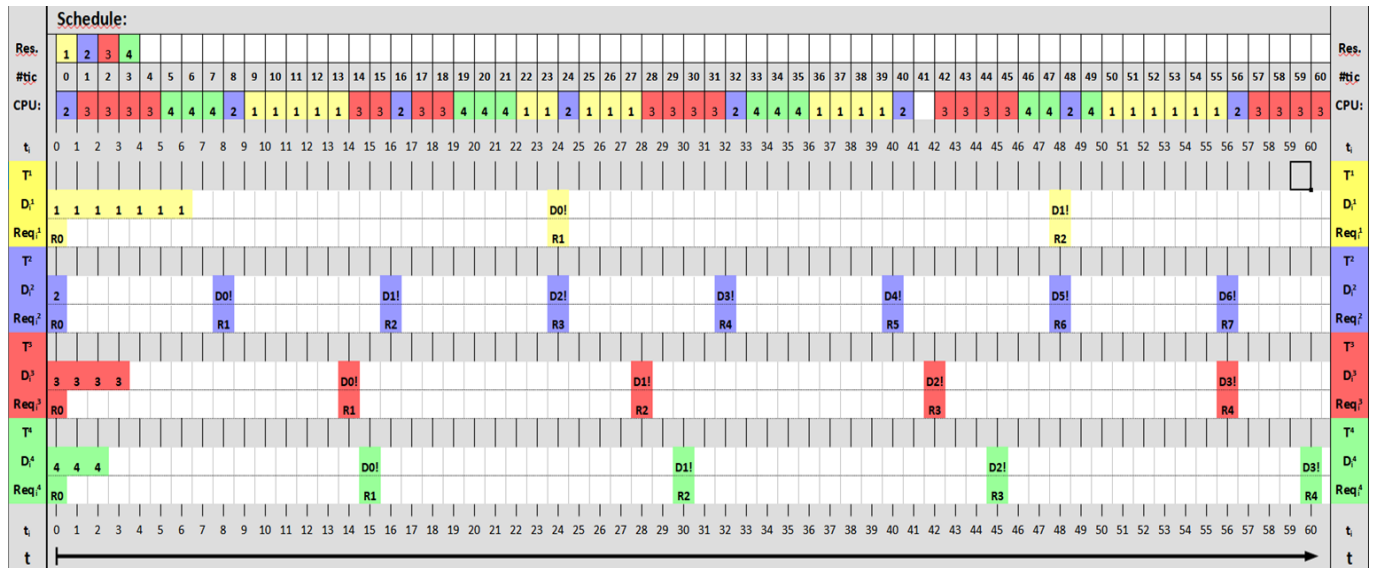


Matriculation number : 1397466

1. Taskset: $\{T^1(7, 24); T^2(1, 8); T^3(4, 14); T^4(3, 15)\}$

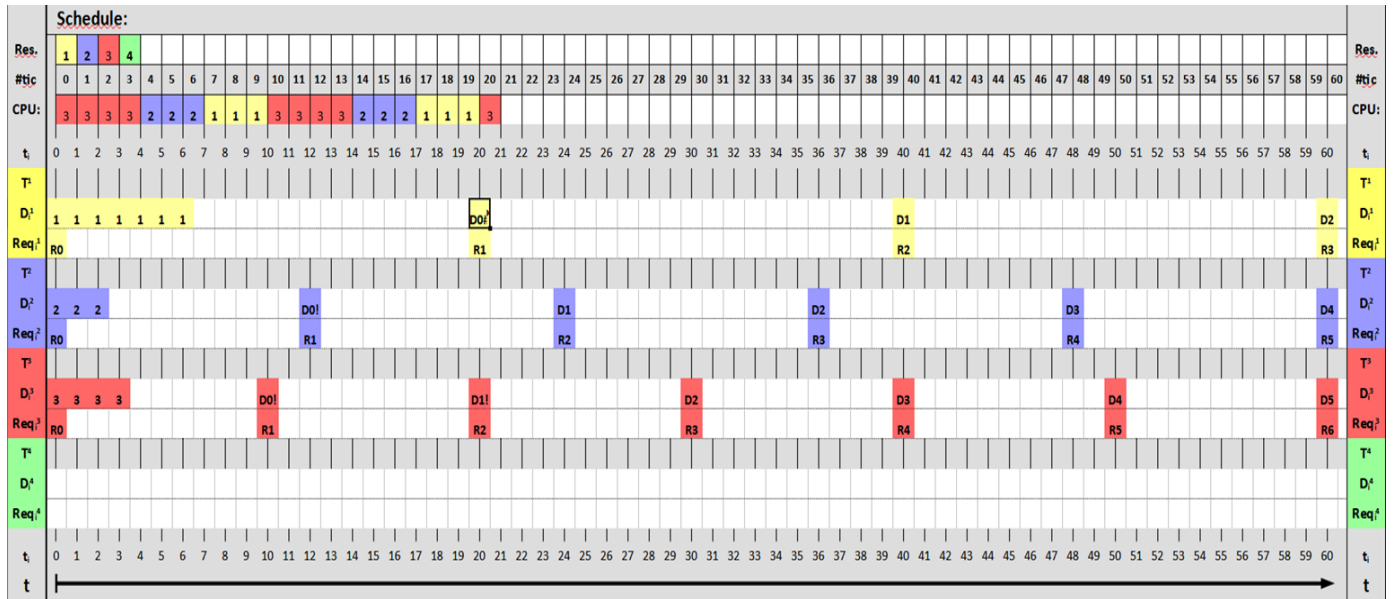


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Timeline diagram showing the execution of three tasks (T¹, T², T³) over 60 time units. The diagram includes a schedule table and a corresponding Gantt chart. The schedule table shows the sequence of operations (D, R, T) for each task, with the first column indicating the task and the subsequent columns indicating the time units. The Gantt chart shows the execution of each task, with the