Linux Assignment No 2

1. 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?

```
vaibhav@VK:~$ grep -r "error" file.txt
its error.
vaibhav@VK:~$
```

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

```
vaibhav@VK:/$ cd /var/log && ls
alternatives.log   bootstrap.log   dist-upgrade   faillog   lastlog   ubuntu-advantage.log   upgrade-policy-changed.log
apt                btmp            dpkg.log       journal   private   unattended-upgrades    wtmp
vaibhav@VK:/var/log$ cat ubuntu-advantage.log
vaibhav@VK:/var/log$ cat alternatives.log
update-alternatives 2023-01-03 21:40:26: run with --install /usr/bin/awk awk /usr/bin/mawk 5 --slave /usr/share/man/man1
/awk.1.gz awk.1.gz /usr/share/man/man1/mawk.1.gz --slave /usr/bin/nawk nawk /usr/bin/mawk --slave /usr/share/man/man1/na
wk.1.gz nawk.1.gz /usr/share/man/man1/mawk.1.gz
update-alternatives 2023-01-03 21:40:26: link group awk updated to point to /usr/bin/mawk
update-alternatives 2023-01-03 21:40:32: run with --install /usr/bin/which which /usr/bin/which.debianutils 0 --slave /u
sr/share/man/man1/which.1.gz which.1.gz /usr/share/man/man1/which.debianutils.1.gz --slave /usr/share/man/de/man1/which.
1.gz which.de1.gz /usr/share/man/de/man1/which.debianutils.1.gz --slave /usr/share/man/es/man1/which.1.gz which.es1.gz /
usr/share/man/es/man1/which.debianutils.1.gz --slave /usr/share/man/fr/man1/which.1.gz which.fr1.gz /usr/share/man/fr/ma
n1/which.debianutils.1.gz --slave /usr/share/man/it/man1/which.1.gz which.it1.gz /usr/share/man/it/man1/which.debianutil
s.1.gz --slave /usr/share/man/ja/man1/which.1.gz which.ja1.gz /usr/share/man/ja/man1/which.debianutils.1.gz --slave /usr
/share/man/pl/man1/which.1.gz which.pl1.gz /usr/share/man/pl/man1/which.debianutils.1.gz --slave /usr/share/man/sl/man1/
which.1.gz which.sl1.gz /usr/share/man/sl/man1/which.debianutils.1.gz
update-alternatives 2023-01-03 21:40:32: link group which updated to point to /usr/bin/which.debianutils
update-alternatives 2023-01-03 21:40:32: run with --install /usr/bin/awk awk /usr/bin/mawk 5 --slave /usr/share/man/man1
/awk.1.gz awk.1.gz /usr/share/man/man1/mawk.1.gz --slave /usr/bin/nawk nawk /usr/bin/mawk --slave /usr/share/man/man1/na
wk.1.gz nawk.1.gz /usr/share/man/man1/mawk.1.gz
update-alternatives 2023-01-03 21:40:33: run with --install /usr/share/man/man7/builtins.7.gz builtins.7.gz /usr/share/m
an/man7/bash-builtins.7.gz 10
update-alternatives 2023-01-03 21:40:33: link group builtins.7.gz updated to point to /usr/share/man/man7/bash-builtins.
7.gz
update-alternatives 2023-01-03 21:40:33: run with --install /usr/sbin/rmt rmt /usr/sbin/rmt-tar 50 --slave /usr/share/ma
n/man8/rmt.8.gz rmt.8.gz /usr/share/man/man8/rmt-tar.8.gz
update-alternatives 2023-01-03 21:40:33: link group rmt updated to point to /usr/sbin/rmt-tar
update-alternatives 2023-01-03 21:40:34: run with --install /usr/bin/pager pager /bin/more 50 --slave /usr/share/man/man
1/pager.1.gz pager.1.gz /usr/share/man/man1/more.1.gz
```

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

```
vaibhav@VK:~$ cat file.txt
hello guys
good morning, myself vk
im persuing pg-dbda at cdac mumbai
its error.
vaibhav@VK:~$ sed -i 's/error/solved/g' file.txt
vaibhav@VK:~$ cat file.txt
hello guys
good morning, myself vk
im persuing pg-dbda at cdac mumbai
its solved.
vaibhav@VK:~$
```

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

```
vaibhav@VK:~$ ls
Assignment2    dir        file.txt  hardlink.txt  linux      number.sh  odd.sh        sl.txt     zipfile.zip
demo.tar       even.sh    files     hl.txt        newfile.txt numbers.sh shell-script  temp.txt
vaibhav@VK:~$ cd Assignment2 && ls && cd ..
1.sh  2.sh  even.sh
vaibhav@VK:~$ zip -r ass2.zip Assignment2 -x Assignment2/1.sh
  adding: Assignment2/ (stored 0%)
  adding: Assignment2/even.sh (deflated 29%)
  adding: Assignment2/2.sh (deflated 27%)
vaibhav@VK:~$
```

