



OPERATING SYSTEM

LAB ASSIGNMENT - 2



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LINUX COMMANDS:

Write Linux command(s) for the below questions and add screenshot as well:

1) DIRECTORY COMMAND(S)

a) Check current Directory: **pwd**

```
ubuntu@ubuntu:~$ pwd
/home/ubuntu
ubuntu@ubuntu:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  snap  Templates  Videos
```

b) Create new Directory: **mkdir directory_name**

```
ubuntu@ubuntu:~$ cd Desktop/
ubuntu@ubuntu:~/Desktop$ ls
ubiquity.desktop
ubuntu@ubuntu:~/Desktop$ mkdir BS MS
ubuntu@ubuntu:~/Desktop$ ls
BS  MS  ubiquity.desktop
```

c) Rename Directory: **mv old_name new_name**

```
ubuntu@ubuntu:~/Desktop$ mv BS BSCS
ubuntu@ubuntu:~/Desktop$ ls
BSCS  MS  ubiquity.desktop
```

d) Remove existing Directory: **rmdir directory_name**

```
ubuntu@ubuntu:~/Desktop$ rmdir MS
ubuntu@ubuntu:~/Desktop$ ls
BSCS  ubiquity.desktop
```

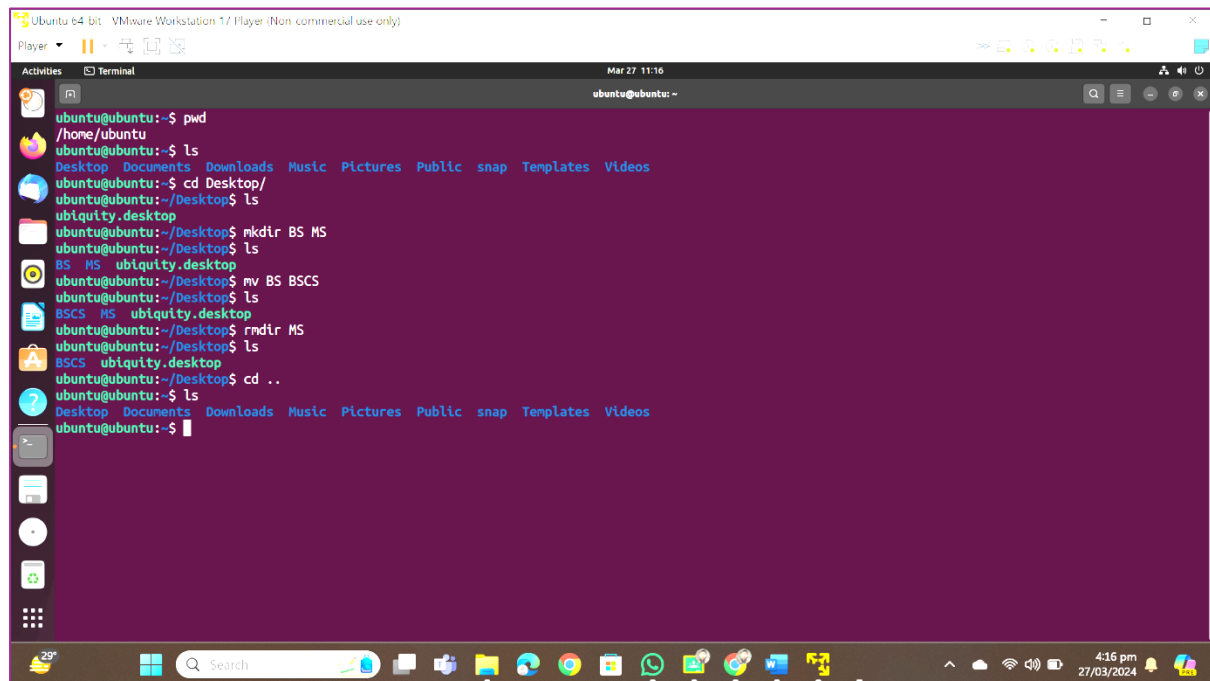
e) Move Back to Parent Directory: **cd ..**

```
ubuntu@ubuntu:~/Desktop$ cd ..
ubuntu@ubuntu:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  snap  Templates  Videos
ubuntu@ubuntu:~$
```

