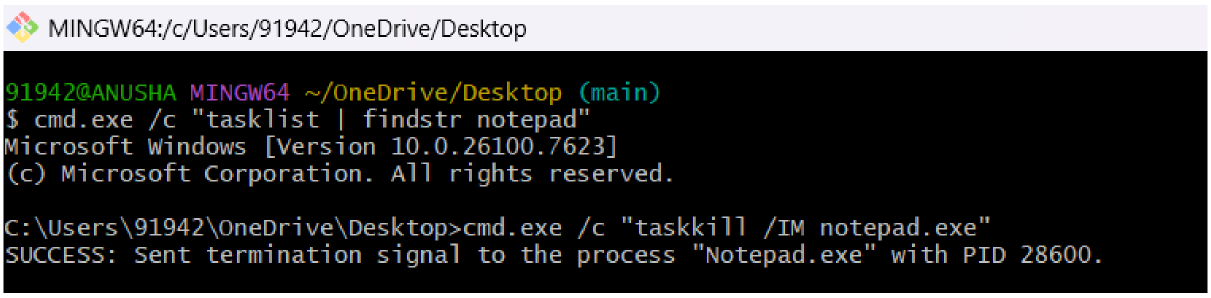
PRACTICAL 3

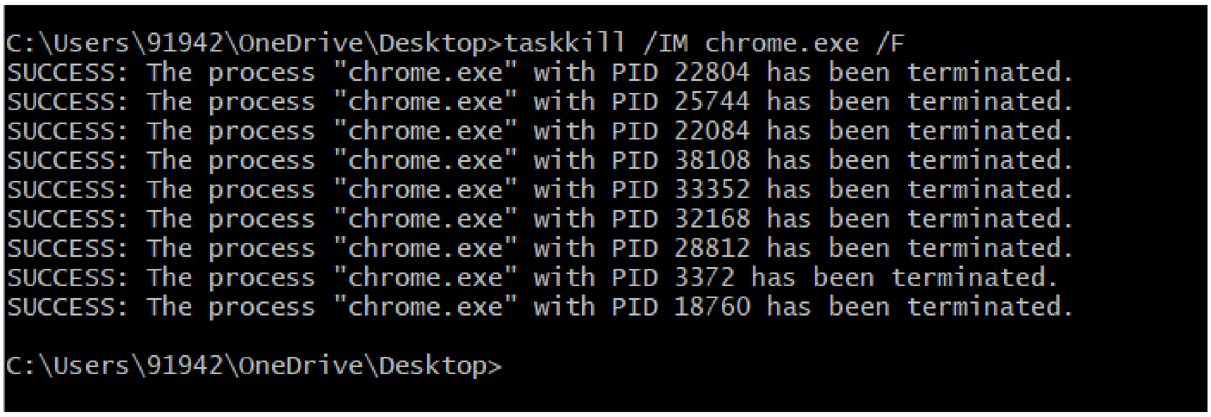
Aim- 1. Adam is working in an IT company. He has been given a task to reduce the load of a system by killing some of the processes running in the LINUX operating system. Which commands will he use to complete the given task with the help of the following operation?

