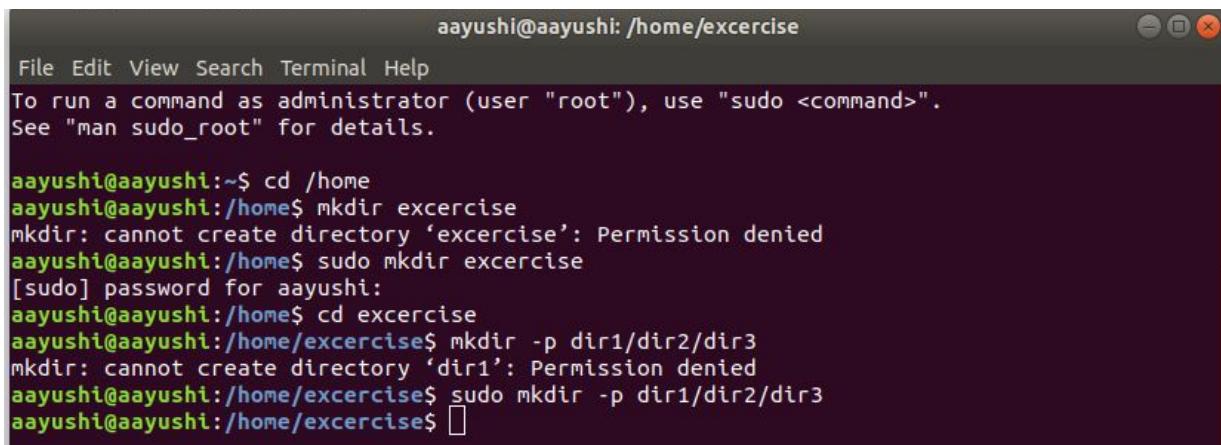


LINUX

Ques 1. Create a directory "exercise" inside your home directory and create nested(dir1/dir2/dir3) directory structure inside "excercise" with single command.

Sudo mkdir exercise

Sudo mkdir -p dir1/dir2/dir3

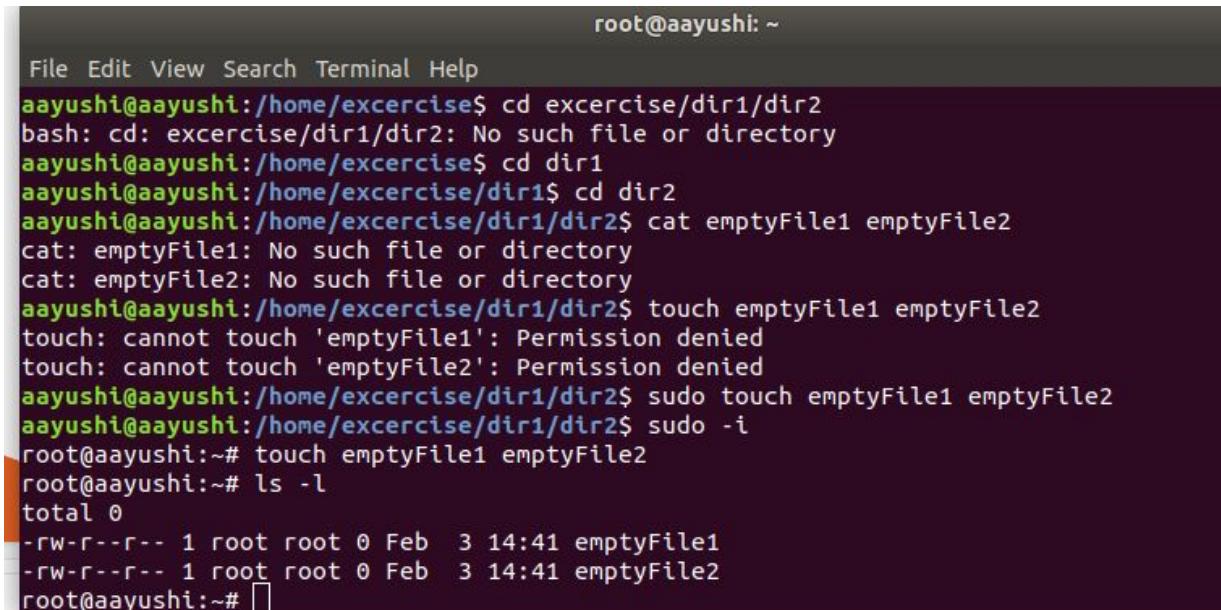


```
aayushi@aayushi: /home/excercise
File Edit View Search Terminal Help
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

aayushi@aayushi:~$ cd /home
aayushi@aayushi:/home$ mkdir excercise
mkdir: cannot create directory 'excercise': Permission denied
aayushi@aayushi:/home$ sudo mkdir excercise
[sudo] password for aayushi:
aayushi@aayushi:/home$ cd excercise
aayushi@aayushi:/home/excercise$ mkdir -p dir1/dir2/dir3
mkdir: cannot create directory 'dir1': Permission denied
aayushi@aayushi:/home/excercise$ sudo mkdir -p dir1/dir2/dir3
aayushi@aayushi:/home/excercise$ 
```

