Lab Assignment – 6

In this lab, you will implement system calls available in process management.

(1) Write a program in which the parent process sets up the string and sends the same string to the child process using pipe. Subsequently, child process reads the data from the pipe and calculates the sum of ASCII equivalent of the string. Then, child process will write back the ASCII sum to another pipe and the parent prints the same.
Example: Parent creates the string "aAb", child process calculates ASCII sum 260 (i.e. 97+65+98) and writes 260 to the pipe, parent will print 260 on to the console.

(2) Write a program where the parent reads an array of integers, sorts it in ascending order and writes on the pipe. Child process will read from the pipe and output the ascending order onto the console. Then, converts the ascending order array into descending order and writes back the output to the pipe. Finally, the parent prints the descending order written by the child process into the pipe.

(3) Write a program where the parent process reads an array of integers and writes it into pipe, the child process reads the array of numbers, checks whether the numbers are Armstrong or not and creates an array of binary values (0 - not Armstrong, 1 - Armstrong) and writes this array into the pipe. Finally, the parent process reads this binary array and prints whether each element of the array is Armstrong or not.

(4) Write a program that creates two processes P1 and P2. P1 sets-up a string and writes it on to the shared memory. P2 reads the string from the shared memory, checks whether the string is palindrome or not and writes either 0 (not palindrome) or 1 (palindrome) to the shared memory. P1 reads this value and prints whether the string is palindrome or not on to the console.

Submission Instructions:

- Submit your assignment file in the Google classroom.

- After writing the code for each problem, write your own explanation in plain paper (Own Handwriting). Write your Name and Roll No in each page.

- Attach the screen short of the output after the execution of the program.

- Save all the above things of all the programs in to one file and save as RollNo_Lab#.pdf (Example: EC20B1001_Lab6.pdf) and upload.

- Make sure the program description(handwritten), program, output screenshot for all questions are included in a **single pdf** as mentioned above.

- Save all the C program files as per the format RollNo_Lab#_QuestionNo.c (Example: EC20B1001_Lab6_Q2.c) and upload.

- Any form of plagiarism/copying from peer or internet sources will lead penalty.

- NOTE: DO NOT ZIP THE FILES.