How to check current directory, create new directory, rename, remove existing directory, move back to parent directory?

```
ubuntu@ubuntu: ~$ pwd
/home/ubuntu
ubuntu@ubuntu:~$ ls
Desktop Documents Downloads Music Pictures Public snap Templates Videos
ubuntu@ubuntu:~$ cd Desktop/
ubuntu@ubuntu:~/Desktop$ ls
ubiquity.desktop
ubuntu@ubuntu:~/Desktop$ mkdir BS MS
ubuntu@ubuntu:~/Desktop$ ls
BS MS ubiquity.desktop
ubuntu@ubuntu:~/Desktop$ mv BS BSCS
ubuntu@ubuntu:~/Desktop$ ls
BSCS MS ubiquity.desktop
ubuntu@ubuntu:~/Desktop$ rmdir MS
ubuntu@ubuntu:~/Desktop$ ls
BSCS ubiquity.desktop
ubuntu@ubuntu:~/Desktop$ cd ..
ubuntu@ubuntu:~$ ls
Desktop Documents Downloads Music Pictures Public snap Templates Videos
ubuntu@ubuntu:~$
```

Full Screen Snippet:



2)FILE COMMAND(S)

a) Create any file type (Four Methods)

i. Using touch command: **touch filename**

```
ubuntu@ubuntu:~$ cd Desktop/  
ubuntu@ubuntu:~/Desktop$ cd BSCS  
ubuntu@ubuntu:~/Desktop/BSCS$ touch index.html file.html file.txt index.js style.css style.txt file1.xml index.jsx  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx style.css style.txt
```

ii. Using redirection: **echo "content" > filename**

```
ubuntu@ubuntu:~/Desktop/BSCS$ echo "My Name is Salman" > name.txt  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx name.txt style.css style.txt
```

iii. Using Cat Command: **cat > filename**

```
ubuntu@ubuntu:~/Desktop/BSCS$ cat > newfile  
Hi  
My Name is MUHAMMAD SALMAN SALEEM  
My Father's Name is MUHAMMAD SALEEM  
I am Studying BSCS from COMSATS university Lahore Campus  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx name.txt newfile style.css style.txt
```

iv. Using redirection: **printf "content" > filename**

```
ubuntu@ubuntu:~/Desktop/BSCS$ printf "I am studying BSCS from COMSATS Lahore" > study.txt  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx name.txt newfile study.txt style.css style.txt
```

Output Snippet:

```
ubuntu@ubuntu:~$ cd Desktop/  
ubuntu@ubuntu:~/Desktop$ cd BSCS  
ubuntu@ubuntu:~/Desktop/BSCS$ touch index.html file.html file.txt index.js style.css style.txt file1.xml index.jsx  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx style.css style.txt  
ubuntu@ubuntu:~/Desktop/BSCS$ echo "My Name is Salman" > name.txt  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx name.txt style.css style.txt  
ubuntu@ubuntu:~/Desktop/BSCS$ cat > newfile  
Hi  
My Name is MUHAMMAD SALMAN SALEEM  
My Father's Name is MUHAMMAD SALEEM  
I am Studying BSCS from COMSATS university Lahore Campus  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx name.txt newfile style.css style.txt  
ubuntu@ubuntu:~/Desktop/BSCS$ printf "I am studying BSCS from COMSATS Lahore" > study.txt  
ubuntu@ubuntu:~/Desktop/BSCS$ ls  
file1.xml file.html file.txt index.html index.js index.jsx name.txt newfile study.txt style.css style.txt
```

b) Rename a File: `mv old_name new_name`

```
ubuntu@ubuntu:~/Desktop/BSCS$ mv newfile newfile1.txt
ubuntu@ubuntu:~/Desktop/BSCS$ ls
file1.xml file.html file.txt index.html index.js index.jsx name.txt newfile1.txt study.txt style.css style.txt
```

c) Remove all files with the same name or same extension:

i. Single File: `rm filename.extension`

```
ubuntu@ubuntu:~/Desktop/BSCS$ rm file1.xml
ubuntu@ubuntu:~/Desktop/BSCS$ ls
file.html file.txt index.html index.js index.jsx name.txt newfile1.txt study.txt style.css style.txt
```

ii. Same name: `rm filename.*`

```
ubuntu@ubuntu:~/Desktop/BSCS$ rm index.*
ubuntu@ubuntu:~/Desktop/BSCS$ ls
file.html file.txt name.txt newfile1.txt study.txt style.css style.txt
```

iii. Same extension: `rm *.extension`

```
ubuntu@ubuntu:~/Desktop/BSCS$ rm *.txt
ubuntu@ubuntu:~/Desktop/BSCS$ ls
file.html style.css
```