Ques 2. Create two empty files inside dir2 directory: emptyFile1,emptyFile2 in single command

Touch emptyfil1 emptyfile2



```
root@aayushi: ~
File Edit View Search Terminal Help
aayushi@aayushi:/home/excercise$ cd excercise/dir1/dir2
bash: cd: excercise/dir1/dir2: No such file or directory
aayushi@aayushi:/home/excercise$ cd dir1
aayushi@aayushi:/home/excercise/dir1$ cd dir2
aayushi@aayushi:/home/excercise/dir1/dir2$ cat emptyFile1 emptyFile2
cat: emptyFile1: No such file or directory
cat: emptyFile2: No such file or directory
aayushi@aayushi:/home/excercise/dir1/dir2$ touch emptyFile1 emptyFile2
touch: cannot touch 'emptyFile1': Permission denied
touch: cannot touch 'emptyFile2': Permission denied
aayushi@aayushi:/home/excercise/dir1/dir2$ sudo touch emptyFile1 emptyFile2
aayushi@aayushi:/home/excercise/dir1/dir2$ sudo -i
root@aayushi:~# touch emptyFile1 emptyFile2
root@aayushi:~# ls -l
total 0
-rw-r--r-- 1 root root 0 Feb  3 14:41 emptyFile1
-rw-r--r-- 1 root root 0 Feb  3 14:41 emptyFile2
root@aayushi:~# 
```

Ques 3. Create one file file1.txt containing text "hello world" and save it.

Echo "hello world" > file1.txt

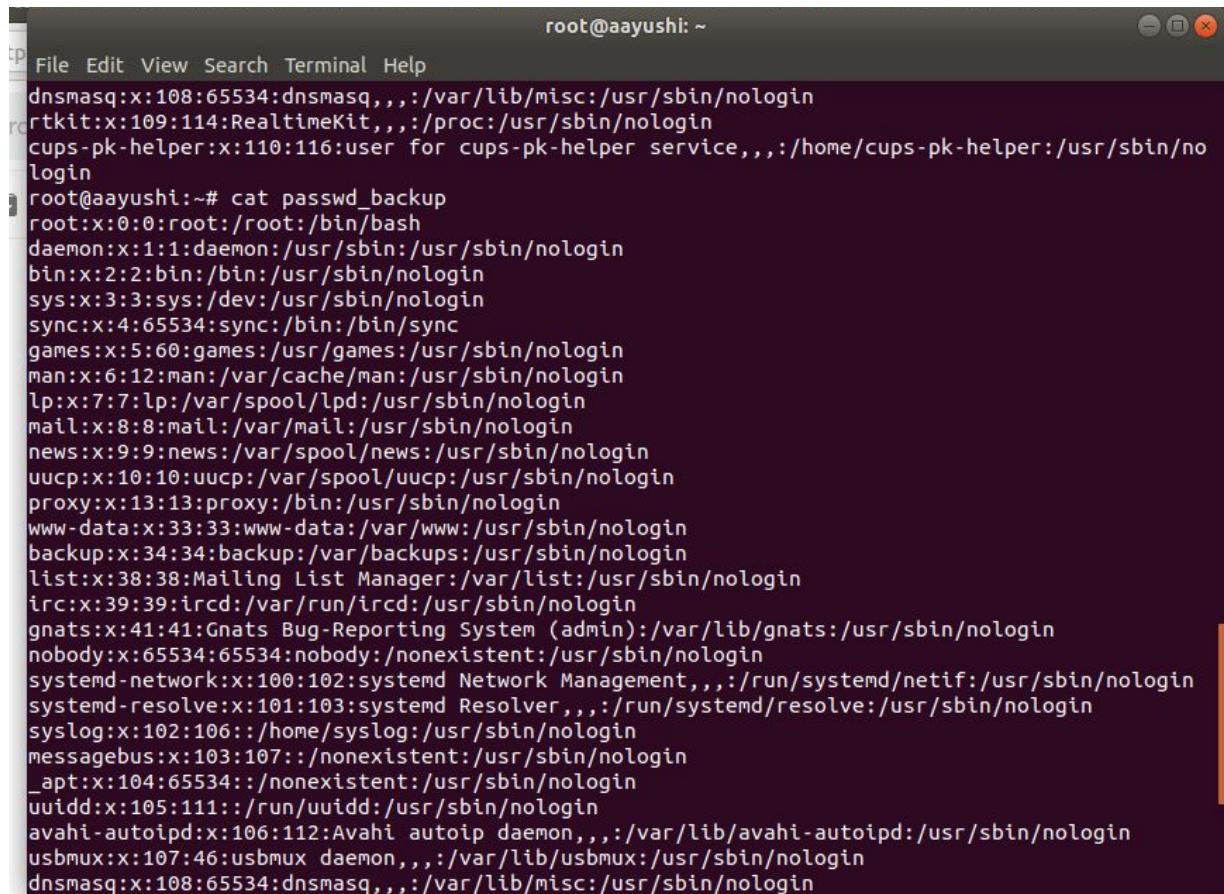
```
root@aayushi:~# echo "hello world" > file1.txt
root@aayushi:~# cat file1.txt
hello world
root@aayushi:~# 
```