1. **Kill processes by name**



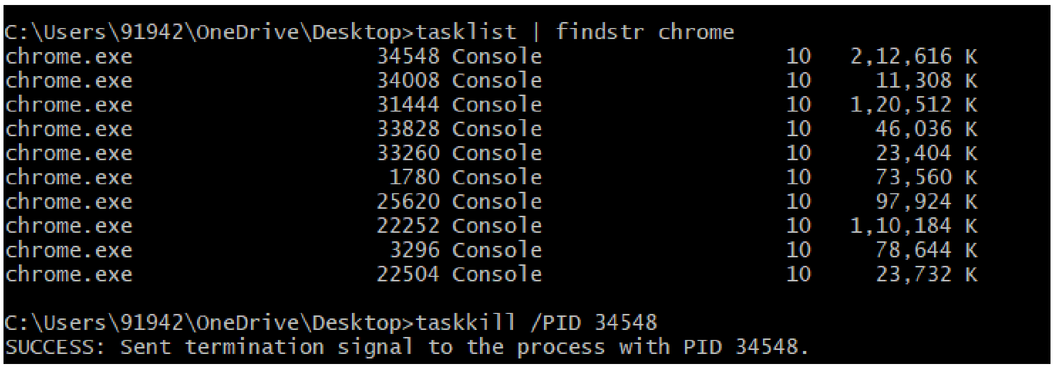
```
MINGW64:/c/Users/91942/OneDrive/Desktop

91942@ANUSHA MINGW64 ~/OneDrive/Desktop (main)
$ cmd.exe /c "tasklist | findstr notepad"
Microsoft Windows [Version 10.0.26100.7623]
(c) Microsoft Corporation. All rights reserved.

C:\Users\91942\OneDrive\Desktop>cmd.exe /c "taskkill /IM notepad.exe"
SUCCESS: Sent termination signal to the process "Notepad.exe" with PID 28600.
```

2. **Kill a process based on the process name**



```
C:\Users\91942\OneDrive\Desktop>taskkill /IM chrome.exe /F
SUCCESS: The process "chrome.exe" with PID 22804 has been terminated.
SUCCESS: The process "chrome.exe" with PID 25744 has been terminated.
SUCCESS: The process "chrome.exe" with PID 22084 has been terminated.
SUCCESS: The process "chrome.exe" with PID 38108 has been terminated.
SUCCESS: The process "chrome.exe" with PID 33352 has been terminated.
SUCCESS: The process "chrome.exe" with PID 32168 has been terminated.
SUCCESS: The process "chrome.exe" with PID 28812 has been terminated.
SUCCESS: The process "chrome.exe" with PID 3372 has been terminated.
SUCCESS: The process "chrome.exe" with PID 18760 has been terminated.

C:\Users\91942\OneDrive\Desktop>
```

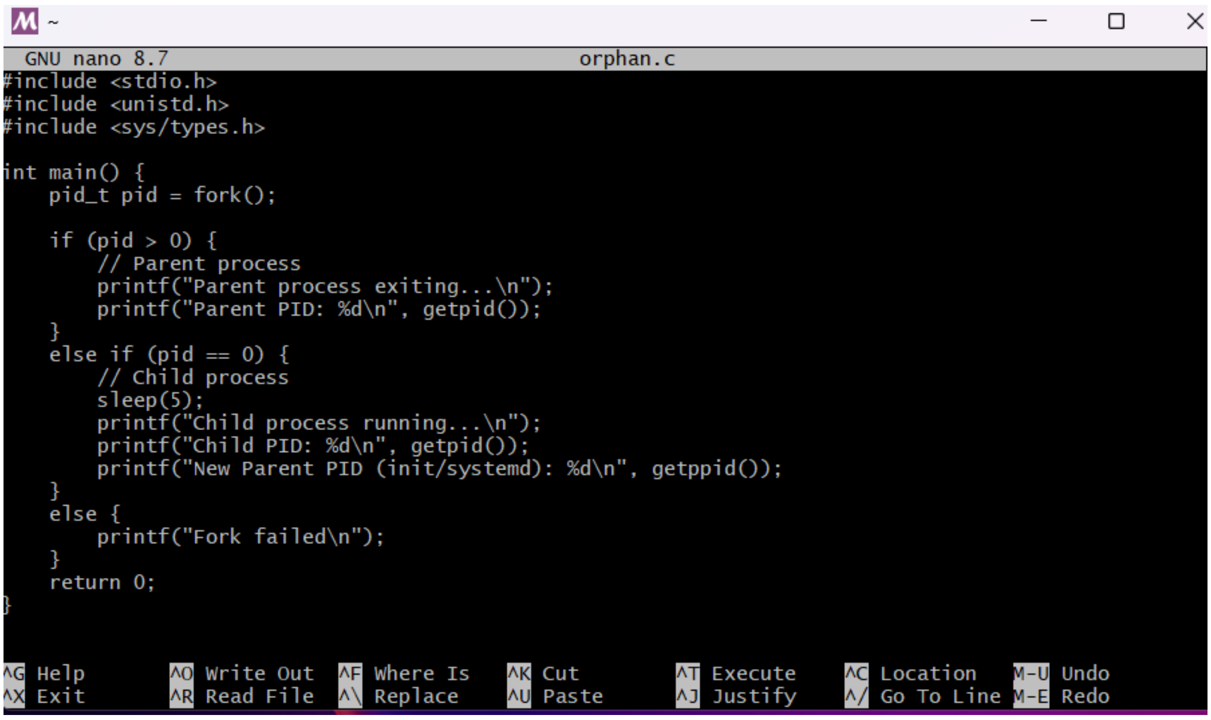
3. **Kill a single process at a time with the given process ID**



```
C:\Users\91942\OneDrive\Desktop>tasklist | findstr chrome
chrome.exe                   34548 Console                   10   2,12,616 K
chrome.exe                   34008 Console                   10     11,308 K
chrome.exe                   31444 Console                   10   1,20,512 K
chrome.exe                   33828 Console                   10     46,036 K
chrome.exe                   33260 Console                   10     23,404 K
chrome.exe                    1780 Console                   10     73,560 K
chrome.exe                   25620 Console                   10     97,924 K
chrome.exe                   22252 Console                   10   1,10,184 K
chrome.exe                    3296 Console                   10     78,644 K
chrome.exe                   22504 Console                   10     23,732 K

C:\Users\91942\OneDrive\Desktop>taskkill /PID 34548
SUCCESS: Sent termination signal to the process with PID 34548.
```

