

=====BY Khalid Madian=====

1 - to list files in directory (ls)
khalid@khalid-Victus:~\$ ls
Abolftoh file2 hosts odoo18 Templates
Desktop file3 Music Pictures Videos
Documents file4 odoo16 Public

2- to list all files and hidden its start with dot (la) or (ls -a)
khalid@khalid-Victus:~\$ la
Abolftoh .gitconfig .pki
.bash_history .gnupg .profile
.bash_logout .gphoto .psensor
.bashrc hosts .psql_history
.cache .hosts.swp Public
.config .java snap
.dbclient .lessht .ssh

3- to list all files hidden and type of files and (ls -alF)
khalid@khalid-Victus:~\$ ls -alF
total 228
drwxr-x--x 31 khalid khalid 4096 17:55 22 مئیت ./
drwxr-xr-x 3 root root 4096 21:43 26 مئی ./
drwxrwxr-x 5 khalid khalid 4096 05:05 31 یول Abolftoh/
-rw----- 1 khalid khalid 47896 05:55 23 مئیت .bash_history
-rw-r--r-- 1 khalid khalid 220 21:43 26 مئی .bash_logout
-rw-r--r-- 1 khalid khalid 3771 21:43 26 مئی .bashrc
drwx----- 27 khalid khalid 4096 18:03 8 مئیت .cache/
drwx----- 28 khalid khalid 4096 23:54 20 مئیت .config/

4- to clear al command in terminal tab (clear)

5 - to get documintion about about command (--help)
khalid@khalid-Victus:~\$ ls --help
Usage: ls [OPTION]... [FILE]...
List information about the FILEs (the current directory by default).
Sort entries alphabetically if none of -ctuvSUX nor --sort is specified.

6 - to get documintion about about command but not populer(man)

7- to get the current path or location (pwd)
khalid@khalid-Victus:~\$ pwd
/home/khalid

8- to get the type of command or location of rhis app or script "all command is script or app"(type)
khalid@khalid-Victus:~\$ type -a ls
ls is aliased to `ls --color=auto'
ls is /usr/bin/ls
ls is /bin/ls

9 - to know th current user is connect (whoami)
khalid@khalid-Victus:~\$ whoami
khalid

10 - to know the current i connect (ip address)
khalid@khalid-Victus:~\$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo
valid_lft forever preferred_lft forever
inet6 ::1/128 scope host
valid_lft forever preferred_lft forever
2: eno1: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
link/ether 24:6a:0e:5c:c8:6b brd ff:ff:ff:ff:ff:ff
altname enp3s0
3: wlo1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
link/ether 98:5f:41:b6:0e:22 brd ff:ff:ff:ff:ff:ff

11 - to know the current host (hosyname)
khalid@khalid-Victus:~\$ hostname
khalid-Victus

12 - to create directory (mkdir)(112233)

13 - to print in terminal (echo "hello khalid sadd")
hello khalid sadd

14 - to delete file (rm)

15 - to remove directory (rmdir) or (rm -r)

16 - to create text file or changhe modification time (touch)

17 - to create text file but more easy and populer(nano)

18 - to create variable and print it (echo whith dollar sign)
var=20
echo \$var
20

