



COMSATS UNIVERSITY ISLAMABAD
ATTOCK CAMPUS

Lab Report 3 :

Operating System

Submitted to : Sir Fayyaz Ali

Group Members	Muaaz Shoaib FA20-BCS-074 Shahzeb Shaheen FA20-BCS-040
------------------	---

Rubrics Assessment Sheet for Operating System

Lab #:	Lab no 3		
Lab Title:	Introduction to Linux Shell		
Submitted by:			
Names Muaaz Shoaib Shahzeb Shaheen		Registration FA20-BCS-074 FA20-BCS-040	

Rubrics name & number		Marks	
		In-Lab	Post lab
Engineering Knowledge	<i>R2:Use of Engineering Knowledge and follow Experiment Procedures: Ability to follow experimental procedure,control variables,and record Procedural steps on lab report.</i>		
Problem Analysis	<i>R6: Experimental Data Analysis : Ability to intercept findings,compare them to values in the literature,identify weaknesses and limitations</i>		
Design	<i>RS: Best Coding Staudards: Abilitylofollowthecoding standards and programming practices</i>		
Modem Tools Usage	<i>R9: Understa1ld Tools: Ability to describe and explain the principles behind applicability of engineering tools.</i>		
Individual and Teamwork	<i>R9:Management of Team Work: Ability to appreciate, understand and work multidisciplinary team members</i>		

Rubrics #	R2	R6	RS	R9	R13
Jn -Lab					
Post- Lab					

Description :

Shells :

It provide an interface between the user and operating system.

It starts automatically when you log in.

Shell Commands :

Shell Commands consist of words

Seperated by spaces.

Q1 :

a. Use the `df` command to display the amount of used and available space on your hard drive.

```
zainaliwaheed@ubuntu:~$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
udev            931656         0    931656   0% /dev
tmpfs           193028      1340    191688   1% /run
/dev/sda5       102893480 10502848 87120872  11% /
tmpfs           965124         0    965124   0% /dev/shm
tmpfs           5120          4      5116   1% /run/lock
tmpfs           965124         0    965124   0% /sys/fs/cgroup
/dev/loop1       56832      56832         0 100% /snap/core18/2128
/dev/loop0        128         128         0 100% /snap/bare/5
/dev/loop2       56960      56960         0 100% /snap/core18/2284
/dev/loop3       63488      63488         0 100% /snap/core20/1328
/dev/loop4       63488      63488         0 100% /snap/core20/1361
/dev/loop5       224256     224256         0 100% /snap/gnome-3-34-1804/72
/dev/loop6       224256     224256         0 100% /snap/gnome-3-34-1804/77
/dev/loop7       253952     253952         0 100% /snap/gnome-3-38-2004/87
/dev/loop8       254848     254848         0 100% /snap/gnome-3-38-2004/99
/dev/loop9       66688      66688         0 100% /snap/gtk-common-themes/1515
/dev/loop10      66816      66816         0 100% /snap/gtk-common-themes/1519
/dev/loop11      52224      52224         0 100% /snap/snap-store/547
/dev/loop12      44672      44672         0 100% /snap/snapd/14978
/dev/loop13      55552      55552         0 100% /snap/snap-store/558
/dev/sda1        523248         4    523244   1% /boot/efi
tmpfs           193024         24    193000   1% /run/user/1000
/dev/sr0         59770      59770         0 100% /media/zainaliwaheed/VBox_GAs_6.1.321
```

b. Check the man page for `df`, and use it to find an option to the command which will display the free space in a more human-friendly form. Try both the single-letter and long-style options.

