Schedulers

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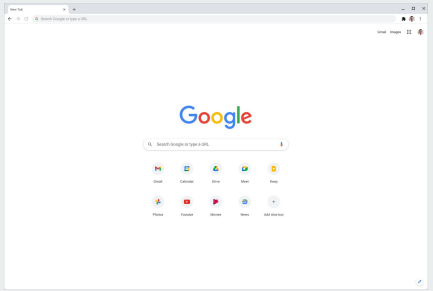
Schedulers are special system software that handles process scheduling in various ways.



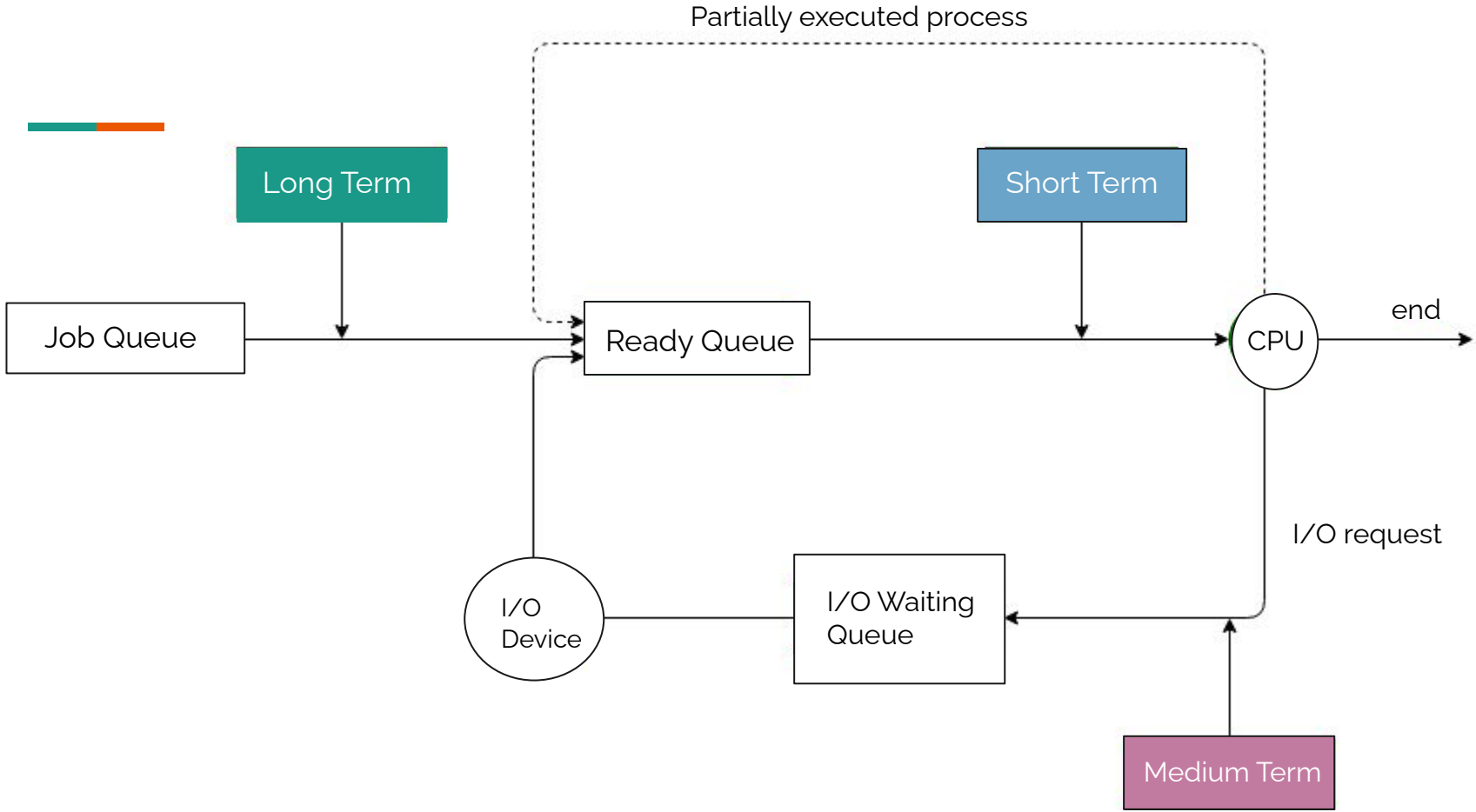