19 - to crreate several files in same time or make another operation ({, [])
touch file{2..5}
file2, file3, file4, file5

```
rm file{1..10}
```

```
20 - you can do summation as variable($[])
var3=$((1 + 3))
```

```
21 - to get all variable in your system (set)
```

```
22 - to get all variable in your system with filtertion (set | grep var ) get variable start with 'var'
```

```
khalid@khalid-Victus:~$ set | grep var
BASHOPTS=checkwinsize:cmdhist:complete_fullquote:expand_aliases:extglob:extquote:force_figignore:globasciiranges:histappend:interactive_comments:progcomp:promptvars:sourcepath
XDG_DATA_DIRS=/usr/share/ubuntu-xorg:/usr/share/gnome:/usr/local/share/:/usr/share/:/var/lib/snapd/desktop
var1=50
var3=50
var4=55
```

```
23 - to know the current simple procces (ps)
```

```
khalid@khalid-Victus:~$ ps
PID TTY TIME CMD
4906 pts/1 00:00:00 bash
6254 pts/1 00:00:00 ps
```

```
24 - to define variable (declare)
```

```
declare -i num1 ---> -i from integer
declare -i num2
num1=4
num2=$num1*5
echo $num2
20
```

```
25 - exprition (expr)
```

```
khalid@khalid-Victus:~$ expr 1 + 3
4
```

```
khalid@khalid-Victus:~$ expr 3 \^ 4
12
```

```
khalid@khalid-Victus:~$ expr 1 = 3
0
```

```
26 to store output in variable to use it (>) "command substitution"
khalid@khalid-Victus:~$ ls -l ~ > outputkhalid@khalid-Victus:~$ cat output cat: output: No such file or directory
khalid@khalid-Victus:~$ cat output
total 60
drwxrwxr-x 5 khalid khalid 4096 05:05 31 يول Abolftoh
drwxr-xr-x 2 khalid khalid 4096 15:06 27 سبٲ Desktop
drwxr-xr-x 2 khalid khalid 4096 00:47 27 ماي Documents
drwxr-xrwx 5 khalid khalid 12288 23:28 27 سبٲ Downloads
drwxr-xr-x 2 khalid khalid 4096 00:47 27 ماي Music
drwxrwxr-x 8 khalid khalid 4096 14:52 14 اٲس odoo16
-----
```

```
khalid@khalid-Victus:~$ echo $(date) > today
khalid@khalid-Victus:~$ cat today
28 01:55:55 03+ 2025 سبٲ
```

```
26 to store output but its error in variable to use it (2>) "command substitution"
khalid@khalid-Victus:~$ ls /err
ls: cannot access '/err': No such file or directory
khalid@khalid-Victus:~$ ls /err 2> error
khalid@khalid-Victus:~$ cat error
ls: cannot access '/err': No such file or directory
```

```
27 - to search in file about text (grep)
```

```
khalid@khalid-Victus:~$ cat /etc/hosts
127.0.0.1 localhost
127.0.1.1 khalid-Victus
```

```
# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
khalid@khalid-Victus:~$ grep ff00 /etc/hosts
ff00::0 ip6-mcastprefix
```

```
27 - to search in file about text but give the count of this text repeated (grep -c)
```

```
khalid@khalid-Victus:~$ grep -c localhost /etc/hosts
2 -> give you two
khalid@khalid-Victus:~$ grep localhost /etc/hosts
127.0.0.1 localhost
::1 ip6-localhost ip6-loopback
```

```
28 - to filter text file and display only the first fifth lines (head) --> can use tail for last lines
khalid@khalid-Victus:~$ head -n 5 /var/log/syslog
```

```
Sep 28 00:00:30 khalid-Victus systemd[1]: rsyslog.service: Sent signal SIGHUP to main process 875 (rsyslogd) on client request.
Sep 28 00:00:30 khalid-Victus systemd[1]: logrotate.service: Deactivated successfully.
Sep 28 00:00:30 khalid-Victus systemd[1]: Finished Rotate log files.
Sep 28 00:02:42 khalid-Victus kernel: [289219.528406] audit: type=1400 audit(1759006962.271:4581): apparmor="DENIED" operation="open" class="file" profile="snap.brave.brave"
name="/proc/3199/smaps_rollup" pid=3199 comm="MemoryInfra" requested_mask="r" denied_mask="r" fsuid=1000 ouid=1000
Sep 28 00:02:42 khalid-Victus kernel: [289219.530690] audit: type=1400 audit(1759006962.273:4582): apparmor="DENIED" operation="open" class="file" profile="snap.brave.brave"
name="/proc/3199/smaps_rollup" pid=3199 comm="MemoryInfra" requested_mask="r" denied_mask="r" fsuid=1000 ouid=1000
```

29 - this will give you the last fifth lines and will count the words in these lines (|)

```
khalid@khalid-Victus:~$ head -n 5 /var/log/syslog | wc -w
100
```

30 - this will transform text (tr)

```
khalid@khalid-Victus:~$ echo "this iss 123 ?" | tr -d 's'
thi i 123 ? --> deleted character 's' from the text
---
khalid@khalid-Victus:~$ echo "this iss 123 ?" | tr [i] [I]
thIs Iss 123 ? --> change all small i to capital I
```

31 - transform with squiz (tr -s)

```
khalid@khalid-Victus:~$ echo "this iss 123 ?" | tr -s 's'
this is 123 ? --> change double ss to single s with squiz
```

31 - transform with squiz (tr [] [])

```
khalid@khalid-Victus:~$ echo "this iss 123 ?" | tr [a-z] [A-Z]
THIS ISS 123 ? --> change all character small to capital
***** another way *****
khalid@khalid-Victus:~$ echo "this is my ball 123" | tr [:lower:] [:upper:]
THIS IS MY BALL 123
```

32 - delete al digits in text with transform (trs [:digit:])

```
khalid@khalid-Victus:~$ echo "this iss 123 ?" | tr -d [:digit:]
this iss ?
```

33- to cut full text or sentence (cut)

```
khalid@khalid-Victus:~$ echo "this is str ing of " | cut -c 1
t --> give you the first character
***** to get some characters *****
khalid@khalid-Victus:~$ echo "this is string of " | cut -c 1-10
this is st
```

