Operating System Project 1 Report

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1 Design

Main Structure

For each process, it's attribute (ready time, execution time, start time and process id) is stored in a structure `processData`. A structure `processList` is constructed to maintain a list of `processData`, while processes in it are sorted by ready time.

The scheduler process `S` itself is limited to run on CPU 0 with lowest nice value -20 at the beginning. Once a child process `P` is forked, `P` will limit itself to run on CPU 1, and it's nice value is determined by scheduling principle. After finishing setting these property, `P` then execute `./child`, a process that will run million empty iterations for n times, while n is passed through `argv[1]`.

To schedule, `S` idles a process `P1` and awake another process `P2` by setting nice value of `P1` (*resp.* `P2`) to 19 (*resp.* 20)