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<stdlib.h>
int main(){
  int pid;
  pid=fork();
  printf("\n this LINE EXECUTED TWICE");
  if(pid==-1){
     printf("\n CHILD PROCESS NOT CREATED");
     exit(0);}
  if(pid==0){
     printf("\nI 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 PARENTS 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"); }
```

Output:

```
THIS LINE EXECUTED TWICE
I AM CHILD PROCESS AND MY ID IS 992
I AM CHILD PARENT PROCESS AND MY ID IS 1080
I AM PARENTS PROCESS ID IS 1020
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(), execlp() and pid() are executed successfully