



Comparison Between

Non-preemptive Scheduling And Preemptive Scheduling:

Non-preemptive Scheduling:

In non-preemptive mode, once if a process enters into running state, it continues to execute until it terminates or blocks itself to wait for Input/ Output or by requesting some operating system service.

Preemptive Scheduling:

In preemptive mode, currently running process may be interrupted and moved to the ready State by the operating system.

When a new process arrives or when an interrupt occurs, preemptive policies may incur greater overhead than non-preemptive version but preemptive version may provide better service.

BASIS FOR COMPARISON	PREEMPTIVE SCHEDULING	NON PREEMPTIVE SCHEDULING	
Basic	The resources are allocated to a process for a limited time.	Once resources are allocated to a process, the process holds it till it completes its burst time or switches to waiting state.	
Interrupt	Process can be interrupted in between.	Process cannot be interrupted till it terminates or switches to waiting state.	
Starvation	If a high priority process frequently arrives in the ready queue, low priority	If a process with long burst time is running CPU, then another process with less	

	process may starve.	CPU burst time may starve.	
Switching Overhead	Preemptive scheduling has overheads of scheduling the processes.	Non-preemptive scheduling does not have overheads.	
Flexibility	Preemptive scheduling is flexible.	Non-preemptive scheduling is rigid.	
Cost	Preemptive scheduling is cost associated.	Non-preemptive scheduling is not cost associative.	

What Is Process Scheduling :

The **process scheduling** is the activity of the **process** manager that handles the removal of the running **process** from the CPU and the selection of another **process** on the basis of a particular strategy. **Process scheduling** is an essential part of Multiprogramming **operating systems**.

Or

Process scheduling is a task of operating system to schedules the processes of different **states like ready, running, waiting** according to the scheduling algorithm. Process scheduling allocates the time interval of each process in which the process is to be executed by the central processing unit (CPU).

Why do we need scheduling?

For CPU utilization : In multi programming systems, one process can use CPU while another is waiting for I/O. This is possible only with process scheduling.

OPERATING SYSTEM PROCESS/CPU SCHEDULING

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MODES OF SCHEDULING

PREEMPTIVE

NON-PREEMPTIVE

BASIS FOR COMPARISON

Basis for Comparison	PREEMPTIVE	NON-PREEMPTIVE
1) BASIC	Allocation of Resource to Process for 'limited Time'	Process Holds the resource till terminated or Switch to waiting state.
2) INTERRUPT	Process can be interrupted	Process can't be interrupted.
3) STARVATION	Due to high Priority Process low Priority Process has to starve.	If Process of Long Burst Time is Running then low Burst Time Process has to starve (CONVOY EFFECT)
4) FLEXIBILITY	It is flexible	It is not flexible. (Rigid)
5) COST	It is cost associated	Not Cost associated
6) SWITCHING OVERHEAD	It has overhead of switching process	It has no overhead of switching process
7) SYSTEM USE	Time Sharing	Mainly Batch System
8) CPU UTILIZATION	HIGH	Low CPU UTILIZATION
9) EXAMPLE	Round Robin, SRTF, PRIORITY	FCFS, SJF