34 - to display all users in linux (cat /etc/passwd)

```
khalid@khalid-Victus:~$ cat /etc/passwd | grep khalid
khalid:x:1000:1000:khalid,,,:/home/khalid:/bin/bash
***** root user *****
khalid@khalid-Victus:~$ cat /etc/passwd | grep root
root:x:0:0:root:/root:/bin/bash
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
```

35 - to show users but with root access only (cat /etc/shadow)

```
root@khalid-Victus:~# cat /etc/shadow
root:$y$9T$u5zoC4G8aGTAerkEETAno1$GdrzriqByVVQR88Pgzf0Y8V2.AP2rXqjCCiMYj78v0.:20359:0:99999:7:::
daemon:!:19977:0:99999:7:::
bin:!:19977:0:99999:7:::
sys:!:19977:0:99999:7:::
sync:!:19977:0:99999:7:::
games:!:19977:0:99999:7:::
man:!:19977:0:99999:7:::
lp:!:19977:0:99999:7:::
mail:!:19977:0:99999:7:::
news:!:19977:0:99999:7:::
uucp:!:19977:0:99999:7:::
proxy:!:19977:0:99999:7:::
www-data:!:19977:0:99999:7:::
backup:!:19977:0:99999:7:::
list:!:19977:0:99999:7:::
irc:!:19977:0:99999:7:::
```

36 - to get the groups the current user in it (groups)

```
khalid@khalid-Victus:~$ groups
khalid adm cdrom sudo dip plugdev lpadmin lxd sambashare
```

37 - to add new group (groupadd)

```
khalid@khalid-Victus:~$ sudo groupadd group1
khalid@khalid-Victus:~$ cat /etc/group | grep group1
group1:x:1001:
```

38 - to delete group (groupdel)

```
khalid@khalid-Victus:~$ sudo groupdel group1
```

File Management

39 - to know information about file (stat)

```
khalid@khalid-Victus:~$ stat original
File: original
Size: 12 Blocks: 8 IO Block: 4096 regular file
Device: 10306h/66310d Inode: 12165090 Links: 1
Access: (0664/-rw-rw-r--) Uid: ( 1000/ khalid) Gid: ( 1000/ khalid)
```

Access: 2025-09-29 00:15:21.140330679 +0300
Modify: 2025-09-29 00:15:28.848308229 +0300
Change: 2025-09-29 00:15:28.848308229 +0300
Birth: 2025-09-29 00:15:08.314370074 +0300

40 - to create hard link from file like original file (ln original symlink) its same file and content and modified
but if you delete the original file will not delete he hard link file

```
khalid@khalid-Victus:~$ ls -il ori* *link
12165090 -rw-rw-r-- 2 khalid khalid 12 00:15 29 مڃت hardlink
12165090 -rw-rw-r-- 2 khalid khalid 12 00:15 29 مڃت original
```

41 - to create soft link from file like shortcut to call original file (ln -s original symlink)
khalid@khalid-Victus:~\$ ls -il ori* *link
12165090 -rw-rw-r-- 2 khalid khalid 12 00:15 29 مڃت hardlink
12165090 -rw-rw-r-- 2 khalid khalid 12 00:15 29 مڃت original
12165098 lrwxrwxrwx 1 khalid khalid 8 00:20 29 مڃت symlink -> original

symlink like pointer and if you delete original file will delete symlink

42 - to connect in root user (su -)
khalid@khalid-Victus:~\$ su -
Password:
root@khalid-Victus:~#

43 - if you to try connect root user but its refuse you if its your first tim access (sudo passwd root)
khalid@khalid-Victus:~\$ sudo passwd root
[sudo] password for khalid:
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully

44 - to know where th command or file or script (which)
khalid@khalid-Victus:~\$ which zip
/usr/bin/zip
khalid@khalid-Victus:~\$ which groupadd
/usr/sbin/groupadd

45 - to know the version of linux kernel in your device
khalid@khalid-Victus:/boot\$ uname -r
6.8.0-83-generic

46 - how to know the type of something in directory
its begin wit (-) so its (file)
-rw-r----- 1 syslog adm 59M 04:21 4 مڃت syslog

its begin wit (d) so its (file)
drwxr-xr-x 2 root root 4.0K 2024 27 مڃن openvpn

47 - to know the type of file (file)
khalid@khalid-Victus:~\$ touch newfile
khalid@khalid-Victus:~\$ file newfile
newfile: empty
its still doesn't contain any data
*****but*****
khalid@khalid-Victus:~\$ echo "khalid saad" > newfile
khalid@khalid-Victus:~\$ file newfile
newfile: ASCII text --> give me its ascii text

48 - to show the file like pages and progress with arrow keys(more)
to show the file like pages and progress with arrow keys(less)

