**Chapter 6 CPU scheduling**

Basic Concepts

* Maximum CPU utilization obtained with multiprogramming
* CPU – I/O Burst Cycle ---Process execution consists of a cycle of CPU execution and I/O wait
* CPU burst distribution

CPU scheduler

* Selects from among the processes in memory that are ready to execute, and allocates the CPU to one of them
* CPU scheduling decisions may take place when a process:

1. Switch from ruining to waiting state
2. Switches from running to ready state
3. Switches from waiting to ready
4. Terminates

* Scheduling under 1 and 4 is non-preemptive
* All other scheduling is preemptive

Dispatcher

* Dispatcher module gives control of the CPU to the process selected by the short-term scheduler; this involves:
* Switching context
* Switching to user mode
* Jumping to proper location in the user program to restart that program
* Dispatch latency --- time it takes for dispatcher to stop one process and start another running

Scheduling Criteria

* CPU utilization --- keep the CPU as busy as possible
* Throughout --- # of process that complete their execution per time unit
* Turnaround time --- amount of time to execute a particular process
* Waiting time --- amount of time a process has been waiting in the ready queue
* Response time --- amount of time it takes from when a request was submitted until the first response is produced not output (from time-sharing environment)

Optimization Criteria

* Max CPU utilization
* Max throughput
* Min Turnaround time
* Min waiting time
* Min response time

 