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

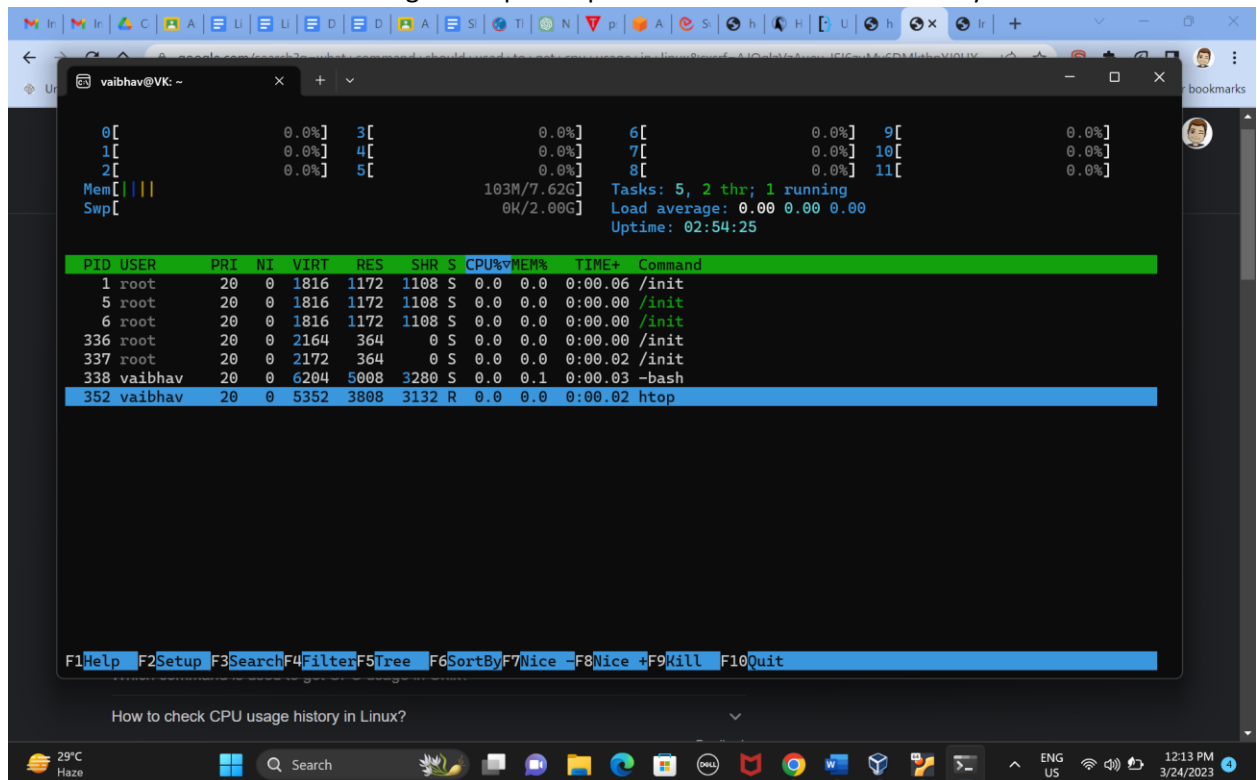wget command is used to download a file from remote server.

```
vaibhav@VK:~$ wget https://ftp.netbsd.org/robots.txt
--2023-03-24 11:42:10--  https://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|:443... 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 11:42:12 (8.36 MB/s) - 'robots.txt' saved [170/170]

vaibhav@VK:~$ ls
Assignment2  demo.tar   even.sh    files         hl.txt    newfile.txt  numbers.sh  robots.txt    sl.txt     zipfile.zip
ass2.zip     dir        file.txt  hardlink.txt  linux     number.sh    odd.sh      shell-script  temp.txt
vaibhav@VK:~$
```

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

```
vaibhav@VK:~$ ps
   PID TTY            TIME CMD
   338 pts/0     00:00:00 bash
   349 pts/0     00:00:00 ps
vaibhav@VK:~$ ps -p 338 -o %cpu,%mem
%CPU %MEM
 0.0  0.0
```

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

```
vaibhav@VK:~$ cd linux && cp testpermission.txt /home/vaibhav/files/
vaibhav@VK:~/linux$ cd ..
vaibhav@VK:~$ cd files
vaibhav@VK:~/files$ ls
file.txt   new.txt   testpermission.txt
vaibhav@VK:~/files$
```

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

```
vaibhav@VK:~$ ls -lS
total 80
-rw-r--r-- 1 vaibhav vaibhav 10240 Mar 24 09:45 demo.tar
drwxrwxr-x 2 vaibhav vaibhav  4096 Mar 23 23:21 Assignment2
drwxrwxrwx 2 vaibhav vaibhav  4096 Mar 24 10:43 dir
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:19 files
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 10:20 linux
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:13 shell-script
-rw-r--r-- 1 vaibhav vaibhav   741 Mar 24 11:23 ass2.zip
-rw-r--r-- 1 vaibhav vaibhav   239 Mar 24 09:13 zipfile.zip
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 hl.txt
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 temp.txt
-rw-r--r-- 1 vaibhav vaibhav   170 May 31  2020 robots.txt
-rw-r--r-- 1 vaibhav vaibhav   134 Mar 21 16:00 number.sh
-rw-r--r-- 1 vaibhav vaibhav   113 Mar 21 15:40 odd.sh
-rw-r--r-- 1 vaibhav vaibhav   102 Mar 21 15:43 even.sh
-rw-r--r-- 1 vaibhav vaibhav    82 Mar 24 11:06 file.txt
-rw-r--r-- 1 vaibhav vaibhav    35 Mar 21 15:26 numbers.sh
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 hardlink.txt
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 newfile.txt
lrwxrwxrwx 1 vaibhav vaibhav     8 Mar 24 10:28 sl.txt -> temp.txt
vaibhav@VK:~$
```

9. 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 -newermt "-24 hours" -ls