49 - the types of files editor(head, tail, more, les, cat, none, vip)

50 - to review files like tree or list(tree)
root@khalid-Victus:/usr/bin# tree
[
aa-enabled
aa-exec
aa-features-abi
addpart

51 - to find a file in another directory not should be direct child with his full name or without (find)
root@khalid-Victus:/var# find . -type f -name d*.log --> f for file (d*.log)--> mean start with d and end with .log
./log/dpkg.log --> the result search

52 - get any file its name start with file and the result execute the line after -l (xargs)
The result put in -->{}

```
root@khalid-Victus:~# touch file{1,2,3}
root@khalid-Victus:~# ls file?
file1 file2 file3
root@khalid-Victus:~# ls file? | xargs -l {} mkdir {}.d
root@khalid-Victus:~# ls
file1 file1.d file2 file2.d file3 file3.d snap
```

53 - to collect files or file in one file not compress just collect (tar) this's with root

```
root@khalid-Victus:/var# tar -cvf log.tar log/
***** c --> for create *****
***** f --> for file name *****
***** v--> verbose (to display operation and files on the screen) *****
***** log/ --> back slash to tell the bash its directory npt file *****
root@khalid-Victus:/var# ls -dhl log*
```

```
drwxrwxr-x 16 root syslog 4.0K 00:00 9 اکت log
-rw-r--r-- 1 root root 2.2G 00:24 10 اکت log.tar
```

54 - to review the content of ar file without textract

```
root@khalid-Victus:/var# tar -tf log.tar
log/
log/apache2/
log/apache2/error.log.3.gz
log/apache2/error.log.1
log/apache2/error.log.13.gz
log/apache2/access.log.1
log/apache2/error.log.4.gz
```

55 - to compress file or zip file (gzip)

```
root@khalid-Victus:/var/log# gzip boot.log
the result
boot.log.gz
```

56 - to compress file or zip file but with create new incessant without change in original file (gzip -k)

```
root@khalid-Victus:/var/log# gzip -k boot.log
root@khalid-Victus:/var/log# ls -lh boot*
-rw----- 1 root root 29 00:00 9 اکت boot.log.gz
```

57 - to compress file or unzip fill (gzip -d)

```
root@khalid-Victus:/var/log# gzip -d boot.log.gz
root@khalid-Victus:/var/log# ls -lh boot*
-rw----- 1 root root 0 00:00 9 اکت boot.log
```

58 - to archive the file and compress in the same time (tar -czvf (file name) (the destination file/))

```
root@khalid-Victus:/var# tar -czvf log.tar.gz log/
```

```
root@khalid-Victus:/var# ls -lhd log*
drwxrwxr-x 16 root syslog 4.0K 01:02 10 اکت log
-rw-r--r-- 1 root root 2.2G 00:24 10 اکت log.tar
-rw-r--r-- 1 root root 234M 01:14 10 اکت log.tar.gz
```

59 - to unarchive the file and compress in the same time (tar -xzvf (file name) location)

```
root@khalid-Victus:/var# tar -xzvf log.tar.gz log/
```

60 - to know the type of file

```
root@khalid-Victus:/var# file log.tar.gz
log.tar.gz: gzip compressed data, from Unix, original size modulo 2^32 2335201280
```

61 - to rename the file name (mv)

```
root@khalid-Victus:/var# mv log.tar.gz log.tgz
root@khalid-Victus:/var# ls -lhd log*
-rw-r--r-- 1 root root 234M 01:14 10 اکت log.tgz
```

```
root@khalid-Victus:/var# file log.tgz
log.tgz: gzip compressed data, from Unix, original size modulo 2^32 2335201280
```

62 - file owners and permissions

when you create file its will be have default owner for thr user have created it

```
khalid@khalid-Victus:~$ touch somefile
khalid@khalid-Victus:~$ ls -l | grep somefile
-rw-rw-r-- 1 khalid khalid 0 02:44 10 اکت somefile
```

here in this example this file have owner khalid and khalid have primary group khalid too

if you want to change the khalid group you can change it and will display in the screen

63 - to add user (useradd)

```
sudo useradd user1 -m -s /bin/bash
***** -m /bin/bash --> Creates the user's home directory *****
***** -s /bin/bash --> Sets Bash as the user's default shell *****
after that you should change the password to can login
```

64 - to add user (userdel)

```
khalid@khalid-Victus:/home$ sudo userdel -r user1
**** r --> to remove from home directory (/home/username)*****
```

65 - to change the owner of the file (chown)

```
user1@khalid-Victus:/tmp/dir$ sudo chown user1 file1
-rw-rw-r-- 1 user1 khalid 10 02:55 10 اکت file1
```

