Simulation of Round Robin Scheduling

Sistemas Operativos

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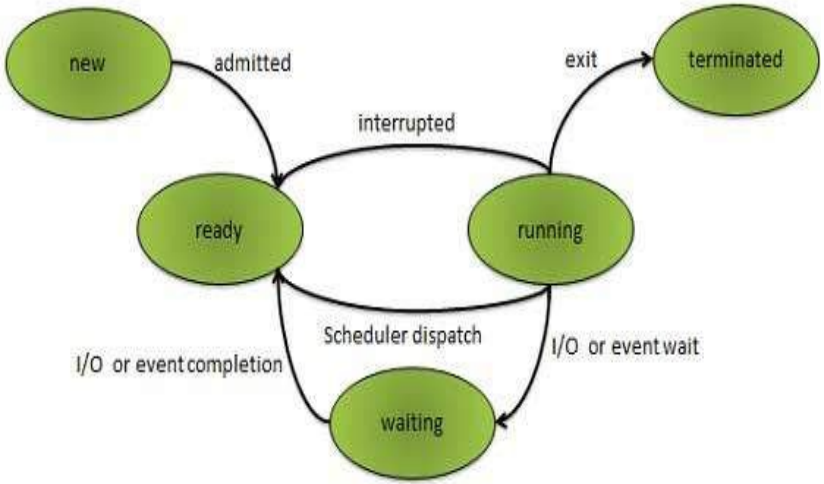
Process Scheduling

The act of determining which process in the ready state should be moved to the running state. That is, decide which process should run on the CPU next.



Goal of scheduling

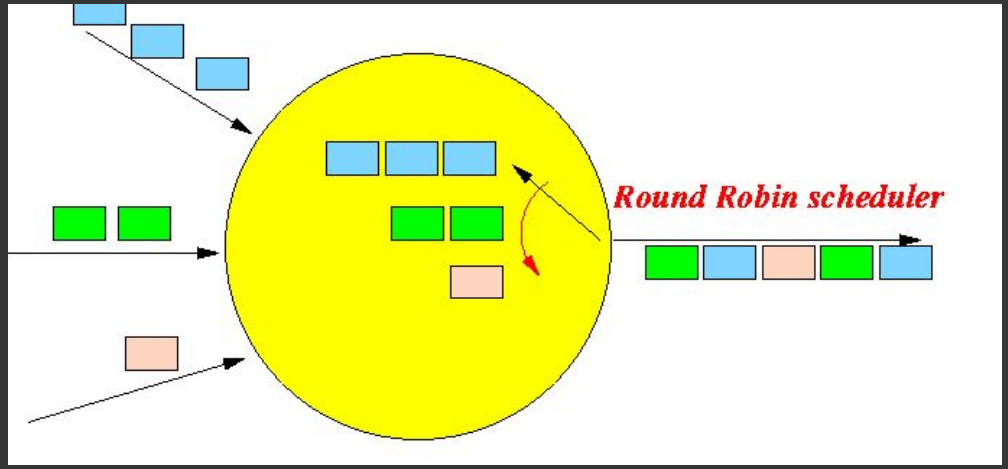
- The allocation of limited resources to tasks throughout the time.
- Implement the virtual machine in such a way the user perceives that each process is running on it’s own computer.

IMPORTANT

Process scheduling is an essential part of a Multiprogramming operating systems. Such operating systems allow more than one process to be loaded into the executable memory at a time and the loaded process shares the CPU using time multiplexing.

Round Robin Scheduling

One of the oldest, simplest and most equitable in CPU allocation between processes algorithm which means it avoids the monopolization of the CPU usage



Quantum

The algorithm consists in defining a small unit of time, called
quantum,If the process exhausts its quantum of time, another process is chosen to occupy the CPU. If the process is blocked or terminated before exhausting its quantum, the use of the CPU is also alternated.

