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Assign 5 Report

The language I decided to use for assignment number 5 was Java. Threads in this assignment were implemented using the Runnable Interface. A number of three threads were created in order to handle program execution which can be found in the thread package. The three threads are CPU thread, I/O thread, and FileRead_thread which are seperated from our organization classes. I decided to use another package to assist with organization of the processes named as assign5. Organization of the process is controlled by the PCB.java class better known as the Process Control Block. Synchronization was a totally something I had to learn for this assignment while avoiding to use synchronization for java. Implementation for synchronization utilized double-linked list with semaphores and mutex. While locking process we compute time in order to come with an average of overall processes which is all done in CPU.java. We only use quantum time when utilizing Round Robin.

First In First Out algoirthm process that requests the CPU first is allocated to the CPU first. the disadvantage of this process is the average wiating is often longer than others. Often not used in such scheduling.

SJF is known as the Short Job First scheduling algorithm. Each process is considered by the length of the processes CPU burst. Checks when the CPU is available then it decides to assign it to the process that has the next smallest CPU burst. If the next CPU bursts of two processes are the same another scheduling type is considered to break the tie known as First Come First Served.

The Priority is set with each process. The CPU is allocated to the process with the highest prioriy. Each priorty processes are scheduled in a First Come First scheduling order.

Round Robin being our last Scheduling Algorithm which is specifically for time sharing systems/applications. A small unit of time known as quantum is utilized. We create a ready queue and treat it similiar to a circular queue. The Scheduler for CPU circles the Ready Queue and allocates the CPU to each process for a certain amount of time to up to 1 time quatum. Some find this scheduing similiar to FCFS.

Turnaround time is the amount of time to execute each and every process. This is crucial when it comes to computer other times like averages. A factor in turnaround time is how long it takes to execute each and every process. Turnaround time is the computation of how much time we are waiting for each process to get into our memory. Turnaround time is also computing the ready queue time as well as the executing of the process on the CPU. I/O is also considered when computing turnaround time.

CPU Utilization is calculated by the percent of CPU used by the processer. The goal is to keep CPU used as much as possible to be efficent as possible. If it's on it needs to remain busy is the idea of CPU utilization and scheduling. The measure of work is the number of processses that are completed by a time unit known as throughput. Long proccess are different as their rate may be measured in a bigger unit of time. Short processs utilized by the CPU may be computed in seconds.

Response Time might be computed when coming across such scheduling algorithms. When considering efficieny it is not always about the turnaround time. This measure is sometimes utilized when determining the response time of process to react. Lots of others might confuse this to be a calulation to output some

kind of response which in fact it is the input that is being looked at.

Waiting TIme is the amount of time of a process that is in the ready Queue. Depending the scheduling algorithm it will change the time of how much each process is in the ready queue. Knowing the waiting time is crucial when determining the max efficiency of each process.