first column indicating the task and the subsequent columns indicating the time units. The timeline diagram shows the execution of each task, with the first column indicating the task and the subsequent columns indicating the time units.

3. Taskset: $\{T^1(7, 20); T^2(3, 12); T^3(4, 10)\}$



4) Calculate the load (each task and in total) of the systems:

Load of a task: $U_i = e_i/D_i$

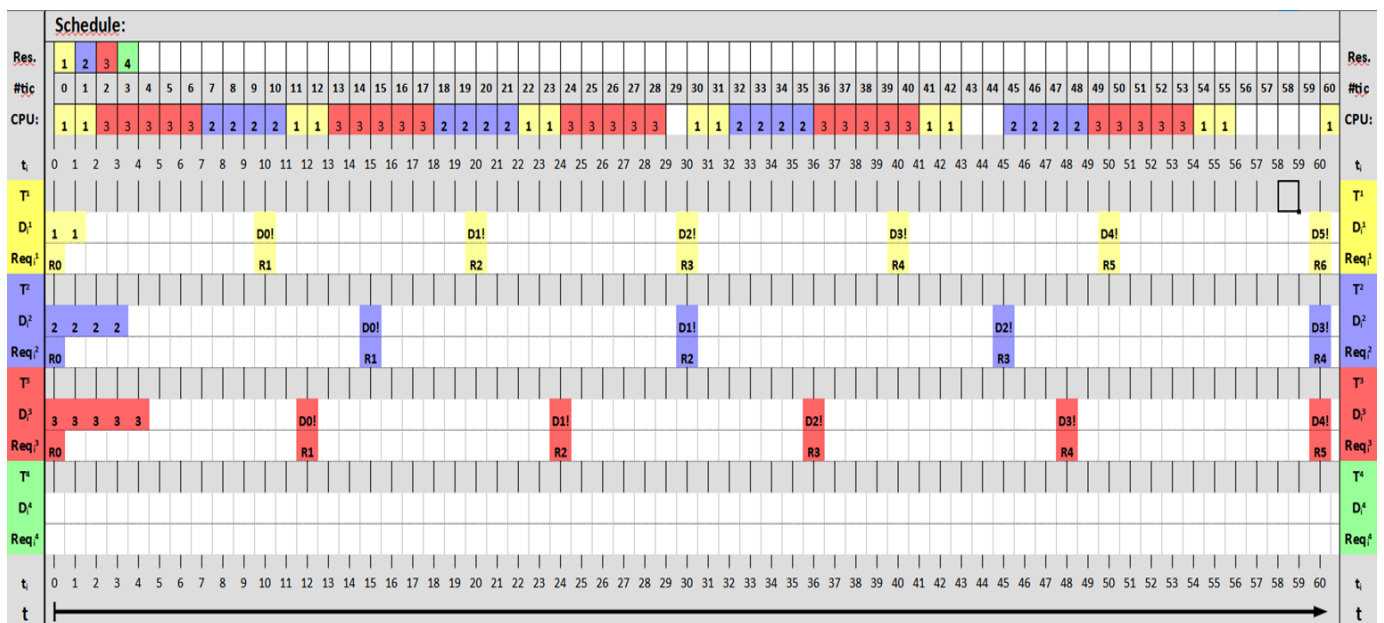
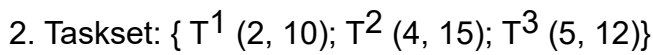
- Taskset: $U = 7/24 + 1/8 + 4/14 + 3/15 = 379/420 \approx 0.902$
- Taskset: $U = 6/20 + 3/12 + 4/10 = 0.95$
- Taskset: $U = 7/20 + 3/12 + 4/10 = 1$

