi q38.sh
#!/bin/bash
echo "Enter the number for which you want table : "
read num
for ((i=0;i<=10;i++))
do
      echo "$num X $i = $((num*i))"
done
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q38.sh
Enter the number for which you want table :
55
55 X 0 = 0
55 X 1 = 55
55 X 2 = 110
55 X 3 = 165
55 X 4 = 220
55 X 5 = 275
55 X 6 = 330
55 X 7 = 385
55 X 8 = 440
55 X 9 = 495
55 X 10 = 550
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q39: Write a program to find the factorial of a given number.

```
$ vi q39.sh
#!/bin/bash
echo "Enter a number : "
read num
fact=1
for ((i=$num; i!=0; i--))
do
      fact=$((fact*i))
#     echo "$fact" #debug
done
echo "Factorial of $num is $fact"
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q39.sh
Enter a number :
6
Factorial of 6 is 720
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q39.sh
Enter a number :
3
Factorial of 3 is 6
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q40: Write a program to find a given number of terms in the Fibonacci series.

```
$ vi q40.sh
#!/bin/bash
echo "Enter the value for n, for which you want nth term in fibonacci
series : "
read num
a=0
b=1
c=$((a+b))
echo "term0 $a"
echo "term1 $b"
for ((i=2; i<=$num;i++))
do
      a=$b
      b=$c
```

```
      c=$((a+b))
      echo "term$i $c"
done
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q40.sh
Enter the value for n, for which you want nth term in fibonacci series :
8
term0 0
term1 1
term2 2
term3 3
term4 5
term5 8
term6 13
term7 21
term8 34
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q41: Write a program to calculate gross salary if the DA is 40%, HRA is 20% of basic salary. Accept basic salary form user and display gross salary (Result can be floating point value).

```
$ vi q41.sh
#!/bin/bash
read -p "Enter basic salary : " bsal
echo "Basic Salary is $bsal" #debug
da=$(($((bsal * 40))/100))
echo "DA is $da" #debug
hra=$(($((bsal * 20))/100))
echo "HRA is $hra" #debug
gsal=$((bsal + da + hra))
echo "Gross Salary is $gsal"
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q41.sh
Enter basic salary : 12000
Basic Salary is 12000
DA is 4800
HRA is 2400
Gross Salary is 19200
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q42: Write a shell script to accept a filename as argument and displays the last modification time if the file exists and a suitable message if it doesn't exist.

```
$ vi q42.sh
#!/bin/bash
read -p "Enter file name : " fil
if [ -f $fil ]
then
      echo "file exists"
      date -r $fil
else
      echo "file does not exist"
fi
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q42.sh
Enter file name : abc.txt
file exists
Sat Mar 25 18:19:20 IST 2023
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q42.sh
Enter file name : abbc.txt
file does not exist
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q43: Write a shell script to display only hidden files of the current directory.

```
$ vi q43.sh
#!/bin/bash
ls -a | grep "^\."
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q43.sh
.
..
.abc_hidden
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q44: Write a shell script to display only executable files of the current directory.

```
$ vi q44.sh
#!/bin/bash
find ./ -executable -type f
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q44.sh
./q.sh
./q31.sh
./q32.sh
./q33.sh
./q33_alt.sh
./q34.sh
./q35.sh
./q36.sh
./q37.sh
./q38.sh
./q39.sh
./q40.sh
./q41.sh
./q43.sh
./q44.sh
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q45: Accept the two file names from user and append the contents in reverse case of first file into the second file.

```
$ vi q45.sh
#!/bin/bash
read -p "Enter file1 name : " fil1
read -p "Enter file2 name : " fil2
echo -e "\ncontents of file1 $fil1 : "
cat $fil1
echo -e "\ncontents of file2 $fil2 : "
cat $fil2
cat $fil1 >> $fil2
echo -e "\ncontents of file2 $fil2 after appending : "
cat $fil2
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q45.sh
Enter file1 name : abc.txt
Enter file2 name : def.txt

contents of file1 abc.txt :
this is content from abc.txt
you're reading line2 from abc.txt

contents of file2 def.txt :
this is content from def.txt
you're reading text from line2 of def.txt

contents of file2 def.txt after appending :
this is content from def.txt
you're reading text from line2 of def.txt
this is content from abc.txt
you're reading line2 from abc.txt
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```

Q46: Write a shell script to display welcome message to the user along with contents of his home directory. Ensure that shell script will execute automatically when user login to the shell. (Make entry of your shell script into .bashrc file into your home directory).

```
$ vi q46.sh
#!/bin/bash
echo "Welcome $USER user "
echo -e "contents of your Home dir are : "
ls ~

$ vi ~/.bashrc
#for Linux assignment only
source q46.sh

$ source ~/.bashrc
```

```
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 4.4.0-19041-Microsoft x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage


This message is shown once a day. To disable it please create the
/home/sdevsinx/.hushlogin file.
Welcome sdevsinx user
contents of your Home dir are :
cloud_computing_module  documents  linux_module  linux_module.tar  linux_module.zip  one  q46.sh
sdevsinx@LAPTOP-PQJF2L1:~$
```

Q47: Print the following pattern.

```
*
**
***
****
*****
$ vi q47.txt
#!/bin/bash
for ((i=1; i<=5; i++))
do
```

```
      for ((j=0; j<$i; j++))
      do
            echo -n "*"
      done
      echo ""
done
```

```
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$ bash q47.sh
*
**
***
****
*****
sdevsinx@LAPTOP-PQJF2L1:~/linux_module/assignment2/q31_46$
```