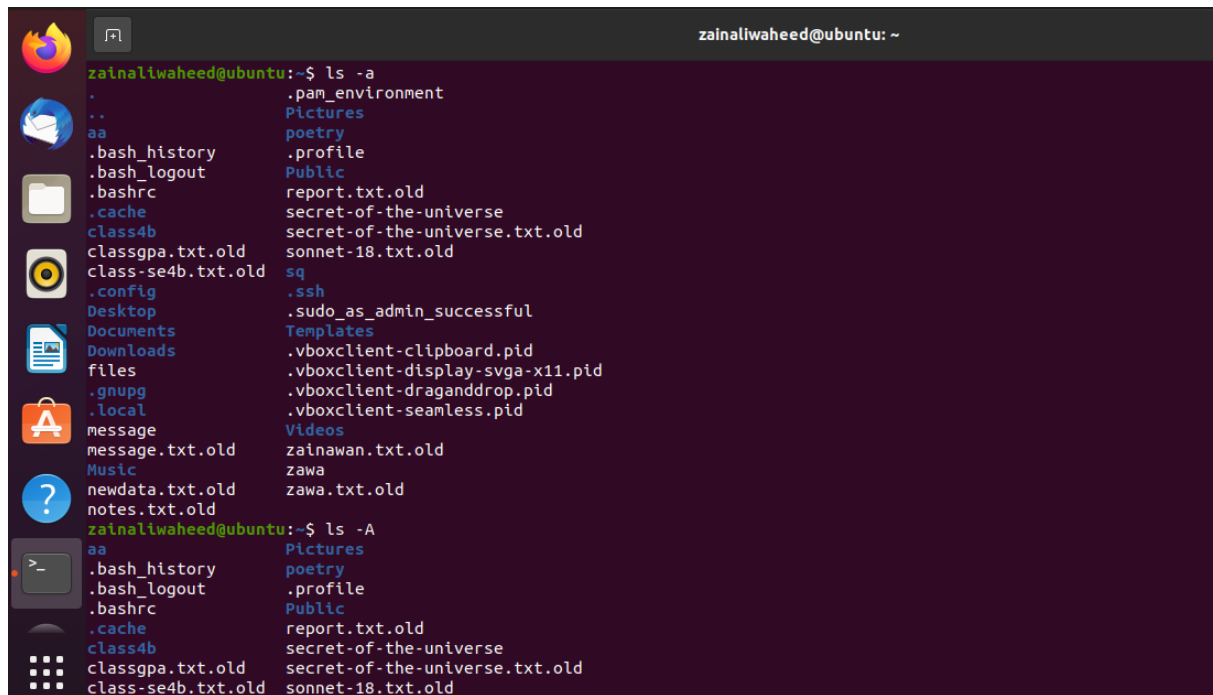
```
zainaliwaheed@ubuntu:~$ df -a
Filesystem      1K-blocks    Used Available Use% Mounted on
sysfs            0         0         0   - /sys
proc             0         0         0   - /proc
udev            931656         0    931656   0% /dev
devpts           0         0         0   - /dev/pts
tmpfs           193028      1332    191696   1% /run
/dev/sda5       102893480 10538432 87085288  11% /
securityfs       0         0         0   - /sys/kernel/security
tmpfs           965124         0    965124   0% /dev/shm
tmpfs           5120          4      5116   1% /run/lock
tmpfs           965124         0    965124   0% /sys/fs/cgroup
cgroup2          0         0         0   - /sys/fs/cgroup/unified
cgroup           0         0         0   - /sys/fs/cgroup/systemd
pstore           0         0         0   - /sys/fs/pstore
none            0         0         0   - /sys/fs/bpf
cgroup           0         0         0   - /sys/fs/cgroup/misc
cgroup           0         0         0   - /sys/fs/cgroup/devices
cgroup           0         0         0   - /sys/fs/cgroup/blkio
cgroup           0         0         0   - /sys/fs/cgroup/cpu,cpuacct
cgroup           0         0         0   - /sys/fs/cgroup/perf_event
cgroup           0         0         0   - /sys/fs/cgroup/memory
cgroup           0         0         0   - /sys/fs/cgroup/freezer
cgroup           0         0         0   - /sys/fs/cgroup/rdma
cgroup           0         0         0   - /sys/fs/cgroup/hugetlb
```

c. Run the shell, bash, and see what happens. Remember that you were already running it to start with. Try leaving the shell you have started with the exit command

```
zainaliwaheed@ubuntu:~$ exit
```

Q2 :

a. Try ls with the -a and -A options. What is the difference between them?