Ques 4. Find a "passwd" file using find command inside /etc. copy this files as passwd_copy and then rename this file as passwd_backup.

```
root@aayushi:~# find /etc -name passwd
/etc/cron.daily/passwd
/etc/passwd
/etc/pam.d/passwd
root@aayushi:~# cp /etc/passwd passwd_copy
root@aayushi:~# find /etc -name passwd
/etc/cron.daily/passwd
/etc/passwd
/etc/pam.d/passwd
root@aayushi:~# ls -l
total 8
-rw-r--r-- 1 root root    0 Feb  3 14:41 emptyFile1
-rw-r--r-- 1 root root    0 Feb  3 14:41 emptyFile2
-rw-r--r-- 1 root root   12 Feb  3 14:50 file1.txt
-rw-r--r-- 1 root root 2416 Feb  3 15:00 passwd_copy
root@aayushi:~# mv passwd_copy passwd_backup
root@aayushi:~# ls -l
total 8
-rw-r--r-- 1 root root    0 Feb  3 14:41 emptyFile1
-rw-r--r-- 1 root root    0 Feb  3 14:41 emptyFile2
-rw-r--r-- 1 root root   12 Feb  3 14:50 file1.txt
-rw-r--r-- 1 root root 2416 Feb  3 15:00 passwd_backup
root@aayushi:~# 
```

Ques 5. Try reading passwd_backup file in multiple tools: less,more,cat,strings etc and find the difference in their usage.

```
root@aayushi:~# less passwd_backup
root@aayushi:~# more passwd_backup
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
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106::/home/syslog:/usr/sbin/nologin
messagebus:x:103:107::/nonexistent:/usr/sbin/nologin
_apt:x:104:65534::/nonexistent:/usr/sbin/nologin
(uuid:x:105:111::/run/uuid:/usr/sbin/nologin
avahi-autoipd:x:106:112:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:107:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:108:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
```



The screenshot shows a terminal window titled "root@aayushi: ~". The window contains the command "cat passwd_backup" followed by the same password entry as the previous screenshot, demonstrating that "cat" also reads the file correctly.

```
root@aayushi: ~
File Edit View Terminal Help
dnsmasq:x:108:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
rtkit:x:109:114:RealtimeKit,,,:/proc:/usr/sbin/nologin
cups-pk-helper:x:110:116:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/no
login
root@aayushi:~# cat passwd_backup
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
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd/netif:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd/resolve:/usr/sbin/nologin
syslog:x:102:106::/home/syslog:/usr/sbin/nologin
messagebus:x:103:107::/nonexistent:/usr/sbin/nologin
_apt:x:104:65534::/nonexistent:/usr/sbin/nologin
(uuid:x:105:111::/run/uuid:/usr/sbin/nologin
avahi-autoipd:x:106:112:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:107:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:108:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
```