5) Do and document the schedulability tests for the systems

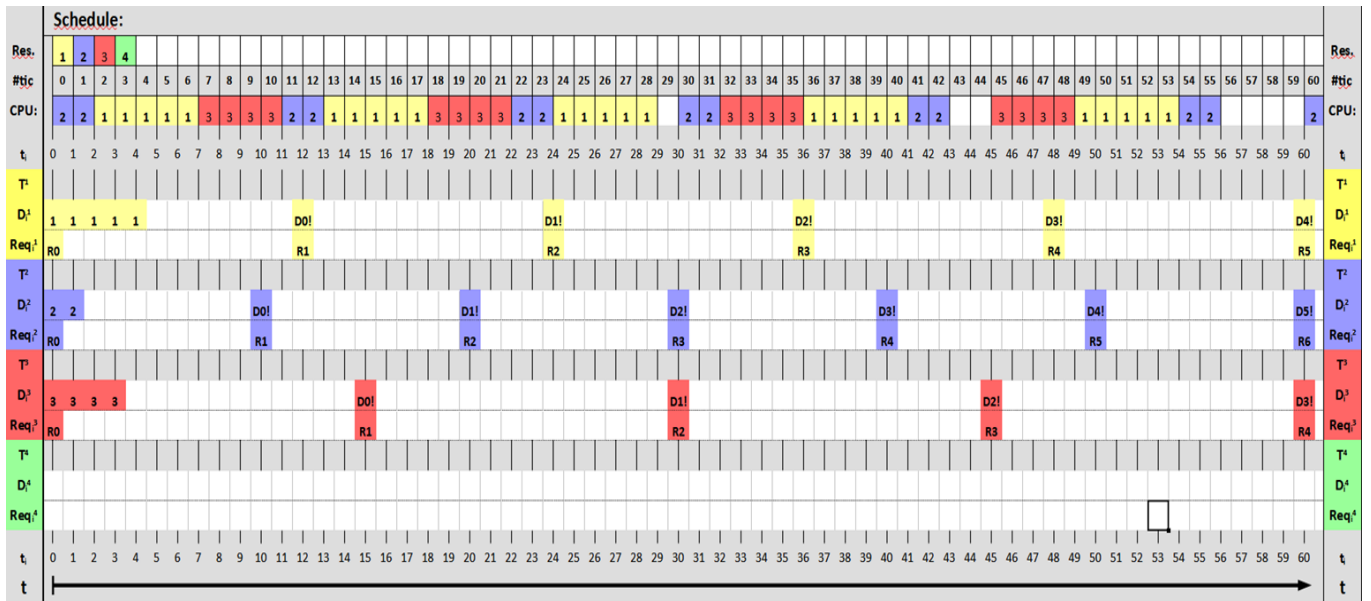
$U \leq n * (2^{1/n} - 1)$ n = number of periodic tasks

- Taskset: $0.902 \leq 4 * (2^{1/4} - 1) \rightarrow 0.902 \leq 0.757$
- Taskset: $0.95 \leq 3 * (2^{1/3} - 1) \rightarrow 0.95 \leq 0.78$
- Taskset: $1 \leq 3 * (2^{1/3} - 1) \rightarrow 1 \leq 0.78$

1. Taskset: $\{T^1(1, 8); T^2(6, 22); T^3(3, 15); T^4(4, 20)\}$



3. Taskset: $\{T^1(5, 12); T^2(2, 10); T^3(4, 15)\}$



4) Do and document the (tow) schedulability tests for the taskset of 1 (as if you were using RMS).

Load of a task: $U_i = e_i/D_i$

System load: $U = \sum_{i=1}^n U_i = \sum_{i=1}^n \frac{e_i}{D_i}$

Schedulability: $U \leq n * (2^{1/n} - 1)$ n = number of periodic tasks

1. Taskset: $U = 1/8 + 6/22 + 3/15 + 4/20 = 351/440 \approx 0.798$

$0.798 \leq 4 * (2^{1/4} - 1) \rightarrow 0.798 \leq 0.757$

2. Taskset: $U = 2/10 + 4/15 + 5/12 = 53/60 \approx 0.883$

$0.883 \leq 3 * (2^{1/3} - 1) \rightarrow 0.883 \leq 0.78$

3. Taskset: $U = 5/12 + 2/10 + 4/15 = 53/60 \approx 0.883$

$0.883 \leq 3 * (2^{1/3} - 1) \rightarrow 0.883 \leq 0.78$