find -newermt "today" -ls

find -newermt "yesterday" -ls

find -newermt "1 day ago" -ls

```
vaibhav@VK:~$ find -newermt "-24 hours" -ls
     474     4 drwxr-x---   8 vaibhav  vaibhav      4096 Mar 24 12:27 .
   11563     4 -rw-r--r--   2 vaibhav  vaibhav       191 Mar 24 07:17 ./hl.txt
    1107     4 drwxr-xr-x   2 vaibhav  vaibhav      4096 Mar 24 12:13 ./shell-script
   11648     4 -rw-r--r--   1 vaibhav  vaibhav       118 Mar 24 12:13 ./shell-script/add.sh
   11565     4 drwxr-xr-x   2 vaibhav  vaibhav      4096 Mar 24 10:20 ./linux
   11592     0 -rw-r--r--   1 vaibhav  vaibhav         0 Mar 24 09:50 ./linux/testpermission.txt
   11602     0 -rw-rw-r--   1 vaibhav  vaibhav         0 Mar 24 10:20 ./linux/newpermission.txt
   11626     4 -rw-r--r--   1 vaibhav  vaibhav        82 Mar 24 11:06 ./file.txt
    1108    12 -rw-r--r--   1 vaibhav  vaibhav     10240 Mar 24 09:45 ./demo.tar
     324     8 -rw-------   1 vaibhav  vaibhav      6226 Mar 24 11:46 ./.bash_history
     516     4 -rw-r--r--   1 vaibhav  vaibhav       239 Mar 24 09:13 ./zipfile.zip
   29353     0 -rw-r--r--   1 vaibhav  vaibhav         0 Mar 24 07:13 ./.motd_shown
    5636     4 drwx------   4 vaibhav  vaibhav      4096 Mar 24 11:39 ./.config
   11562     4 drwx------   2 vaibhav  vaibhav      4096 Mar 24 09:47 ./.config/procps
   11627     4 drwx------   2 vaibhav  vaibhav      4096 Mar 24 11:41 ./.config/htop
   11629     4 -rw-r--r--   1 vaibhav  vaibhav       965 Mar 24 11:41 ./.config/htop/htoprc
    5643     4 -rw-r--r--   1 vaibhav  vaibhav       741 Mar 24 11:23 ./ass2.zip
    5490     4 drwxrwxr-x   2 vaibhav  vaibhav      4096 Mar 23 23:21 ./Assignment2
   11561     4 -rw-rw-r--   1 vaibhav  vaibhav       119 Mar 23 22:42 ./Assignment2/even.sh
   11555     4 -rw-rw-r--   1 vaibhav  vaibhav        67 Mar 23 22:36 ./Assignment2/1.sh
   11558     4 -rw-rw-r--   1 vaibhav  vaibhav       213 Mar 23 23:21 ./Assignment2/2.sh
   11606     0 lrwxrwxrwx   1 vaibhav  vaibhav         8 Mar 24 10:28 ./sl.txt -> temp.txt
   11564     4 -rw-r--r--   2 vaibhav  vaibhav        30 Mar 24 07:29 ./newfile.txt
   11563     4 -rw-r--r--   2 vaibhav  vaibhav       191 Mar 24 07:17 ./temp.txt
   11649    12 -rw-------   1 vaibhav  vaibhav      9065 Mar 24 12:13 ./.viminfo
   11564     4 -rw-r--r--   2 vaibhav  vaibhav        30 Mar 24 07:29 ./hardlink.txt
     515     4 -rw-------   1 vaibhav  vaibhav        20 Mar 24 12:27 ./.lesshst
   11618     4 drwxrwxrwx   2 vaibhav  vaibhav      4096 Mar 24 10:43 ./dir
```

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

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

```
vaibhav@VK:~$ ps aux --sort=%mem
USER       PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root       336  0.0  0.0   2164   364 ?        Ss   11:46   0:00 /init
root       337  0.0  0.0   2172   364 ?        S    11:46   0:00 /init
root         1  0.0  0.0   1816  1172 ?        Sl   08:53   0:00 /init
vaibhav    453  0.0  0.0   7476  3108 pts/0    R+   12:44   0:00 ps aux --sort=%mem
vaibhav    338  0.0  0.0   6204  5240 pts/0    Ss   11:46   0:00 -bash
vaibhav@VK:~$ |
```

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

```
vaibhav@VK:~$ dpkg-query -l
Desired=Unknown/Install/Remove/Purge/Hold
| Status=Not/Inst/Conf-files/Unpacked/halF-conf/Half-inst/trig-aWait/Trig-pend
|/ Err?=(none)/Reinst-required (Status,Err: uppercase=bad)
||/ Name                           Version                              Architecture Description
+++-==============================-====================================-============-===============================
ii  adduser                        3.118ubuntu5                         all          add and remove users and groups
ii  apparmor                       3.0.4-2ubuntu2.2                     amd64        user-space parser utility for Ap>
ii  apport                         2.20.11-0ubuntu82.3                  all          automatically generate crash rep>
ii  apport-symptoms                0.24                                 all          symptom scripts for apport
ii  apt                            2.4.8                                amd64        commandline package manager
ii  apt-utils                      2.4.8                                amd64        package management related utili>
ii  base-files                     12ubuntu4.3                          amd64        Debian base system miscellaneous>
ii  base-passwd                    3.5.52build1                         amd64        Debian base system master passwo>
ii  bash                           5.1-6ubuntu1                         amd64        GNU Bourne Again SHell
ii  bash-completion                1:2.11-5ubuntu1                      all          programmable completion for the >
ii  bind9-dnsutils                 1:9.18.1-1ubuntu1.3                  amd64        Clients provided with BIND 9
ii  bind9-host                     1:9.18.1-1ubuntu1.3                  amd64        DNS Lookup Utility
ii  bind9-libs:amd64               1:9.18.1-1ubuntu1.3                  amd64        Shared Libraries used by BIND 9
ii  binutils                       2.38-4ubuntu2.1                      amd64        GNU assembler, linker and binary>
ii  binutils-common:amd64          2.38-4ubuntu2.1                      amd64        Common files for the GNU assembl>
ii  binutils-x86-64-linux-gnu      2.38-4ubuntu2.1                      amd64        GNU binary utilities, for x86-64>
ii  bsdextrautils                  2.37.2-4ubuntu3                      amd64        extra utilities from 4.4BSD-Lite
ii  bsdutils                       1:2.37.2-4ubuntu3                    amd64        basic utilities from 4.4BSD-Lite
ii  busybox-static                 1:1.30.1-7ubuntu3                    amd64        Standalone rescue shell with ton>
ii  byobu                          5.133-1                              all          text window manager, shell multi>
ii  ca-certificates                20211016ubuntu0.22.04.1              all          Common CA certificates
ii  command-not-found              22.04.0                              all          Suggest installation of packages>
ii  console-setup                  1.205ubuntu3                         all          console font and keymap setup pr>
ii  console-setup-linux            1.205ubuntu3                         all          Linux specific part of console-s>
vaibhav@VK:~$ apt list --installed
Listing... Done
adduser/jammy,now 3.118ubuntu5 all [installed,automatic]
apparmor/jammy-updates,now 3.0.4-2ubuntu2.2 amd64 [installed,automatic]
apport-symptoms/jammy,now 0.24 all [installed,automatic]
apport/jammy-updates,now 2.20.11-0ubuntu82.3 all [installed,automatic]
apt-utils/jammy-updates,now 2.4.8 amd64 [installed,automatic]
apt/jammy-updates,now 2.4.8 amd64 [installed]
base-files/jammy-updates,now 12ubuntu4.3 amd64 [installed]
base-passwd/jammy,now 3.5.52build1 amd64 [installed]
bash-completion/jammy,now 1:2.11-5ubuntu1 all [installed,automatic]
bash/jammy,now 5.1-6ubuntu1 amd64 [installed]
bind9-dnsutils/jammy-updates,jammy-security,now 1:9.18.1-1ubuntu1.3 amd64 [installed,automatic]
bind9-host/jammy-updates,jammy-security,now 1:9.18.1-1ubuntu1.3 amd64 [installed,automatic]
bind9-libs/jammy-updates,jammy-security,now 1:9.18.1-1ubuntu1.3 amd64 [installed,automatic]
binutils-common/jammy-updates,jammy-security,now 2.38-4ubuntu2.1 amd64 [installed,automatic]
binutils-x86-64-linux-gnu/jammy-updates,jammy-security,now 2.38-4ubuntu2.1 amd64 [installed,automatic]
binutils/jammy-updates,jammy-security,now 2.38-4ubuntu2.1 amd64 [installed,automatic]
bsdextrautils/jammy,now 2.37.2-4ubuntu3 amd64 [installed,automatic]
bsdutils/jammy,now 1:2.37.2-4ubuntu3 amd64 [installed]
busybox-static/jammy,now 1:1.30.1-7ubuntu3 amd64 [installed,automatic]
byobu/jammy,now 5.133-1 all [installed,automatic]
ca-certificates/jammy-updates,jammy-security,now 20211016ubuntu0.22.04.1 all [installed,automatic]
command-not-found/jammy,now 22.04.0 all [installed,automatic]
console-setup-linux/jammy,now 1.205ubuntu3 all [installed,automatic]
console-setup/jammy,now 1.205ubuntu3 all [installed,automatic]
coreutils/jammy,now 8.32-4.1ubuntu1 amd64 [installed,automatic]
cpio/jammy,now 2.13+dfsg-7 amd64 [installed,automatic]
cron/jammy,now 3.0pl1-137ubuntu3 amd64 [installed,automatic]
curl/jammy-updates,jammy-security,now 7.81.0-1ubuntu1.8 amd64 [installed,automatic]
```

