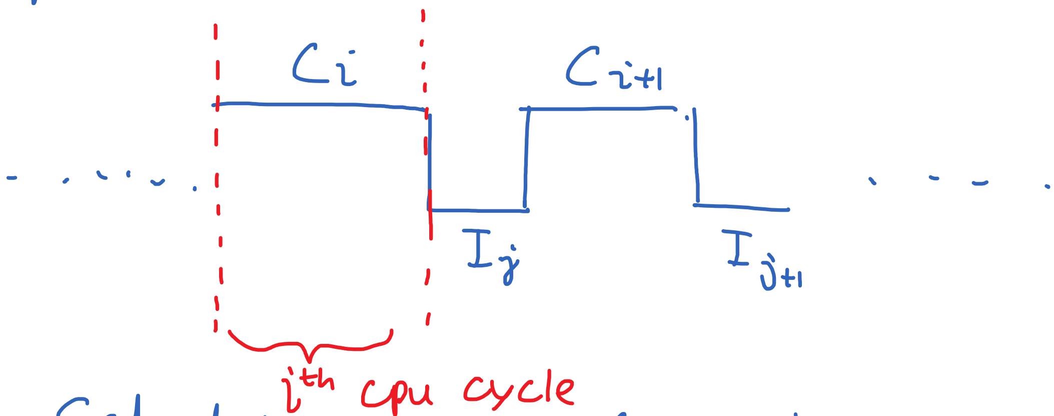
Thursday, October 25, 2018 1:09 PM

process execute model



Schedule the process to execute until
1) the end of the current cpu cycle.
or
2) the end of the process

SJF : schedule the process w/ least cpu request/burst.

<u>Target</u> of the scheduler is the set of processes in the ready Queue.

queue.

P_1 is running on cpu A

$\{P_2, P_3, \dots P_n\}$ are in the ready queue.

$n-1$

SRTF : preemptive version of the SJF

Target : P_1, & P_{n+1}

$\boxed{A}$

1) a new task arrives P_{n+1}

Compare C_{n+1} and C_1'

2) When a process terminates,
(running)

Scheduler would check the ready queue.

PID	cpu burst	arrival time
P_1	5	0
P_2	6	2
P_3	1	3
P_4	4	4

Ex:

@ $t=0$ P_1 arrives schedule to run it

@ $t=2$ P_2 arrives $6 > 3$ (remaining time for P_1)

Continue the execution of P_1

@ $t=3$ P_3 arrives $1 \overset{?}{<} 2$

ready Queue

$P_1(2)$	$P_2(6)$

Yes run P_3

@ $t=4$ P_4 arrives $4 \overset{?}{<} 0$

$P_1(2)$ $P_2(6)$ $P_4(4)$

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if $C_i = c \quad \forall i$

$$R.T._i(t) \leq C_i \quad \forall t > 0$$

SRTF: Compare $C_j \overset{?}{<} R.T._i(t)$

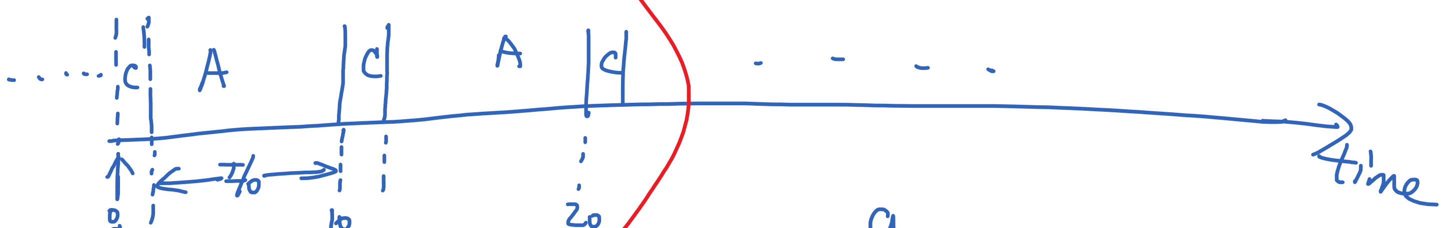
$C \qquad\qquad \geq C$

$\emptyset$ preemption.

$C_A \gg C_c = 1ms \qquad C_A = n$

SRTF: $\qquad C_A = C_B$

remaining time



C arrives

$1ms < RT_A$ or RT_B

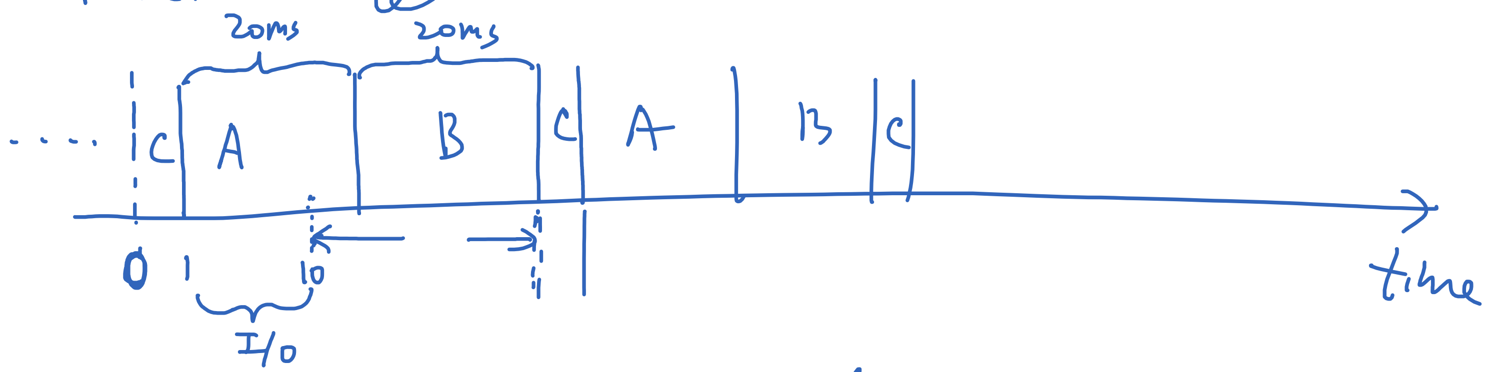
run C

$\frac{9}{10}$ disk (I/O) utilization

percentage time (a) I/O is active.

To process C, SRTF creates a situation just like running C alone in the system.

R.R. $q = 20$ ms



disk utilization : $\frac{9}{1+2\cdot q}$ $\quad \frac{9}{1+2\cdot 20} \doteq 21.95\%$ $\quad \boxed{90\%}$

\# of processes

time quantum

waiting time : $2\cdot q - 9$

$= \boxed{31}$

0 SRTF C has 0 waiting time

if $q = 100$

$2\cdot 100 - 9$

$= \boxed{191}$

$q = 1$ ms

disk utilization $= \frac{9}{11} \doteq 82\%$

Dream optimal reality

run C alone

SRTF

R.R.

if q is small

real scheduling = f(FCFS, RR)

Waiting time is accumulative time

~~$\sum$ sch-t_i~~

$\equiv$ Completion time $-$ cpu burst $-$ arrival time

MLQ