Output:-

1. Adam is working in an it company. He has been given a task to reduce the load of a system by killing some of the processes running in the LINUX operating system. Which commands will he use to complete the given task with the help of the following operation?

   - **Kill Processes by name**

```
student@M-309-07:~$ sleep 500 &
[1] 11687
student@M-309-07:~$ pkill sleep
pkill: killing pid 10339 failed: Operation not permitted
[1]+  Terminated              sleep 500
```

- **Kill a single process at a time with the given process lD**

```
student@M-309-07:~$ sleep 500 &
[1] 11677
student@M-309-07:~$ kill 11677
student@M-309-07:~$ ps -ef | grep sleep
root      10339   5309  0 16:58 ?        00:00:00 sleep 3600
student   11684   7766  0 17:22 pts/0    00:00:00 grep --color=auto sleep
[1]+  Terminated              sleep 500
```

- **Kill a process based on the process name**

```
student@M-309-07:~$ sleep 500 &
[1] 11695
student@M-309-07:~$ killall sleep
sleep(10339): Operation not permitted
[1]+  Terminated              sleep 500
student@M-309-07:~$ ls
a.out    Documents  file.txt  fork.c   orphan    Pictures  snap       Videos   zombie.c
Desktop  Downloads  fork      Music    orphan.c  Public    Templates  zombie
student@M-309-07:~$
```

2. Write a program for process creation using C

- **Orphan Process**

```
Parent PID: 11334
student@M-309-07:~$ nano fork.c
student@M-309-07:~$ nano orphan.c
student@M-309-07:~$ ./orphan
bash: ./orphan: No such file or directory
student@M-309-07:~$ gcc orphan.c -o orphan
student@M-309-07:~$ ./orphan
Parent process exiting...
student@M-309-07:~$ Child process
New Parent PID: 1406
```

- **Zombie Process**

```
m309@m309-BY-OEM:~$ nano orphan.c
m309@m309-BY-OEM:~$ nano zombie.c
m309@m309-BY-OEM:~$ gcc zombie.c -o zombie
m309@m309-BY-OEM:~$ ./zombie
Child exiting

Parent sleeping
```
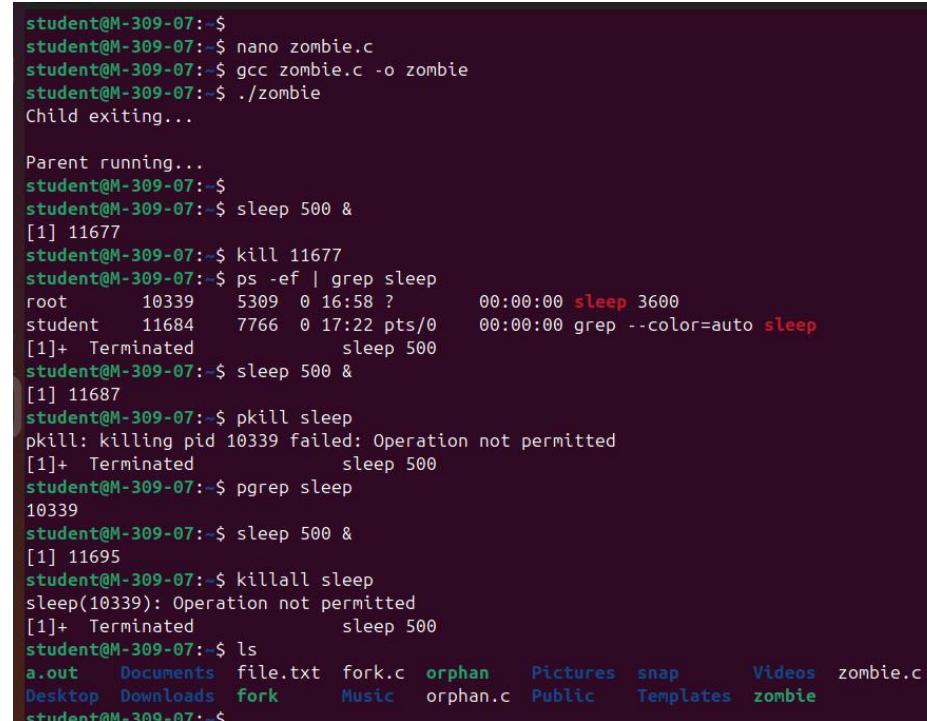
3. **Create the process using fork 0 system call**
   - **Child Process creation**
   - **Parent Process creation**

```
student@M-309-07:~$ nano fork.c
student@M-309-07:~$ gcc fork.c
student@M-309-07:~$ ./fork
bash: ./fork: No such file or directory
student@M-309-07:~$ gcc fork -o fork
gcc: fatal error: input file 'fork' is the same as output file
compilation terminated.
student@M-309-07:~$ gcc fork.c -o fork
student@M-309-07:~$ ./fork
Parent Process
Parent PID: 11334
Child Process
Child PID: 11335
Parent PID: 11334
student@M-309-07:~$
```

   - **PID and PPID**

```
student@M-309-07:~$
student@M-309-07:~$ nano zombie.c
student@M-309-07:~$ gcc zombie.c -o zombie
student@M-309-07:~$ ./zombie
Child exiting...

Parent running...
student@M-309-07:~$
student@M-309-07:~$ sleep 500 &
[1] 11677
student@M-309-07:~$ kill 11677
student@M-309-07:~$ ps -ef | grep sleep
root       10339    5309  0 16:58 ?        00:00:00 sleep 3600
student    11684    7766  0 17:22 pts/0    00:00:00 grep --color=auto sleep
[1]+  Terminated              sleep 500
student@M-309-07:~$ sleep 500 &
[1] 11687
student@M-309-07:~$ pkill sleep
pkill: killing pid 10339 failed: Operation not permitted
[1]+  Terminated              sleep 500
student@M-309-07:~$ pgrep sleep
10339
student@M-309-07:~$ sleep 500 &
[1] 11695
student@M-309-07:~$ killall sleep
sleep(10339): Operation not permitted
[1]+  Terminated              sleep 500
student@M-309-07:~$ ls
a.out     Documents   file.txt  fork.c  orphan    Pictures  snap        Videos   zombie.c
Desktop   Downloads   fork      Music   orphan.c  Public    Templates   zombie
student@M-309-07:~$
```