

Ex. No.: 5

Date: 15/2/26

System Calls Programming

Aim: To experiment system calls using fork(), execlp() and pid() functions.

Algorithm:

1. **Start**
 - Include the required header files (stdio.h and stdlib.h).
2. **Variable Declaration**
 - Declare an integer variable pid to hold the process ID.
3. **Create a Process**
 - Call the fork() function to create a new process. Store the return value in the pid variable:
 - If fork() returns:
 - -1: Forking failed (child process not created).
 - 0: Process is the child process.
 - Positive integer: Process is the parent process.
4. **Print Statement Executed Twice**
 - Print the statement:

scss

Copy code

THIS LINE EXECUTED TWICE

(This line is executed by both parent and child processes after fork()).

5. **Check for Process Creation Failure**
 - If pid == -1:
 - Print:

Copy code
CHILD PROCESS NOT CREATED
 - Exit the program using exit(0).
6. **Child Process Execution**
 - If pid == 0 (child process):
 - Print:
 - Process ID of the child process using getpid().
 - Parent process ID of the child process using getppid().
7. **Parent Process Execution**
 - If pid > 0 (parent process):
 - Print:
 - Process ID of the parent process using getpid().
 - Parent's parent process ID using getppid().
8. **Final Print Statement**
 - Print the statement:

objectivec

Copy code
IT CAN BE EXECUTED TWICE

(This line is executed by both parent and child processes).

9. End

Program:


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

int main()
{
    int pid;

    pid = fork();
    printf("\n THIS LINE EXECUTED TWICE ");
    if (pid == -1)
    {
        printf("\n CHILD PROCESS NOT CREATED\n");
        exit(0);
    }
    if (pid == 0)
    {
        printf("\n I AM CHILD PROCESS AND MY ID IS %d\n", getpid());
        printf("\n THE CHILD PARENT PROCESS ID IS: %d\n", getppid());
    }
    else
}
```


else

```
{  
    printf("In I AM PARENT PROCESS AND MY ID IS: %d\n",  
           getpid());  
  
    printf("In THE PARENTS PARENT PROCESS ID IS: %d\n",  
           getppid());  
  
}  
printf("In IT CAN BE EXECUTED TWICE");  
printf("In");  
}
```



Output:

THIS LINE EXECUTED TWICE

I AM PARENT PROCESS AND MY ID IS : 2150

THE PARENTS PARENT PROCESS ID IS : 1781

IT CAN BE EXECUTED TWICE

THIS LINE EXECUTED TWICE

I AM CHILD PROCESS AND MY ID IS 2151

THE CHILD PARENT PROCESS ID IS : 1

IT CAN BE EXECUTED TWICE

Result:

Thus the C program for system calls programming
is executed successfully