Output Snippet:

```
file1.xml file.html file.txt index.html index.js index.jsx name.txt newfile1.txt study.txt style.css style.txt
ubuntu@ubuntu:~/Desktop/BSCS$ rm file1.xml
ubuntu@ubuntu:~/Desktop/BSCS$ ls
file.html file.txt index.html index.js index.jsx name.txt newfile1.txt study.txt style.css style.txt
ubuntu@ubuntu:~/Desktop/BSCS$ rm index.*
ubuntu@ubuntu:~/Desktop/BSCS$ ls
file.html file.txt name.txt newfile1.txt study.txt style.css style.txt
ubuntu@ubuntu:~/Desktop/BSCS$ rm *.txt
ubuntu@ubuntu:~/Desktop/BSCS$ ls
file.html style.css
```

d) Show Files by Type

```
ubuntu@ubuntu:~/Desktop/BSCS$ touch index.html abc.js index.js xyz.txt file.txt new.xml first.jsx
ubuntu@ubuntu:~/Desktop/BSCS$ ls
abc.js file.html file.txt first.jsx index.html index.js new.xml style.css xyz.txt
ubuntu@ubuntu:~/Desktop/BSCS$ ls *.js
abc.js index.js
ubuntu@ubuntu:~/Desktop/BSCS$ ls index.*
index.html index.js
```

e) Copy and Cut Files from Parent to Child Directory and vice versa.

i. Copy and Cut Files (Parent to Child Directory)

```
ubuntu@ubuntu:~/Desktop/BSCS$ mkdir copyFiles cutFiles
ubuntu@ubuntu:~/Desktop/BSCS$ ls
abc.js copyFiles cutFiles file.html file.txt first.jsx index.html index.js new.xml style.css xyz.txt
ubuntu@ubuntu:~/Desktop/BSCS$ cp *.html copyFiles/
ubuntu@ubuntu:~/Desktop/BSCS$ cd copyFiles/
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles$ ls
file.html index.html
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles$ cd ..
ubuntu@ubuntu:~/Desktop/BSCS$ mv *.html cutFiles/
ubuntu@ubuntu:~/Desktop/BSCS$ ls
abc.js copyFiles cutFiles file.txt first.jsx index.js new.xml style.css xyz.txt
ubuntu@ubuntu:~/Desktop/BSCS$ cd copyFiles/
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles$ mkdir copyfiles1
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles$ ls
copyfiles1 file.html index.html
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles$ cd ..
ubuntu@ubuntu:~/Desktop/BSCS$ ls
abc.js copyFiles cutFiles file.txt first.jsx index.js new.xml style.css xyz.txt
ubuntu@ubuntu:~/Desktop/BSCS$ cp *.txt copyFiles/copyfiles1/
ubuntu@ubuntu:~/Desktop/BSCS$ cd copyFiles/
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles$ cd copyfiles1/
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles/copyfiles1$ ls
file.txt xyz.txt
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles/copyfiles1$ cd ..
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles$ cd ..
ubuntu@ubuntu:~/Desktop/BSCS$ cd cutFiles/
ubuntu@ubuntu:~/Desktop/BSCS/cutFiles$ ls
file.html index.html
```


