

PRACTICAL 1

Objective:

Write a program (using fork() and/or exec() commands) where parent and child execute:

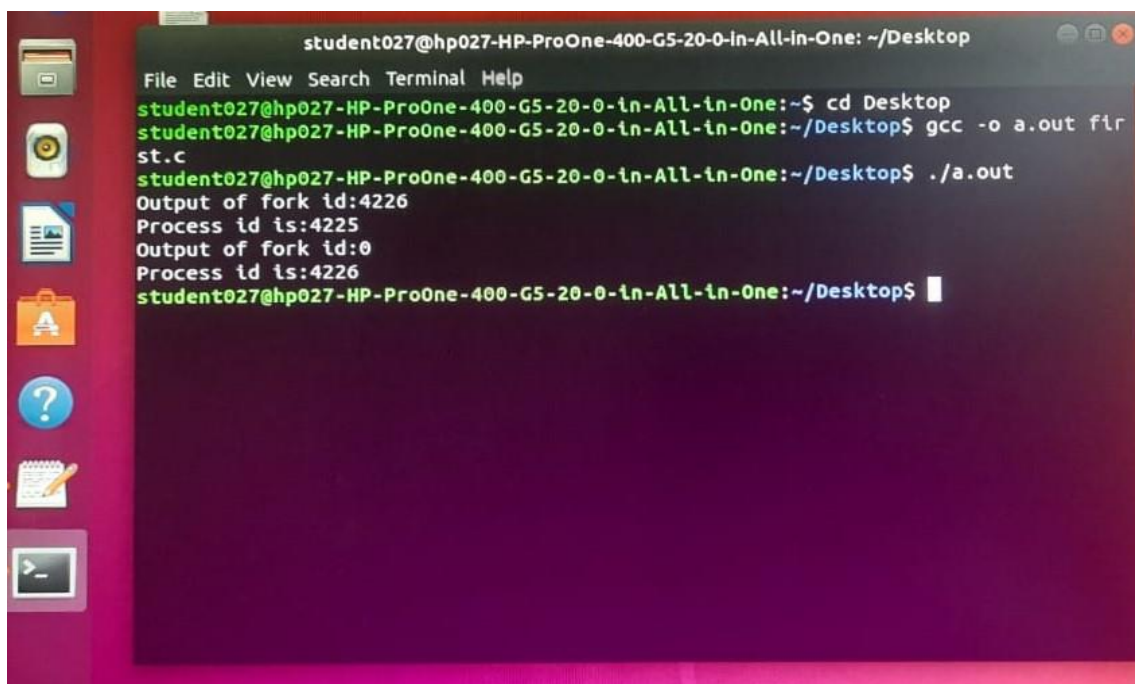
a) same program, same code.

Code:

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int main()
{
    pid_t pid,p;
    p = fork();
    pid = getpid();
    if(p<0)
    {
        fprintf(stderr, "Fork Failed ");
        return 1;
    }
    printf("Output of fork id: %d\n",p);
    printf("Process id is: %d \n",pid);
    return 0;
}
```

Output:



