



## **FATIMA JINNAH WOMEN UNIVERSITY**

**Submitted To:**

**Engr. Muhammad Shoaib**

**Submitted By:**

**Irraj Samreen(027)**

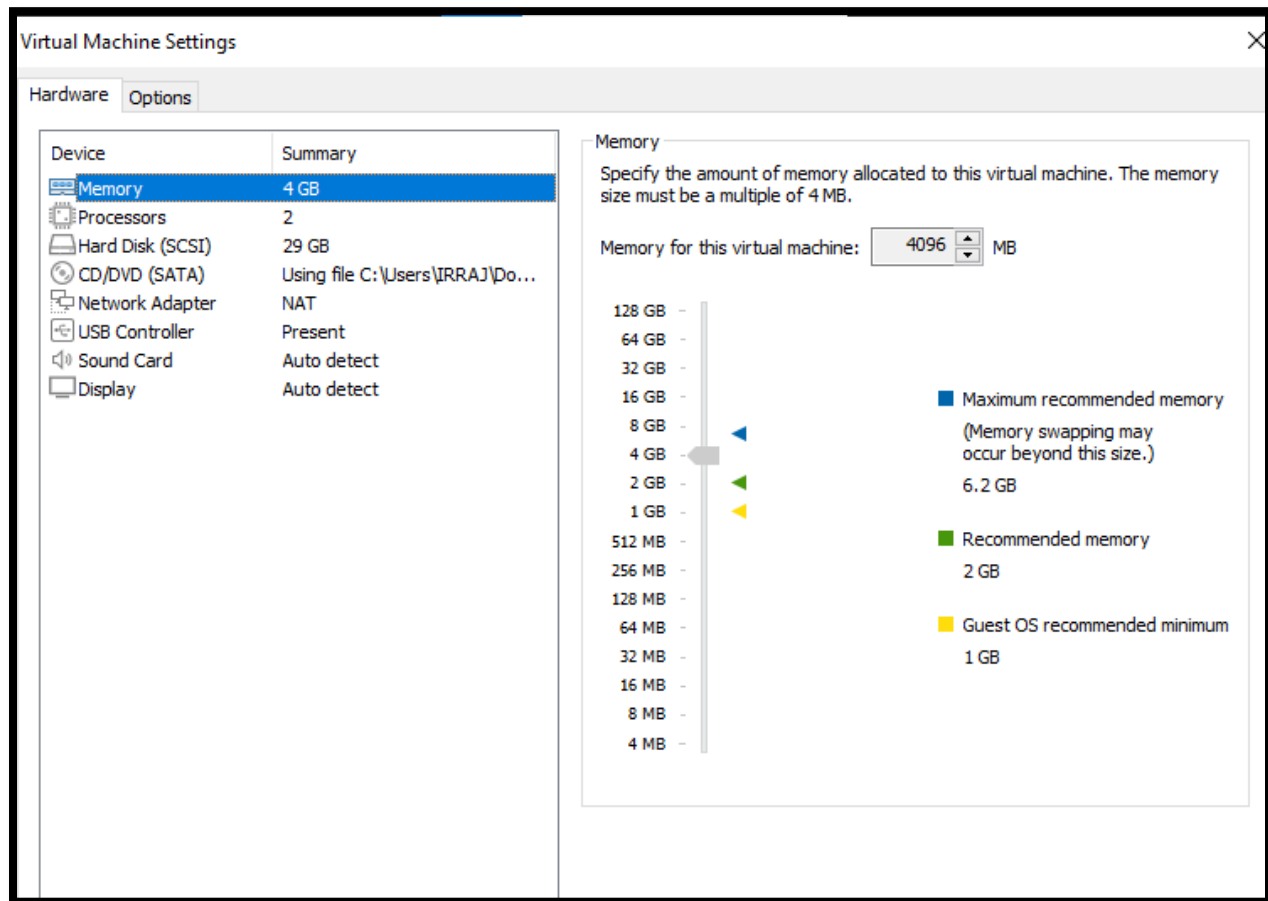
**Section:**

**5A**

**CLOUD COMPUTING**

**LAB 04**

## TASK:01



## TASK:02

```
C:\Users\IRRAJ>ssh ubuntu027@192.168.72.142
ubuntu027@192.168.72.142's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 5.15.0-119-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Thu Oct 23 08:31:40 AM UTC 2025

System load:  0.98           Processes:            245
Usage of /:   48.9% of 13.18GB Users logged in:       1
Memory usage: 10%           IPv4 address for ens33: 192.168.72.142
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

175 updates can be applied immediately.
118 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
```

```

valid_lft forever preferred_lft
ubuntu027@ubuntu:~$ whoami
ubuntu027
ubuntu027@ubuntu:~$ pwd
/home/ubuntu027
ubuntu027@ubuntu:~$ _

