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What is Process Scheduling, CPU Scheduling, Disk Scheduling? Explain Short, Medium and Long term Scheduler?

Process Scheduling is a key component of modern operating systems. It refers to the mechanism by which the operating system selects which process should be executed by the CPU at any given time. Process Scheduling includes CPU Scheduling, Disk Scheduling, and other resource allocation techniques.

CPU Scheduling is the process of determining which process should be executed next by the CPU. The goal of CPU scheduling is to maximize the utilization of the CPU while minimizing the response time and turnaround time of processes. The CPU Scheduler selects a process from the ready queue and allocates CPU time to it. There are different scheduling algorithms such as First Come First Serve (FCFS), Shortest Job First (SJF), Round Robin (RR), Priority Scheduling, etc.

Disk Scheduling is the process of determining the order in which disk I/O requests should be serviced. Disk Scheduling algorithms attempt to minimize the average response time and maximize the throughput of the disk subsystem. Some popular disk scheduling algorithms are FCFS, SSTF, SCAN, LOOK, C-SCAN, etc.

## The Process Scheduling can be further divided into:

1. Short-term scheduling
2. Medium-term scheduling
3. Long-term scheduling

1. Short-term Scheduling: Also known as CPU Scheduling, it determines which process in the ready queue will execute next and how much CPU time it will be allocated. The objective of short-term scheduling is to provide fast response time and high CPU utilization. Short-term Scheduler is invoked frequently, typically every few milliseconds.

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2. Medium-term Scheduling: The objective of medium-term scheduling is to manage the amount of memory needed to execute a process. Medium-term scheduling removes processes from memory and swaps them to the disk, freeing up memory for other processes. Medium-term Scheduler is invoked less frequently than the Short-term Scheduler, typically every few seconds or minutes.

3. Long-term Scheduling: Also known as Job Scheduling, it determines which new process should be admitted to the system. The objective of long-term scheduling is to ensure that the system is not overloaded and that there is enough memory and other resources to execute new processes. Long-term Scheduler is invoked less frequently than the Medium-term Scheduler, typically every few minutes or hours.

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66. Explain different types of OS with examples of each ?

67. What is an Operating System? Write down its desirable characteristics ?

68. Define a deadlock ? Write down the conditions responsible for deadlock? How can we recover from deadlock ?

69. What are the various services provided by Operating system ?

70. What do you mean by PCB? Where is it used? What are its contents? Explain.

71. What is Binary and Counting semaphores ?

72. What is File? What are the different File attribute and operations?

73. What are System call? Explain briefly about various types of system call provided by an Operating System?

74. Describe necessary conditions for deadlocks situation to arise.

75. What are points to be consider in file system design? Explain linked list allocation in detail?

76. Write a Semaphore solution for dining Philosopher's problem?

77. Consider the following page reference string:1,2,3,4,5,3,4,1,2,7,8,7,8,9,7,8,9,5,4,5. How many page faults would occur for the following replacement algorithm, assuming four frames:a) FIFOb) LRU

78. Explain CPU schedulers in operating system?

79. Write the different state of a process with the help of Process state deagram?

80. What is Mutex in operating system?

81. Explain Network operating system?

82. What do you mean by paging in operating system ?