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

```
vaibhav@VK:~$ ln -s robots.txt link.txt
vaibhav@VK:~$ ls
Assignment2  demo.tar  even.sh   files                hl.txt
ass2.zip     dir                 file.txt  hardlink.txt  link.txt
vaibhav@VK:~$
```

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

```
root@VK:~# ps
  PID TTY          TIME CMD
  473 pts/1    00:00:00 sudo
  474 pts/1    00:00:00 bash
  517 pts/1    00:00:00 ps
root@VK:~# kill -9 474
Killed
vaibhav@VK:~$
```

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

```
vaibhav@VK:~$ grep -v "solved" file.txt
hello guys
good morning, myself vk
im persuing pg-dbda at cdac mumbai
vaibhav@VK:~$
```

16. you need to create a compressed archive of a directory, while excluding certain files and directories. What command would you use?
Same as Q4

```
vaibhav@VK:~$ ls
Assignment2  dir          file.txt  hardlink.txt  linux         number.sh  odd.sh        sl.txt     zipfile.zip
demo.tar     even.sh  files    hl.txt        newfile.txt  numbers.sh  shell-script  temp.txt
vaibhav@VK:~$ cd Assignment2 && ls && cd ..
1.sh  2.sh  even.sh
vaibhav@VK:~$ zip -r ass2.zip Assignment2 -x Assignment2/1.sh
  adding: Assignment2/ (stored 0%)
  adding: Assignment2/even.sh (deflated 29%)
  adding: Assignment2/2.sh (deflated 27%)
vaibhav@VK:~$
```

17. You need to find all files in a directory and its subdirectories that contain a specific string. What command would you use?
Same as Q1

```
vaibhav@VK:~$ grep -r "error" file.txt
its error.
vaibhav@VK:~$
```

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

```
vaibhav@VK:~$ cd /var/log && ls
alternatives.log  bootstrap.log  dist-upgrade  faillog  lastlog  ubuntu-advantage.log  upgrade-policy-changed.log
apt               btmp           dpkg.log      journal  private  unattended-upgrades   wtmp
vaibhav@VK:/var/log$ tail -n 20 bootstrap.log
Setting up ubuntu-advantage-tools (27.7~22.04.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ua-reboot-cmds.service -> /lib/systemd/system/ua-reboot-cmds
.service.
Created symlink /etc/systemd/system/timers.target.wants/ua-timer.timer -> /lib/systemd/system/ua-timer.timer.
Created symlink /etc/systemd/system/multi-user.target.wants/ua-license-check.path -> /lib/systemd/system/ua-license-chec
k.path.
Setting up networkd-dispatcher (2.1-2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/networkd-dispatcher.service -> /lib/systemd/system/networkd-
dispatcher.service.
Setting up kbd (2.3.0-3ubuntu4) ...
Setting up console-setup-linux (1.205ubuntu3) ...
update-alternatives: using /etc/console-setup/vtrgb to provide /etc/vtrgb (vtrgb) in auto mode
Created symlink /etc/systemd/system/sysinit.target.wants/keyboard-setup.service -> /lib/systemd/system/keyboard-setup.se
rvice.
Created symlink /etc/systemd/system/multi-user.target.wants/console-setup.service -> /lib/systemd/system/console-setup.s
ervice.
Created symlink /etc/systemd/system/sysinit.target.wants/setvtrgb.service -> /lib/systemd/system/setvtrgb.service.
Setting up console-setup (1.205ubuntu3) ...
Setting up ubuntu-minimal (1.481) ...
Processing triggers for libc-bin (2.35-0ubuntu3) ...
Processing triggers for ca-certificates (20211016) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...
done.
vaibhav@VK:/var/log$
```

19. 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?

```
vaibhav@VK:~$ touch trial.txt
vaibhav@VK:~$ ls -l trial.txt
-rw-r--r-- 1 vaibhav vaibhav 0 Mar 24 13:48 trial.txt
vaibhav@VK:~$ chmod 755 trial.txt
vaibhav@VK:~$ ls -l trial.txt
-rwxr-xr-x 1 vaibhav vaibhav 0 Mar 24 13:48 trial.txt
vaibhav@VK:~$
```

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

```
vaibhav@VK:~$ whoami
vaibhav
vaibhav@VK:~$
```