Ques 6. Find out the number of line in password_backup containing "/bin/false".

```
root@aayushi:~# grep -r "/bin/false" passwd_backup | wc -l
5
root@aayushi:~# 
```

Ques 7. Get the first 5 lines of a file “password_backup” and Redirect the output of the above commands into file "output".

```
root@aayushi:~# head -n5 passwd_backup | cat > output.txt
root@aayushi:~# cat output.txt
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
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
root@aayushi:~# 
```

Ques 8. Create a "test" user,create its password and find out its uid and gid.

```
root@aayushi:~# useradd test
root@aayushi:~# passwd test
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@aayushi:~# id test
uid=1001(test) gid=1001(test) groups=1001(test)
root@aayushi:~# 
```

Ques 9. Change the timestamp of emptyFile1 which are exist in dir2.

```
root@aayushi:~# touch -a emptyFile1
root@aayushi:~# stat emptyFile1
  File: emptyFile1
  Size: 0          Blocks: 0          IO Block: 4096   regular empty file
Device: 10301h/66305d  Inode: 8912901      Links: 1
Access: (0644/-rw-r--r--)  Uid: (    0/    root)  Gid: (    0/    root)
Access: 2020-02-03 15:44:22.550209882 +0530
Modify: 2020-02-03 14:41:22.181898308 +0530
Change: 2020-02-03 15:44:22.550209882 +0530
 Birth: -
root@aayushi:~# touch -m emptyFile1
root@aayushi:~# stat emptyFile1
  File: emptyFile1
  Size: 0          Blocks: 0          IO Block: 4096   regular empty file
Device: 10301h/66305d  Inode: 8912901      Links: 1
Access: (0644/-rw-r--r--)  Uid: (    0/    root)  Gid: (    0/    root)
Access: 2020-02-03 15:44:22.550209882 +0530
Modify: 2020-02-03 15:44:57.646107734 +0530
Change: 2020-02-03 15:44:57.646107734 +0530
 Birth: -
root@aayushi:~# 
```

Ques 10.

Login as test user and edit the "output" file created above. Since the permission wont allow you to save the changes. Configure such that test user can edit it.

