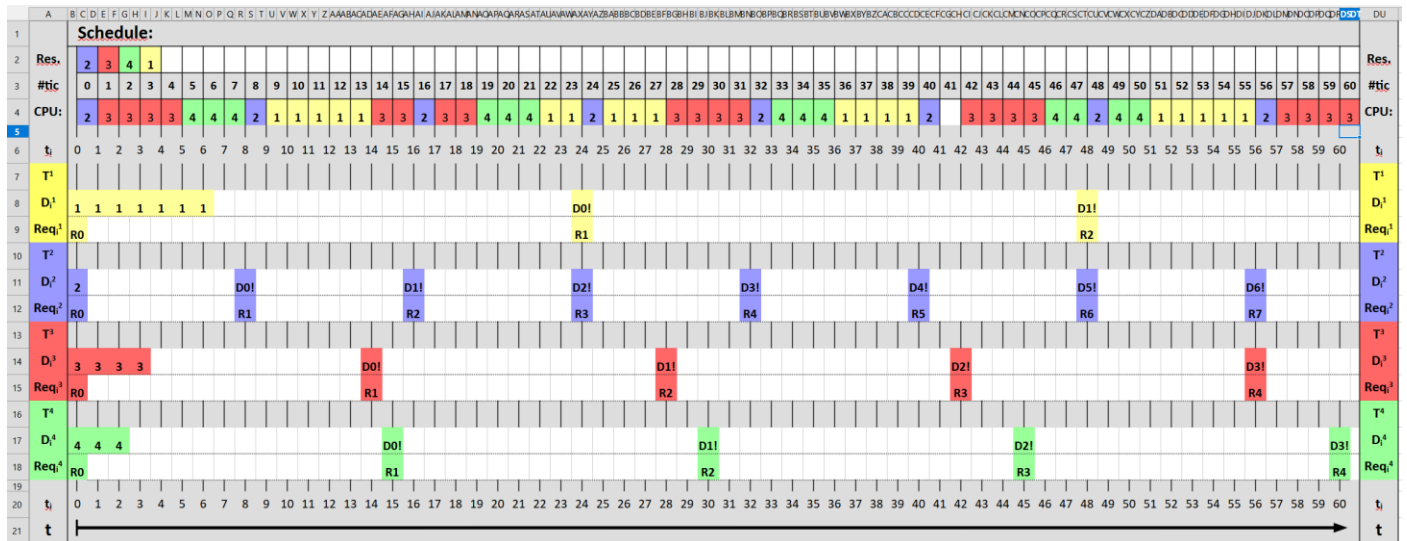


Exercise 1 Rate Monotonic Scheduling (RMS)