----

1. List the directory contents date wise sorted.
   ls -lt is used to print list of files and directories by last modified.
   ls-ltr is used to print list of files and directories by first modified.

```
vaibhav@VK:~$ ls -lt
total 80
-rwxr-xr-x 1 vaibhav vaibhav     0 Mar 24 13:48 trial.txt
lrwxrwxrwx 1 vaibhav vaibhav    10 Mar 24 13:19 link.txt -> robots.txt
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:19 files
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:13 shell-script
-rw-r--r-- 1 vaibhav vaibhav   741 Mar 24 11:23 ass2.zip
-rw-r--r-- 1 vaibhav vaibhav    82 Mar 24 11:06 file.txt
drwxrwxrwx 2 vaibhav vaibhav  4096 Mar 24 10:43 dir
lrwxrwxrwx 1 vaibhav vaibhav     8 Mar 24 10:28 sl.txt -> temp.txt
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 10:20 linux
-rw-r--r-- 1 vaibhav vaibhav 10240 Mar 24 09:45 demo.tar
-rw-r--r-- 1 vaibhav vaibhav   239 Mar 24 09:13 zipfile.zip
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 hardlink.txt
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 newfile.txt
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 hl.txt
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 temp.txt
drwxrwxr-x 2 vaibhav vaibhav  4096 Mar 23 23:21 Assignment2
-rw-r--r-- 1 vaibhav vaibhav   134 Mar 21 16:00 number.sh
-rw-r--r-- 1 vaibhav vaibhav   102 Mar 21 15:43 even.sh
-rw-r--r-- 1 vaibhav vaibhav   113 Mar 21 15:40 odd.sh
-rw-r--r-- 1 vaibhav vaibhav    35 Mar 21 15:26 numbers.sh
-rw-r--r-- 1 vaibhav vaibhav   170 May 31  2020 robots.txt
vaibhav@VK:~$ ls -ltr
total 80
-rw-r--r-- 1 vaibhav vaibhav   170 May 31  2020 robots.txt
-rw-r--r-- 1 vaibhav vaibhav    35 Mar 21 15:26 numbers.sh
-rw-r--r-- 1 vaibhav vaibhav   113 Mar 21 15:40 odd.sh
-rw-r--r-- 1 vaibhav vaibhav   102 Mar 21 15:43 even.sh
-rw-r--r-- 1 vaibhav vaibhav   134 Mar 21 16:00 number.sh
drwxrwxr-x 2 vaibhav vaibhav  4096 Mar 23 23:21 Assignment2
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 temp.txt
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 hl.txt
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 newfile.txt
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 hardlink.txt
-rw-r--r-- 1 vaibhav vaibhav   239 Mar 24 09:13 zipfile.zip
-rw-r--r-- 1 vaibhav vaibhav 10240 Mar 24 09:45 demo.tar
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 10:20 linux
lrwxrwxrwx 1 vaibhav vaibhav     8 Mar 24 10:28 sl.txt -> temp.txt
drwxrwxrwx 2 vaibhav vaibhav  4096 Mar 24 10:43 dir
-rw-r--r-- 1 vaibhav vaibhav    82 Mar 24 11:06 file.txt
-rw-r--r-- 1 vaibhav vaibhav   741 Mar 24 11:23 ass2.zip
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:13 shell-script
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:19 files
lrwxrwxrwx 1 vaibhav vaibhav    10 Mar 24 13:19 link.txt -> robots.txt
-rwxr-xr-x 1 vaibhav vaibhav     0 Mar 24 13:48 trial.txt
vaibhav@VK:~$
```

2. List the directory contents size wise sorted.

```
vaibhav@VK:~$ ls -lS
total 80
-rw-r--r-- 1 vaibhav vaibhav 10240 Mar 24 09:45 demo.tar
drwxrwxr-x 2 vaibhav vaibhav  4096 Mar 23 23:21 Assignment2
drwxrwxrwx 2 vaibhav vaibhav  4096 Mar 24 10:43 dir
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:19 files
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 10:20 linux
drwxr-xr-x 2 vaibhav vaibhav  4096 Mar 24 12:13 shell-script
-rw-r--r-- 1 vaibhav vaibhav   741 Mar 24 11:23 ass2.zip
-rw-r--r-- 1 vaibhav vaibhav   239 Mar 24 09:13 zipfile.zip
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 hl.txt
-rw-r--r-- 2 vaibhav vaibhav   191 Mar 24 07:17 temp.txt
-rw-r--r-- 1 vaibhav vaibhav   170 May 31  2020 robots.txt
-rw-r--r-- 1 vaibhav vaibhav   134 Mar 21 16:00 number.sh
-rw-r--r-- 1 vaibhav vaibhav   113 Mar 21 15:40 odd.sh
-rw-r--r-- 1 vaibhav vaibhav   102 Mar 21 15:43 even.sh
-rw-r--r-- 1 vaibhav vaibhav    82 Mar 24 11:06 file.txt
-rw-r--r-- 1 vaibhav vaibhav    35 Mar 21 15:26 numbers.sh
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 hardlink.txt
-rw-r--r-- 2 vaibhav vaibhav    30 Mar 24 07:29 newfile.txt
lrwxrwxrwx 1 vaibhav vaibhav    10 Mar 24 13:19 link.txt -> robots.txt
lrwxrwxrwx 1 vaibhav vaibhav     8 Mar 24 10:28 sl.txt -> temp.txt
-rwxr-xr-x 1 vaibhav vaibhav     0 Mar 24 13:48 trial.txt
vaibhav@VK:~$
```

3. List directory contents along with their inode no.

```
vaibhav@VK:~$ ls -i
 5490 Assignment2    5504 even.sh      11563 hl.txt          5601 number.sh     1107 shell-script
 5643 ass2.zip      11626 file.txt     11650 link.txt        2546 numbers.sh   11606 sl.txt
 1108 demo.tar        521 files        11565 linux           2491 odd.sh       11563 temp.txt
11618 dir           11564 hardlink.txt 11564 newfile.txt    11647 robots.txt   11651 trial.txt
vaibhav@VK:~$
```

