

Assignment B

Develop a C program that reads input data from an input file and utilizes multiple child processes for processing. Each child process should execute a specific task on a portion of the input data and save the results to separate output files. The parent process will manage the child processes' execution and consolidate the output files into a single output file. Implement error handling mechanisms to manage errors related to file I/O operations, memory allocation, and inter-process communication. Discuss how your program ensures robustness and reliability in handling file operations and inter-process communication, even under adverse conditions.

For the child processes, consider the following tasks:

1. Calculate the factorial of a given number and write the result to an output file.
2. List the running processes and save the information to a file.
3. Determine the average of a set of numbers and write the result to an output file.

- This assignment is worth 5 marks.
- Submissions are expected during lab time, following a brief discussion about the code and the idea.
- I will collect a copy of the files.
- Extra marks may be awarded for special work.

NOTE

Please don't hesitate to think and practice. Don't deprive yourself of the opportunity to search and learn. I will appreciate everything you create, as long as it's original from your own effort.