```

## TASK:03

```

drwxrwxrwt  2 root root 4096 Oct 23 08:28 .XIM-unix
ubuntu027@ubuntu:~$ ls -la /
total 2768976
drwxr-xr-x  20 root root      4096 Oct  9 13:45 .
drwxr-xr-x  20 root root      4096 Oct  9 13:45 ..
lrwxrwxrwx   1 root root         7 Sep 11 2024 bin -> usr/bin
drwxr-xr-x   4 root root      4096 Oct 23 08:45 boot
dr-xr-xr-x   2 root root      4096 Sep 11 2024 cdrom
drwxr-xr-x  20 root root     4100 Oct 23 08:28 dev
drwxr-xr-x  96 root root      4096 Oct 23 08:57 etc
drwxr-xr-x   3 root root      4096 Oct  9 14:26 home
lrwxrwxrwx   1 root root         7 Sep 11 2024 lib -> usr/lib
lrwxrwxrwx   1 root root         9 Sep 11 2024 lib32 -> usr/lib32
lrwxrwxrwx   1 root root         9 Sep 11 2024 lib64 -> usr/lib64
lrwxrwxrwx   1 root root        10 Sep 11 2024 libx32 -> usr/libx32
drwx-----   2 root root    16384 Oct  9 13:39 lost+found
drwxr-xr-x   2 root root      4096 Sep 11 2024 media
drwxr-xr-x   2 root root      4096 Sep 11 2024 mnt
drwxr-xr-x   2 root root      4096 Sep 11 2024 opt
dr-xr-xr-x 276 root root         0 Oct 23 08:27 proc
drwx-----   4 root root      4096 Oct  9 14:26 root
drwxr-xr-x  31 root root     1000 Oct 23 08:51 run
lrwxrwxrwx   1 root root         8 Sep 11 2024/sbin -> usr/sbin
drwxr-xr-x   6 root root      4096 Sep 11 2024 snap
drwxr-xr-x   2 root root      4096 Sep 11 2024 srv
-rw-----   1 root root 2835349504 Oct  9 13:45 swap.img
dr-xr-xr-x  13 root root         0 Oct 23 08:27 sys
drwxrwxrwt  13 root root      4096 Oct 23 08:56 tmp
drwxr-xr-x  14 root root      4096 Sep 11 2024 usr
drwxr-xr-x  13 root root      4096 Sep 11 2024 var
ubuntu027@ubuntu:~$

```

```

drwxr-xr-x  13 root root      4096 Sep 11 2024 var
ubuntu027@ubuntu:~$ ls -la /bin
lrwxrwxrwx  1 root root         7 Sep 11 2024 /bin -> usr/bin
ubuntu027@ubuntu:~$ ls -la /sbin
lrwxrwxrwx  1 root root         8 Sep 11 2024 /sbin -> usr/sbin
ubuntu027@ubuntu:~$ ls -la /usr_

