

## Assignment 2

### Assignment 2(a):-

#### Information:

The goal of this assignment is to make you understand about basic inter-process communication semantics using signal/interrupt handling. The method of using through handling the signals i.e. a process executes a particular (user) function on receipt of the signal.

#### Problem:

Write a C program using `signal()` system call to handle the reception of SIGINT signal which allows to execute a designated (user) function. Here the function is responsible for creating a child process by using `fork()` system call and then you have to display the PROCESS ID and PARENT PROCESS ID from the parent process as well as from the child process.

**/\* You need to put explanatory comment in your program to demonstrate the purpose and why you have used the system calls \*/**

#### Hints:

\* For generating, SIGINT (SIGINT is a keyboard interrupt signal) signal, you have to press Ctrl+C. So, by default pressing Ctrl+C in a running program leads to the termination of the running process. But, your program should provide a way to handle the keyboard interrupt through `signal()` system call by executing user defined function as mentioned above.

\* To know more about, see `signal(2)` man page (command: “man 2 signal”) and refer W.R. Steven Book, Vol-2

### Assignment 2(b):-

Write a C program which will take the Process ID and signal ID as input to demonstrate the use of `kill()` system call.

**/\* You need to put explanatory comment in your program to demonstrate the purpose and why you have used the system calls \*/**

#### Hints:

\* For demonstrating so, you modify the assignment 2(a) to handle each and every signal (as possible as). Run command `kill -l`, to know about signal type and ID. Now run the modified assignment 2(a).

\* Again from another terminal, run the assignment 2(b) which will take the Process ID of the modified assignment 2(a) and any valid signal value as input.

\* Your signal handler function of the modified assignment 2(b) should be able to display the signal ID of the generated signal.

\* To know more about `kill()`, see `kill(2)` man page and for signal type, value, action and comment, see `signal(7)` man page.

### Assignment 2(c):-

Write a C program to create a user level thread using system call `pthread_create()` and assign the thread to display the “HELLO WORLD”. Use `pthread_exit()` in your program (if possible) for terminating the thread.

**/\* You need to put explanatory comment in your program to demonstrate the purpose and why you have used the system calls \*/**

#### Hints:

\* To know more about `pthread_create()`, see `pthread_create(3)` man page and to know more about `pthread_exit()`, see `pthread_exit(3)`.