Objectives of schedulers

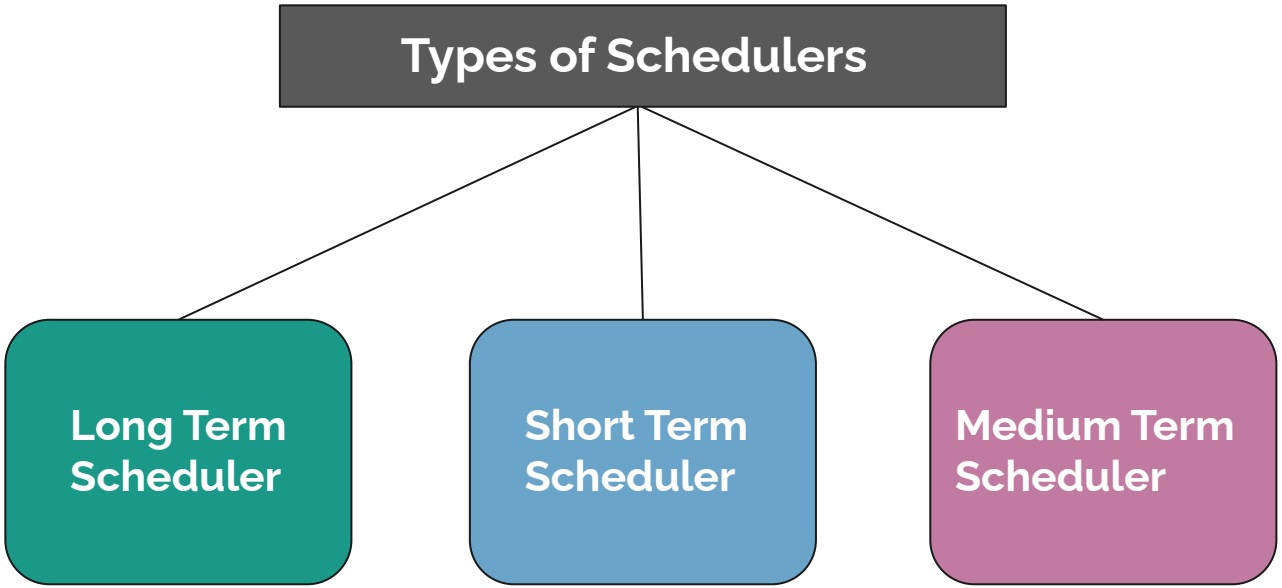
- Maximize CPU utilization
- Switch the CPU among the processes so frequently that users can interact with each program while it is running

