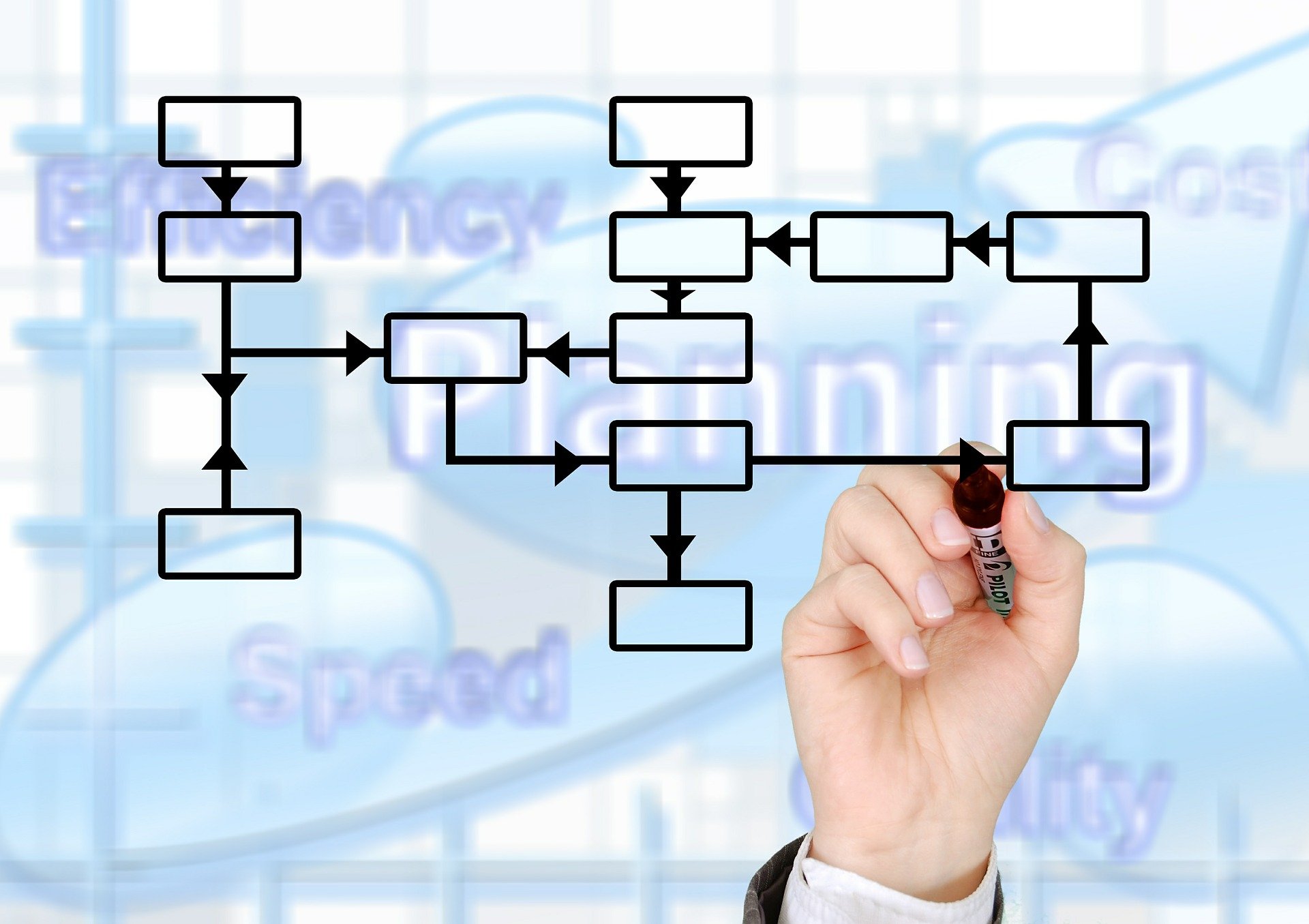


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EJERCICIO 2: GESTIÓN DE PROCESOS

****

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# **HOJA DE CONTROL DEL DOCUMENTO**

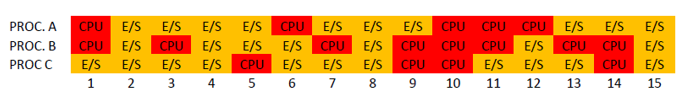
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| PREPARADO | REVISADO | APROBADO |
|  |  |  |

1. ENUNCIADO

Dado un microprocesador con un solo núcleo. Tenemos los siguientes 3 procesos marcados por su consumo de CPU y E/S.

Se pide:

1. Suponiendo multiprogramación,  
   ¿Cuántas unidades de tiempo tardarían en ejecutarse los procesos A+B? y ¿B+A?

¿Habría diferencia dependiendo de cual empiece primero?

1. ¿Cuántas unidades de tiempo tardarían en ejecutarse los procesos C+B?
2. ¿Cuántas unidades de tiempo tardarían en ejecutarse los procesos A+B+C, considerando que A empieza un instante antes que el resto.
3. RESOLUCIÓN

A)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A+B |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |
| PROC A | CPU | E/S | E/S | E/S | E/S | CPU | E/S | E/S | E/S | CPU | CPU | CPU | E/S | E/S | E/S |  |  |  |  |
| PROC B | X | CPU | E/S | CPU | E/S | E/S | E/S | CPU | E/S | X | X | X | CPU | CPU | CPU | E/S | CPU | CPU | E/S |
| TIEMPO | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |

PROC A = 15

PROC B = 19

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| B+A |  | |  | |  | |  | |  | |  | |  | |  | |  |
| PROC A | X | CPU | E/S | E/S | E/S | E/S | X | CPU | E/S | E/S | E/S | CPU | CPU | CPU | E/S | E/S | E/S |
| PROC B | CPU | E/S | CPU | E/S | E/S | E/S | CPU | E/S | CPU | CPU | CPU | E/S | X | X | CPU | CPU | E/S |
| TIEMPO | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |

PROC A = 17

PROC B = 17

Sí habría diferencia según empiece primero, ya que, si la cpu está bloqueada, según la prioridad será usado por un proceso y el otro tendrá que esperar.

B)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| C+B |  | |  | |  | |  | |  | |  | |  | |  | |  |
| PROC B | CPU | E/S | CPU | E/S | E/S | E/S | CPU | E/S | X | X | CPU | CPU | CPU | E/S | CPU | CPU | E/S |
| PROC C | E/S | E/S | E/S | E/S | CPU | E/S | E/S | E/S | CPU | CPU | E/S | E/S | E/S | CPU | E/S |  |  |
| TIEMPO | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |

PROC B = 17

PROC C = 15

C)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A+B+C |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| PROC A | CPU | E/S | E/S | E/S | E/S | CPU | E/S | E/S | E/S | X | CPU | CPU | CPU | E/S | E/S | E/S |  |  |  |  |
| PROC B | X | CPU | E/S | CPU | E/S | E/S | E/S | CPU | E/S | X | X | X | X | CPU | CPU | CPU | E/S | CPU | CPU | E/S |
| PROC C | E/S | E/S | E/S | E/S | CPU | E/S | E/S | E/S | CPU | CPU | E/S | E/S | E/S | X | X | X | CPU | E/S |  |  |
| TIEMPO | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |

PROC A=16

PROC B = 20

PROC C = 18