Ex. No.: 5
Date:

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:

FORK SYSTEM CALL PROGRAM:

```
#include<stdio.h>
#include<stdlib.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
{
printf("\n I AM PARENT PROCESS AND MY ID IS:%d\n",getpid( ));
printf("\n THE PARENTS PARENT PROCESS ID IS:%d\n",getppid( ));
}
printf("\n IT CAN BE EXECUTED TWICE");
printf("\n");
}
```