1. Add group owner of the "output" file as the secondary group of testuser and check/change the "output" file permission if it is editable by group. Once done revert the changes
2. Make the file editable to the world so that test user can access it. Revert the changes after verification
3. Change the ownership to edit the file.

```
test@aayushi: /home/exercise/dir1/dir2
File Edit View Search Terminal Help
test@aayushi:/home/exercise/dir1/dir2$ su test
Password:
test@aayushi:/home/exercise/dir1/dir2$ touch output
touch: cannot touch 'output': Permission denied
test@aayushi:/home/exercise/dir1/dir2$ su aayushi
Password:
aayushi@aayushi:/home/exercise/dir1/dir2$ sudo chmod o=rwx output.txt
aayushi@aayushi:/home/exercise/dir1/dir2$ su test
Password:
test@aayushi:/home/exercise/dir1/dir2$ touch output.txt
vtest@aayushi:/home/exercise/dir1/dir2$ 

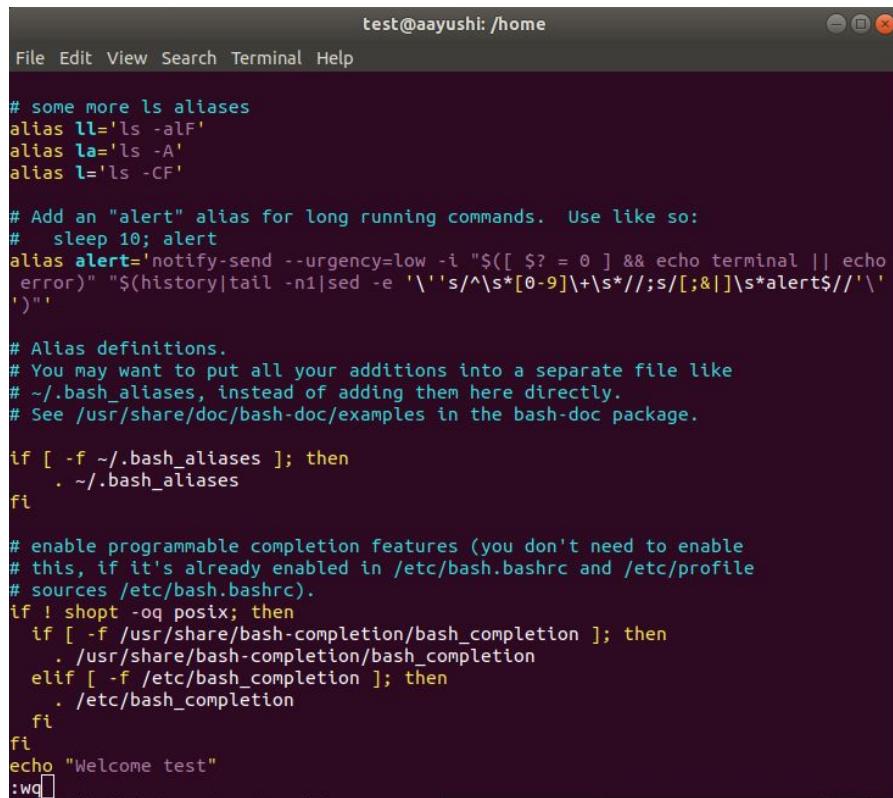
aayushi@aayushi:/home/exercise/dir1/dir2$ sudo chown test: output.txt
aayushi@aayushi:/home/exercise/dir1/dir2$ ls -l
total 16
drwxr-xr-x 2 root root 4096 Feb 3 14:33 dir3
-rw-r--r-- 1 root root 0 Feb 3 14:40 emptyFile1
-rw-r--r-- 1 root root 0 Feb 3 14:40 emptyFile2
-rw-r--r-- 1 root root 10240 Feb 3 17:11 example.tar
-rw-r--rwx 1 test test 0 Feb 4 14:52 output.txt
aayushi@aayushi:/home/exercise/dir1/dir2$ 
```

11. Create an alias with your name so that it creates a file as "/tmp/aliastesting".

```
aayushi@aayushi: /home/exercise/dir1/dir2
File Edit View Search Terminal Help
$
aayushi@aayushi:/home/exercise/dir1/dir2$ alias aayushi="/tmp/aliastesting"
aayushi@aayushi:/home/exercise/dir1/dir2$ alias
alias aayushi='/tmp/aliastesting'
alias alert='notify-send --urgency=low -i "$( [ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e '\''\s*[^s][0-9]\+\s*\//;s/[;:&]\s*alert$/'\\''")'
alias egrep='egrep --color=auto'
alias fgrep='fgrep --color=auto'
alias grep='grep --color=auto'
alias l='ls -CF'
alias la='ls -A'
alias ll='ls -alF'
alias ls='ls --color=auto'
aayushi@aayushi:/home/exercise/dir1/dir2$ 
```

12. Edit `~/.bashrc` file such that when you change to "test" user it should clear the screen and print "Welcome".

```
test@aayushi:/home$ vim ~/.bashrc
test@aayushi:/home$
```



```
test@aayushi: /home

File Edit View Search Terminal Help

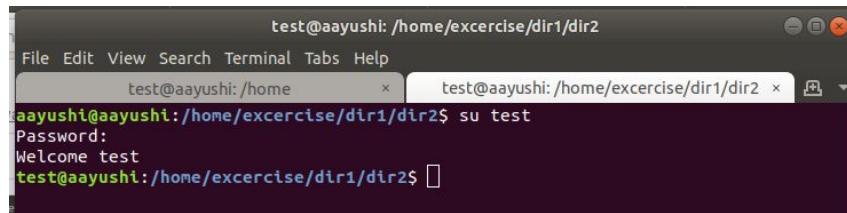
# some more ls aliases
alias ll='ls -alF'
alias la='ls -A'
alias l='ls -CF'

# Add an "alert" alias for long running commands.  Use like so:
# sleep 10; alert
alias alert='notify-send --urgency=low -i "$( [ $? = 0 ] && echo terminal || echo error)" "$(history|tail -n1|sed -e \'$s/^s*[0-9]\+\s*//;s/[;&]\s*alert$//\' )"'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
echo "Welcome test"
:wq
```



```
test@aayushi: /home/exercise/dir1/dir2
File Edit View Search Terminal Tabs Help
test@aayushi: /home          x  test@aayushi: /home/exercise/dir1/dir2 x
aayushi@aayushi:/home/exercise/dir1/dir2$ su test
Password:
Welcome test
test@aayushi:/home/exercise/dir1/dir2$
```