Scheduler selects an available process for program execution on the CPU

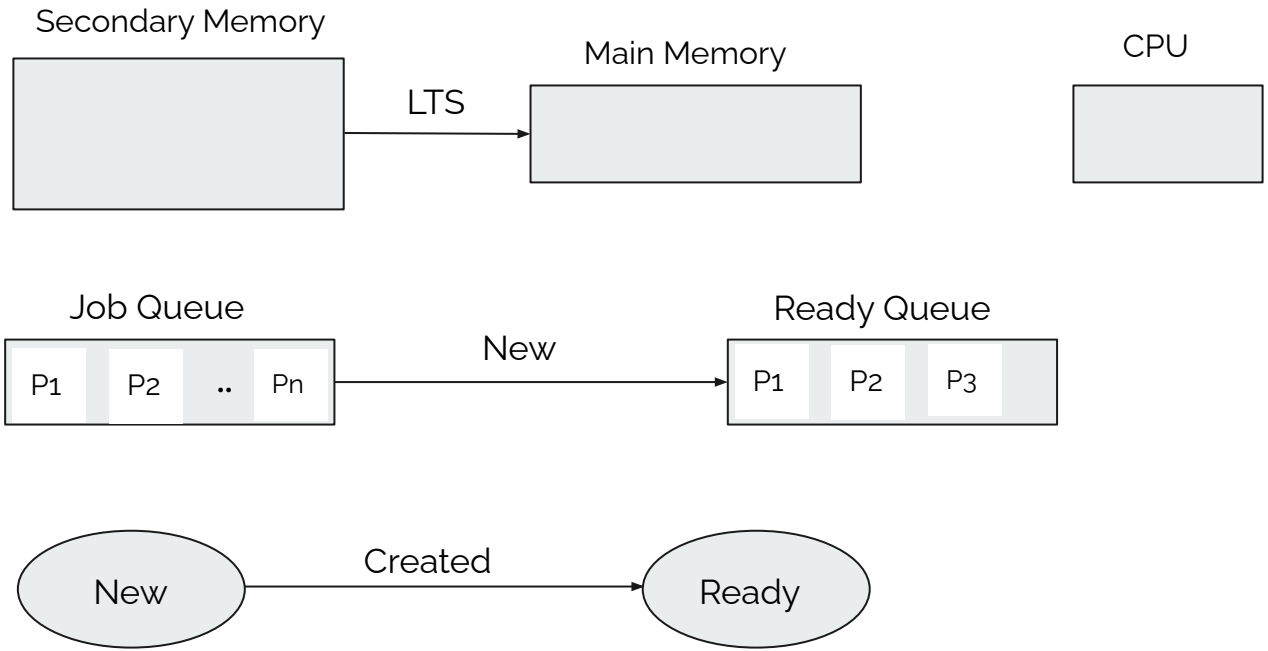
Scheduling Queues

Job Queue	This queue keeps all the processes in the system
Ready Queue	Keeps a set of all processes residing in main memory, ready and waiting to execute. A new process is always put in this queue.

