SYSC 4001 Assignment 2 — Part III

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1 Introduction

The goal of this part is to simulate `fork()` and `exec()` system calls using a single CPU, fixed memory partitions, PCB, and external files.

2 Tests

2.1 Test 1

2.1.1 Analysis of `execution.txt`

Init forks a child process. The child executes `program1` using exec, which is loaded into a 10 Mb partition, and its PCB is updated. Upon child completion, the parent will execute `program2` in a separate 15 Mb partition. Each system call causes an ISR to be triggered, which will be followed by memory partition allocation and a scheduler call. The execution log contains timestamps for context switches, entry into kernel mode, and CPU bursts to demonstrate that fork/exec and priority handling are being sequenced correctly.

2.1.2 Analysis of `system_status.txt`

best-fit allocation

2.2 Test 2

2.3 Test 3

2.4 Test 4

2.5 Test 5

3 Conclusion

Appendix

- SYSC 4001 Assignment 2 — Part II
- SYSC 4001 Assignment 2 — Part III