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## 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:

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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:

Objective:

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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 <sys/types.h>
#include <unistd.h>
int main() {
    pid_t pid;
    pid=fork();
    printf("This line executed twice\n");
    if( pid == -1){
        printf("Child proceess not created\n");
        exit(0);
    }
    if(pid == 0){
        printf("parent: getpid=%d,getppid= %d\n",getpid(), getppid());
    }
    else{
        printf("child: getpid=%d, getppid=%d\n",getpid(),getppid());
    }
    printf("IT can be executed twice\n");
}

```

OUTPUT:

```

This line executed twice
child: getpid=2945, getppid=1373
IT can be executed twice
This line executed twice
parent: getpid:2946,getppid= 1
IT can be executed twice

```