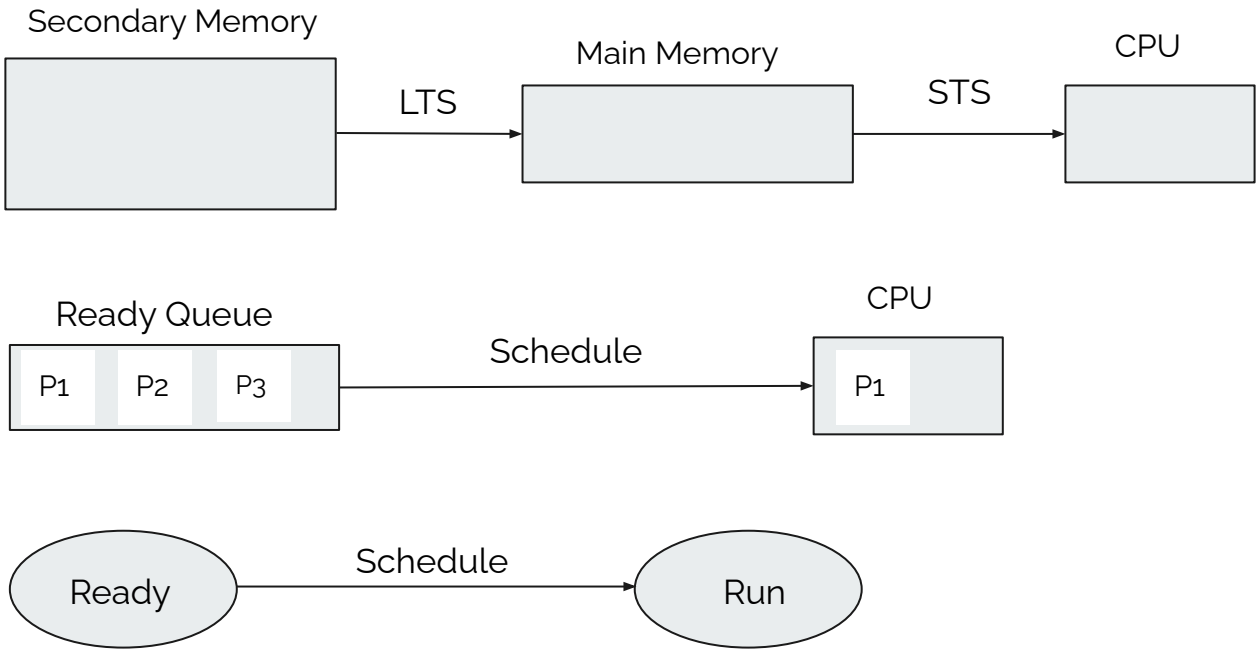

Partially executed process
Long Term
Short Term
Job Queue
Ready Queue
CPU
end
I/O request
I/O Device
I/O Waiting Queue
Medium Term


Types of Schedulers
Long Term Scheduler
Short Term Scheduler
Medium Term Scheduler

1. Long Term Scheduler(LTS)



2. Short Term Scheduler(STS)

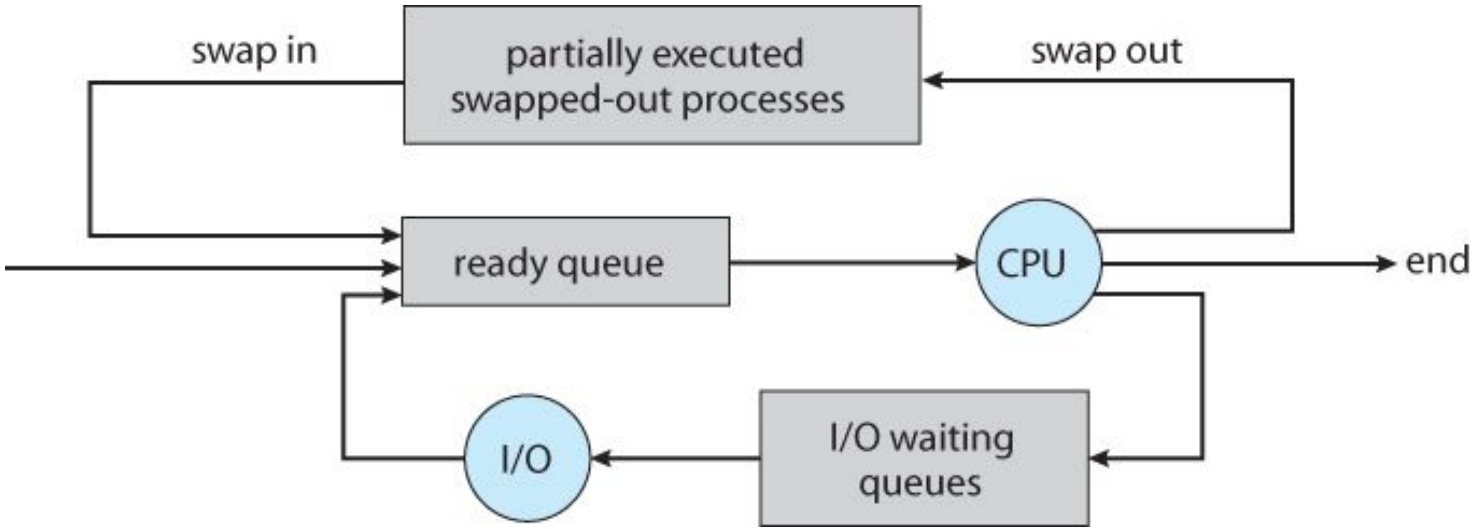


2. Short Term Scheduler(STS)

- Also known as CPU Scheduler
- Select a process from ready queue for the execution
- Based on different CPU Scheduling algorithm
    - First Come First Serve (FCFS)
    - Shortest-Job-First (SJF) Scheduling
    - Shortest Remaining Time
    - Priority Scheduling
    - Round Robin Scheduling
    - Multilevel Queue Scheduling