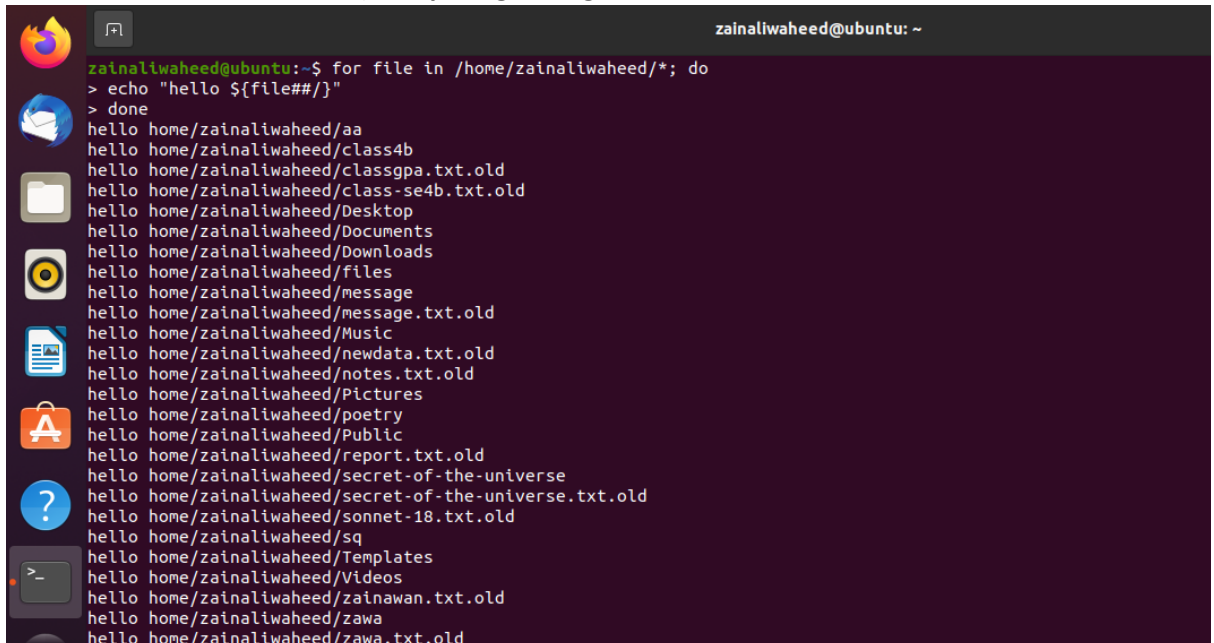


```
zainaliwaheed@ubuntu:~$ ls -a
.          .pam_environment
..         Pictures
aa         poetry
.bash_history  .profile
.bash_logout  Public
.bashrc       report.txt.old
.cache        secret-of-the-universe
.class4b      secret-of-the-universe.txt.old
.classgpa.txt.old  sonnet-18.txt.old
.class-se4b.txt.old sq
.config       .ssh
Desktop       .sudo_as_admin_successful
Documents     Templates
Downloads     .vboxclient-clipboard.pid
files         .vboxclient-display-svga-x11.pid
.gnupg        .vboxclient-draganddrop.pid
.local        .vboxclient-seamless.pid
.message      Videos
message.txt.old  zainawan.txt.old
Music         zawa
newdata.txt.old  zawa.txt.old
notes.txt.old
zainaliwaheed@ubuntu:~$ ls -A
aa         Pictures
.bash_history  poetry
.bash_logout  .profile
.bashrc       Public
.cache        report.txt.old
.class4b      secret-of-the-universe
.classgpa.txt.old  secret-of-the-universe.txt.old
.class-se4b.txt.old  sonnet-18.txt.old
```

b. Write a for loop which goes through all the files in a directory and prints out their names with echo. If you write the whole thing on one line, then it will be easy to repeat it using the command line history.

```
zainaliwaheed@ubuntu:~$ for file in /home/*; do
> echo "${file##/}"
> done
home/zainaliwaheed
```