66 - to change the owner and group of the file (chown user1:user1)

```
user1@khalid-Victus:/tmp/dir$ sudo chown user1 user1 file1
-rw-rw-r-- 1 user1 user1 10 02:55 10 اکت file1
```

67 - to change the group of the file (chown :user1)

```
user1@khalid-Victus:/tmp/dir$ sudo chown :user1 file1
-rw-rw-r-- 1 khalid user1 10 02:55 10 اکت file1
```

68 - to change the group of the file (chgrp admins)

```
user1@khalid-Victus:/tmp/dir$ sudo chown :user1 file1
-rw-rw-r-- 1 user1 admin 10 02:55 10 اکت file1
```

```
69 - to change the mode of file or directory (chmod)
we have three types ( owner user **** group **** others )
before change without anything -->
khalid@khalid-Victus:/tmp/dir$ ls -l
total 4
-rw-rw-r-- 1 khalid khalid 10 02:55 10 اکت file1
```

sudo chmod u=rw, g=r, o-r file1 --> o-r (-) mines mean (others) have permission read i dont want it

```
khalid@khalid-Victus:/tmp/dir$ sudo chmod u=rw,g=r,o-r file1
khalid@khalid-Victus:/tmp/dir$ ls -l
total 4
-rw-r----- 1 khalid khalid 10 02:55 10 اکت file1
***** access with anther user *****
user1@khalid-Victus:/tmp/dir$ cat file1
cat: file1: Permission denied
```

```
khalid@khalid-Victus:/tmp/dir$ sudo chmod o+r file1
user1@khalid-Victus:/tmp/dir$ cat file1
some text
```

70 - shortcut in permission

```
khalid@khalid-Victus:/tmp/dir$ sudo chmod ug+x file1
khalid@khalid-Victus:/tmp/dir$ ls -l
total 4
-rwxr-xr-- 1 khalid khalid 10 02:55 10 اکت file1
```

71 - in permission you can numerical as shortcut

```
4 --> READ
2 --> WRITE
1 --> EXECUTE
( 6 4 4 )
owner user --> read + write groups --> read others --> read
```

```
khalid@khalid-Victus:/tmp/dir$ chmod 644 file1
khalid@khalid-Victus:/tmp/dir$ ls -l
total 4
-rw-r--r-- 1 khalid khalid 10 02:55 10 اکت file1
```

72 - if you want to give one users in others but not all and not owner user(getfacl) (get file access control list)

```
khalid@khalid-Victus:/tmp/dir$ getfacl file2
# file: file2
# owner: khalid
# group: khalid
user::rw-
group::r--
other::r--
```

73 - if you want to give one users in others but not all and not owner user(setfacl) (set file access control list)

```
khalid@khalid-Victus:/tmp/dir$ setfacl -m u:user1:r file2
khalid@khalid-Victus:/tmp/dir$ getfacl file2
# file: file2
# owner: khalid
# group: khalid
user::rw-
user:user1:r--
group::r--
mask::r--
other::r--
```

```
khalid@khalid-Victus:/tmp/dir$ ls -l
total 8
-rw-r--r-- 1 khalid khalid 10 02:55 10 اکت file1
-rw-r--r--+ 1 khalid khalid 10 05:04 10 اکت file2
```

(+) we have plus sign in file2 (special permission)

74-1 the process is running in the system in simple way (ps)

```
khalid@khalid-Victus:~$ ps
PID TTY TIME CMD
60461 pts/2 00:00:00 bash
60492 pts/2 00:00:00 ps\
```

74-2 - to use easy shell its name fish for beginner(fish)

```
khalid@khalid-Victus:~$ sudo apt install fish
khalid@khalid-Victus:~$ fish
khalid@khalid-Victus ~-> ps
PID TTY TIME CMD
26429 pts/6 00:00:00 bash
27896 pts/6 00:00:00 fish
28028 pts/6 00:00:00 ps
```

*** can we see its running

75 - the all process is running in the system (ps -e) the first process running is --> systemd

```
khalid@khalid-Victus:~$ ps -e
PID TTY TIME CMD
1 ? 00:00:03 systemd
```

```
855-2- to uninstall package (dpkg -r )
khalid@khalid-Victus:~$ sudo dpkg -r nsnake
(Reading database ... 256742 files and directories currently installed.)
Removing nsnake (3.0.1-2.1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
```

86 - you can install with apt (APT)

```
khalid@khalid-Victus:~$ sudo apt install nsnake
Reading package lists... Done
Building dependency tree... Done
```

