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URM Calculation:

$URM = N * (2^{\wedge} (1/N) - 1)$

$N = 3$

$URM = 3 * (2^{\wedge} (1/3) - 1) = 0.78$

$U = C / T$

$U = (2.5 / 5) + (4.5 / 15) + (4.5 / 20) = 0.98$

Now, from the calculation we can see that **U > URM**

So we need more tests to check the system Schedulability.

Time Demand Analysis:

Calculate the critical instant:

HYPERPERIOD (H) = LCM (PI) = 60

Check shcedulability for task one:

Task 1 { P : 5 , E : 2.5 , D : 5 , PRIORITY : 3 } .

Time provided for task 1 = 5ms

Time provided for task 1 = 2.5 + 0 = 2.5ms

Tn < Tp -> Task one is schedulable

Check shcedulability   for task Two:

Task 1 { P : 15 , E : 4.5   , D : 15 , PRIORITY : 2 } .

Time provided for task 2 = 15ms

Time provided for task 1 = 4.5 + (15/5) * 2.5 = 12ms

Tn < Tp -> Task two is schedulable

Check shcedulability   for task Two:

Task 1 { P : 20 , E : 3.5   , D : 20 , PRIORITY : 1 } .

Time provided for task 2 = 20ms

Time provided for task 1 = 3.5 + (20/5) * 2.5 + (20/15) * 4.5 = 22.5ms

Tn > Tp -> Task two is not schedulable

SIMSO Results:

## Tasks Parameters:

id	Name	Task type	Abort on miss	Act. Date (ms)	Period (ms)	List of Act. dates (ms)	Deadline (ms)	WCET (ms)	Followed by	
General	Scheduler	Processors	Tasks							
1	TASK T1	Periodic ▾	☑ Yes	0	5	-	5	2.5	▾	3
2	TASK T2	Periodic ▾	☑ Yes	0	15	-	15	4.5	▾	2
3	TASK T3	Periodic ▾	☑ Yes	0	20	-	20	3.5	▾	1

CPU load:

Observation Window:

from 0.00 to 60.00 ms

	Total load	Payload	System load
CPU 1	0.9167	0.9167	0.0000
Average	0.9167	0.9167	0.0000

Time Line:
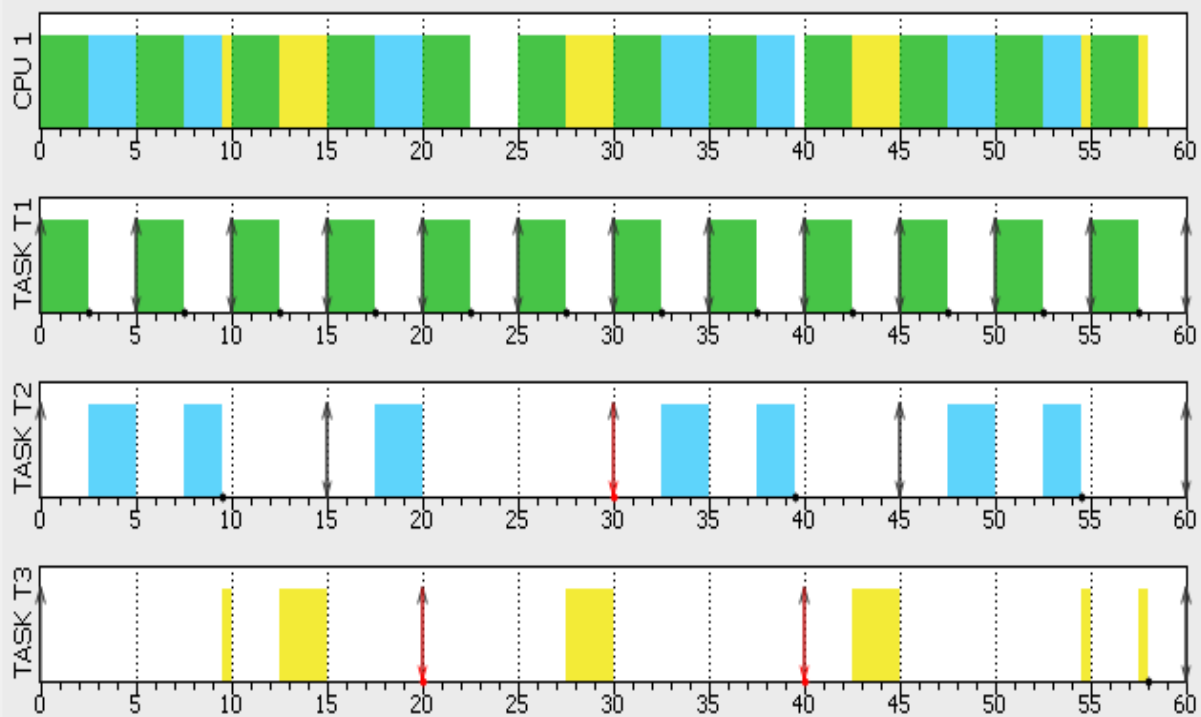
Comments on SIMSO results:

Task three missed its deadline hence the **system is not schedulable**.

CPU LOAD IS HIGH.