- c. Change the loop so that it goes through the names of the people in the room (which needn't be the names of files) and print greetings to them.



```
zainaliwaheed@ubuntu:~$ for file in /home/zainaliwaheed/*; do
> echo "hello ${file##*/}"
> done
hello home/zainaliwaheed/aa
hello home/zainaliwaheed/class4b
hello home/zainaliwaheed/classgpa.txt.old
hello home/zainaliwaheed/class-se4b.txt.old
hello home/zainaliwaheed/Desktop
hello home/zainaliwaheed/Documents
hello home/zainaliwaheed/Downloads
hello home/zainaliwaheed/files
hello home/zainaliwaheed/message
hello home/zainaliwaheed/message.txt.old
hello home/zainaliwaheed/Music
hello home/zainaliwaheed/newdata.txt.old
hello home/zainaliwaheed/notes.txt.old
hello home/zainaliwaheed/Pictures
hello home/zainaliwaheed/poetry
hello home/zainaliwaheed/Public
hello home/zainaliwaheed/report.txt.old
hello home/zainaliwaheed/secret-of-the-universe
hello home/zainaliwaheed/secret-of-the-universe.txt.old
hello home/zainaliwaheed/sonnet-18.txt.old
hello home/zainaliwaheed/sq
hello home/zainaliwaheed/Templates
hello home/zainaliwaheed/Videos
hello home/zainaliwaheed/zainawan.txt.old
hello home/zainaliwaheed/zawa
hello home/zainaliwaheed/zawa.txt.old
```

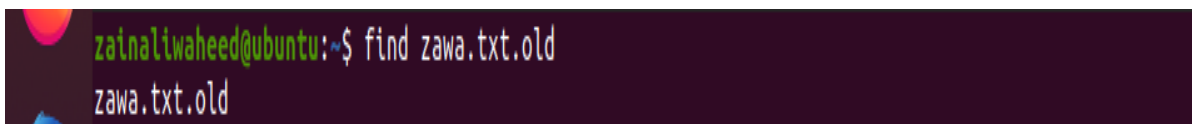
- d. Of course, a simpler way to print a list of filenames is `echo *`. Why might this be useful, when we usually use the `ls` command?



```
zainaliwaheed@ubuntu:~$ echo *
aa class4b classgpa.txt.old class-se4b.txt.old Desktop Documents Downloads files message message.txt.old Music newdata.txt.old notes.txt.old P
ictures poetry Public report.txt.old secret-of-the-universe secret-of-the-universe.txt.old sonnet-18.txt.old sq Templates Videos zainawan.txt.
old zawa zawa.txt.old
```

Q3 :

- a. Use the `find` command to list all the files and directories under your home directory. Try the `-type d` and `-type f` criteria to show just files and just directories.



```
zainaliwaheed@ubuntu:~$ find zawa.txt.old
zawa.txt.old
```

- b. Use `'locate'` to find files whose name contains the string `'bashbug'`. Try the same search with `find`, looking over all files on the system. You'll need to use the `*` wildcard at the end of the pattern to match files with extensions.

```
zainaliwaheed@ubuntu:~$ locate bashbug
/snap/core18/2128/usr/bin/bashbug
/snap/core18/2284/usr/bin/bashbug
/snap/core20/1328/usr/bin/bashbug
/snap/core20/1361/usr/bin/bashbug
/usr/bin/bashbug
/usr/share/man/man1/bashbug.1.gz
```

c. Find out what the find criterion -iname does.

```
zainaliwaheed@ubuntu:~$ find -iname zawa
./zawa
```