4. List the contents of the sub directory.

```
vaibhav@VK:~$ ls -R
.:
Assignment2  dir        files         link.txt     number.sh   robots.txt    temp.txt
ass2.zip     even.sh    hardlink.txt  linux        numbers.sh  shell-script  trial.txt
demo.tar     file.txt   hl.txt        newfile.txt  odd.sh      sl.txt        zipfile.zip

./Assignment2:
1.sh  2.sh  even.sh

./dir:

./files:
file.txt  new.txt  testpermission.txt

./linux:
newpermission.txt  testpermission.txt

./shell-script:
add.sh
vaibhav@VK:~$
```

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

```
vaibhav@VK:~$ cd files/
vaibhav@VK:~/files$ vim new.txt
vaibhav@VK:~/files$ vim new.txt
vaibhav@VK:~/files$
```

A. Now open the same file and add your address in it and save.

```
Name - Vaibhav Khandekar
Address - Malad West, Mumbai 400064
```

B. Reopen the same file and check your name and address in it.

```
Name - Vaibhav Khandekar
Address - Malad West, Mumbai 400064
```

6. How to change the timestamp of file.

```
vaibhav@VK:~/files$ touch -t 202012121111 new.txt
vaibhav@VK:~/files$ ls -l
total 8
-rw-r--r-- 1 vaibhav vaibhav 71 Mar 23 10:06 file.txt
-rw-r--r-- 1 vaibhav vaibhav  0 Dec 12  2020 new
-rw-r--r-- 1 vaibhav vaibhav 61 Dec 12  2020 new.txt
-rw-r--r-- 1 vaibhav vaibhav  0 Mar 24 12:19 testpermission.txt
```

7. Create directory structure.
   A. mkdir one
   B. cd one
   C. touch 1.txt 11.txt 111.txt
   D. mkdir two
   E. cd two

F. touch 2.txt 22.txt 222.txt
G. mkdir three
H. cd three
I. touch 3.txt 33.txt 333.txt
J. mkdir four
K. cd four
L. touch 4.txt 44.txt 444.txt
M. mkdir five
N. cd five
O. touch 5.txt 55.txt 555.txt
P. cd ~ (i.e. home directory)

```
vaibhav@VK:~$ pwd
/home/vaibhav
vaibhav@VK:~$ mkdir one
vaibhav@VK:~$ cd one
vaibhav@VK:~/one$ touch 1.txt 11.txt 111.txt
vaibhav@VK:~/one$ mkdir two
vaibhav@VK:~/one$ cd two
vaibhav@VK:~/one/two$ touch 2.txt 22.txt 222.txt
vaibhav@VK:~/one/two$ mkdir three
vaibhav@VK:~/one/two$ cd three
vaibhav@VK:~/one/two/three$ touch 3.txt 33.txt 333.txt
vaibhav@VK:~/one/two/three$ mkdir four
vaibhav@VK:~/one/two/three$ cd four
vaibhav@VK:~/one/two/three/four$ touch 4.txt 44.txt 444.txt
vaibhav@VK:~/one/two/three/four$ mkdir five
vaibhav@VK:~/one/two/three/four$ cd five
vaibhav@VK:~/one/two/three/four/five$ touch 5.txt 55.txt 555.txt
vaibhav@VK:~/one/two/three/four/five$ cd ~
vaibhav@VK:~$ tree -p
```

```
── [drwxr-xr-x]  one
    ├── [-rw-r--r--]  1.txt
    ├── [-rw-r--r--]  11.txt
    ├── [-rw-r--r--]  111.txt
    └── [drwxr-xr-x]  two
        ├── [-rw-r--r--]  2.txt
        ├── [-rw-r--r--]  22.txt
        ├── [-rw-r--r--]  222.txt
        └── [drwxr-xr-x]  three
            ├── [-rw-r--r--]  3.txt
            ├── [-rw-r--r--]  33.txt
            ├── [-rw-r--r--]  333.txt
            └── [drwxr-xr-x]  four
                ├── [-rw-r--r--]  4.txt
                ├── [-rw-r--r--]  44.txt
                ├── [-rw-r--r--]  444.txt
                └── [drwxr-xr-x]  five
                    ├── [-rw-r--r--]  5.txt
                    ├── [-rw-r--r--]  55.txt
                    └── [-rw-r--r--]  555.txt
```

8. Considering above direct structure and do following operations
   A. List the directory contents of directory named "five" from the current directory.

   ```
   vaibhav@VK:~$ pwd
   /home/vaibhav
   vaibhav@VK:~$ ls /home/vaibhav/one/two/three/four/five/
   5.txt   55.txt   555.txt
   vaibhav@VK:~$
   ```

   B. Write your name in a file named "44.txt" of directory "four" from current directory.

   ```
   vaibhav@VK:~$ vim /home/vaibhav/one/two/three/four/44.txt
   vaibhav@VK:~$
   ```

   ```
   Vaibhav Khandekar
   ```

   C. Remove the file named "555.txt" from directory "five" from the current directory.

   ```
   vaibhav@VK:~$ rm /home/vaibhav/one/two/three/four/five/555.txt
   vaibhav@VK:~$ ls /home/vaibhav/one/two/three/four/five/
   5.txt   55.txt
   vaibhav@VK:~$
   ```

   D. Change directory to five.

   ```
   vaibhav@VK:~$ cd /home/vaibhav/one/two/three/four/five/
   vaibhav@VK:~/one/two/three/four/five$
   ```

   E. 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.

```
vaibhav@VK:~/one/two/three/four/five$ cd .. && cd .. && vim 3.txt
vaibhav@VK:~/one/two/three$
```

```
PG - Diploma in Big Data Analytics
```

```
vaibhav@VK:~/one/two/three/four/five$ cd .. && cd .. && cat 3.txt
PG - Diploma in Big Data Analytics
vaibhav@VK:~/one/two/three$
```

F. List the contents of directory "two" from current directory (i.e. five).

```
vaibhav@VK:~/one/two/three/four/five$ cd .. && cd .. && cd .. && ls
2.txt   22.txt   222.txt   three
vaibhav@VK:~/one/two$
```

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

```
vaibhav@VK:~/one/two/three/four/five$ cd .. && cd .. && cd .. && rm 222.txt
vaibhav@VK:~/one/two$ cd three && \cd four && cd five
vaibhav@VK:~/one/two/three/four/five$ cd .. && cd .. && cd .. && ls
2.txt   22.txt   three
```