87 - check the version of packages you have and the repo of location you installed from where and tell you (aptd update)
***** Example *****

```
khalid@khalid-Victus:~$ dpkg -p bash
Package: bash
Essential: yes
Priority: required
Section: shells
Installed-Size: 1864
Origin: Ubuntu
Bugs: https://bugs.launchpad.net/ubuntu/+filebug
Architecture: amd64
Multi-Arch: foreign
Version: 5.1-6ubuntu1 --> when you run (sudo apt update ) will take this date like version of every package have
installed and compare it with this package text file in website
```

88 - to know the size of package or the word of count (wc)
khalid@khalid-Victus:~\$ wc nsnake_3.0.1-2.1_amd64.deb
432 2336 97128 nsnake_3.0.1-2.1_amd64.deb
count of words , count of line , count of bytes , name of package

89 - to install with (apt-get)

```
khalid@khalid-Victus:~$ sudo apt-get install nsnake
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automa
```

***** connect to remote server *****

90 - to connect to server (cd to /.ssh)
ssh 4.236.152.79 or any server

91 - Used to download files or websites from the internet (wget)
wget https://example.com/file.zip
if you want to download a lot of links tou can put it in text file and add -i with it
wget /home/khalid/Desktop/download-links.txt

92 - It's a web browser in the terminal. (w3m)
w3m www.google.com

***** shell scripts *****

93 - to run shell script in ubuntu(sh , bash)
first step create file
khalid@khalid-Victus:~\$ nano first_script.sh
ls
date --> PUT THIS COMMAND IN FILE
whoami
echo "hi khalid"

```
khalid@khalid-Victus:~$ ls -l first_script.sh
-rw-rw-r-- 1 khalid khalid 32 08:15 22 اکت first_script.sh --> not have (x) mean can't execute
khalid@khalid-Victus:~$ chmod +x first_script.sh --> make this file executable
khalid@khalid-Victus:~$ ls -l first_script.sh
-rwxrwxr-x 1 khalid khalid 32 08:15 22 اکت first_script.sh --> include (x)
NOW YOU CAN EXECUTE
khalid@khalid-Victus:~$ sh first_script.sh --> WILL DO ALL COMMANDS IN FILE LIKE ls
Abolftoh Downloads nsnake_3.0.1-2.1_amd64.deb odoo18 snap
Desktop first_script.sh odoo16 Pictures Templates
Documents Music odoo17 Public Videos
22 ص 08:17:52 03+ 2025 , اکت
khalid
hi khalid
```

OR

```
khalid@khalid-Victus:~$ bash first_script.sh
Abolftoh Downloads nsnake_3.0.1-2.1_amd64.deb odoo18 snap
Desktop first_script.sh odoo16 Pictures Templates
Documents Music odoo17 Public Videos
22 ص 08:18:16 03+ 2025 , اکت
khalid
hi khalid
```

93 - to run shell script in ubuntu(./ , all PATH)
khalid@khalid-Victus:~\$./first_script.sh
Abolftoh Downloads nsnake_3.0.1-2.1_amd64.deb odoo18 snap
Desktop first_script.sh odoo16 Pictures Templates
Documents Music odoo17 Public Videos
22 ص 09:52:28 03+ 2025 , اکت
khalid
hi khalid

```
khalid@khalid-Victus:~$ /home/khalid/first_script.sh
Abolftoh Downloads nsnake_3.0.1-2.1_amd64.deb odoo18 snap
Desktop first_script.sh odoo16 Pictures Templates
Documents Music odoo17 Public Videos
```


94 - if you want to use this shell script with bash if any distru you use (#!/bin/bash)
khalid@khalid-Victus:~\$ nano first_script.sh
#!/bin/bash

ls |
date |----> that mean will run with bash first after that execute lines with bash
whoami |
echo "Hello script"

95 - you can run the script with another thing you want like (/usr/bin/python3)

#!/usr/bin/python3

ls |
date |----> that mean will run with bash first after that execute lines with bash
whoami |
echo "Hello script"

if you you don't know the location 'path' of python (env)

#!/usr/bin/env python3
Explanation:
#! → called shebang, tells system how to run the file
/usr/bin/env → finds the program in your system PATH
python3 → the interpreter (Python version 3)

#!/usr/bin/env python3
print("Hello Khalid!")

