

Sapience Edu Connect Pvt Ltd

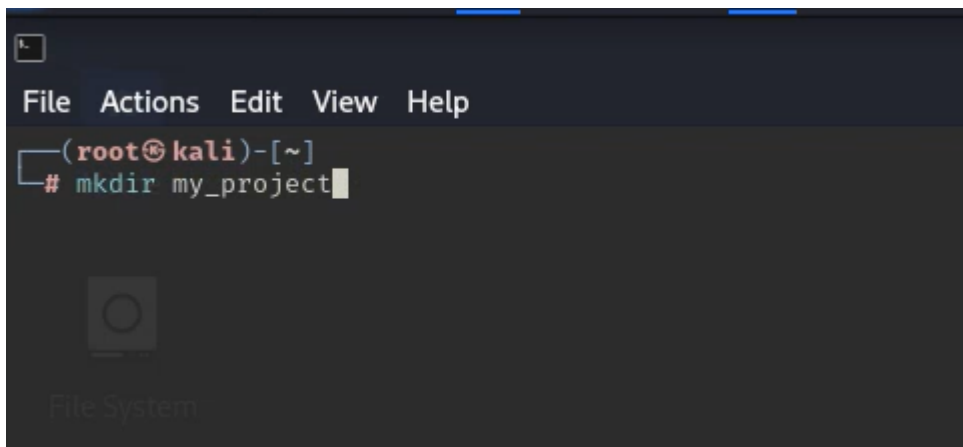
NAME: DEVALLA JWALA NARSIMHA
DOMAIN: CYBER SECURITY

Week 2: Linux Fundamentals

Task 2

1. Create a directory named my_project and navigate into it

Step1:
mkdir my_project

A terminal window with a dark background and light blue text. The window has a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The prompt is '(root@kali)-[~]'. The command '# mkdir my_project' has been entered, and a cursor is at the end of the line. Below the terminal, there is a faint 'File System' icon and text.

```
(root@kali)-[~]  
# mkdir my_project
```

Step2:
cd my_project

A terminal window with a dark background and light blue text. The window has a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The prompt is '(root@kali)-[~]'. The command '# cd my_project' has been entered, and the prompt has changed to '(root@kali)-[~/my_project]'. A cursor is at the end of the line.

```
(root@kali)-[~]  
# cd my_project  
  
(root@kali)-[~/my_project]  
#
```

2. Inside my_project, create an empty file named notes.txt.

Step1:

touch notes.txt

```
(root@kali)-[~]
# cd my_project

(root@kali)-[~/my_project]
# touch notes.txt

(root@kali)-[~/my_project]
# ls
notes.txt

(root@kali)-[~/my_project]
#
```

3. Copy notes.txt to a new file named backup_notes.txt, then move it into a newly created subdirectory called backup.

Step1:

cp notes.txt backup_notes.txt

Step2:

mkdir backup

Step3:

mv backup_notes.txt backup/

```
(root@kali)-[~/my_project]
# cp notes.txt backup_notes.txt

(root@kali)-[~/my_project]
# mkdir backup

(root@kali)-[~/my_project]
# mv backup_notes.txt backup/

(root@kali)-[~/my_project]
# ls
backup  notes.txt
```

4. Delete the backup directory along with its contents.

Step1:

rm -r backup

```
(root@kali)-[~/my_project]
# rm -r backup

(root@kali)-[~/my_project]
# ls
notes.txt
```

5. Create a file named script.sh, grant it executable permissions, and change its permissions so it is readable and executable only by the file owner.

Step1:

touch script.sh

Step2:

chmod 700 script.sh

```
(root@kali)-[~/my_project]
# touch script.sh

(root@kali)-[~/my_project]
# chmod 700 script.sh

(root@kali)-[~/my_project]
# ls
notes.txt  script.sh
```

6. Update your package manager's repository list, install the htop package, verify its installation, and then uninstall it.

Step1:

sudo apt install htop

```
(root@kali)-[~]
└─$ sudo apt install htop
The following packages were automatically installed and are no longer required:
firebird3.0-common libcapstone4 libdirectfb-1.7-7t64 libgl1-mesa-dev libglvnd-dev
firebird3.0-common-doc libcapstone4 libegl-dev libgles-dev libgtksourceview-3.0-1 libx10.9 libpaper1 libtag1v5 libwebRTC-audio-processing1 python3-appdirs ruby3.1-doc
libbfiol libconfig+9v5 libflac12t64 libgles1 libgtksourceview-3.0-common libmbedcrypto7t64 libqt5webkit5 libtagc8 libx265-209 python3-mtln-auth ruby3.1-dev
libc++1-19 libconfig9 libfont9 libglvnd-core-dev libgtksourceviewmm-3.0-0v5 libmsgraph-0-1 libsuperlu6 libunwind-19 openjdk-23-jre openjdk-23-jre-headless ruby3.1-dev
Use 'sudo apt autoremove' to remove them.

Installing:
 htop

Suggested packages:
 strace

Summary:
Upgrading: 0, Installing: 1, Removing: 0, Not Upgrading: 118
Download size: 164 kB
Space needed: 420 kB / 60.8 GB available

Get:1 http://kali.download/kali kali-rolling/main amd64 htop amd64 3.3.0-5 [164 kB]
Fetched 164 kB in 1s (169 kB/s)
Selecting previously unselected package htop.
(Reading database ... 456902 files and directories currently installed.)
Preparing to unpack .../htop_3.3.0-5_amd64.deb ...
Unpacking htop (3.3.0-5) ...
Setting up htop (3.3.0-5) ...
Processing triggers for mailcap (3.74) ...
Processing triggers for kali-menu (2025.1.1) ...
Processing triggers for desktop-file-utils (0.28-1) ...
Processing triggers for hicolor-icon-theme (0.18-2) ...
Processing triggers for man-db (2.13.0-1) ...
```

Step2:

htop --version

```
(root@kali)-[~]
└─$ htop --version my_project
htop 3.3.0
```

Step1:

sudo apt remove htop

```
(root@kali)-[~]
└─$ sudo apt remove htop
The following packages were automatically installed and are no longer required:
firebird3.0-common libcapstone4 libdirectfb-1.7-7t64 libgl1-mesa-dev libglvnd-dev
firebird3.0-common-doc libcapstone4 libegl-dev libgles-dev libgtksourceview-3.0-1 libx10.9 libpaper1 libtag1v5 libwebRTC-audio-processing1 python3-appdirs ruby3.1-doc
libbfiol libconfig+9v5 libflac12t64 libgles1 libgtksourceview-3.0-common libmbedcrypto7t64 libqt5webkit5 libtagc8 libx265-209 python3-mtln-auth ruby3.1-dev
libc++1-19 libconfig9 libfont9 libglvnd-core-dev libgtksourceviewmm-3.0-0v5 libmsgraph-0-1 libsuperlu6 libunwind-19 openjdk-23-jre openjdk-23-jre-headless ruby3.1-dev
Use 'sudo apt autoremove' to remove them.

REMOVING:
 htop

Summary:
Upgrading: 0, Installing: 0, Removing: 1, Not Upgrading: 118
Freed space: 420 kB

Continue? [Y/n] y
(Reading database ... 456913 files and directories currently installed.)
Removing htop (3.3.0-5) ...
Processing triggers for desktop-file-utils (0.28-1) ...
Processing triggers for hicolor-icon-theme (0.18-2) ...
Processing triggers for man-db (2.13.0-1) ...
Processing triggers for mailcap (3.74) ...
Processing triggers for kali-menu (2025.1.1) ...
```

7. Check all running processes, identify the PID of a specific process (e.g., sleep if running), and terminate it using the kill command.

Step1:

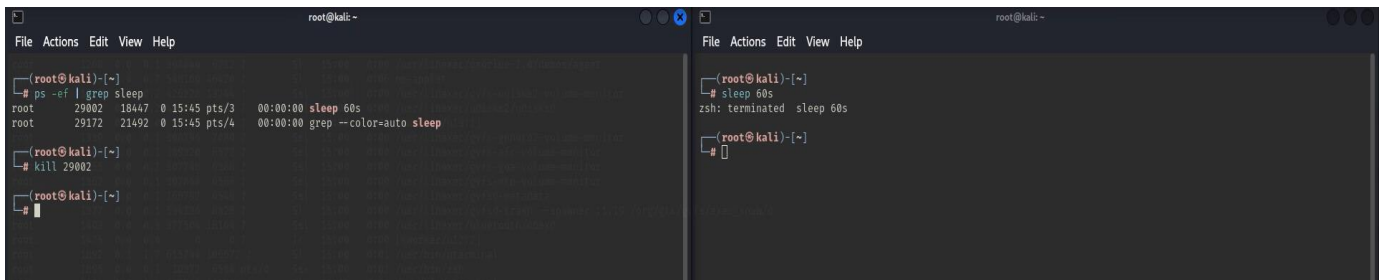
Sleep 60s

Sleep2:

ps aux | grep sleep

step3:

kill <PID>



The image shows two terminal windows side-by-side. The left window shows the command `ps -ef | grep sleep` being executed, which lists two processes: `sleep 60s` with PID 29002 and `grep --color=auto sleep` with PID 29172. Below this, the command `kill 29002` is entered. The right window shows the command `sleep 60s` being executed, followed by the message `zsh: terminated sleep 60s`, indicating the process has been successfully terminated.

```
root@kali: ~  
File Actions Edit View Help  
root@kali:~  
# ps -ef | grep sleep  
root 29002 18447 0 15:45 pts/3 00:00:00 sleep 60s  
root 29172 21492 0 15:45 pts/4 00:00:00 grep --color=auto sleep  
  
root@kali:~  
# kill 29002  
  
root@kali:~  
#  
  
root@kali: ~  
File Actions Edit View Help  
root@kali:~  
# sleep 60s  
zsh: terminated sleep 60s  
  
root@kali:~  
#  
#
```

8. Display your machine's IP address, ping google.com to verify connectivity, and list all active network connections.

Step1:

hostname -I

```
(root@kali)-[~]  
# hostname -I  
192.168.1.35 2401:4900:8fcf:2661:bbc0:80e3:7ee5:1bb6
```

Step2:

ping -c 4 google.com

```
(root@kali)-[~]  
# ping -c 4 google.com  
PING google.com (2404:6800:4007:818::200e) 56 data bytes  
64 bytes from maa05s17-in-x0e.1e100.net (2404:6800:4007:818::200e): icmp_seq=1 ttl=58 time=45.7 ms  
64 bytes from maa05s17-in-x0e.1e100.net (2404:6800:4007:818::200e): icmp_seq=2 ttl=58 time=51.5 ms  
64 bytes from maa05s17-in-x0e.1e100.net (2404:6800:4007:818::200e): icmp_seq=3 ttl=58 time=49.1 ms  
64 bytes from maa05s17-in-x0e.1e100.net (2404:6800:4007:818::200e): icmp_seq=4 ttl=58 time=46.7 ms  
  
— google.com ping statistics —  
4 packets transmitted, 4 received, 0% packet loss, time 3007ms  
rtt min/avg/max/mdev = 45.708/48.258/51.521/2.241 ms
```

step3:

netstat -tuln

```
(root@kali)-[~]  
# netstat -tuln  
Active Internet connections (only servers)  
Proto Recv-Q Send-Q Local Address           Foreign Address         State  
udp6      0      0 fe80::88dd:2cd5:fab:546 :::*
```

9. Add a new user named testuser, switch to this user, and grant them sudo privileges.

Step1:

sudo adduser testuser

step2:

sudo usermod -aG sudo testuser

step3:

su – testuser

```
(root@kali)-[~]
# sudo adduser testuser
info: Adding user `testuser' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `testuser' (1001) ...
info: Adding new user `testuser' (1001) with group `testuser (1001)' ...
info: Creating home directory `/home/testuser' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for testuser
Enter the new value, or press ENTER for the default
  Full Name []: jwala
    Room Number []: 16
    Work Phone []: 0000000000
    Home Phone []: 0000000000
      Other []: 0000000000
Is the information correct? [Y/n] y
info: Adding new user `testuser' to supplemental / extra groups `users' ...
info: Adding user `testuser' to group `users' ...

(root@kali)-[~]
# sudo usermod -aG sudo testuser

(root@kali)-[~]
# su - testuser
(testuser@kali)-[~]
$ pwd
/home/testuser

(testuser@kali)-[~]
$ █
```


10. Write a shell script named hello.sh that outputs "Hello, World!" when executed.

Step1:

echo -e '#!/bin/bash\nnecho "Hello, World!"' > hello.sh

step2:

chmod +x hello.sh

```
(root@kali)-[~]
# echo -e '#!/bin/bash\nnecho "Hello, World!"' > hello.sh

(root@kali)-[~]
# chmod +x hello.sh

(root@kali)-[~]
# ls
Desktop  Downloads  hack1-01.cap  hack1-01.kismet.csv  hack1-01.log.csv  hack11-01.csv  hack11-01.kismet.netxml  hello.sh  jwala-01.csv
Documents  gobuster  hack1-01.csv  hack1-01.kismet.netxml  hack11-01.cap  hack11-01.kismet.csv  hack11-01.log.csv  jwala-01.cap  jwala-01.kismet.csv

(root@kali)-[~]
#
```