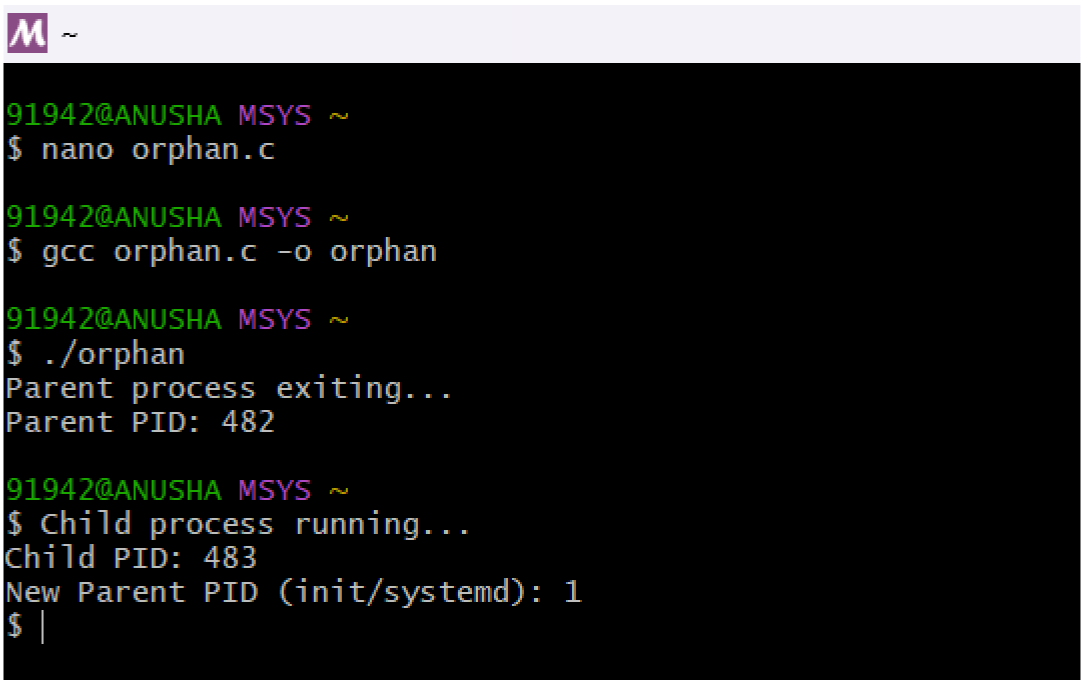
2. Write a program for process creation using C