96 - if you want to type more than onw command in thw same line (;)
khalid@khalid-Victus:~/Abolftoh\$ cd courses/ ; ls
elzero_html_css github_docs postgresql-course
elzero_python linux_for_data_engnineers_course

97 - if you want to execute the second command depend on the first one. the first should be true (&&)
khalid@khalid-Victus:~/Abolftoh\$ echo "saad" && echo "good work"
saad --> first
good work --> second

khalid@khalid-Victus:~/Abolftoh\$ sudo apt update && sudo apt full-upgrade -y
this is an exampele

98 - if you want to execute the second command depend on the first one. the first should be false (||)
khalid@khalid-Victus:~/Abolftoh\$ echo "saad" || echo "good work" --> not run because the first one is true
saad

khalid@khalid-Victus:~/Abolftoh\$ false || echo "good work" --> run because the first one is false
good work

khalid@khalid-Victus:~/Abolftoh\$ ech 'madian' || echo "good work" --> run because the first one is false
Command 'ech' not found, did you mean:
good work

99 - to install bash kernel (pip install bash_kernel)
1-first something update the system
khalid@khalid-Victus:~/Abolftoh\$ sudo apt update && sudo apt upgrade -y
2- install pip
khalid@khalid-Victus:~\$ sudo apt install python3-pip -y
3- install bash kernel with pip
khalid@khalid-Victus:~\$ pip install bash_kernel
4- activation bash kernel installation
khalid@khalid-Victus:~\$ python3 -m bash_kernel.install

100 - install jupyter from vs code and create jupyter file with extension so you can read it
khalid@khalid-Victus:~\$ touch jup_script.ipynb

101 - play some commands in bash kernel
101-1
#!/bin/bash

variables

Integer
String
Constant

set -e # stop the proccess if there is any command not executed

declare -i sum=16 # the -i is for integer data type
declare st="Some String" # here will know its string
declare -r PI=3.14 # -r --> mean its read only
declare -a names=(Ahmed Sami) # -a mean its array
names[2]="Ali" # change array second position

echo \$sum
echo \$st
echo \$PI
echo \$names
echo \${names[1]}
echo \${names[2]}

```
exit 0 --> to quit from loop

***** shell scripts result *****

16
Some String
3.14
Ahmed
Sami
Ali
exit
Restarting Bash
*****
```

```
101-2
#!/bin/bash

# ARITHMETIC OPERATION

num=4
echo $((num*5)) # bash
expr $num + 6 # using expr
echo $num ^ 4 | bc # using bash calculator

***** shell scripts result *****

20
10
256
```

```
101-3

# using [[]] with -le -ge -gt -eq
[[ 1 -le 2 ]] ; echo $?

# using [[]] with == >= <= !=
[[ 3 == 3 ]] ; echo $?
[[ 3 != 3 ]] ; echo $?

# using test command
test 1 -le 5 ; echo $?

#logical file operation
test -f /etc/hosts ; echo $? # -f does file exist
test -r /etc/shadow ; echo $? # -r does the user have the read access ? -w -x

***** shell scripts result *****

0
0
1
0
0
1
```

```
101-4 - run this with the terminal because its interactive

|#!/bin/bash
|# POSITIONAL PARAMETERS
|
|# $0 - name of the script
|# $# - Number of the command-line arguments
|# $* - List of command-line arguments
|# @$ - same as $* but treats list of args as index array
first_script.sh --> |# $1 - 1st positional parameters
|# $2 - 2nd positional parameters
|
|
| echo "the total number of arguments is : $#"
```

```
khalid@khalid-Victus:~$ ./first_script.sh Khalid the best
the total number of arguments is : 3
the arguments are : 3
the first args is : Khalid

***** functions *****
```

```
102 - how to use functions

#!/bin/bash

# FUNCTIONS
# return

function hello(){
echo "hello Functions"
timestamp
return 0
}

function timestamp(){
echo "hello the time now is $(date +%m/%d/%y" "%R)"
}

hello

echo $?

***** shell scripts result *****

hello Functions
hello the time now is 10/25/25 08:16
```

0

103 - to create input (read)

#!/bin/bash

READ FROM STDIN

#read [-option] [variables...]

echo "what is your name ?"

read name --> we will use it to store variable in it

echo "hello, \$name!"

103-1- to create input in the same line (-p)

#!/bin/bash

READ FROM STDIN

#read [-option] [variables...]

read -p "what is your name: " name

echo "hello, \$name!"

khalid@khalid-Victus:~\$./first_script.sh

what is your name: khalid

hello, khalid!

103-2- to create input invisible during type (-sp)

104 - FOR loop

#!/bin/bash

FOR LOOP

for integer in 1 2 3 4 5 6 7

do

echo \$integer

done

***** shell scripts result *****

1

2

3

4

5

6

7

#!/bin/bash

for word in some string statement

do

echo \$word

done

***** shell scripts result *****

some

string

statement

#!/bin/bash

for ((i=0 ; i<=10; i++))

do

echo \$i

done

***** shell scripts result *****

0

1

2

3

4

5

6

7

8

9

10

105 - WHILE LOOP

#!/bin/bash

#while loop

i=0

while [\$i -le 10]

do

echo \$i

((i++))

done

***** shell scripts result *****

0

1

2

3

4

5

6
7
8
9
10

106 - UNTIL LOOP

```
while not enter to the loop until the statement be false

#!/bin/bash
i=0
until test $i -eq 10
do
echo $i
((i++))
done
***** shell scripts result *****
0
1
2
3
4
5
6
7
8
9
```