```
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~/Desktop
File Edit View Search Terminal Help
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One:~$ cd Desktop
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One:~/Desktop$ gcc -o a.out flr
st.c
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One:~/Desktop$ ./a.out
Output of fork id:4226
Process id is:4225
Output of fork id:0
Process id is:4226
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One:~/Desktop$
```

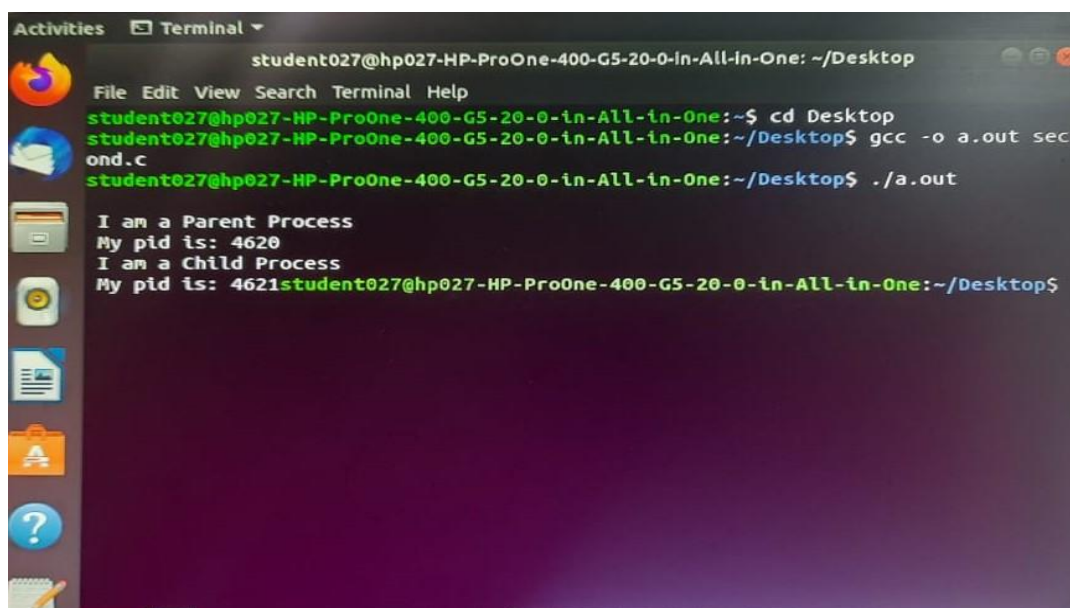
b) same program, different code.

Code:

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int main()
{
    pid_t pid,p;
    p = fork();
    if(p<0)
    {
        fprintf(stderr, "Fork Failed ");
        exit(1);
    }
    else if(pid==0)
    {
        printf("\nI am a Child Process");
        printf("\nMy pid is: %d \n",getpid());
        exit(0);
    }
    else
    {
        printf("\nI am a Parent Process");
        printf("\nMy pid is: %d \n",getpid());
        exit(1);
    }
}
```

Output:



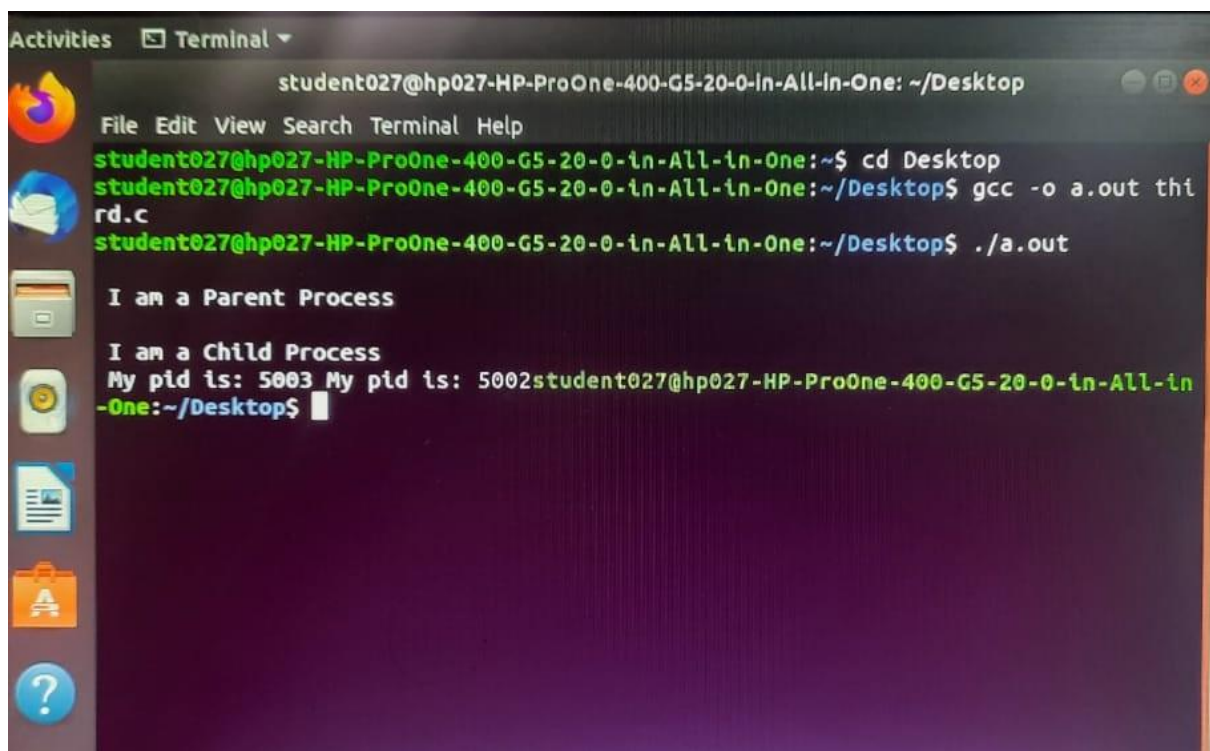
```
student027@hp027-HP-ProOne-400-G5-20-0-in-All-in-One: ~/Desktop
File Edit View Search Terminal Help
student027@hp027-HP-ProOne-400-G5-20-0-in-All-in-One:~$ cd Desktop
student027@hp027-HP-ProOne-400-G5-20-0-in-All-in-One:~/Desktop$ gcc -o a.out second.c
student027@hp027-HP-ProOne-400-G5-20-0-in-All-in-One:~/Desktop$ ./a.out
I am a Parent Process
My pid is: 4620
I am a Child Process
My pid is: 4621student027@hp027-HP-ProOne-400-G5-20-0-in-All-in-One:~/Desktop$
```