```

```
ubuntu027@ubuntu:~$ ls -la /usr
total 100
drwxr-xr-x 14 root root 4096 Sep 11 2024 .
drwxr-xr-x 20 root root 4096 Oct 9 13:45 ..
drwxr-xr-x 2 root root 36864 Oct 23 08:58 bin
drwxr-xr-x 2 root root 4096 Apr 18 2022 games
drwxr-xr-x 5 root root 4096 Oct 23 08:58 include
drwxr-xr-x 83 root root 4096 Oct 23 08:51 lib
drwxr-xr-x 2 root root 4096 Sep 11 2024 lib32
drwxr-xr-x 2 root root 4096 Sep 11 2024 lib64
drwxr-xr-x 10 root root 4096 Oct 9 13:44 libexec
drwxr-xr-x 2 root root 4096 Sep 11 2024 libx32
drwxr-xr-x 10 root root 4096 Sep 11 2024 local
drwxr-xr-x 2 root root 16384 Oct 23 08:58 sbin
drwxr-xr-x 111 root root 4096 Oct 9 13:47 share
drwxr-xr-x 6 root root 4096 Oct 23 08:41 src
ubuntu027@ubuntu:~$ _
```

```
ubuntu027@ubuntu:~$ ls -la /opt
total 8
drwxr-xr-x 2 root root 4096 Sep 11 2024 .
drwxr-xr-x 20 root root 4096 Oct 9 13:45 ..
ubuntu027@ubuntu:~$ _
```

```
drwxr-xr-x 4 root root 4096 Oct 23 08:51 ssh
drwxr-xr-x 4 root root 4096 Oct 23 08:57 ssl
-rw-r--r-- 1 root root 23 Oct 9 14:26 subgid
-rw-r--r-- 1 root root 0 Sep 11 2024 subgid-
-rw-r--r-- 1 root root 23 Oct 9 14:26 subuid
-rw-r--r-- 1 root root 0 Sep 11 2024 subuid-
-rw-r--r-- 1 root root 4573 Apr 3 2023 sudo.conf
-r--r----- 1 root root 1671 Aug 3 2022 sudoers
drwxr-xr-x 2 root root 4096 Oct 23 08:58 sudoers.d
-rw-r--r-- 1 root root 9390 Apr 3 2023 sudo_logsrvd.conf
-rw-r--r-- 1 root root 2355 Feb 25 2022 sysctl.conf
drwxr-xr-x 2 root root 4096 Oct 23 08:48 sysctl.d
drwxr-xr-x 5 root root 4096 Oct 23 08:48 systemd
drwxr-xr-x 2 root root 4096 Sep 11 2024 terminfo
drwxr-xr-x 2 root root 4096 Oct 9 13:44 thermald
-rw-r--r-- 1 root root 8 Sep 11 2024 timezone
drwxr-xr-x 2 root root 4096 Sep 11 2024 tmpfiles.d
drwxr-xr-x 2 root root 4096 Sep 11 2024 ubuntu-advantage
-rw-r--r-- 1 root root 1260 Jun 16 2020 ucf.conf
drwxr-xr-x 4 root root 4096 Sep 11 2024 udev
drwxr-xr-x 2 root root 4096 Sep 11 2024 udisks2
drwxr-xr-x 3 root root 4096 Sep 11 2024 ufw
drwxr-xr-x 3 root root 4096 Sep 11 2024 update-manager
drwxr-xr-x 2 root root 4096 Sep 11 2024 update-motd.d
drwxr-xr-x 2 root root 4096 Mar 4 2024 update-notifier
drwxr-xr-x 2 root root 4096 Oct 9 13:44 UPower
-rw-r--r-- 1 root root 1523 Mar 25 2022 usb_modeswitch.conf
drwxr-xr-x 2 root root 4096 Sep 6 2021 usb_modeswitch.d
drwxr-xr-x 2 root root 4096 Oct 23 08:52 vim
drwxr-xr-x 4 root root 4096 Sep 11 2024 vmware-tools
lrwxrwxrwx 1 root root 23 Sep 11 2024 vtrgb -> /etc/alternatives/vtrgb
-rw-r--r-- 1 root root 4942 Jun 19 2024 wgetrc
drwxr-xr-x 4 root root 4096 Sep 11 2024 X11
-rw-r--r-- 1 root root 681 Mar 23 2022 xattr.conf
drwxr-xr-x 4 root root 4096 Sep 11 2024 xdg
-rw-r--r-- 1 root root 460 Dec 8 2021 zsh_command_not_found
ubuntu027@ubuntu:~$
```

```
crw----- 1 root    root    10, 249 Oct 2
ubuntu027@ubuntu:~$ ls -la /dev
```

```
drwxr-xr-x 2 root    root      60 Oct 23 08:28 ubuntu-vg
crw-rw---- 1 root    kvm      10, 125 Oct 23 08:28 udmabuf
crw----- 1 root    root     10, 239 Oct 23 08:28 uhid
crw----- 1 root    root     10, 223 Oct 23 08:28 uinput
crw-rw-rw- 1 root    root       1,   9 Oct 23 08:28 urandom
crw----- 1 root    root     10, 240 Oct 23 08:28 userio
crw-rw---- 1 root    tty       7,   0 Oct 23 08:28 vcs
crw-rw---- 1 root    tty       7,   1 Oct 23 08:28 vcs1
crw-rw---- 1 root    tty       7,   2 Oct 23 08:28 vcs2
crw-rw---- 1 root    tty       7,   3 Oct 23 08:28 vcs3
crw-rw---- 1 root    tty       7,   4 Oct 23 08:28 vcs4
crw-rw---- 1 root    tty       7,   5 Oct 23 08:28 vcs5
crw-rw---- 1 root    tty       7,   6 Oct 23 08:28 vcs6
crw-rw---- 1 root    tty      7, 128 Oct 23 08:28 vcsa
crw-rw---- 1 root    tty      7, 129 Oct 23 08:28 vcsa1
crw-rw---- 1 root    tty      7, 130 Oct 23 08:28 vcsa2
crw-rw---- 1 root    tty      7, 131 Oct 23 08:28 vcsa3
crw-rw---- 1 root    tty      7, 132 Oct 23 08:28 vcsa4
crw-rw---- 1 root    tty      7, 133 Oct 23 08:28 vcsa5
crw-rw---- 1 root    tty      7, 134 Oct 23 08:28 vcsa6
crw-rw---- 1 root    tty       7,  64 Oct 23 08:28 vcsu
crw-rw---- 1 root    tty       7,  65 Oct 23 08:28 vcsu1
crw-rw---- 1 root    tty       7,  66 Oct 23 08:28 vcsu2
crw-rw---- 1 root    tty       7,  67 Oct 23 08:28 vcsu3
crw-rw---- 1 root    tty       7,  68 Oct 23 08:28 vcsu4
crw-rw---- 1 root    tty       7,  69 Oct 23 08:28 vcsu5
crw-rw---- 1 root    tty       7,  70 Oct 23 08:28 vcsu6
drwxr-xr-x 2 root    root      60 Oct 23 08:27 vfio
crw----- 1 root    root     10, 127 Oct 23 08:28 vga_arbiter
crw----- 1 root    root     10, 137 Oct 23 08:28 vhci
crw-rw---- 1 root    kvm     10, 238 Oct 23 08:28 vhost-net
crw-rw---- 1 root    kvm     10, 241 Oct 23 08:28 vhost-vsock
crw----- 1 root    root     10, 123 Oct 23 08:28 vmci
crw-rw-rw- 1 root    root     10, 122 Oct 23 08:28 vsock
crw-rw-rw- 1 root    root       1,   5 Oct 23 08:28 zero
crw----- 1 root    root     10, 249 Oct 23 08:28 zfs
```

```

crw-rw-rw- 1 root root 10, 249 Oct 23 08:28 213
ubuntu027@ubuntu:~$ ls -la /var
total 52
drwxr-xr-x 13 root root 4096 Sep 11 2024 .
drwxr-xr-x 20 root root 4096 Oct 9 13:45 ..
drwxr-xr-x 2 root root 4096 Oct 17 03:50 backups
drwxr-xr-x 14 root root 4096 Oct 16 06:15 cache
drwxrwxrwt 2 root root 4096 Sep 11 2024 crash
drwxr-xr-x 41 root root 4096 Oct 16 06:15 lib
drwxrwsr-x 2 root staff 4096 Apr 18 2022 local
lrwxrwxrwx 1 root root 9 Sep 11 2024 lock -> /run/lock
drwxr-xr-x 9 root syslog 4096 Oct 23 08:28 log
drwxrwsr-x 2 root mail 4096 Sep 11 2024 mail
drwxr-xr-x 2 root root 4096 Sep 11 2024 opt
lrwxrwxrwx 1 root root 4 Sep 11 2024 run -> /run
drwxr-xr-x 5 root root 4096 Sep 11 2024 snap
drwxr-xr-x 4 root root 4096 Sep 11 2024 spool
drwxrwxrwt 7 root root 4096 Oct 23 09:00 tmp
ubuntu027@ubuntu:~$

