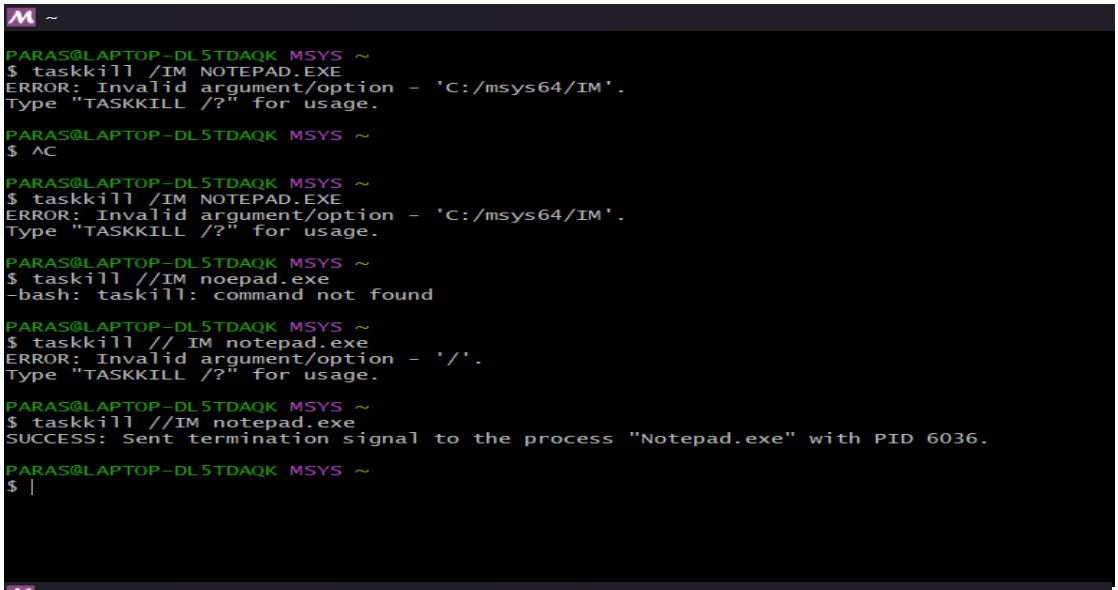
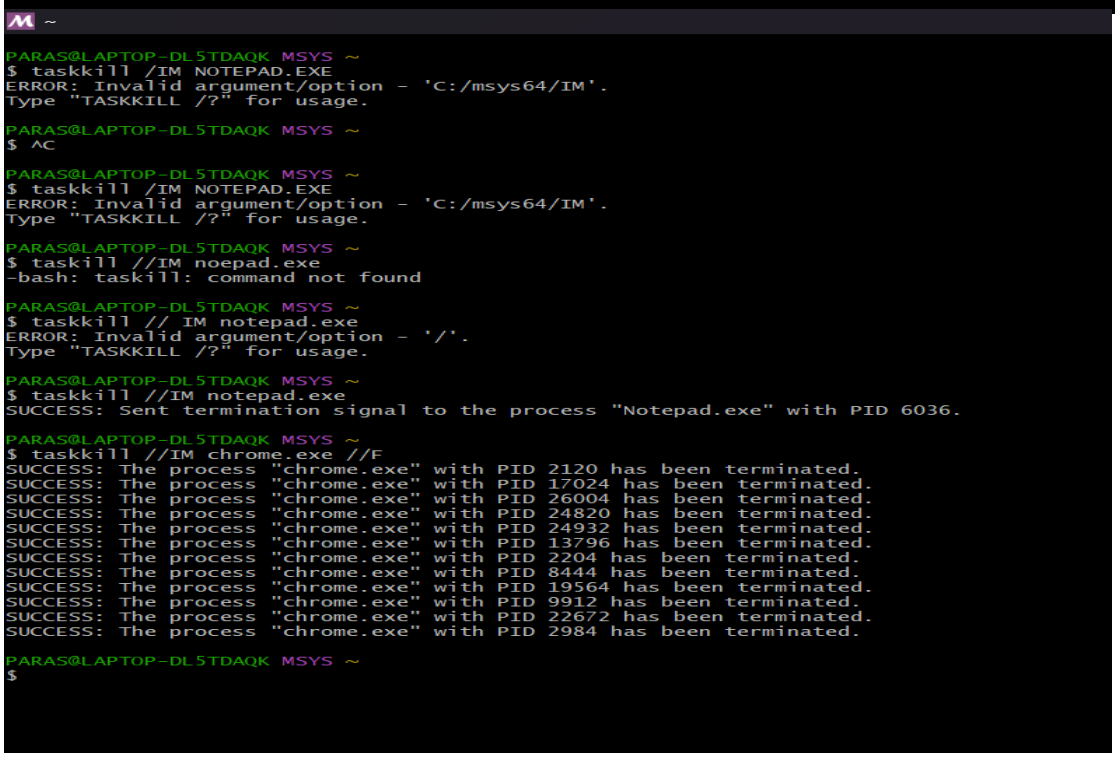
4 [Process management Based practical]