RMS Taskset 1



$$\text{Load}(T_1) = 7/24 = 0,2917$$

$$\text{Load}(T_2) = 1/8 = 0,125$$

$$\text{Load}(T_3) = 4/14 = 0,2857$$

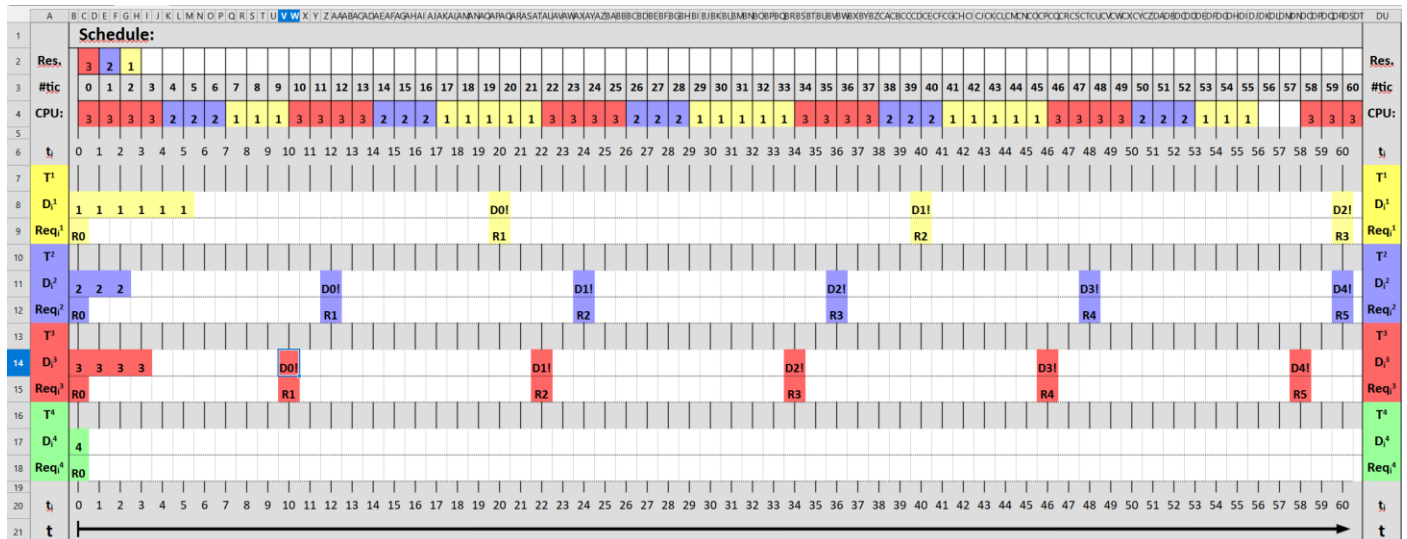
$$\text{Load}(T_4) = 3/15 = 0,2$$

$$\text{Gesamtlast}(U) = 0,2917 + 0,125 + 0,2857 + 0,2 = 0,9024$$

$U < 1 \Rightarrow$ weiter mit Schedulability-Test (Liu & Layland Bound)

$$\text{Schedulability-Test} = n * (2^{(1/n)} - 1) = 4 * (2^{0,25} - 1) \approx 0,7568 \Rightarrow \text{Bound nicht erfüllt}$$

RMS Taskset 2



$$\text{Load}(T_1) = 6/20 = 0,3$$

$$\text{Load}(T_2) = 3/12 = 0,25$$

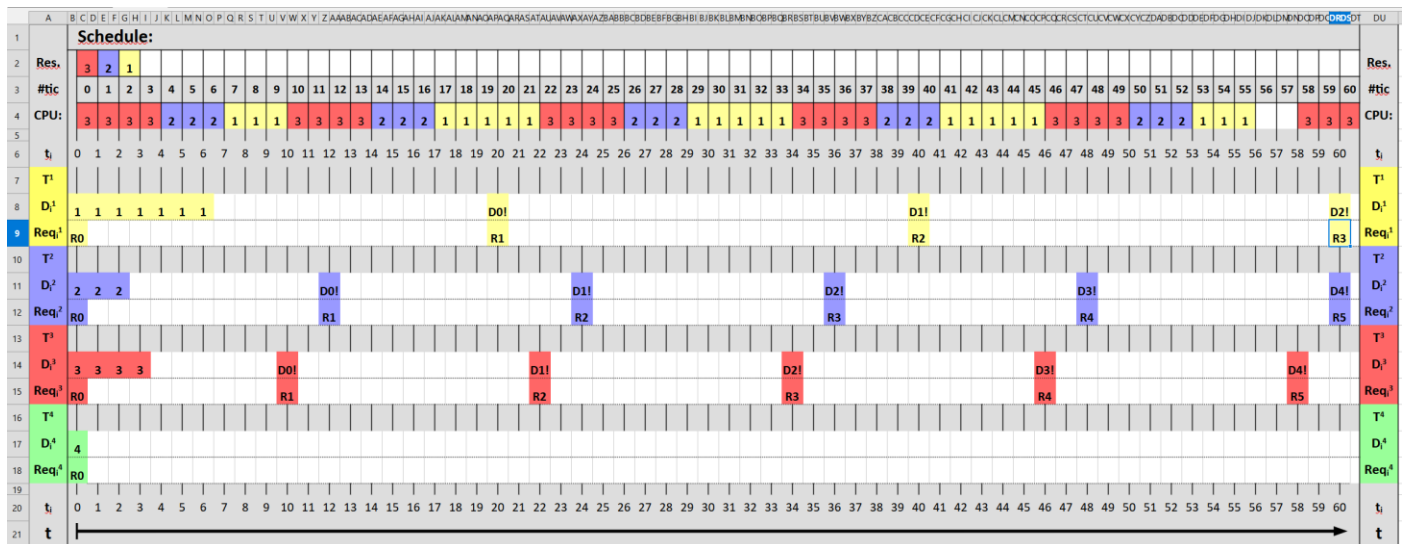
$$\text{Load}(T_3) = 4/10 = 0,4$$

$$\text{Gesamtlast}(U) = 0,95$$

$U < 1 \Rightarrow$ weiter mit Schedulability-Test (Liu & Layland Bound)

$$\text{Schedulability-Test} = n * (2^{(1/n)} - 1) = 3 * (2^{0,33} - 1) \approx 0,7798 \Rightarrow \text{Bound nicht erfüllt}$$