```

```

ubuntu027@ubuntu:~$ ls -la /tmp
total 52
drwxrwxrwt 13 root root 4096 Oct 23 08:56 .
drwxr-xr-x 20 root root 4096 Oct 9 13:45 ..
drwxrwxrwt 2 root root 4096 Oct 23 08:28 .font-unix
drwxrwxrwt 2 root root 4096 Oct 23 08:28 .ICE-unix
drwx----- 3 root root 4096 Oct 23 08:28 snap-private-tmp
drwx----- 3 root root 4096 Oct 23 08:28 systemd-private-7d8365cdb82b42599c383f23baaa117e-ModemManager.service-2KF1Pa
drwx----- 3 root root 4096 Oct 23 08:28 systemd-private-7d8365cdb82b42599c383f23baaa117e-systemd-logind.service-6c2TfM
drwx----- 3 root root 4096 Oct 23 08:48 systemd-private-7d8365cdb82b42599c383f23baaa117e-systemd-resolved.service-xalCcV
drwx----- 3 root root 4096 Oct 23 08:48 systemd-private-7d8365cdb82b42599c383f23baaa117e-systemd-timesyncd.service-SC0AWy
drwxrwxrwt 2 root root 4096 Oct 23 08:28 .Test-unix
drwx----- 2 root root 4096 Oct 23 08:28 vmware-root_744-2957583465
drwxrwxrwt 2 root root 4096 Oct 23 08:28 .X11-unix
drwxrwxrwt 2 root root 4096 Oct 23 08:28 .XIM-unix
ubuntu027@ubuntu:~$ _

```

```

drwxrwxrwt 2 root root 4096 Oct 23 08:28 .XIM-unix
ubuntu027@ubuntu:~$ ls -la ~
total 28
drwxr-x--- 4 ubuntu027 ubuntu027 4096 Oct 9 14:32 .
drwxr-xr-x 3 root root 4096 Oct 9 14:26 ..
-rw-r--r-- 1 ubuntu027 ubuntu027 220 Jan 6 2022 .bash_logout
-rw-r--r-- 1 ubuntu027 ubuntu027 3771 Jan 6 2022 .bashrc
drwx----- 2 ubuntu027 ubuntu027 4096 Oct 9 14:32 .cache
-rw-r--r-- 1 ubuntu027 ubuntu027 807 Jan 6 2022 .profile
drwx----- 2 ubuntu027 ubuntu027 4096 Oct 9 14:27 .ssh
ubuntu027@ubuntu:~$

```

```
ubuntu027@ubuntu:~$ cat ~/answer.md
The /bin directory contains essential command binaries that are needed for system booting and basic operations.

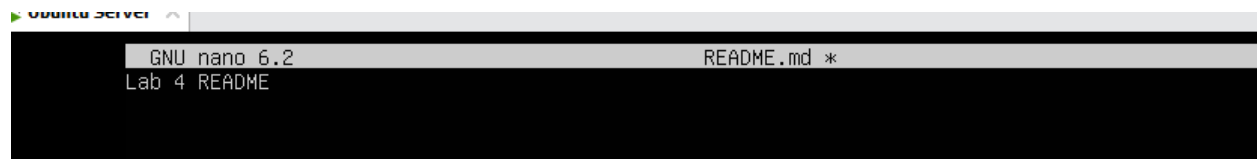
The /usr/bin directory contains user commands and applications that are not required for system startup.

The /usr/local/bin directory is used for programs installed manually by the user and not managed by the system package manager.

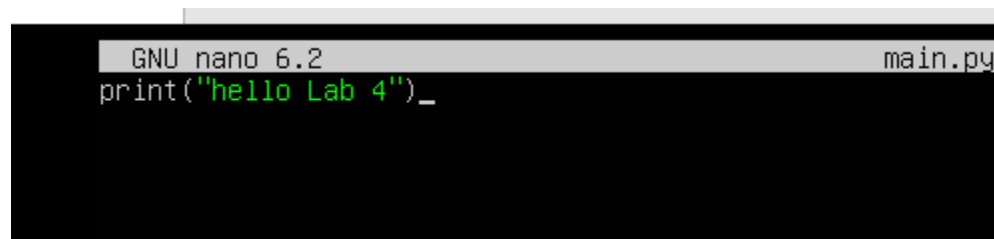
This separation keeps system tools and user-installed software organized.
```