▪ **Orphan Process**



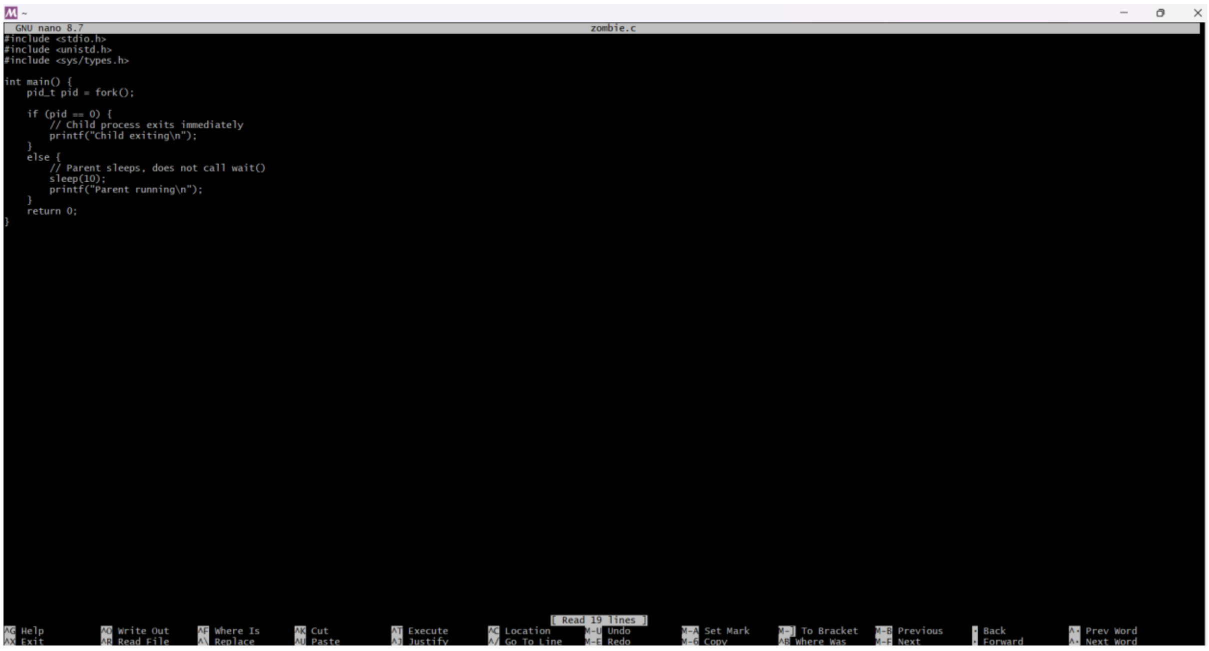
```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>

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

    if (pid > 0) {
        // Parent process
        printf("Parent process exiting...\n");
        printf("Parent PID: %d\n", getpid());
    }
    else if (pid == 0) {
        // Child process
        sleep(5);
        printf("Child process running...\n");
        printf("Child PID: %d\n", getpid());
        printf("New Parent PID (init/systemd): %d\n", getppid());
    }
    else {
        printf("Fork failed\n");
    }
    return 0;
}
```

OUTPUT:



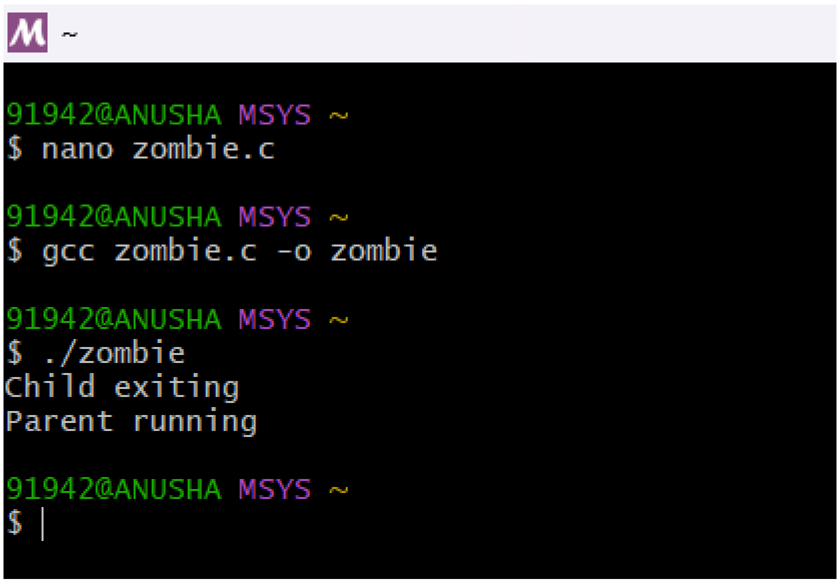
```
91942@ANUSHA MSYS ~
$ nano orphan.c

91942@ANUSHA MSYS ~
$ gcc orphan.c -o orphan

91942@ANUSHA MSYS ~
$ ./orphan
Parent process exiting...
Parent PID: 482

91942@ANUSHA MSYS ~
$ Child process running...
Child PID: 483
New Parent PID (init/systemd): 1
$ |
```

▪ Zombie Process



```
  GNU nano 8.7                                                          zombie.c
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>

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

    if (pid == 0) {
        // Child process exits immediately
        printf("Child exiting\n");
    }
    else {
        // Parent sleeps, does not call wait()
        sleep(10);
        printf("Parent running\n");
    }
    return 0;
}
```

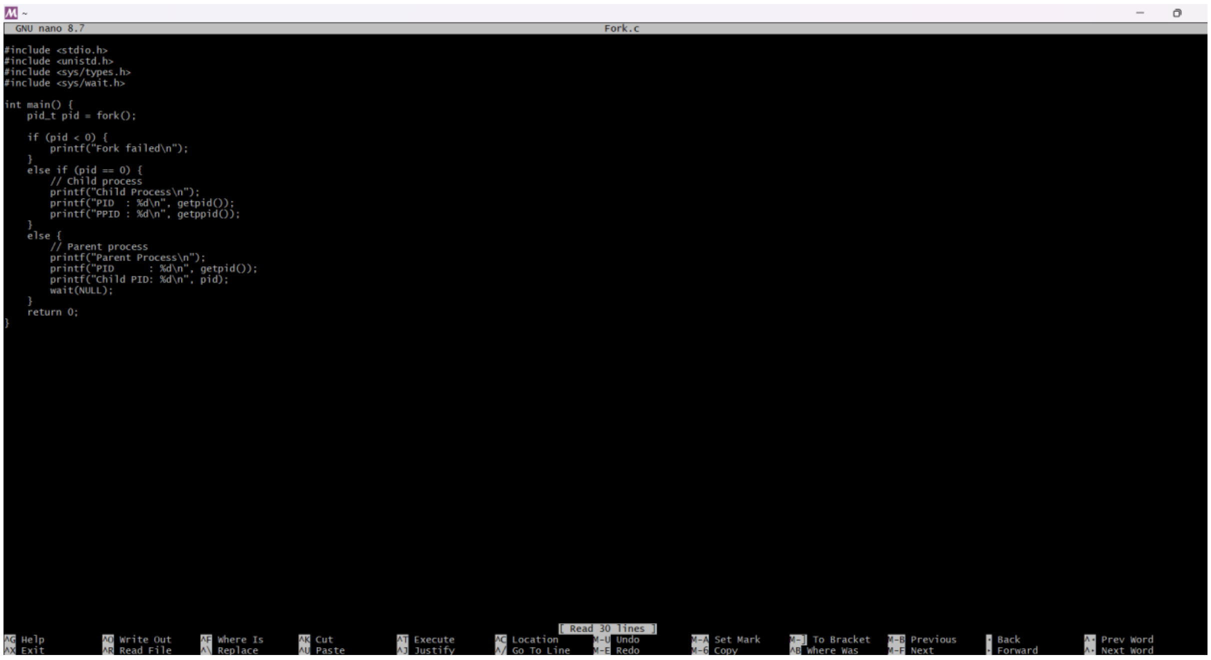
OUTPUT:



```
91942@ANUSHA MSYS ~
$ nano zombie.c

91942@ANUSHA MSYS ~
$ gcc zombie.c -o zombie

91942@ANUSHA MSYS ~
$ ./zombie
Child exiting
Parent running

91942@ANUSHA MSYS ~
$ 
```