11. Create a tarball of the my_project directory, extract its contents, and compress the tarball using gzip.

Step1:

tar -cvf my_project.tar my_project

step2:

tar -xvf my_project.tar

step3:

gzip my_project.tar

```
File Actions Edit View Help
(root@kali)~# tar -cvf my_project.tar my_project
my_project/
my_project/notes.txt
my_project/script.sh

(root@kali)~# tar -xvf my_project.tar
my_project/
my_project/notes.txt
my_project/script.sh

(root@kali)~# ls
Desktop  Downloads  hack1-01.cap  hack1-01.kismet.csv  hack1-01.log.csv  hack11-01.csv  hack11-01.kismet.netxml  hello.sh  jwala-01.csv  jwala-01.kismet.netxml  Music  my_project.tar  Public  Videos
Documents  gobuster  hack1-01.csv  hack1-01.kismet.netxml  hack11-01.cap  hack11-01.kismet.csv  hack11-01.log.csv  jwala-01.cap  jwala-01.kismet.csv  jwala-01.log.csv  my_project  Pictures  Templates

(root@kali)~# gzip my_project.tar

(root@kali)~# ls
Desktop  Downloads  hack1-01.cap  hack1-01.kismet.csv  hack1-01.log.csv  hack11-01.csv  hack11-01.kismet.netxml  hello.sh  jwala-01.csv  jwala-01.kismet.netxml  Music  my_project.tar.gz  Public  Videos
Documents  gobuster  hack1-01.csv  hack1-01.kismet.netxml  hack11-01.cap  hack11-01.kismet.csv  hack11-01.log.csv  jwala-01.cap  jwala-01.kismet.csv  jwala-01.log.csv  my_project  Pictures  Templates

(root@kali)~#
```

12. Check the disk usage, memory usage, and CPU information of your system.

Step1:

df -h

```
(root@kali)-[~]
# df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            2.9G   0    2.9G   0% /dev
tmpfs           589M  976K   588M   1% /run
/dev/sda1       79G   18G   57G   24% /
tmpfs           2.9G  4.0K   2.9G   1% /dev/shm
tmpfs           5.0M   0    5.0M   0% /run/lock
tmpfs           1.0M   0    1.0M   0% /run/credentials/systemd-journald.service
tmpfs           2.9G   56K   2.9G   1% /tmp
tmpfs           1.0M   0    1.0M   0% /run/credentials/getty@tty1.service
tmpfs           589M  124K   589M   1% /run/user/0
```

step2:

```
(root@kali)-[~]
# free -h
              total        used        free      shared  buff/cache   available
Mem:          5.7Gi        1.1Gi        4.3Gi         38Mi        676Mi        4.7Gi
Swap:         1.0Gi           0B         1.0Gi
```

free -h

step3:

lscpu

```
(root@kali)-[~]
# lscpu
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 39 Bits physical, 48 bits virtual
Byte Order: Little Endian
CPU(s): 2
On-line CPU(s) list: 0,1
Vendor ID: GenuineIntel
Model name: 11th Gen Intel(R) Core(TM) i7-11800H @ 2.30GHz
CPU family: 6
Model: 141
Thread(s) per core: 1
Core(s) per socket: 2
Socket(s): 1
Stepping: 1
BogoMIPS: 4680.00
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx rdtscp lm constant_tsc rep_good nopl xtopology nonstop_tsc cpuid tsc_known_freq pni pclmulqdq ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand hypervisor lahf_lm abm 3dnowprefetch pt1 fsgsbase bmi1 avx2 bmi2 invpcid rdseed adx clflushopt sha_ni arat md_clear flush_l1d arch_capabilities
Virtualization features:
Hypervisor vendor: KVM
Virtualization type: full
Caches (sum of all):
L1d: 96 KiB (2 instances)
L1i: 64 KiB (2 instances)
L2: 2.5 MiB (2 instances)
L3: 48 MiB (2 instances)
NUMA:
NUMA node(s): 1
NUMA node0 CPU(s): 0,1
Vulnerabilities:
Gather data sampling: Unknown: Dependent on hypervisor status
Itlb multihit: KVM: Mitigation: VMX unsupported
L1tf: Mitigation: PTE Inversion
Mds: Mitigation: Clear CPU buffers; SMT Host state unknown
Meltdown: Mitigation: PTI
Mmio stale data: Not affected
Reg file data sampling: Not affected
Retbleed: Not affected
Spec rstack overflow: Not affected
Spec store bypass: Vulnerable
Spectre v1: Mitigation: usercopy/swapgs barriers and __user pointer sanitization
Spectre v2: Mitigation: Retpolines; STIBP disabled; RSB filling; PBSB-eIBRS Not affected; BHI Retpoline
Srbds: Not affected
Tsx async abort: Not affected
```


THANK YOU!