13. Install "zip" package.

```
aayushi@aayushi:/home/exercise/dir1/dir2$ sudo apt-get update
[sudo] password for aayushi:
Get:1 http://in.archive.ubuntu.com/ubuntu bionic InRelease [242 kB]
Get:2 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu bionic/main i386 Packages [1,007 kB]
Get:6 http://security.ubuntu.com/ubuntu bionic-security/main i386 Packages [427 kB]
Get:7 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [622 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu bionic/main amd64 Packages [1,019 kB]
Get:9 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [203 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu bionic/main Translation-en [516 kB]
Get:11 http://security.ubuntu.com/ubuntu bionic-security/main amd64 DEP-11 Metadata [38.5 kB]
Get:12 http://security.ubuntu.com/ubuntu bionic-security/main DEP-11 48x48 Icons [17.6 kB]
Get:13 http://security.ubuntu.com/ubuntu bionic-security/main DEP-11 64x64 Icons [41.5 kB]
Get:14 http://in.archive.ubuntu.com/ubuntu bionic/main amd64 DEP-11 Metadata [477 kB]
Get:15 http://security.ubuntu.com/ubuntu bionic-security/restricted i386 Packages [4,280 B]
Get:16 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packages [20.2 kB]
Get:17 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [5,804 B]
Get:18 http://in.archive.ubuntu.com/ubuntu bionic/main DEP-11 48x48 Icons [118 kB]
Get:19 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [636 kB]
Get:20 http://in.archive.ubuntu.com/ubuntu bionic/main DEP-11 64x64 Icons [245 kB]
Get:21 http://in.archive.ubuntu.com/ubuntu bionic/restricted amd64 Packages [9,184 B]
Get:22 http://in.archive.ubuntu.com/ubuntu bionic/restricted i386 Packages [9,156 B]
Get:23 http://in.archive.ubuntu.com/ubuntu bionic/restricted Translation-en [3,584 B]
```

```
aayushi@aayushi:/home/exercise/dir1/dir2$ sudo apt-get install zip
Reading package lists... Done
Building dependency tree
Reading state information... Done
zip is already the newest version (3.0-11build1).
0 upgraded, 0 newly installed, 0 to remove and 623 not upgraded.
aayushi@aayushi:/home/exercise/dir1/dir2$
```

14. Compress "output" and "password_backup" files into a tar ball. List the files present inside the tar created.

```
root@aayushi:~# tar -cf example.tar output.txt passwd_backup
root@aayushi:~# tar -tvf example.tar
-rw-r--r-- root/root      189 2020-02-03 15:25 output.txt
-rw-r--r-- root/root     2416 2020-02-03 15:00 passwd_backup
root@aayushi:~#
```

15. scp this file to test user

```
root@aayushi:~# scp example.tar test
root@aayushi:~# su test
$ 
root@aayushi:~# logout
aayushi@aayushi:/home/exercise/dir1/dir2$ su test
Password:
$ ls -l
total 16
drwxr-xr-x 2 root root 4096 Feb  3 14:33 dir3
-rw-r--r-- 1 root root     0 Feb  3 14:40 emptyFile1
-rw-r--r-- 1 root root     0 Feb  3 14:40 emptyFile2
-rw-r--r-- 1 root root 10240 Feb  3 17:11 example.tar
$ 
```