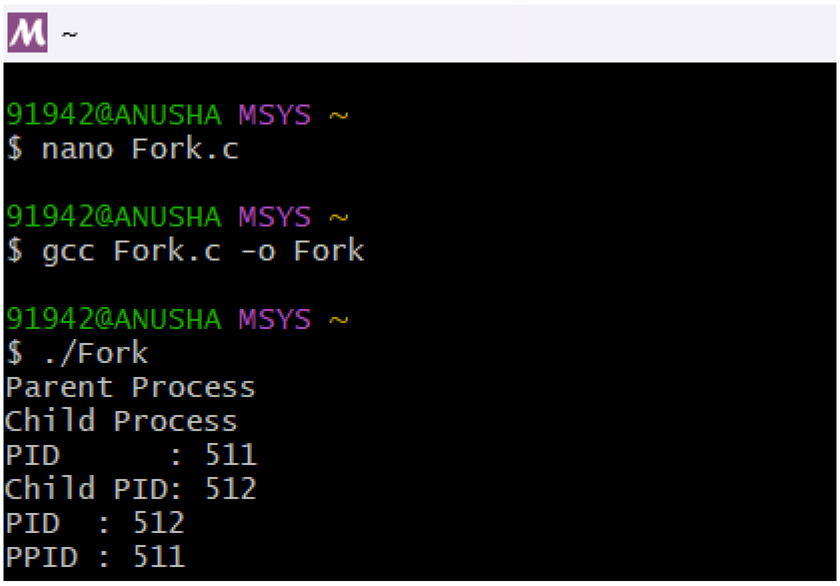
3. Create the process using fork () system call.

- **Child Process creation**
- **Parent process creation**
- **PPID and PID**



```
GNU nano 8.7                                   Fork.c

#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>

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

    if (pid < 0) {
        printf("Fork failed\n");
    }
    else if (pid == 0) {
        // Child process
        printf("Child Process\n");
        printf("PID  : %d\n", getpid());
        printf("PPID : %d\n", getppid());
    }
    else {
        // Parent process
        printf("Parent Process\n");
        printf("PID      : %d\n", getpid());
        printf("Child PID: %d\n", pid);
        wait(NULL);
    }
    return 0;
}

                                         [ Read 30 lines ]
^G Help       ^O Write Out  ^F Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo      M-A Set Mark  M-] To Bracket M-B Previous  Back         ^ Prev Word
^X Exit       ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^/ Go To Line M-E Redo      M-6 Copy      ^B Where Was   M-F Next      Forward      ^ Next Word
```

OUTPUT:



```
91942@ANUSHA MSYS ~
$ nano Fork.c

91942@ANUSHA MSYS ~
$ gcc Fork.c -o Fork

91942@ANUSHA MSYS ~
$ ./Fork
Parent Process
Child Process
PID      : 511
Child PID: 512
PID  : 512
PPID : 511
```