Ex. No.: 5
Date: 13/2/25

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 <stdio.h>
int main()
{
int pid;
pid=fork();
printf("\n THIS LINE EXECUTED TWIICE");
if(pid==-1)
 {
  printf("\n CHILD PROCESSS 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 ANDMY ID IS: %d\n",
                                              getpid());
printf("\nTHE PARENTS PARENT PROCESS ID IS: %d\n",
 }                                            getppid ());
 printf("\nIT CAN BE EXECUTED TWICE");
 printf("\n");
 }
```

Output:

```
THIS LINE EXECUTED TWICE
CHILD PROCESS NOT CREATED
I AM CHILD PROCESS AND MY ID IS 992
THE CHILD PARENT PROCESS ID IS 1021
I AM PARENT PROCESS AND MY ID IS 993
I AM PARENTS PARENT PROCESS ID IS 981
IT CAN BE EXECUTED TWICE
```

Result:

Thus the System Call program to experiment System call using fork (), exec () and pid () are executed successfully.