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
   - Kill a process based on the process name
   - Kill a single process at a time with the given process ID





2. Write a program for process creation using C

•**Orphan Process**

```
~
  GNU nano 8.7
#include <stdio.h>
#include <unistd.h>

int main() {
    pid_t pid = fork();

    if (pid > 0) {

        printf("Parent process PID: %d\n", getpid());
        sleep(2);
        printf("Parent exiting...\n");
    }
    else if (pid == 0) {

        sleep(5);
        printf("Child process PID: %d\n", getpid());
        printf("New Parent PID (init): %d\n", getpid());
    }
    else {
        printf("Fork failed\n");
    }

    return 0;
}
```

```
PARAS@LAPTOP-DL5TDAQK MSYS ~
$ gcc orphan.c -o orphan
./orphan
Parent process PID: 2246
Parent exiting...

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ Child process PID: 2247
New Parent PID (init): 2247
```

- **Zombie Process**

```
~
  GNU nano 8.7
#include <stdio.h>
#include <unistd.h>

int main() {
    pid_t pid = fork();

    if (pid > 0) {
        printf("Parent PID: %d\n", getpid());
        sleep(10);
        printf("Parent exiting...\n");
    }
    else if (pid == 0) {

        printf("Child PID: %d\n", getpid());
        printf("Child exiting...\n");
    }
    else {
        printf("Fork failed\n");
    }

    return 0;
}
```

```
PARAS@LAPTOP-DL5TDAQK MSYS ~
$ nano zombie.c

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ gcc zombie.c -o zombie

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ ./zombie
Parent PID: 2257
Child PID: 2258
Child exiting...
Parent exiting...
```

3. Create the process using fork () system call.
   •Child Process creation

- Parent process creation
  - PPID and PID

```
~
 GNU nano 8.7
#include <stdio.h>
#include <unistd.h>

int main() {
    pid_t pid = fork();

    if (pid == 0) {
        printf("Child Process\n");
        printf("Child PID: %d\n", getpid());
        printf("Parent PID (PPID): %d\n", getppid());
    }
    else if (pid > 0) {
        printf("Parent Process\n");
        printf("Parent PID: %d\n", getpid());
        printf("Child PID: %d\n", pid);
    }
    else {
        printf("Fork failed\n");
    }

    return 0;
}
```

```
PARAS@LAPTOP-DL5TDAQK MSYS ~
$ nano fork.c

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ gcc fork.c -o fork

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ ./fork.c
./fork.c: line 4: syntax error near unexpected token `('
./fork.c: line 4: `int main() {'

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ nano fork.c

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ gcc fork.c -o fork

PARAS@LAPTOP-DL5TDAQK MSYS ~
$ ./fork
Child Process
Child PID: 2273
Parent PID (PPID): 2272
Parent Process
Parent PID: 2272
Child PID: 2273
```