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simOS
Simulate OS (2021)
                                                                          env: simEnv
Storage Management Class Diagram
                                                                         -scen: scenario
                                                                         -interrupts: simInterrupt
                                                                         -log: simLog
                                                                         -moreToDo: boolean
                                                                         -simOS interrupted: boolean
                                                                         -SOCKET PORT: final int = 3099
                                                                         -CPU PAUSE TIME: final static int = 1
                         simProcessManager
                                                                         +DEVICE_PAUSE_TIME: final_static int = 5
                                                                         +simOS(env:simEnv,scen:scenario,
    -cpu: simCPU
                                                                                interrupts:simInterrupt,
    -interrupts: simInterrupt
                                                                                log:simLog)
   -loa: simLoa
                                                                          run(): void
   -queue: simStorageManagerQueue
                                                                         +interruptServiceRoutine(data:Object): void
   -scheduler: simCPUscheduler
    -executingPCB: simPCB
                                                                          -checkIdle(cpu:simCPU,
                                                                                    procMgr:simProcessManager,
   -deviceQueue: LinkedList<simPCB>
                                                                                    timer:simTimer): void
   -readyQueue: LinkedList<simPCB>
                                                                          -checkMoreToDo(initialize:boolean,
    -termQueue: LinkedList<simPCB>
                                                                                        check:boolean): synchronized boolean
    -waitQueue: LinkedList<simPCB>
                                                                          -checkScenario(procMgr:simProcessManager,
   +simProcessManager(scen:simScenario,
                                                                                        timer:simTimer): void
                      cpu:simCPU,
                                                                          -displayStatistics(procMgr:simProcessManager): void
                      interrupts:simInterrupt,
                                                                         -pauseExecution(): void
                      log:simLog)
   +addDeviceQueue(pcb:simPCB): void
   +addReadyQueue(pcb:simPCB): void
                                                                                                              Thread
   +addTermQueue(pcb:simPCB): void
   +addWaitQueue(pcb:simPCB): void
   +allocateCPU(timer:simTimer): void
   +createSimPCB(id:String,arrivalTime:int,
                 instructions:ArrayList<simCPUInstruction>): simPCB
                                                                                    simStorageManager
   +determineContextSwitchNeeded(timer:simTimer): void
                                                                         -port: int
   +getDeviceOueue(): simPCB
                                                                          interrupts: simInterrupt
   +getDeviceQueueSize(): int
                                                                         -log: simLog
   +getExecutingPCB(): simPCB
                                                                         +simStorageManager(port:int,
   +getReadyQueue(): simPCB
                                                                                            interrupts:simInterrupt,
   +getReadyQueueSize(): int
                                                                                            log:simLog)
   +getTermQueue(): simPCB
                                                                          run(): void
   +getTermQueueSize(): int
                                                                          toString(): String
   +getWaitOueue(): simPCB
   +getWaitQueueSize(): int
   +interruptServiceRoutine(data:Object): void
                                                                                               simPCB
   +isIdle(): boolean
                                                                         -id: String
   +sendToStorageManager(message:String): void
   +setCPUInstruction(): void
                                                                          arrivalTime: int
                                                                         -ArrayList<simCPUInstruction>: instructions
   +setExecutingPCB(executingPCB:simPCB): void
                                                                         -log: simLog
   +startContextSwitch(): void
   +toString(): String
                                                                         -instructionPointer: int
                                                                          startExecuteTime: int
   +updateInstructionPointer(): void
                                                                         -startWaitTime: int
    -createSchedulerObject(scen:simScenario,
                                                                          totalExecuteTime: int
                           cpu:simCPU,
                                                                         -totalWaitTime: int
                           interrupts:simInterrupt,
                           log:simLog): simCPUScheduler
                                                                         -turnaroundTime: int
    fetchNextInstruction(): void
                                                                         -number: int
                                                                          nextNumber: static int = 1
    +movePCBfromWaitToReady(pcbNumber:Interger): void
                                                                         +simPCB(id:String,arrivalTime:int,
                                                                                 instructions: ArrayList<simCPUInstruction>)
                                                                         +addExecuteTime(currentTime:int): void
                                                                         +addWaitTime(time:int): void
                                                                         +getId(): String
                                                                         +getArrivalTime(): int
                                                                         +getExecuteTime(): int
                                                                         +getInstruction(): simCPUInstruction
                                                                         +getInstructionPointer(): int
                                                                         +getInstructionsSize(): int
                                                                         +getNumber(): int
                                                                         +getTurnaroundTime(): int
                                                                         +getWaitTime(): int
                                                                         +removeInstruction(): void
                                                                         +setArrivalTime(time:int): void
                                                                         +setStartExecuteTime(time:int): void
                                                                         +setStartWaitTime(time:int): void
                                                                         +setTurnaroundTime(turnaroundTime:int): void
                                                                         +statisticsToString(): String
                                                                         +toString(): String
```