## TASK:04

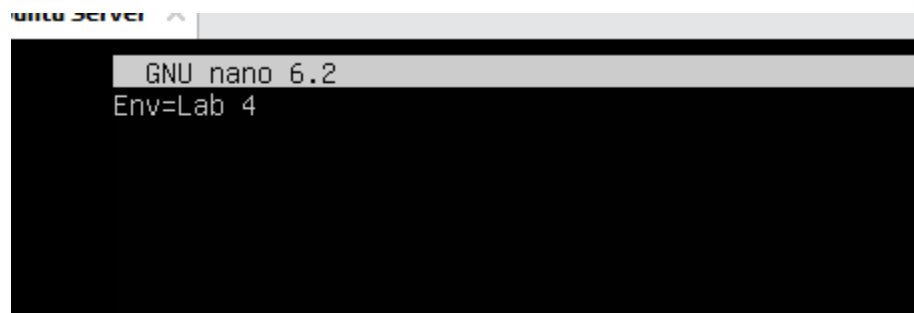
```
ubuntu027@ubuntu:~$ mkdir -p ~/lab4/workspace/python_project
ubuntu027@ubuntu:~$ cd ~/lab4/workspace/python_project
ubuntu027@ubuntu:~/lab4/workspace/python_project$ pwd
/home/ubuntu027/lab4/workspace/python_project
ubuntu027@ubuntu:~/lab4/workspace/python_project$
```



```
GNU nano 6.2 README.md *
Lab 4 README
```



```
GNU nano 6.2 main.py
print("hello Lab 4")_
```



```
GNU nano 6.2 .env
Env=Lab 4
```

```
ubuntu027@ubuntu:~/lab4/workspace/python_project$ ls -la
total 20
drwxrwxr-x 2 ubuntu027 ubuntu027 4096 Oct 23 09:27 .
drwxrwxr-x 3 ubuntu027 ubuntu027 4096 Oct 23 09:08 ..
-rw-rw-r-- 1 ubuntu027 ubuntu027  10 Oct 23 09:27 .Env
-rw-rw-r-- 1 ubuntu027 ubuntu027  21 Oct 23 09:26 main.py
-rw-rw-r-- 1 ubuntu027 ubuntu027  13 Oct 23 09:24 README.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$
```

```
ubuntu027@ubuntu:~/lab4/workspace/python_project$ ls -la
total 20
drwxrwxr-x 2 ubuntu027 ubuntu027 4096 Oct 23 09:27 .
drwxrwxr-x 3 ubuntu027 ubuntu027 4096 Oct 23 09:08 ..
-rw-rw-r-- 1 ubuntu027 ubuntu027  10 Oct 23 09:27 .Env
-rw-rw-r-- 1 ubuntu027 ubuntu027  21 Oct 23 09:26 main.py
-rw-rw-r-- 1 ubuntu027 ubuntu027  13 Oct 23 09:24 README.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cp README..md README.copy.md
cp: cannot stat 'README..md': No such file or directory
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cp README.md README.copy.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ mv README.copy.md README.dev.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ rm README.dev.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ -p ~/lab4/workspace/java_app
-p: command not found
ubuntu027@ubuntu:~/lab4/workspace/python_project$ mkdir -p ~/lab4/workspace/java_app
ubuntu027@ubuntu:~/lab4/workspace/python_project$ _
```

```
pace/java_app_copy
cp: -r not specified; omitting directory '/home/ubuntu027/lab4/workspace/python_project'
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cp -r ~/lab4/workspace/python_project ~/lab4/works
pace/java_app_copy
ubuntu027@ubuntu:~/lab4/workspace/python_project$ ls-la ~/lab4/workspace_
```



```
ubuntu027@ubuntu:~/lab4/workspace/python_project$ ls -la
total 20
drwxrwxr-x 2 ubuntu027 ubuntu027 4096 Oct 23 09:27 .
drwxrwxr-x 3 ubuntu027 ubuntu027 4096 Oct 23 09:08 ..
-rw-rw-r-- 1 ubuntu027 ubuntu027 10 Oct 23 09:27 .Env
-rw-rw-r-- 1 ubuntu027 ubuntu027 21 Oct 23 09:26 main.py
-rw-rw-r-- 1 ubuntu027 ubuntu027 13 Oct 23 09:24 README.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cp README..md README.copy.md
cp: cannot stat 'README..md': No such file or directory
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cp README.md README.copy.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ mv README.copy.md README.dev.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ rm README.dev.md
ubuntu027@ubuntu:~/lab4/workspace/python_project$ -p ~/lab4/workspace/java_app
-p: command not found
ubuntu027@ubuntu:~/lab4/workspace/python_project$ mkdir -p ~/lab4/workspace/java_app
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cp -p ~/lab4/workspace/python_project ~/lab4/works
pace/java_app_copy
cp: -r not specified; omitting directory '/home/ubuntu027/lab4/workspace/python_project'
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cp -r ~/lab4/workspace/python_project ~/lab4/works
pace/java_app_copy
ubuntu027@ubuntu:~/lab4/workspace/python_project$ ls-la ~/lab4/workspace
ls-la: command not found
ubuntu027@ubuntu:~/lab4/workspace/python_project$ ls -la ~/lab4/workspace
total 20
drwxrwxr-x 5 ubuntu027 ubuntu027 4096 Oct 23 09:33 .
drwxrwxr-x 3 ubuntu027 ubuntu027 4096 Oct 23 09:08 ..
drwxrwxr-x 2 ubuntu027 ubuntu027 4096 Oct 23 09:31 java_app
drwxrwxr-x 2 ubuntu027 ubuntu027 4096 Oct 23 09:33 java_app_copy
drwxrwxr-x 2 ubuntu027 ubuntu027 4096 Oct 23 09:30 python_project
ubuntu027@ubuntu:~/lab4/workspace/python_project$
```

```

10 ls -la /usr
11 ls -la /dev
12 ls -la /var
13 ls -la /temp
14 ls -la /tmp
15 ls -la /
16 ls -la /bin
17 ls -la /sbin
18 ls -la /usr
19 ls -la /opt
20 ls -la /etc
21 ls -la /dev
22 ls -la /var
23 ls -la /tmp
24 ls -la ~
25 nano ~/answer.md
26 cat ~/answer.md
27 mkdir -p ~/lab4/workspace/python_project
28 cd ~/lab4/workspace/python_project
29 pwd
30 cd /home/student/lab4/workspace/python_project
31 nano README.md
32 nano main.py
33 nano .Env
34 ls -la
35 cp README..md README.copy.md
36 cp README.md README.copy.md
37 mv README.copy.md README.dev.md
38 rm README.dev.md
39 -p ~/lab4/workspace/java_app
40 mkdir -p ~/lab4/workspace/java_app
41 cp -p ~/lab4/workspace/python_project ~/lab4/workspace/java_app_copy
42 cp -r ~/lab4/workspace/python_project ~/lab4/workspace/java_app_copy
43 ls-la ~/lab4/workspace
44 ls -la ~/lab4/workspace
45 history
ubuntu027@ubuntu:~/lab4/workspace/python_project$ _