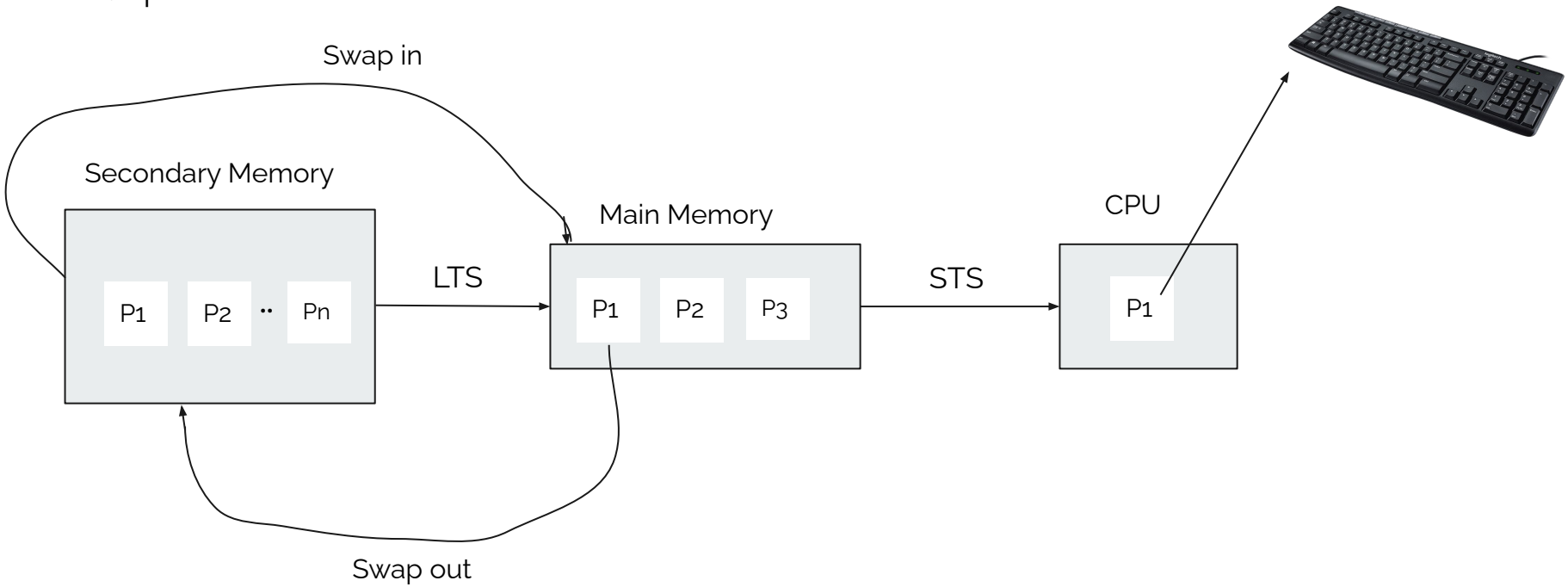
3. Medium Term Scheduler(MTS)

- It is a part of swapping



3. Medium Term Scheduler(MTS)

Example:



Long-Term Scheduler	Short-Term Scheduler	Medium-Term Scheduler
It is a Job Scheduler	It is a CPU Scheduler	It is a process swapping scheduler
It takes process from the job pool	It takes process from the ready state	It takes process from running or wait/dead state
Its speed is lesser than short-term scheduler	It is fastest among the two other schedulers	Its speed is in between long-term and short-term
It controls the degree of multiprogramming	It has less control over the degree of multiprogramming	It reduces the degree of multiprogramming

THANK YOU!