H. Now change the directory to "one".

```
vaibhav@VK:~/one/two/three/four/five$ cd .. && cd .. && cd .. && cd ..
vaibhav@VK:~/one$
```

I. Remove all files only from directory named "five" from current directory (i.e. one).

```
vaibhav@VK:~/one$ ls /home/vaibhav/one/two/three/four/five/
5.txt   55.txt
vaibhav@VK:~/one$ rm /home/vaibhav/one/two/three/four/five/5.txt && rm /home/vaibhav/one/two/three/four/five/55.txt
vaibhav@VK:~/one$ ls /home/vaibhav/one/two/three/four/five/
vaibhav@VK:~/one$
```

J. Remove directory named "five" from current directory (i.e. one).

```
vaibhav@VK:~/one$ rmdir /home/vaibhav/one/two/three/four/five
vaibhav@VK:~/one$ ls /home/vaibhav/one/two/three/four/
4.txt   44.txt   444.txt
vaibhav@VK:~/one$
```

K. Remove whole directory named "four" from current directory (i.e. one).

```
vaibhav@VK:~/one$ rm -rf /home/vaibhav/one/two/three/four
vaibhav@VK:~/one$ ls /home/vaibhav/one/two/three/
3.txt   33.txt   333.txt
vaibhav@VK:~/one$
```

L. Change to your home directory.

```
vaibhav@VK:~/one$ cd ..
vaibhav@VK:~$
```

9. Change the time stamp of file named "3.txt" which resides in directory named "three".

```
vaibhav@VK:~$ touch -t 202201011111 /home/vaibhav/one/two/three/3.txt
vaibhav@VK:~$ ls -l /home/vaibhav/one/two/three/3.txt
-rw-r--r-- 1 vaibhav vaibhav 35 Jan  1  2022 /home/vaibhav/one/two/three/3.txt
vaibhav@VK:~$
```

10. 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 number.
    Files have size.
    There are several types of files"

```
vaibhav@VK:~$ vim data.txt
vaibhav@VK:~$
```

```
Linux is open source.
In linux everything is a file.
Files have permissions.
Files have inode number.
Files have size.
There are several types of files.
```

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

```
vaibhav@VK:~$ wc data.txt
  6  26 153 data.txt
vaibhav@VK:~$
```

12. List the lines having word "files" (man grep)

```
vaibhav@VK:~$ grep "files" data.txt
There are several types of files.
vaibhav@VK:~$
```

13. List the lines having word "file" (man grep)

```
vaibhav@VK:~$ grep "file" data.txt
In linux everything is a file.
There are several types of files.
vaibhav@VK:~$
```

14. List the lines which don't have word "files" (man grep)

```
vaibhav@VK:~$ grep -v "files" data.txt
Linux is open source.
In linux everything is a file.
Files have permissions.
Files have inode number.
Files have size.
vaibhav@VK:~$
```

15. List the lines having the word "have" along with count. (man grep)

```
vaibhav@VK:~$ grep "have" data.txt && grep -c "have" data.txt
Files have permissions.
Files have inode number.
Files have size.
3
vaibhav@VK:~$
```

16. List the lines starts with letter "f" (man grep)

```
vaibhav@VK:~$ grep -i "^f" data.txt
Files have permissions.
Files have inode number.
Files have size.
vaibhav@VK:~$
```

17. List the lines ends with "g" (man grep)

```
vaibhav@VK:~$ grep "g\>" data.txt
In linux everything is a file.
vaibhav@VK:~$
```

18. List only first two lines.(man head)

```
vaibhav@VK:~$ head -n 2 data.txt
Linux is open source.
In linux everything is a file.
vaibhav@VK:~$
```

19. List only last three lines.(man tail)

```
vaibhav@VK:~$ tail -n 3 data.txt
Files have inode number.
Files have size.
There are several types of files.
vaibhav@VK:~$
```

20. List line no.3,4 and 5 . (man head and tail)

```
vaibhav@VK:~$ head -5 data.txt | tail +3
Files have permissions.
Files have inode number.
Files have size.
vaibhav@VK:~$
```

---

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

```
vaibhav@VK:~/Assignment2$ cat 1.sh
echo "Your Login Name = "
whoami
echo "Home Directory = "
cd ~
pwd
vaibhav@VK:~/Assignment2$ bash 1.sh
Your Login Name =
vaibhav
Home Directory =
/home/vaibhav
vaibhav@VK:~/Assignment2$
```

2. 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.

```
vaibhav@VK:~/Assignment2$ cat 2.sh
echo "1.Date 2.Calender 3.ls 4.pwd 5.Exit"
echo "Enter your choice for above commands = "
read option
case $option in
1)
        date;;
2)
        cal;;
3)
        ls;;
4)
        pwd;;
5)
        exit
        echo "quitting";;
*)
        echo "invalid option";;
esac
vaibhav@VK:~/Assignment2$ bash 2.sh
1.Date 2.Calender 3.ls 4.pwd 5.Exit
Enter your choice for above commands =
1
Fri Mar 24 21:24:51 IST 2023
vaibhav@VK:~/Assignment2$ bash 2.sh
1.Date 2.Calender 3.ls 4.pwd 5.Exit
Enter your choice for above commands =
2
     March 2023
Su Mo Tu We Th Fr Sa
```

3. 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.

```
vaibhav@VK:~/Assignment2$ cat 3.sh
echo "enter string = "
read str
if [ -f $str ]
then
        echo "It is a file."
        du $str
elif [ -d $str ]
then
        echo "It is a directory."
        cd $str
        ls
else
        echo "invalid"
fi
vaibhav@VK:~/Assignment2$ bash 3.sh
enter string =
2.sh
It is a file.
4       2.sh
vaibhav@VK:~/Assignment2$ bash 3.sh
enter string =
2
It is a directory.
1.txt   11.txt   111.txt
vaibhav@VK:~/Assignment2$ bash 3.sh
enter string =
hgf
invalid
vaibhav@VK:~/Assignment2$
```

4. Write a shell script to determine whether a given number is prime or not.

```
vaibhav@VK:~/Assignment2$ cat 4.sh
#!/bin/bash
echo -e "Enter number = "
read num
for((i=2; i<=$num/2 ; i++))
do
        ans=$(( num%i ))
        if [ $ans -eq 0 ]
        then
                echo "$num is not a prime number"
                exit 0
        fi
done
echo "$num is a prime number"
vaibhav@VK:~/Assignment2$ bash 4.sh
Enter number =
12
12 is not a prime number
vaibhav@VK:~/Assignment2$ bash 4.sh
Enter number =
3
3 is a prime number
vaibhav@VK:~/Assignment2$
```