```

```

-bash: cd: /home/ubuntu027/lab4/workspace/py: No such file or directory
ubuntu027@ubuntu:~/lab4/workspace/python_project$ cd ~/lab4/workspace/python_project/
ubuntu027@ubuntu:~/lab4/workspace/python_project$

```

## TASK:05

```

ubuntu027@ubuntu: ~/lab4/workspace/python_project$ cd ~/lab4/workspace/python_project/
ubuntu027@ubuntu:~/lab4/workspace/python_project$ uname -a
Linux ubuntu 5.15.0-119-generic #129-Ubuntu SMP Fri Aug 2 19:25:20 UTC 2024 x86_64 x86_64 x86_64 GNU
/Linux
ubuntu027@ubuntu:~/lab4/workspace/python_project$

```

```

ubuntu027@ubuntu:~/lab4/workspace/python_project$ cat /proc/cpuinfo_

```

```

address sizes   : 45 bits physical, 48 bits virtual
power management:

processor       : 1
vendor_id       : GenuineIntel
cpu family      : 6
model           : 78
model name      : Intel(R) Core(TM) i5-6200U CPU @ 2.30GHz
stepping        : 3
microcode       : 0xffffffff
cpu MHz         : 2399.999
cache size      : 3072 KB
physical id     : 2
siblings        : 1
core id         : 0
cpu cores       : 1
apicid          : 2
initial apicid  : 2
fpu             : yes
fpu_exception   : yes
cpuid level     : 22
wp              : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mm
x fxsr sse sse2 ss syscall nx pdpe1gb rdtscp lm constant_tsc arch_perfmon nopl xtopology tsc_reliabl
e nonstop_tsc cpuid tsc_known_freq pni pclmulqdq ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popc
nt tsc_deadline_timer aes xsave avx f16c rdrand hypervisor lahf_lm abm 3dnowprefetch invpcid_single
pti ssbd ibrs ibpb stibp fsgsbase tsc_adjust bmi1 avx2 smep bmi2 invpcid rdseed adx smap clflushopt
xsaveopt xsavec xgetbv1 xsaves arat md_clear flush_l1d arch_capabilities
bugs            : cpu_meltdown spectre_v1 spectre_v2 spec_store_bypass l1tf mds swapgs itlb_multihit
                srbds mmio_stale_data retbleed gds bhi
bogomips        : 4799.99
clflush size    : 64
cache_alignment : 64
address sizes   : 45 bits physical, 48 bits virtual
power management:

