

Lab 1..

2. What is the different between cat and more command?

- `cat` displays the entire contents of a file.
- `more` displays the contents of a file one screen at a time, allowing the user to scroll through it.

7. Copy the `/etc/passwd` file to your home directory making its name is `mypasswd`.

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/etc$ cd -  
/home/ibrahim  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ cp /etc/passwd ~/mypasswd  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ ls  
Desktop  dir1  docs  Documents  Downloads  Music  mypasswd  Pictures  Public  snap  Templates  Videos  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$
```

8. Rename this new file to be `oldpasswd`.

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ mv ~/mypasswd ~/oldpasswd  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ ls  
Desktop  dir1  docs  Documents  Downloads  Music  oldpasswd  Pictures  Public  snap  Templates  Videos  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$
```

10. You are in `/usr/bin`, list four ways to go to your home directory

1- `cd`

2- `cd ~`

3- `cd $HOME`

4- `cd ../../`

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ cd /usr/bin  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$ cd  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ cd /usr/bin  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$ cd ~  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ cd /usr/bin  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$ cd $HOME  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ cd /usr/bin  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$ cd ../../  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$
```

11. List Linux commands in `/usr/bin` that start with letter `w`

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$ cd /usr/bin  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$ ls w*  
w      watchgnupg  wget      which      who      whoopsie-preferences  write  
wall   wc           whatis    which.debianutils  whoami    word-list-compress    write.ul  
watch  wdctl       whereis   whiptail     whoopsie  wpa_passphrase  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$
```

12. Display the first 4 lines of `/etc/passwd`

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:/usr/bin$ cd  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ head -n 4 /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  
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$
```

13. Display the last 7 lines of /etc/passwd

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -n 7 /etc/passwd
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
ibrahim:x:1000:1000:ibrahim,,,:/home/ibrahim:/bin/bash
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$
```

----- lab 2 -----

9. Create a user account with the following attribute

username: islam

Fullname: Islam Askar

Password: islam

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo useradd -c "Islam Askar" -m islam
[sudo] password for ibrahim:
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -1 /etc/passwd
islam:x:1001:1001:Islam Askar:/home/islam:/bin/sh
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo passwd islam
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
```

10. Create a user account with the following attribute

Username: baduser

Full name: Bad User

Password: baduser

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo useradd -c "Bad User" -m baduser
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -1 /etc/passwd
baduser:x:1002:1002:Bad User:/home/baduser:/bin/sh
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo passwd baduser
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
```

11. Create a supplementary (Secondary) group called pgroup with group ID of 30000

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo groupadd -g 30000 pgroup
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -1 /etc/passwd
baduser:x:1002:1002:Bad User:/home/baduser:/bin/sh
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -1 /etc/group
pgroup:x:30000:
```

12. Create a supplementary group called badgroup

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo groupadd badgroup
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -1 /etc/group
badgroup:x:30001:
```

13. Add islam user to the pgroup group as a supplementary group

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo usermod -G pgroup islam
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -2 /etc/group
pgroup:x:30000:islam
badgroup:x:30001:
```

14. Modify the password of islam's account to password

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo passwd islam
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a dictionary word
Retype new password:
passwd: password updated successfully
```

15. Modify islam's account so the password expires after 30 days

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo usermod islam -e 30
```

16. Lock bad user account so he can't log in

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo usermod -L baduser
```

17. Delete bad user account

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo userdel -r baduser
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -2 /etc/passwd
ibrahim:x:1000:1000:ibrahim,,,:/home/ibrahim:/bin/bash
islam:x:1001:30000:Islam Askar:/home/islam:/bin/sh
```

18. Delete the supplementary group called badgroup.

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -2 /etc/group
pgroup:x:30000:islam
badgroup:x:30001:
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ sudo groupdel badgroup
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ tail -2 /etc/group
islam:x:1001:
pgroup:x:30000:islam
```

19. Which file system has the most free disk space on your machine

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs            785M   2.0M   783M   1% /run
/dev/sda7        88G   16G   69G   19% /
tmpfs            3.9G   157M   3.7G   4% /dev/shm
tmpfs            5.0M   4.0K   5.0M   1% /run/lock
efivarfs         100K    59K    37K  62% /sys/firmware/efi/efivars
/dev/sda1         96M    32M    65M  33% /boot/efi
tmpfs            785M   136K   785M   1% /run/user/1000
/dev/sda4       254G    44G   210G   18% /media/ibrahim/MY_DATA
```

20. Which top level directory in / uses the most space on your machine

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ du -h --max-depth=1 /
0          /dev
du: cannot read directory '/sys/kernel/tracing': Permission denied
du: cannot read directory '/sys/kernel/debug': Permission denied
du: cannot read directory '/sys/fs/pstore': Permission denied
du: cannot read directory '/sys/fs/bpf': Permission denied
0          /sys
4.0K       /mnt
du: cannot read directory '/run/wpa_supplicant': Permission denied
du: cannot read directory '/run/gdm3': Permission denied
du: cannot read directory '/run/udisks2': Permission denied
du: cannot read directory '/run/cups/certs': Permission denied
du: cannot read directory '/run/user/1000/systemd/inaccessible/dir': Permission denied
du: cannot read directory '/run/sudo': Permission denied
du: cannot read directory '/run/speech-dispatcher': Permission denied
du: cannot read directory '/run/openvpn-server': Permission denied
du: cannot read directory '/run/openvpn-client': Permission denied
du: cannot read directory '/run/credentials/systemd-sysusers.service': Permission denied
du: cannot read directory '/run/systemd/resolve/netif': Permission denied
du: cannot read directory '/run/systemd/propagate': Permission denied
du: cannot read directory '/run/systemd/unit-root': Permission denied
du: cannot read directory '/run/systemd/inaccessible/dir': Permission denied
du: cannot read directory '/run/initramfs': Permission denied
2.1M       /run
4.0K       /srv
du: cannot read directory '/etc/polkit-1/localauthority': Permission denied
du: cannot read directory '/etc/cups/ssl': Permission denied
du: cannot read directory '/etc/ssl/private': Permission denied
14M        /etc
```

21. Which top level directory in /home uses the least space on your machine.

```
ibrahim@ibrahim-Lenovo-ideapad-100-15IBD:~$ du -h --max-depth=1 /home | sort
2.1G       /home
2.1G       /home/ibrahim
4.0K       /home/islam
```