**What is Process Scheduling in OS?**

Process scheduling is the activity of deciding which process should be performed first (or when), based on a particular strategy/ algorithm. This activity is performed by the process manager; as it removes an active process from the CPU and selects another from the queue. The need for scheduling in OS arises since most applications are multi-programing, i.e. they allow for multiple processes to be loaded and shared with the CPU at a point in time. The manager needs to make the decision on which of these processes must be performed first.



The three major process scheduler types are as follows:

* Long-term job scheduler
* Medium-term scheduler
* CPU or short-term scheduler

Another component of process scheduling is the process queues. All the programs and processes in the system are split up into queues as follows:

* Job queue- All the programs in the system stay in this queue before they are up for execution.
* Ready queue- The programs that are ready to be executed remain in this queue; just before they are picked up for execution.
* Device queue- This queue consists of the processes that have been blocked due to a lack of input/output (I/O) device.



**The Need for Process Scheduling in OS**

* As mentioned before, there are numerous programs in the [operating system (OS)](https://unstop.com/blog/types-of-operating-systems) that are in queue for execution at any given point in time. The OS must launch these programs, then stop them, and switch to another program for smooth functioning. A process scheduler is needed to help the OS ascertain which program to run, and when to stop and switch.
* Scheduling allows the OS to allocate CPU time for each process depending upon a predecided strategy/ algorithm.
* Process scheduling also helps the CPU to stay busy at all times thus making sure that the OS utilizes CPU time to the optimum.
* This in effect minimizes time wastage and also that the time a program has to wait to be executed is as short as possible.
* It is needed to ensure that the turnaround time for a process to complete execution is minimized.
* It also reduces or minimizes the response time for the programs.