16. Unzip this tar bar by logging into the remote server

```
aayushi@aayushi:~$ sudo service ssh status
● ssh.service - OpenBSD Secure Shell server
  Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
  Active: active (running) since Wed 2020-02-05 18:13:54 IST; 53s ago
    Main PID: 11696 (sshd)
      Tasks: 1 (limit: 4915)
     CGroup: /system.slice/ssh.service
             └─11696 /usr/sbin/sshd -D

Feb  5 18:13:54 aayushi systemd[1]: Starting OpenBSD Secure Shell server...
Feb  5 18:13:54 aayushi sshd[11696]: Server listening on 0.0.0.0 port 22.
Feb  5 18:13:54 aayushi sshd[11696]: Server listening on :: port 22.
Feb  5 18:13:54 aayushi systemd[1]: Started OpenBSD Secure Shell server.
aayushi@aayushi:~$ service ssh start
aayushi@aayushi:~$ ssh aakash@182.71.160.186
```

```
? aayushi@aayushi:~$ ifconfig
Command 'ifconfig' not found, but can be installed with:
a sudo apt install net-tools

aayushi@aayushi:~$ sudo apt-get install net-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 619 not upgraded.
Need to get 194 kB of archives.
After this operation, 803 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu bionic/main amd64 net-tools amd64 1.60+git20161116.90da8a0-1ubuntu1 [194 kB]
Fetched 194 kB in 0s (150 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 131483 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20161116.90da8a0-1ubuntu1_amd64.deb ...
Unpacking net-tools (1.60+git20161116.90da8a0-1ubuntu1) ...
Processing triggers for man-db (2.8.3-2) ...
Setting up net-tools (1.60+git20161116.90da8a0-1ubuntu1) ...
```

```
File Edit View Search Terminal Help
Get:1 http://in.archive.ubuntu.com/ubuntu bionic/main amd64 net-tools amd64 1.60+git20161116.90da8a0-1ubuntu1 [194 kB]
Fetched 194 kB in 1s (150 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 131483 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20161116.90da8a0-1ubuntu1_amd64.deb ...
Unpacking net-tools (1.60+git20161116.90da8a0-1ubuntu1) ...
Processing triggers for man-db (2.8.3-2) ...
Setting up net-tools (1.60+git20161116.90da8a0-1ubuntu1) ...
aayushi@aayushi:~$ ifconfig
enp4s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
      ether f8:75:a4:07:3a:b5 txqueuelen 1000  (Ethernet)
        RX packets 0 bytes 0 (0.0 B)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 0 bytes 0 (0.0 B)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
      inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
          loop txqueuelen 1000  (Local Loopback)
            RX packets 60799 bytes 4871440 (4.8 MB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 60799 bytes 4871440 (4.8 MB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp5s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
      inet 10.1.226.106 netmask 255.255.248.0 broadcast 10.1.231.255
        inet6 fe80::b8a8:625e%wlp5s0: prefixlen 64 scopeid 0x20<link>
          ether 7c:b2:7d:8e:4d:4c txqueuelen 1000  (Ethernet)
            RX packets 3207611 bytes 1926286718 (1.9 GB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 884907 bytes 148781792 (148.7 MB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

aayushi@aayushi:~$ ssh aakash@10.1.224.208
The authenticity of host '10.1.224.208' (10.1.224.208) can't be established.
ECDSA key fingerprint is SHA256:PQ6xzWB69fHEVSiy/c+uCHBvg8TRqdW0cJjd27VNXXw.
Are you sure you want to continue connecting (yes/no)? Y
```

```
aayushi@aayushi:~$ ssh aakash@10.1.224.208
The authenticity of host '10.1.224.208' (10.1.224.208) can't be established.
ECDSA key fingerprint is SHA256:PQ6xzWB69fHEVSiy/c+uCHBvg8TRqdW0cJjd27VNXXw.
Are you sure you want to continue connecting (yes/no)? Y
Please type 'yes' or 'no': yes
Warning: Permanently added '10.1.224.208' (ECDSA) to the list of known hosts.
aakash@10.1.224.208's password:
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-29-generic x86_64)

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

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

631 packages can be updated.
355 updates are security updates.
```

