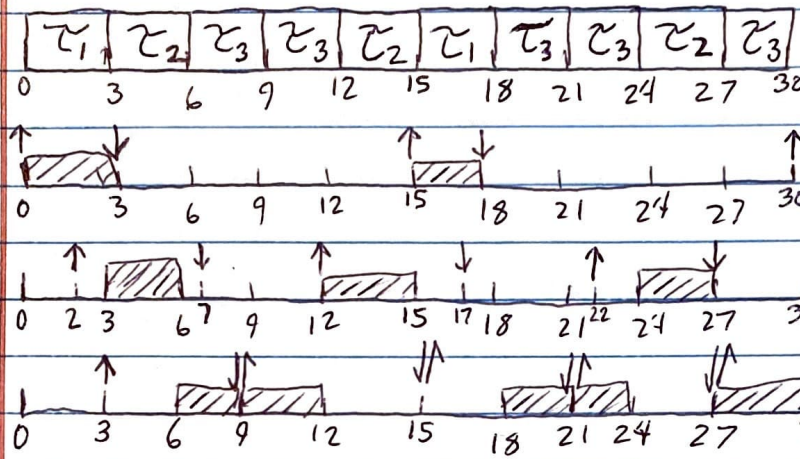
CSE 4560 Daniel Delgado Acosta

10-18-22

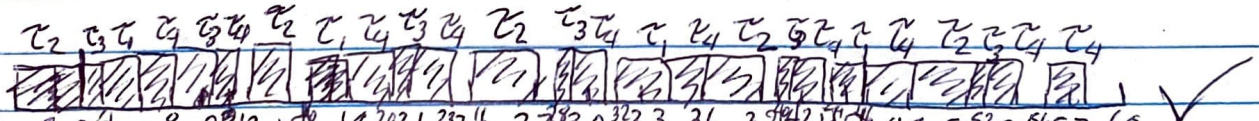
Homework 3

1. τ_1: $T_1=15$, $D_1=3$, $C_1=3$, $\phi=0$ $P=30$ & $f=3$
τ_2: $T_2=10$, $D_2=5$, $C_2=3$, $\phi=2$
τ_3: $T_3=6$, $D_3=6$, $C_3=3$, $\phi=3$



2. τ_1: $T_1=15$, $D_1=9$, $C_1=2$, $f_1:\{2,5,9,12\}$ $P=60$ & $f=4$
τ_2: $T_2=12$, $D_2=4$, $C_2=3$, $f_2:\{1,4,7,10,13\}$
τ_3: $T_3=10$, $D_3=6$, $C_3=1$, $f_3:\{1,3,6,8,11,13\}$
τ_4: $T_4=6$, $D_4=6$, $C_4=2$, $f_4:\{2,3,5,6,8,9,11,12,14,15\}$

$T_1: 15\times 4=60$, $T_2: 12\times 5=60$, $T_3: 10\times 6=60$, $T_4: 6\times 10=60$ ✓
$P/f \rightarrow 60/4=15$ ✓



✓

$\Phi_i = \min\{(f_i-1)f-(j-1)T_i\}$

$\Phi_1 = \min\begin{cases}(2-1)4-(1-1)15\\(5-1)4-(2-1)15\\(9-1)4-(3-1)15\\(12-1)4-(4-1)15\end{cases} = \min\begin{cases}4\\1\\2\\-1\end{cases} = \boxed{-1}$

$$\phi_2 = \min \begin{cases} (1-1)4 - 0(12) \\ (4-1)4 - 1(12) \\ (7-1)4 - 2(12) \\ (10-1)4 - 3(12) \\ (13-1)4 - 4(12) \end{cases} = \min \begin{cases} 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{cases} = \boxed{0}$$

$$\phi_3 = \min \begin{cases} (1-1)4 - 0(10) \\ (3-1)4 - 1(10) \\ (6-1)4 - 2(10) \\ (8-1)4 - 3(10) \\ (11-1)4 - 4(10) \\ (13-1)4 - 5(10) \end{cases} = \min \begin{cases} 0 \\ -2 \\ 0 \\ -2 \\ 0 \\ -2 \end{cases} = \boxed{-2}$$

$$\phi_4 = \min \begin{cases} (2-1)4 - 0(6) \\ (3-1)4 - 1(6) \\ (5-1)4 - 2(6) \\ (6-1)4 - 3(6) \\ (8-1)4 - 4(6) \\ (9-1)4 - 5(6) \\ (11-1)4 - 6(6) \\ (12-1)4 - 7(6) \\ (14-1)4 - 8(6) \\ (15-1)4 - 9(6) \end{cases} = \min \begin{cases} 4 \\ 2 \\ 4 \\ 2 \\ 4 \\ 2 \\ 4 \\ 2 \\ 4 \\ 2 \end{cases} = \boxed{2}$$