5. Write a Program to find the greatest of three numbers.

```
vaibhav@VK:~/Assignment2$ cat 5.sh
echo "enter num 1 = "
read n1
echo "enter num 2 = "
read n2
echo "enter num 3 = "
read n3
if [ $n1 -gt $n2 ]
then
        if [ $n1 -gt $n3 ]
        then
                echo "$n1 is largest number among three"
        else
                echo "$n3 is the largest number among three"
        fi
elif [ $n2 -gt $n3 ]
then
        echo "$n2 is the largest number among three"
else
        echo "$n3 is the largest number among three"
fi
vaibhav@VK:~/Assignment2$ bash 5.sh
enter num 1 =
21
enter num 2 =
43
enter num 3 =
75
75 is the largest number among three
vaibhav@VK:~/Assignment2$
```

6. Write a Program to find whether a given year is a leap year or not.

```
vaibhav@VK:~/Assignment2$ cat 6.sh
#!/bin/bash
echo "enter year = "
read year
if [ $(( year % 4 )) -eq 0 ]
then
        if [ $(( year % 100 )) -eq 0 ]
        then
                if [ $(( year % 400 )) -eq 0 ]
                then
                        echo "$year is a leap year"
                else
                        echo "$year is not a leap year"
                fi
        else
                echo "$year is a leap year"
        fi
else
        echo "$year is not a leap year."
fi
vaibhav@VK:~/Assignment2$ bash 6.sh
enter year =
2020
2020 is a leap year
vaibhav@VK:~/Assignment2$ bash 6.sh
enter year =
2100
2100 is not a leap year
vaibhav@VK:~/Assignment2$ 
```

7. Write a Program to find whether a given number is positive or negative.

```bash
vaibhav@VK:~/Assignment2$ cat 7.sh
#!/bin/bash
echo "enter any number = "
read num
if [ $num -gt 0 ]
then
        echo "$num is positive number"
elif [ $num -eq 0 ]
then
        echo "$num is neither positive nor negative number"
else
        echo "$num is negative number"
fi
vaibhav@VK:~/Assignment2$ bash 7.sh
enter any number =
19
19 is positive number
vaibhav@VK:~/Assignment2$ bash 7.sh
enter any number =
0
0 is neither positive nor negative number
vaibhav@VK:~/Assignment2$ bash 7.sh
enter any number =
-8
-8 is negative number
vaibhav@VK:~/Assignment2$
```

8. Write a program to print the table of a given number.

```
vaibhav@VK:~/Assignment2$ cat 8.sh
#!/bin/bash
echo "enter any number to print its table = "
read num
echo "table of $num = "
for(( i=1 ; i <=10 ; i++ ))
do
        ans=`expr $i \* $num`
        echo "$ans"
done
vaibhav@VK:~/Assignment2$ bash 8.sh
enter any number to print its table =
4
table of 4 =
4
8
12
16
20
24
28
32
36
40
```

9. Write a program to find the factorial of a given number.

```
vaibhav@VK:~/Assignment2$ cat 9.sh
#! /bin/bash
echo "enter any number = "
read num
fact=1
for((i=1 ; i<=num ; i++))
do
        fact=$((fact*i))
done
echo "Factorial of $num is $fact"
vaibhav@VK:~/Assignment2$ bash 9.sh
enter any number =
5
Factorial of 5 is 120
vaibhav@VK:~/Assignment2$
```

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

```
vaibhav@VK:~/Assignment2$ cat 10.sh
#! /bin/bash/
echo "enter any number = "
read num
a=0
b=1
echo "The fibonacci series for $num is"
for((i=0 ; i<=num ; i++))
do
        echo "$a "
        fn=$((a+b))
        a=$b
        b=$fn
done
vaibhav@VK:~/Assignment2$ bash 10.sh
enter any number =
5
The fibonacci series for 5 is
0
1
1
2
3
5
vaibhav@VK:~/Assignment2$
```

11. 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).

12. 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.

```
vaibhav@VK:~/Assignment2$ cat 12.sh
#!/bin/bash
echo "enter any kind of filename = "
read fname
if [ -f $fname ]
then
        echo "Last modification time is"
        ls -lt $fname
else
        echo "File does not exist."
fi

vaibhav@VK:~/Assignment2$ bash 12.sh
enter any kind of filename =
11.sh
File does not exist.
vaibhav@VK:~/Assignment2$ bash 12.sh
enter any kind of filename =
14.sh
Last modification time is
-rw-r--r-- 1 vaibhav vaibhav 93 Mar 25 12:11 14.sh
vaibhav@VK:~/Assignment2$
```

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

```
vaibhav@VK:~/Assignment2$ cat 13.sh
#!/bin/bash
echo "this will display all the hidden files available in current directory."

ls -a
vaibhav@VK:~/Assignment2$ bash 13.sh
this will display all the hidden files available in current directory.
.   ..   1.sh  10.sh  13.sh  14.sh  17.sh  2.sh  3.sh  4.sh  5.sh  6.sh  7.sh  8.sh  9.sh  even.sh  vaibhau.exe
vaibhav@VK:~/Assignment2$
```

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

```
vaibhav@VK:~/Assignment2$ cat 14.sh
#!/bin/bash
echo "this will display all the executable files in current directory"

ls *.exe
vaibhav@VK:~/Assignment2$ bash 14.sh
this will display all the executable files in current directory
vaibhau.exe
vaibhav@VK:~/Assignment2$
```

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

16. 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).

17. Print the following pattern.

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

```
vaibhav@VK:~/Assignment2$ cat 17.sh
#!/bin/bash
echo "Pattern Program"
for((i=1 ; i<=5 ; i++))
do
        for((j=1 ; j<=i ; ++j))
        do
                echo -n "* "
        done
        echo " "
done

vaibhav@VK:~/Assignment2$ bash 17.sh
Pattern Program
*
* *
* * *
* * * *
* * * * *
vaibhav@VK:~/Assignment2$
```