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Section 04

1. On job arrival, the job first gets sent into a FIFO queue, gets sent to the CPU to do some computing, performs I/O on one of two disks, or sends a message to the network and returns to use the CPU, or the job is finished.
2. CPU: After one round of processing, if the job is not completed, send it to disk or network, otherwise it exits the system. And if the CPU is free on job arrival, the job gets serviced immediately, otherwise it must wait in the queue.  
     
   Disk: Job uses the disk with the shortest queue (least busy), and if they are both of the same length, choose one at random. And if the Disk is free on job arrival, the job gets serviced immediately, otherwise it must wait in the queue.  
     
   Network: If the Network is free on job arrival, the job gets serviced immediately, otherwise it must wait in the queue.
3. At the start, the program will add to the priority queue the arrival time of the first job, and the approximate time the simulation should finish. When the first job arrives, the time should be set to the time of what we just removed from the queue. Then, we determine the arrival time for the next job to enter the system, and add it as an event to the queue. To determine the time of the next arrival, we just generate a random number between a certain threshold and it to the current time, which will be the time of the 2nd arrival. We add the job that just arrived to the CPU, and generate a random number between a certain threshold and add it to the current time. We keep doing this until the simulation is finished.
4. A priority queue takes the job that will take the least amount of time and pushes it to the front of the queue. The purpose of this is to help sort future events that are gradually coming in. This queue would be ordered by the amount of time it takes to complete the jobs.
5. Sources of entry would be for when a new job arrives, or for when an existing job is pushed into the next step of the diagram.
6. Event time values get set randomly for the various entries in the priority queue between certain premade thresholds.
7. Events will be removed from the priority queue as soon as they reach the top of the priority queue (when they have the lowest time to completion out of everything else in the queue).
8. New jobs are created as jobs preceding them are processed by the CPU. This goes on until the amount of jobs reaches a set limit of at least one thousand.
9. The start time for a new process entering the system is the same time in which the job preceding it finishes at the CPU, which is taken by adding the current time with a random integer in a certain threshold.