Experiment 10

Aim: To create an Orphan process and a Zombie Process.

- **An orphan process** is a process whose parent has terminated before it finishes its execution.
- **A zombie process** is a process that has completed execution but still has an entry in the process table.

Program to create an orphan process

```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>

int main() {
   pid_t p;
   p = fork();

   if (p == 0) {
      // Child process
      sleep(5);
      printf("I am child having PID: %d\n", getpid());
      printf("My parent PID is: %d\n", getppid());
   } else {
      // Parent process
`
      printf("My child PID is: %d\n", p);
   }

   return 0;
}
```

```
localhost:~# vi orphan.c
// orphan.c
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>

int main() {
    pid_t p;
    p = fork();

    if (p == 0) {
        // Child process
        sleep(5);
        printf("I am child having PID: %d\n", getpid());
        printf("My parent PID is: %d\n", getppid());
    } else {
        // Parent process
        printf("I am parent having PID: %d\n", getpid());
        printf("My child PID is: %d\n", p);
    }

    return 0;
}

localhost:~# gcc -o orphan orphan.c
localhost:~# ./orphan
I am parent having PID: 81
My child PID is: 82
localhost:~# I am child having PID: 82
My parent PID is: 1
```

 # Program to create a zombie process

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

int main() {
   pid_t p;
   p = fork();

   if (p == 0) {
      // Child process
      printf("Child having ID: %d\n", getpid());
   } else {
      // Parent process
      printf("Parent having ID: %d\n", getpid());
      sleep(15); // Run `ps` command during this time to observe zombie
   }

   return 0;
}
```