c) before terminating, the parent waits for the child to finish its task.

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int main()
{
    pid_t pid,p;
    p = fork();
    pid = getpid();
    if(p<0)
    {
        fprintf(stderr, "Fork Failed ");
        return 1;
    }
    printf("Output of fork id: %d\n",p);
    printf("Process id is: %d \n",pid);
    return 0;
}
```

Output:



```
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~/Desktop
File Edit View Search Terminal Help
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One:~$ cd Desktop
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One:~/Desktop$ gcc -o a.out thi
rd.c
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One:~/Desktop$ ./a.out

I am a Parent Process

I am a Child Process
My pid is: 5003 My pid is: 5002student027@hp027-HP-ProOne-400-G5-20-0-In-All-In
-One:~/Desktop$
```

➤ UNIX COMMANDS (date, cal, ls, cp, cat, ls-l)

```
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ ls
Desktop  Downloads  Music  Public  Videos
Documents  examples.desktop  Pictures  Templates
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ ls -l
total 44
drwxr-xr-x 2 student027 student027 4096 Sep  1 10:29 Desktop
drwxr-xr-x 2 student027 student027 4096 Sep 11 2020 Documents
drwxr-xr-x 2 student027 student027 4096 Sep 11 2020 Downloads
-rw-r--r-- 1 student027 student027 8980 Mar 19 2020 examples.desktop
drwxr-xr-x 2 student027 student027 4096 Sep 11 2020 Music
drwxr-xr-x 2 student027 student027 4096 Sep 11 2020 Pictures
drwxr-xr-x 2 student027 student027 4096 Sep 11 2020 Public
drwxr-xr-x 2 student027 student027 4096 Sep 11 2020 Templates
drwxr-xr-x 2 student027 student027 4096 Sep 11 2020 Videos
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ cat first.c
cat: first.c: No such file or directory
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ cd Desktop
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~/Desktop$ cat first.c
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
int main()
{
    pid_t pid, p;
    p=fork();
    pid=getpid();
    if(p==0)
    {
        fprintf(stderr, "FORK FAILED");
        return 1;
    }
    printf("Output of fork id:%d\n",p);
    printf("Process id is:%d\n",pid);
    return 0;
}
```

```
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ cd Desktop
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~/Desktop$ cat first.c
#include<stdio.h>
#include<stdlib.h>
#include<unistd.h>
int main()
{
    pid_t pid, p;
    p=fork();
    pid=getpid();
    if(p==0)
    {
        fprintf(stderr, "FORK FAILED");
        return 1;
    }
    printf("Output of fork id:%d\n",p);
    printf("Process id is:%d\n",pid);
    return 0;
}
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~/Desktop$ cd ..
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ cp
cp: missing file operand
Try 'cp --help' for more information.
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ sec
Command 'sec' not found, but can be installed with:

apt install sec
Please ask your administrator.
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ cat sec
cat: sec: No such file or directory
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ cal
      September 2022
Su Mo Tu We Th Fr Sa
                1  2  3
 4  5  6  7  8  9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30

student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$ date
Thu Sep  1 10:32:19 IST 2022
student027@hp027-HP-ProOne-400-G5-20-0-In-All-In-One: ~$
```