RMS Taskset 3



$$\text{Load}(T1) = 7/20 = 0,35$$

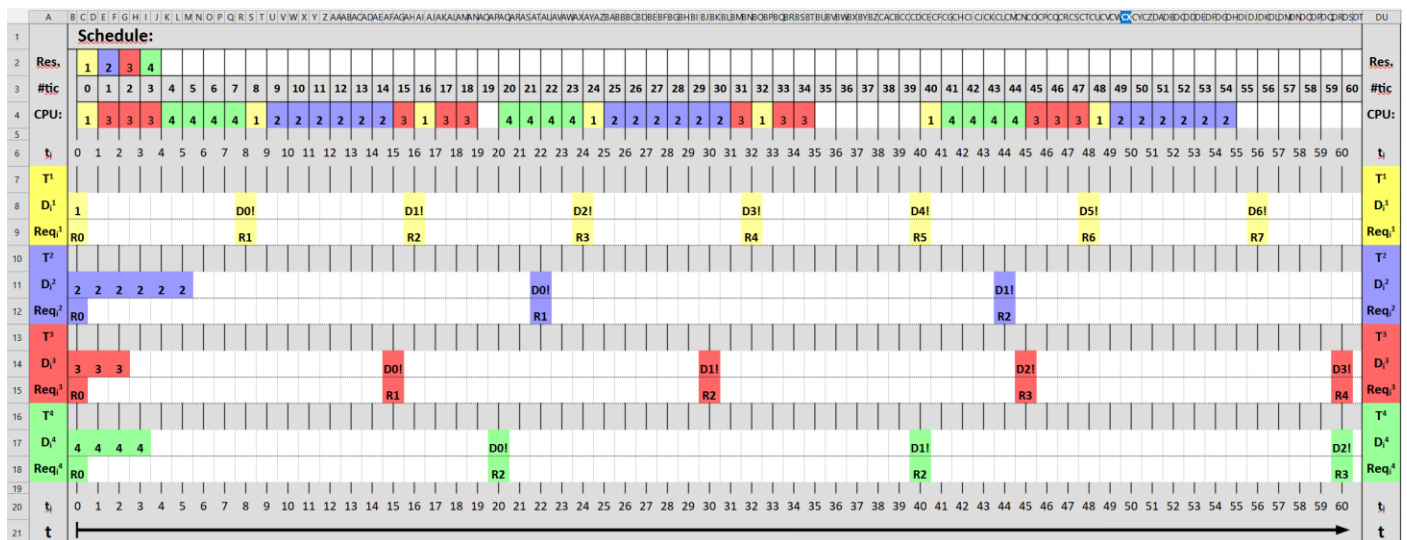
$$\text{Load}(T2) = 3/12 = 0,25$$

$$\text{Load}(T3) = 4/10 = 0,4$$

$U = 1 \Rightarrow$ Processor never Idles

$$\text{Schedulability-Test} = n * (2^{1/n} - 1) = 3 * (2^{0,33} - 1) \approx 0,7798 \Rightarrow \text{Bound nicht erfüllt}$$

