

Worksheet 3.1: Process States

The table below shows three events that may cause a transition in a process's state. For each event, the table shows the state transition that immediately follows the event and the queue in which the process gets placed after the transition. Fill in the missing entries in the table. If there are multiple possible causing events, only give one but describe it precisely (don't just say "interrupt"). If there is no queue, write **none**.

Causing Event	Transition		Queue after transition (if none, enter none)
	From State	To State	
I/O device completes a process's request	Blocked	Ready	Ready queue
Time quantum expires	Running	Ready	Ready queue
Scheduler Dispatch	Ready	Running	None

Explanation:

1. **I/O device completes a process's request:** When an I/O operation completes, the process moves from the Blocked state (waiting for I/O) to the Ready state, and it is placed in the Ready queue.
2. **Time quantum expires:** When a process's allocated CPU time expires, it moves from the Running state to the Ready state, and it is placed back in the Ready queue to wait for its next turn to execute.
3. **Scheduler selects a process to run:** When the scheduler selects a process from the Ready queue to run, it transitions from the Ready state to the Running state. There is no queue after this transition because the process is now executing on the CPU.