Performance

Depends on the Quantum

- Q>> FIFO
- Q<< low performance

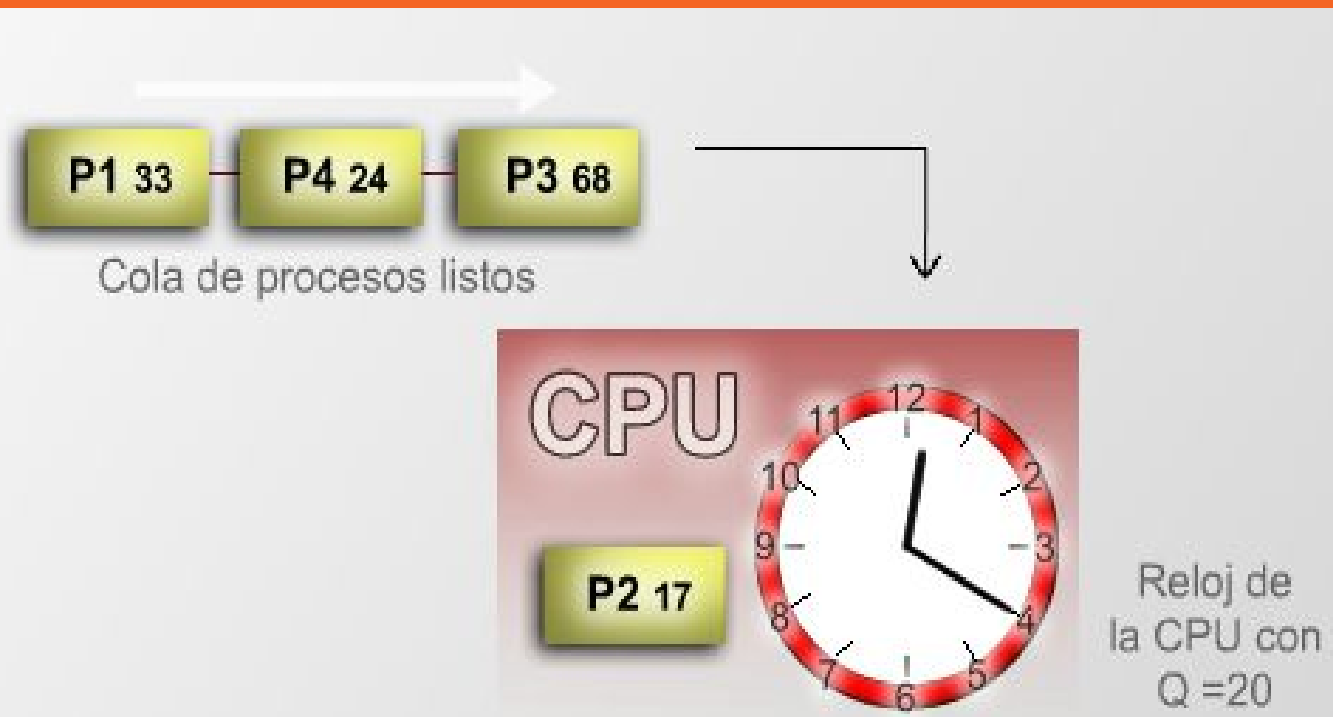
Ejemplo

Procesos	Tiempo de Ejecución
P1	53
P2	17
P3	68
P4	24

Quantum=20

P4 24
P3 68
P2 17
Cola de procesos listos
CPU
P1 53

P4 24
P3 68
P2 17
Cola de procesos listos
CPU
P1 33


P1 33
P4 24
P3 68
Cola de procesos listos
CPU
P2 17
Reloj de
la CPU con
Q =20

proceso termina .

evento externo.

