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Project 2

Operating system

Module 1:Cpu and Instruction cycle

Module 1 is comprised of CPU operations it has program counter, accumulator, instruction register, zero flag. The operation in module 1 are Add subtract Multiply which are math-based operations. Load and Store which handle data from memory and the accumulator.

Module 2: Memory system and OS control Table

Module 2 is memory management it has a memory system with two levels of Cache, L1 and L2 respectively also a memory to table to keep track of the memory for the processes. The memory table is created by the field’s Process ID, identify the process memory block, memory start states the starting address of the memory block, memory ends; ends the process at the address. Also, Isfree tells if the block is free or allocated. The function Best-Fit finds the smallest block that can fit in the memory request.

Module 3: Process Scheduling and Multi-process handling

Module 3 is process management with multiple processes by process scheduling. This is done by the process control block or PCB. The process control block is comprised of Pid, Pc, acc, and process state. Context switching for this project is done with round robin. This method means multiple processes can run at the same time without affecting each other.

Module 4: Interrupt Handling and Dispatcher

Module 4 is interrupt handling and dispatching it does this with timerInterrupt() a function that does timer interrupts, i/oInterrupt does the input and output interrupts and systemCallInterrupt() which does the system interrupt

Module 5: multithreading or Forking to handle the modules

Module 5 is multithreading I did this module with pthreads there are two programs to handle CPU operations and memory management. Pthread\_create makes the threads and pthread\_join keeps everything in order to help the program work before exiting. Error handling is covered by pthread\_create and pthread\_join.