```

```

ubuntu027@ubuntu:~/lab4/workspace/python_project$ free -h
              total        used        free      shared  buff/cache   available
Mem:          3.8Gi        335Mi        765Mi        1.0Mi        2.7Gi        3.2Gi
Swap:         2.6Gi         1.0Mi         2.6Gi
ubuntu027@ubuntu:~/lab4/workspace/python_project$

```

```

ubuntu027@ubuntu:~/lab4/workspace/python_project$ free -h
              total        used        free      shared  buff/cache   available
Mem:          3.8Gi        335Mi        765Mi        1.0Mi        2.7Gi        3.2Gi
Swap:         2.6Gi         1.0Mi         2.6Gi
ubuntu027@ubuntu:~/lab4/workspace/python_project$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           388M  1.6M  387M   1% /run
/dev/mapper/ubun--vg-ubuntu--lv 14G   6.8G   5.8G  55% /
tmpfs           1.9G   0    1.9G   0% /dev/shm
tmpfs           5.0M   0    5.0M   0% /run/lock
/dev/sda2       2.0G  252M   1.6G  14% /boot
tmpfs           388M  4.0K  388M   1% /run/user/1000
ubuntu027@ubuntu:~/lab4/workspace/python_project$

```

```

tmpfs          388M 4.0K 388M 1% /run/user/1000
ubuntu027@ubuntu: ~/lab4/workspace/python_project$ cat /etc/os-release
PRETTY_NAME="Ubuntu 22.04.5 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.5 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
UBUNTU_CODENAME=jammy
ubuntu027@ubuntu: ~/lab4/workspace/python_project$

```

```

ubuntu027@ubuntu: ~/lab4/workspace/python_project$ ps aux

```

```

root      712  0.0  0.0      0      0 ?        I<    12:27   0:00 [ext4-rsv-conver]
root      861  0.0  0.0   6896  2868 ?        Ss    12:27   0:00 /usr/sbin/cron -f -P
message+  862  0.0  0.1   9000  4936 ?        Ss    12:27   0:04 @dbus-daemon --system --address=s
root      868  0.0  0.1  82832  3980 ?        Ssl   12:27   0:00 /usr/sbin/inqbalance --foreground
root      870  0.0  0.4  32736 18312 ?        Ss    12:27   0:02 /usr/bin/python3 /usr/bin/network
root      871  0.0  0.1 234504  6704 ?        Ssl   12:27   0:00 /usr/libexec/polkitd --no-debug
root      875  0.2  0.9 1923096 36368 ?        Ssl   12:27   0:12 /usr/lib/snapd/snapd
root      877  0.0  0.1  15532  7032 ?        Ss    12:27   0:01 /lib/systemd/systemd-logind
root      889  0.0  0.1   7840  4420 tty1    Ss    12:27   0:00 /bin/login -p --
root      918  0.0  0.3 317964 12256 ?        Ssl   12:27   0:00 /usr/sbin/ModemManager
root      930  0.0  0.5 109756 20964 ?        Ssl   12:27   0:00 /usr/bin/python3 /usr/share/unatt
ubuntu0+ 1239  0.0  0.2  17084  9768 ?        Ss    12:28   0:01 /lib/systemd/systemd --user
ubuntu0+ 1240  0.0  0.0  169360  3616 ?        S     12:28   0:00 (sd-pam)
ubuntu0+ 1248  0.0  0.1   8880  5384 tty1    S     12:28   0:03 -bash
root     1318  0.0  0.2  17176  8636 ?        Ss    12:30   0:00 sshd: ubuntu027 [priv]
ubuntu0+ 1375  0.0  0.1  17308  5908 ?        S     12:30   0:00 sshd: ubuntu027@pts/0
ubuntu0+ 1376  0.0  0.1   8736  4292 pts/0    Ss+   12:30   0:00 -bash
root     1688  0.0  0.4 295592 18844 ?        Ssl   12:31   0:02 /usr/libexec/packagekitd
root     23544 0.2  0.0      0      0 ?        I     12:44   0:11 [kworker/u256:4-events_unbound]
systemd+ 25485 0.1  0.2  16256  8532 ?        Ss    12:47   0:04 /lib/systemd/systemd-networkd
systemd+ 25490 0.0  0.2  25540 10620 ?        Ss    12:47   0:01 /lib/systemd/systemd-resolved
root     25492 0.1  0.3  31308 12508 ?        S<S   12:47   0:06 /lib/systemd/systemd-journald
systemd+ 25558 0.0  0.1  89364  6572 ?        Ssl   12:47   0:02 /lib/systemd/systemd-timesyncd
root     27176 0.0  0.2  15440  8464 ?        Ss    12:50   0:00 sshd: /usr/sbin/sshd -D [listener
root     52327 0.1  0.0      0      0 ?        I     13:03   0:05 [kworker/1:1-events]
root     75128 0.2  0.0      0      0 ?        I     13:14   0:05 [kworker/0:2-rcu_gp]
root     76290 0.0  0.3 392632 12836 ?        Ssl   13:15   0:00 /usr/libexec/udisks2/udisksd
root     77534 0.0  0.1  25632  6564 ?        Ss    13:17   0:01 /lib/systemd/systemd-udev
root     90862 0.0  0.3  51152 12072 ?        Ss    13:24   0:00 /usr/bin/VGAuthService
root     90863 0.7  0.2 167316  8704 ?        Ssl   13:24   0:12 /usr/bin/vmtoolsd
syslog   93897 0.0  0.1 222404  4976 ?        Ssl   13:28   0:00 /usr/sbin/rsyslogd -n -iNONE
root     95023 0.0  0.0      0      0 ?        I     13:39   0:00 [kworker/u256:1-events_power_effi
root     95025 0.0  0.0      0      0 ?        I     13:43   0:00 [kworker/1:0-events]
root     95026 0.6  0.0      0      0 ?        I     13:44   0:03 [kworker/0:3-events]
root     95028 0.1  0.0      0      0 ?        I     13:46   0:00 [kworker/u256:0-events_power_effi
ubuntu0+ 95047 0.0  0.0  10072  3536 tty1    R+    13:53   0:00 ps aux

