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
```

3. Make sure the codes are well-tested.
4. **Do not zip** the files.
5. Submit the .c files into blackboard.
6. 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)