EDF Taskset 1



$$\text{Load}(T1) = 1/8 = 0,125$$

$$\text{Load}(T2) = 6/22 = 0,27$$

$$\text{Load}(T3) = 3/15 = 0,2$$

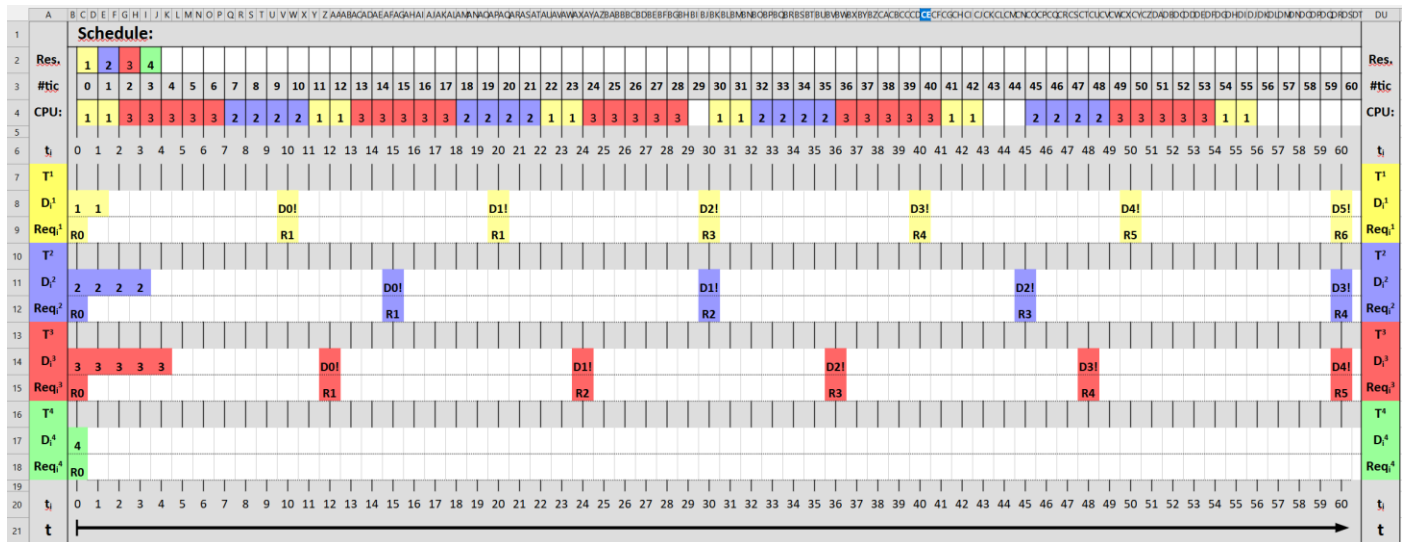
$$\text{Load}(T4) = 4/20 = 0,2$$

$$\text{Gesamtlast}(U) = 0,795$$

$U < 1 \Rightarrow$ weiter mit Schedulability-Test (Liu & Layland Bound)

$$\text{Schedulability-Test} = n * (2^{1/n} - 1) = 4 * (2^{0,25} - 1) \approx 0,7568 \Rightarrow \text{Bound nicht erfüllt}$$

EDF Taskset 2



$$\text{Load}(T1) = 2/10 = 0,2$$

$$\text{Load}(T2) = 4/15 = 0,27$$

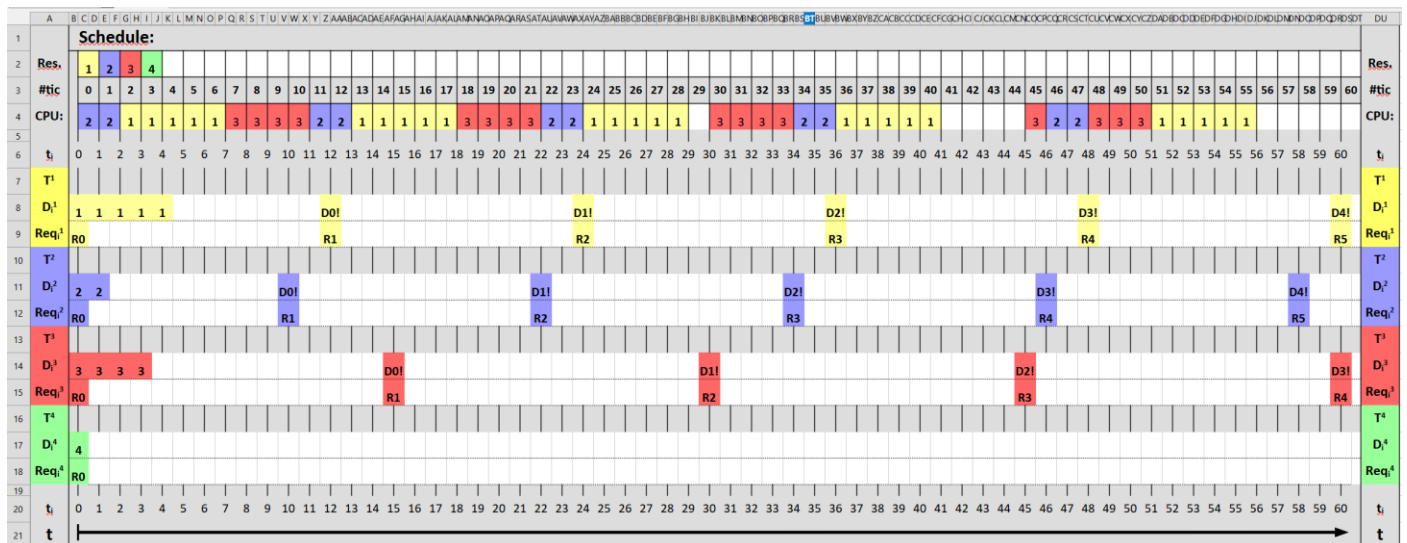
$$\text{Load}(T3) = 5/12 = 0,417$$

$$\text{Gesamtlast}(U) \approx 0,8867$$

$U < 1 \Rightarrow$ weiter mit Schedulability-Test (Liu & Layland Bound)

$$\text{Schedulability-Test} = n * (2^{(1/n)} - 1) = 3 * (2^{0,33} - 1) \approx 0,7798 \Rightarrow \text{Bound nicht erfüllt}$$

EDF Taskset 3



$$\text{Load}(T1) = 5/12 = 0,4167$$

$$\text{Load}(T2) = 0,2$$

$$\text{Load}(T3) = 4/15 = 0,267$$

$$\text{Gesamtlast}(U) \approx 0,8834$$

$U < 1 \Rightarrow$ weiter mit Schedulability-Test (Liu & Layland Bound)

$$\text{Schedulability-Test} = n * (2^{(1/n)} - 1) = 3 * (2^{0,33} - 1) \approx 0,7798 \Rightarrow \text{Bound nicht erfüllt}$$