```

## TASK:06

```
ubuntu027@ubuntu:~/lab4/workspace/python_project$ sudo adduser lab4user
[sudo] password for ubuntu027:
Adding user `lab4user' ...
Adding new group `lab4user' (1001) ...
Adding new user `lab4user' (1001) with group `lab4user' ...
Creating home directory `/home/lab4user' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
Sorry, passwords do not match.
passwd: Authentication token manipulation error
passwd: password unchanged
Try again? [y/N] y
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for lab4user
Enter the new value, or press ENTER for the default
    Full Name []: Irraj
    Room Number []: 115
    Work Phone []: 03448424416
    Home Phone []: 03170178338
    Other []: xyz
Is the information correct? [Y/n] y^[S_
```

```
    Other []: xyz
Is the information correct? [Y/n] y
ubuntu027@ubuntu:~/lab4/workspace/python_project$
```

```
Is the information correct? [Y/n] y
ubuntu027@ubuntu:~/lab4/workspace/python_project$ su lab4user
Password:
lab4user@ubuntu:/home/ubuntu027/lab4/workspace/python_project$ _
```

```
ubuntu027@ubuntu:~/lab4/workspace/python_project$ su lab4user
Password:
lab4user@ubuntu:/home/ubuntu027/lab4/workspace/python_project$ sudo whoami
[sudo] password for lab4user:
lab4user is not in the sudoers file. This incident will be reported.
lab4user@ubuntu:/home/ubuntu027/lab4/workspace/python_project$ sudo whoami
[sudo] password for lab4user:
lab4user is not in the sudoers file. This incident will be reported.
lab4user@ubuntu:/home/ubuntu027/lab4/workspace/python_project$ exit
exit
ubuntu027@ubuntu:~/lab4/workspace/python_project$ _
```

```
exit
ubuntu027@ubuntu:~/lab4/workspace/python_project$ sudo deluser --remove-home lab4user
Looking for files to backup/remove ...
Removing files ...
Removing user `lab4user' ...
Warning: group `lab4user' has no more members.
Done.
ubuntu027@ubuntu:~/lab4/workspace/python_project$ _
```

## TASK:07

```
GNU nano 6.2 /home/ubuntu027/lab4/workspace/run-demo.sh *
#!/bin/bash

echo "Lab 4 demo: current user is $(whoami)"

echo "Current time: $(date)"

uptime

free -h_
```

```
ubuntu027@ubuntu:~/lab4/workspace/python_project$ chmod +x ~/lab4/workspace/run-demo.sh
ubuntu027@ubuntu:~/lab4/workspace/python_project$ ~/lab4/workspace/run-demo.sh
Lab 4 demo: current user is ubuntu027
Current time: Thu Oct 23 02:06:15 PM UTC 2025
14:06:16 up 1:39, 2 users, load average: 0.02, 0.03, 0.12
      total    used      free   shared  buff/cache   available
Mem:    3.8Gi    345Mi    746Mi    1.0Mi    2.7Gi    3.2Gi
Swap:   2.6Gi    1.0Mi    2.6Gi
ubuntu027@ubuntu:~/lab4/workspace/python_project$
```

```
Swap:   2.6Gi    1.0Mi    2.6Gi
ubuntu027@ubuntu:~/lab4/workspace/python_project$ sudo ~/lab4/workspace/run-demo.sh
Lab 4 demo: current user is root
Current time: Thu Oct 23 02:06:51 PM UTC 2025
14:06:51 up 1:39, 3 users, load average: 0.06, 0.04, 0.12
      total    used      free   shared  buff/cache   available
Mem:    3.8Gi    345Mi    745Mi    1.0Mi    2.7Gi    3.2Gi
Swap:   2.6Gi    1.0Mi    2.6Gi
ubuntu027@ubuntu:~/lab4/workspace/python_project$
```