107 - if statement

```
#!/bin/bash

# CONDITIONAL EXPRESSIONS

if [ "foo" = "foo" ] ; then
echo expression evaluated as true
fi

***** shell scripts result *****
expression evaluated as true
```

108 - Examples(if, for, function)

```
./first_script.sh ---->
#!/bin/bash

# check if number is even

read -p "Enter a Number : " i

if (( i % 2 == 0 )); then
echo "$i is even "
fi

***** shell scripts result *****
khalid@khalid-Victus:~$ ./first_script.sh
Enter a Number :4
4 is even
```

108-1 Advanced Examples (if, for, function, while)

```
# check if a number is even

read -p "Enter a number: " i

else
if (( i % 2 == 0 )); then # check if even or odd
echo "$i is even"
else
echo "$i is odd"
fi
fi

***** shell scripts result *****
Enter a number: 8
8 is even

Enter a number: 5
5 is odd
```

108-2 Advanced Examples (if, for, function, while)

```
check number is integer and is even or odd

./first_script.sh ---->
#!/bin/bash

read -p "Enter a number: " i

if ! [[ "$i" =~ ^[0-9]+$ ]]; then # check if the input is an integer
echo "Error: Not an integer"
exit 1

else
if (( i % 2 == 0 )); then # check if even or odd
echo "$i is even"
else
echo "$i is odd"
fi
fi
```

***** shell scripts result *****

Enter a number: 8
8 is even

Enter a number: 5
5 is odd

Enter a number: hello
Error: Not an integer

108-3 Advanced Examples (if, for, function, while)
check number is integer and is even or odd with function integration
./first_script.sh ---->

#!/bin/bash

#check number is integer and is even or odd with function integration

read -p "Enter a Number : " i

```
function is_int(){  
if [[ "$i" =~ ^[0-9]+$ ]]; then # check if the input is an integer  
return 0  
else  
return 1  
fi  
}
```

```
# [[ "$i" =~ ^[0-9]+$ ]] -> $? --> will return 0 if true like every command in shell  
if is_int; then  
if (( i % 2 == 0 )); then  
echo "$i is even "
```

```
else  
echo "$i is odd "
```

```
fi  
else  
echo "Error : not an Integer "  
fi
```

***** shell scripts result *****

khalid@khalid-Victus:~\$./first_script.sh
Enter a Number :9
9 is odd

khalid@khalid-Victus:~\$./first_script.sh
Enter a Number :8
8 is even

khalid@khalid-Victus:~\$./first_script.sh
Enter a Number :d
Error : not an Integer

108-4 Advanced Examples (if, for, function, while)
check number is integer and is even or odd with function integration with while

Check if user input is an integer, and if it's even or odd.
The loop continues until the user types "khalas".
local value="\$1" → gets the first argument.
[["\$value" =~ ^[0-9]+\$]] → checks if the input has only digits.
return 0 → true (integer).
return 1 → false (not integer).

Concept Meaning
[[]] Conditional test (used for strings & regex)
(()) Arithmetic test (used for numbers)
\$? Holds the exit code of the last command (0 = true)
return Used inside functions to signal success (0) or failure (1)
\${i,,} Converts string to lowercase
break Exits the current loop

./first_script.sh ---->

#!/bin/bash

#check number is integer and is even or odd with function integration

```
function is_int(){  
if [[ "$i" =~ ^[0-9]+$ ]]; then # check if the input is an integer  
return 0  
else  
return 1  
fi  
}
```

```
while [[ ${i,,} != 'khalas' ]]  
do
```

read -p "Enter a Number : " i

```
if is_int; then  
if (( i % 2 == 0 )); then  
echo "$i is even "
```

```
else
```

```
echo "$i is odd "
```

```
fi  
else  
echo "Error : not an Integer "  
fi
```

```
done
```

```
***** shell scripts result *****
```

```
khalid@khalid-Victus:~$ ./first_script.sh
```

```
Enter a Number :6
```

```
6 is even
```

```
Enter a Number :7
```

```
7 is odd
```

```
Enter a Number :5
```

```
5 is odd
```

```
Enter a Number :f
```

```
Error : not an Integer
```

```
Enter a Number :khalas
```

```
khalid@khalid-Victus:~$
```

```
109 - pro advanced examples (&>)
```

```
its meaning take every thing the output and error throw it to a location like redirection
```

```
sudo apt update &> /dev/null
```

```
ls / > out.txt # normal outputs
```

```
ls / 2> err.txt # Errors
```

```
ls / &> all.txt # outputs & errors
```

```
the end
```
