FATİH SULTAN MEHMET VAKIF ÜNİVERSİTESİ

Student:

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Department: Software Engineering

Project:

Topic: Calculator System

Course:

Name: Operating Systems concepts

Instructor: Ali Yilmaz

Content

1- Project Topic

The project was about creating a distributed calculator system that uses separate processes to perform basic mathematical operations (addition, subtraction, multiplication, and division). The calculator communicates with these processes using pipes, and the results are saved into a file using a dedicated saver program.

2- Tasks Completed During the Project

- Implemented the main calculator.c program to handle user input and create subprocesses for each operation.
- Created separate C files (add.c, sub.c, mul.c, div.c) for performing addition, subtraction, multiplication, and division.
- Implemented saver.c to store results in a file named results.txt in the format:
- The result of <num1> <operator> <num2> is: <result>.
- Ensured proper communication between the main program and subprocesses using pipes.
- Added error handling in all subprocesses, such as handling division by zero in div.c.
- Designed a Makefile to automate the compilation of all components, ensuring the project can be built and cleaned efficiently.

- Tested the project thoroughly to ensure it met all specified requirements, including saving results correctly and handling invalid inputs.

3- Additional Notes

- learned how to use pipes and subprocesses effectively for inter-process communication in C.
- Working on the Makefile taught me how to automate compilation and ensure project consistency.
- Debugging the subprocess communication was a challenge but helped me understand how data flows between processes in Linux.

4- References

- Operating Systems Course Material
- Lecture Notes by Prof. Dr. A. Yılmaz ÇAMURCU