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

```
aakash@aakash-Sinha:~ $
```

```
aayushi@aayushi: ~
File Edit View Search Terminal Help

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

aakash@aakash-Sinha:~ $ ls -l
total 72
-rw-r--r-- 1 aakash aakash 7 Feb 4 16:57 abc.txt
drwxr-xr-x 2 aakash aakash 4096 Jan 22 18:10 Desktop
drwxr-xr-x 2 aakash aakash 4096 Jan 22 18:08 Documents
drwxr-xr-x 2 aakash aakash 4096 Jan 22 18:08 Downloads
-rw-r--r-- 1 aakash aakash 8980 Jan 22 18:05 examples.desktop
drwxr-xr-x 3 aakash aakash 4096 Feb 4 17:49 gitproject
drwxr-xr-x 2 aakash aakash 4096 Jan 22 18:08 Music
drwxr-xr-x 4 aakash aakash 4096 Feb 5 16:57 Pictures
drwxr-xr-x 2 aakash aakash 4096 Jan 22 18:08 Public
-rw-rw-r-- 1 aakash aakash 10240 Feb 4 22:36 ques14.tar
-rw-r--r-- 1 aakash aakash 42 Feb 4 21:29 ques17.txt
drwxr-xr-x 3 aakash aakash 4096 Feb 5 13:23 snap
drwxr-xr-x 2 aakash aakash 4096 Jan 22 18:08 Templates
drwxr-xr-x 2 aakash aakash 4096 Jan 22 18:08 Videos
aakash@aakash-Sinha:~ $ tar -xvf ques14.tar
abc.txt
aakash@aakash-Sinha:~ $ exit
logout
Connection to 10.1.224.208 closed.
```

17. Download any image from web and move to desktop

```
aayushi@aaYUSHI:/home/exercise/diri/dir2$ sudo -i
root@aayushi:~# wget https://images.app.goo.gl/pPsUXkoT9q8scyh19
--2020-02-03 17:37:15-- https://images.app.goo.gl/pPsUXkoT9q8scyh19
Resolving images.app.goo.gl (images.app.goo.gl)... 216.58.200.174, 2404:6800:4002:811::200e
Connecting to images.app.goo.gl (images.app.goo.gl)|216.58.200.174|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://www.google.com/imgres?imgurl=https://images.pexels.com/photos/736230/pexels-photo-736230.jpeg?auto%3Dcompress%26cs%3Dtinysrgb%26dpr%3D1%26w%3D500&imgrefurl=https://www.pexels.com/search/flower/&docid=5Ub0p0qf9qM23M&tbnid=uJ16sHyiOXWEWM:&vet=1&w=500&h=750&source=sh/x/im [following]
--2020-02-03 17:37:15-- https://www.google.com/imgres?imgurl=https://images.pexels.com/photos/736230/pexels-photo-736230.jpeg?auto%3Dcompress%26cs%3Dtinysrgb%26dpr%3D1%26w%3D500&imgrefurl=https://www.pexels.com/search/flower/&docid=5Ub0p0qf9qM23M&tbnid=uJ16sHyiOXWEWM:&vet=1&w=500&h=750&source=sh/x/im
Resolving www.google.com (www.google.com)... 172.217.167.196, 2404:6800:4002:80d::2004
Connecting to www.google.com (www.google.com)|172.217.167.196|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'pPsUXkoT9q8scyh19'

pPsUXkoT9q8scyh19 [ <=> ] 8.49K --.-KB/s in 0s

2020-02-03 17:37:16 (26.1 MB/s) - 'pPsUXkoT9q8scyh19' saved [8698]

root@aayushi:~#
```

18. How to get help of commands usages.

```
root@aayushi:~# man ls
```

```
LS(1)                               User Commands                               LS(1)

NAME
    ls - list directory contents

SYNOPSIS
    ls [OPTION]... [FILE]...

DESCRIPTION
    List information about the FILEs (the current directory by default). Sort entries
    alphabetically if none of -cftuvSUX nor --sort is specified.

    Mandatory arguments to long options are mandatory for short options too.

    -a, --all
        do not ignore entries starting with .

    -A, --almost-all
        do not list implied . and ..

    --author
        with -l, print the author of each file

    -b, --escape
        print C-style escapes for nongraphic characters

    --block-size=SIZE
        scale sizes by SIZE before printing them; e.g., '--block-size=M' prints
        sizes in units of 1,048,576 bytes; see SIZE format below

    -B, --ignore-backups
        do not list implied entries ending with ~

Manual page ls(1) line 1 (press h for help or q to quit)
```

19. Create a symlink of /etc/services into /tmp/ports-info

```
root@aayushi:~# ln -s /etc/services /tmp/ports-info
root@aayushi:~#
```

20. You are appointed as a Software/DevOps Engineer in ABC media services. On your first day you need to troubleshoot a problem. There is a command “xyz” somewhere installed in that linux system. But as a new joinee you do not have any idea about where is that Installed. How can you check that?

```
root@aayushi:~# whereis ls
ls: /bin/ls /usr/share/man/man1/ls.1.gz
root@aayushi:~#
```