Project-1

Due: 11:59 pm on Sunday (10/3/2021)

1. A code **MUST** be saved with this naming convention: “FirstName\_LastName\_Project1\_P1.c”.
2. At the top of each code, two comment lines **MUST** be included:

// Name. Project 1

1. Make sure the codes are well-tested.
2. **Do not zip** the files.
3. Submit the .c files into blackboard.
4. If you do not complete the above instructions, it will result **in 2-point deduction automatically**.

This project consists of 2 PARTS.

**PART1 Understanding Process and Pipe to transfer data between processes: (60 pts)**

In this part of the project write a c program that does followings:

* Include the standard libraries below in your c file

stdio.h

sttlib.h

unistd.h

sys/wait.h

errno.h

* Create an array with the following numbers 3,8,12,21,1,7,23,18,15,10
* Call the fork() function this will create parent and child process
* Sum first 5 value in your array in the child process
* Sum Rest of the 5 values in your array in the parent process
* Create a pipe using pipe() function
* Write the sum value in the child process into the pipe
* Read the sum value from pipe, then add it to sum value from the parent process (You need a function call wait() for that)
* Print the result.

**PART2 Understanding Threads (40 pts)**

In this part of the project write a c program that does followings:

* Include the standard libraries below in your c file

stdio.h

sttlib.h

unistd.h

pthread.h

* Create a Function. Inside the function, create an array with following numbers 3,8,12,21,1, sum them then print the result.
* Create another function. Inside the function, create an array with following numbers 7,23,18,15,10 sum them then print the result.
* In the main function, create 2 threads.
* Assign first function to first thread and second function to second thread.

(NOTE! When you compiling your thread program, use the -g and -pthread arguments with your compiler example: gcc -g -pthread yourcode.c)