ii. Copy and Cut Files (Child to Parent Directory)

```
ubuntu@ubuntu:~/Desktop$ mkdir MSCS
ubuntu@ubuntu:~/Desktop$ ls
BSCS  MSCS  ubiquity.desktop
ubuntu@ubuntu:~/Desktop$ cd BSCS/copyFiles/copyfiles1/
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles/copyfiles1$ ls
file.txt  xyz.txt
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles/copyfiles1$ cp *.* ~/Desktop/MSCS/
ubuntu@ubuntu:~/Desktop/BSCS/copyFiles/copyfiles1$ cd ~
ubuntu@ubuntu:~$ cd Desktop/
ubuntu@ubuntu:~/Desktop$ cd MSCS/
ubuntu@ubuntu:~/Desktop/MSCS$ ls
file.txt  xyz.txt
ubuntu@ubuntu:~/Desktop/MSCS$ cd ..
ubuntu@ubuntu:~/Desktop$ cd BSCS/
ubuntu@ubuntu:~/Desktop/BSCS$ ls
abc.js  copyFiles  cutFiles  file.txt  first.jsx  index.js  new.xml  style.css  xyz.txt
ubuntu@ubuntu:~/Desktop/BSCS$ mv *.txt ~/Desktop/MSCS/
ubuntu@ubuntu:~/Desktop/BSCS$ ls
abc.js  copyFiles  cutFiles  first.jsx  index.js  new.xml  style.css
ubuntu@ubuntu:~/Desktop/BSCS$ cd ..
ubuntu@ubuntu:~/Desktop$ cd MSCS/
ubuntu@ubuntu:~/Desktop/MSCS$ ls
file.txt  xyz.txt
ubuntu@ubuntu:~/Desktop/MSCS$ cd ../BSCS/
ubuntu@ubuntu:~/Desktop/BSCS$ ls
abc.js  copyFiles  cutFiles  first.jsx  index.js  new.xml  style.css
ubuntu@ubuntu:~/Desktop/BSCS$ mv *.js ~/Desktop/MSCS/
ubuntu@ubuntu:~/Desktop/BSCS$ ls
copyFiles  cutFiles  first.jsx  new.xml  style.css
ubuntu@ubuntu:~/Desktop/BSCS$ cd ../MSCS/
ubuntu@ubuntu:~/Desktop/MSCS$ ls
abc.js  file.txt  index.js  xyz.txt
```

f) Show Files Data

i. Read Complete Data from File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ cat > datafile.txt
Line1
Line2
Line3
Line4
Line5
Line6
Line7
Line8
Line9
Line10
Line11
Line12
Line13
Line14
Line15
Line16
Line17
Line18
Line19
Line20
ubuntu@ubuntu:~/Desktop/DataFiles$ ls
datafile.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ cat datafile.txt
Line1
Line2
Line3
Line4
Line5
Line6
Line7
Line8
Line9
Line10
Line11
Line12
Line13
Line14
Line15
Line16
Line17
Line18
Line19
Line20
```

ii. Read Selected Lines from Start of File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ head -n 7 datafile.txt
Line1
Line2
Line3
Line4
Line5
Line6
Line7
```

iii. Read Selected Lines from End of File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ tail -n 9 datafile.txt
Line12
Line13
Line14
Line15
Line16
Line17
Line18
Line19
Line20
```

iv. Read Specific Lines from File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ sed -n '8,14p' datafile.txt
Line8
Line9
Line10
Line11
Line12
Line13
Line14
```

g) Copy Data from a File to another File.

i. Copy First Selected Lines from File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ touch copiedData.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ touch cutData.txt temp.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ ls
copiedData.txt  cutData.txt  datafile.txt  temp.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ head -n 7 datafile.txt > copiedData.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ cat copiedData.txt
Line1
Line2
Line3
Line4
Line5
Line6
Line7
```

ii. Copy Last Selected Lines from File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ tail -n 7 datafile.txt > copiedData.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ cat copiedData.txt
Line14
Line15
Line16
Line17
Line18
Line19
Line20
```

iii. Copy Specific Lines from File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ sed -n '6,13p' datafile.txt > copiedData.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ cat copiedData.txt
Line6
Line7
Line8
Line9
Line10
Line11
Line12
Line13
```

iv. Copy Full Data from File

```
ubuntu@ubuntu:~/Desktop/DataFiles$ cat datafile.txt > copiedData.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ cat copiedData.txt
Line1
Line2
Line3
Line4
Line5
Line6
Line7
Line8
Line9
Line10
Line11
Line12
Line13
Line14
Line15
Line16
Line17
Line18
Line19
Line20
```

h) Cut Data from a File to another File.