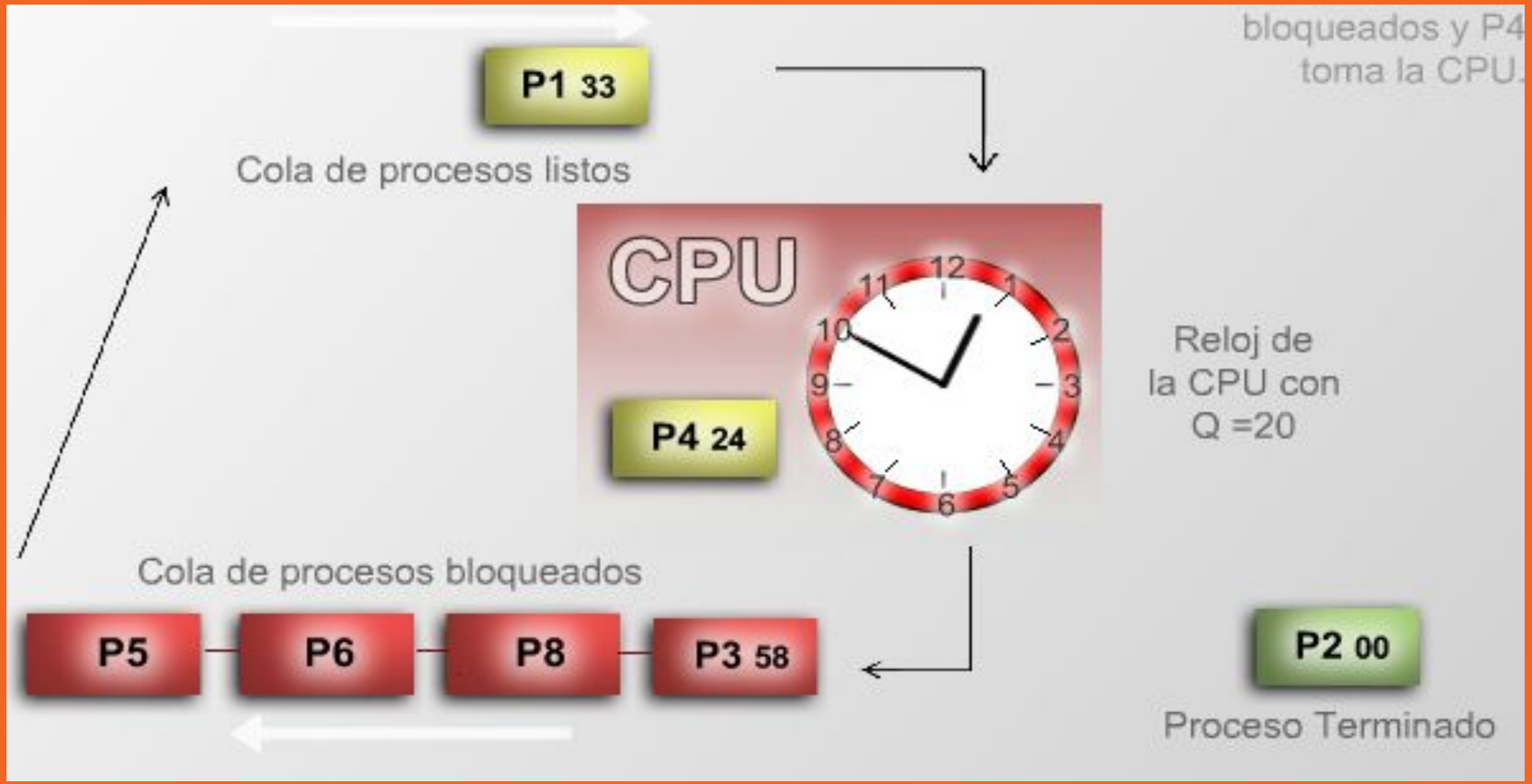
P1 33 — P4 24

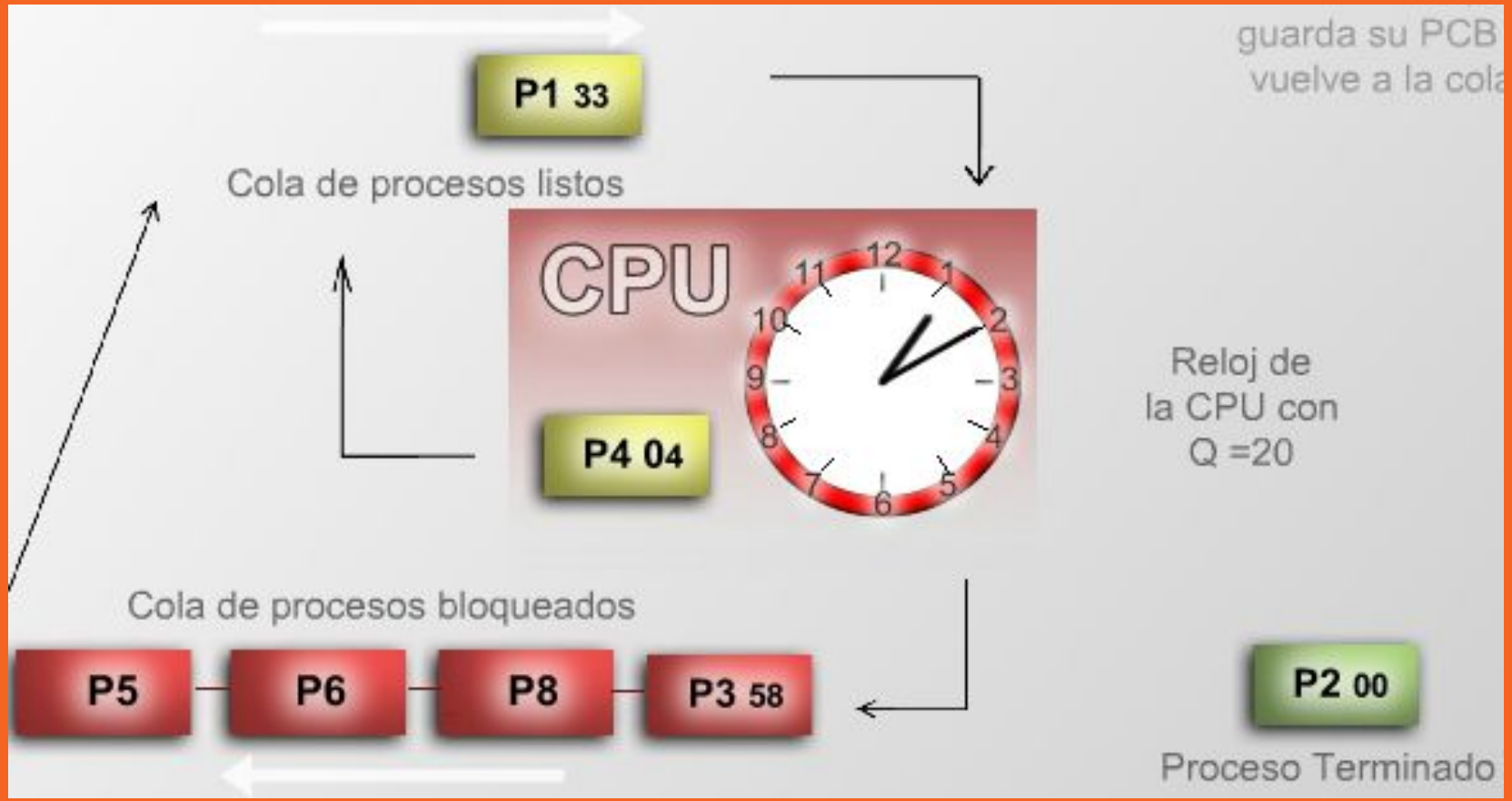
Cola de procesos listos

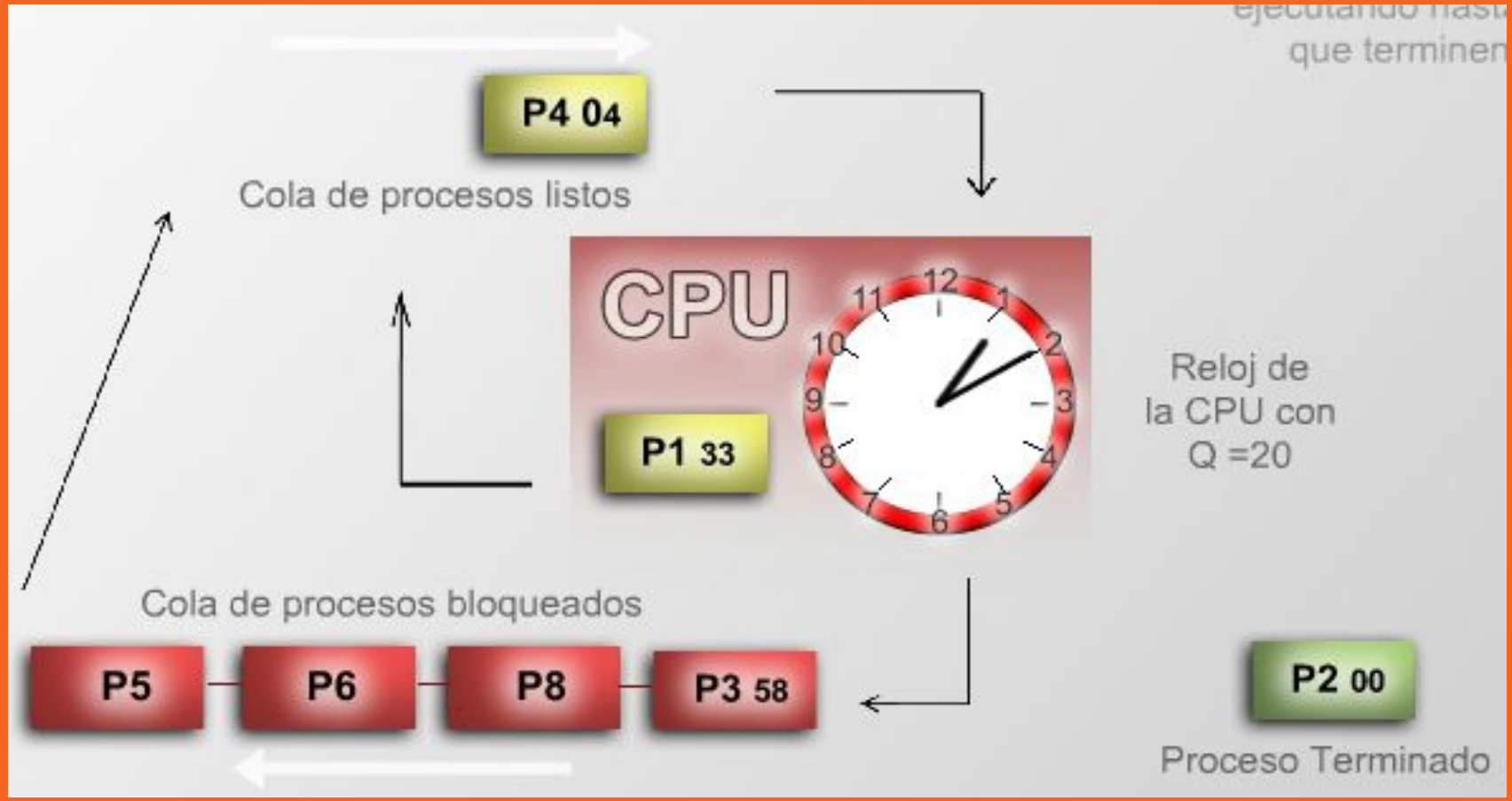
Reloj de la CPU con Q =20

P2 00

Proceso Terminado


bloqueados y P4
toma la CPU.
P1 33
Cola de procesos listos
CPU
P4 24
Reloj de
la CPU con
Q =20
Cola de procesos bloqueados
P5
P6
P8
P3 58
P2 00
Proceso Terminado


guarda su PCB
vuelve a la cola
P1 33
Cola de procesos listos
CPU
P4 04
Reloj de
la CPU con
Q =20
Cola de procesos bloqueados
P5
P6
P8
P3 58
P2 00
Proceso Terminado


que terminen
P4 04
Cola de procesos listos
CPU
P1 33
Reloj de
la CPU con
Q =20
Cola de procesos bloqueados
P5
P6
P8
P3 58
P2 00
Proceso Terminado