```
ubuntu@ubuntu:~/Desktop/DataFiles$ sed -n '8,13p' copiedData.txt >temp.txt && sed -i '8,13d' copiedData.txt
ubuntu@ubuntu:~/Desktop/DataFiles$ cat copiedData.txt
Line1
Line2
Line3
Line4
Line5
Line6
Line7
Line14
Line15
Line16
Line17
Line18
Line19
Line20
ubuntu@ubuntu:~/Desktop/DataFiles$ cat temp.txt
Line8
Line9
Line10
Line11
Line12
Line13
ubuntu@ubuntu:~/Desktop/DataFiles$
```

3)USER COMMAND(S)

a) Add New User: **sudo adduser username**

```
ubuntu@ubuntu:~$ sudo adduser farhan
Adding user `farhan' ...
Adding new group `farhan' (1002) ...
Adding new user `farhan' (1002) with group `farhan' ...
Creating home directory `/home/farhan' ...
Copying files from `/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for farhan
Enter the new value, or press ENTER for the default
    Full Name []:    Room Number []:    Work Phone []:    Home Phone []:    Other []: Is the information correct? [Y/n] y
```

b) Set Password for User: **sudo passwd username**

```
ubuntu@ubuntu:~$ sudo passwd farhan
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
```

c) Check Existing and New Users (Two Methods):

i. Method 1: `cat /etc/passwd`

```
ubuntu@ubuntu:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
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:/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:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:/:/nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/:/home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:/nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:107:116:/:/run/uidd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:118:/:/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124:/:/nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129:/:/var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131:/:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534:/:/run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
ubuntu:x:999:999:Live session user,,,:/home/ubuntu:/bin/bash
salman:x:1000:1000:MUHAMMAD SALMAN SALEEM,241,,,:/home/salman:/bin/bash
adnan:x:1001:1001:,,,:/home/adnan:/bin/bash
farhan:x:1002:1002:,,,:/home/farhan:/bin/bash
```


ii. Method 2: **getent passwd**

```
ubuntu@ubuntu:~$ getent passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
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:/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:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:/:nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/:home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:107:116:/:run/uidd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:118:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124:/:nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129:/:var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131:/:var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534:/:run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
ubuntu:x:999:999:Live session user,,,:/home/ubuntu:/bin/bash
salman:x:1000:1000:MUHAMMAD SALMAN SALEEM,241,,,:/home/salman:/bin/bash
adnan:x:1001:1001:,,,:/home/adnan:/bin/bash
farhan:x:1002:1002:,,,:/home/farhan:/bin/bash
```


d) Show only Usernames by (Three Methods):

i. Method 1: `cut -d: -f1 /etc/passwd`

```
ubuntu@ubuntu:~$ cut -d: -f1 /etc/passwd
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
messagebus
systemd-timesync
syslog
_apt
tss
uidd
systemd-oom
tcpdump
avahi-autoipd
usbmux
dnsmasq
kernoops
avahi
cups-pk-helper
rtkit
whoopsie
sssd
speech-dispatcher
fwupd-refresh
nm-openvpn
sane
colord
geoclue
pulse
gnome-initial-setup
hplip
gdm
ubuntu
salman
adnan
farhan
ubuntu@ubuntu:~$ cat /etc/passwd
```

ii. Method 2: `awk -F':' '{print $1}' /etc/passwd`

```
ubuntu@ubuntu:~$ awk -F':' '{print $1}' /etc/passwd
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
messagebus
systemd-timesync
syslog
_apt
tss
uidd
systemd-oom
tcpdump
avahi-autoipd
usbmux
dnsmasq
kernoops
avahi
cups-pk-helper
rtkit
whoopsie
sssd
speech-dispatcher
fwupd-refresh
nm-openvpn
saned
colord
geoclue
pulse
gnome-initial-setup
hplip
gdm
ubuntu
salman
adnan
farhan
```

iii. Method 3: `getent passwd | cut -d: -f1`

```
ubuntu@ubuntu:~$ getent passwd | cut -d: -f1
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
messagebus
systemd-timesync
syslog
_apt
tss
uidd
systemd-oom
tcpdump
avahi-autoipd
usbmux
dnsmasq
kernoops
avahi
cups-pk-helper
rtkit
whoopsie
sssd
speech-dispatcher
fwupd-refresh
nm-openvpn
saned
colord
geoclue
pulse
gnome-initial-setup
hplip
gdm
ubuntu
salman
adnan
farhan
```