

## ASSIGNMENT 4(Simulation)

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Course Title: [Development of Real-Time System](#)

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### Simulation assignment:

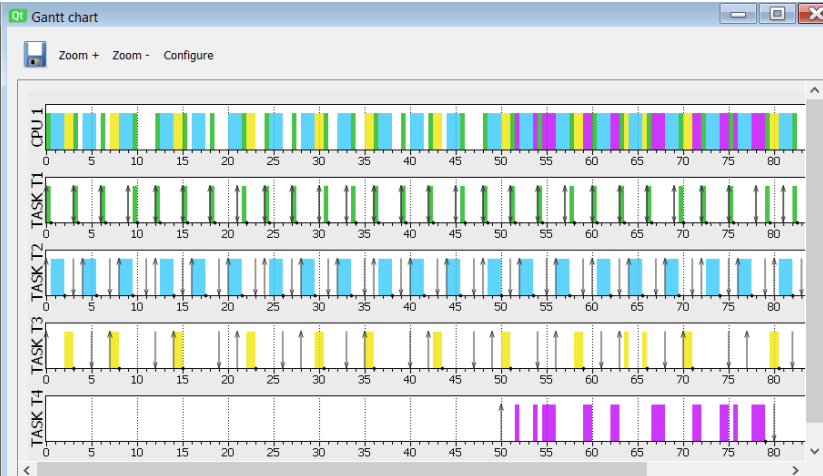
1) Consider the tasks T1(3, 0.5), T2(4, 1.5, 3), T3(7, 1.0, 5) and the EDF scheduler. A sporadic job arrives at  $t=50$  having the execution time of 10 and a relative deadline of 30.

Qt Model data									
General Scheduler Processors Tasks									
id	Name	Task type	Abort on miss	Act. Date (ms)	Period (ms)	List of Act. dates (ms)	Deadline (ms)	WCET (ms)	Followed by
1	TASK T1	Periodic	<input checked="" type="checkbox"/> Yes	0.0	3.0	-	3.0	0.5	
2	TASK T2	Periodic	<input checked="" type="checkbox"/> Yes	0.0	4.0	-	3.0	1.5	
3	TASK T3	Periodic	<input checked="" type="checkbox"/> Yes	0.0	7.0	-	5.0	1.0	
4	TASK T4	Sporadic	<input checked="" type="checkbox"/> Yes	-	-	50.0	30.0	10.0	

Edit data fields...

Remove selected task(s) Add task

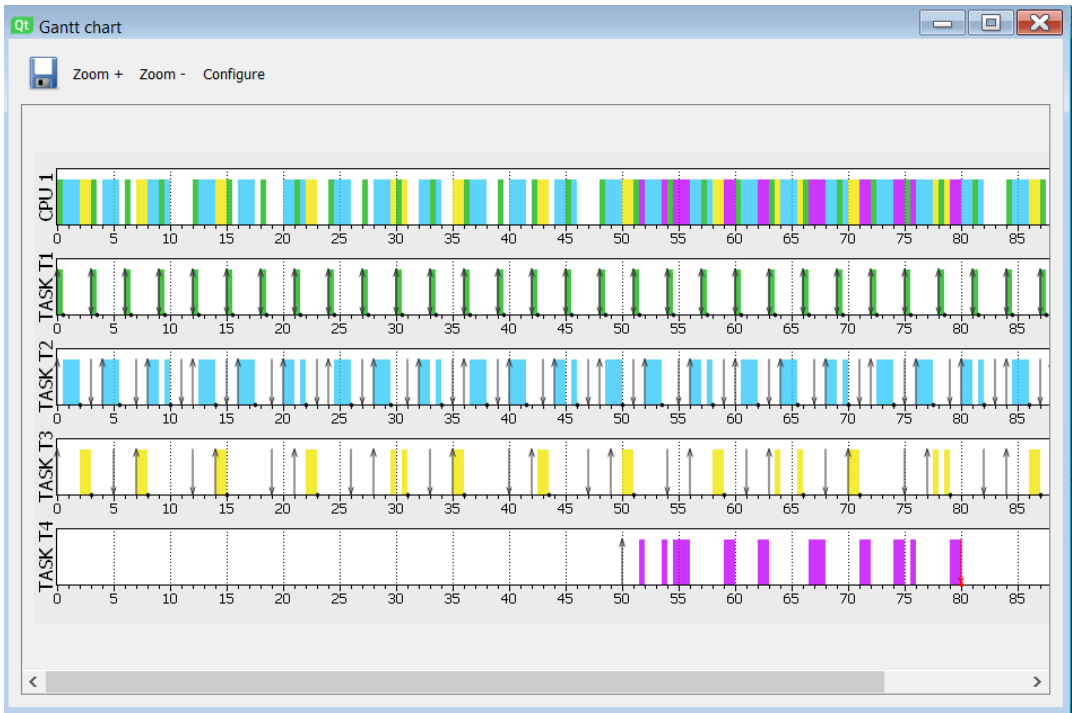
Qt Results			
General Logs Tasks Scheduler Processors			
Observation Window:			
from 0.00 to 100.00 ms			
Configure...			
	Total load	Payload	System
CPU 1	0.7950	0.7950	0.0000
Average	0.7950	0.7950	0.0000



2) Consider the tasks T1(3, 0.5), T2(4, 1.5, 3), T3(7, 1.0, 5) and the RM scheduler. A sporadic job arrives at t=50 having the execution time of 10 and a relative deadline of 30.

Qt Model data									
General				Tasks					
id	Name	Task type	Abort on miss	Act. Date (ms)	Period (ms)	List of Act. dates (ms)	Deadline (ms)	WCET (ms)	Followed by
1	TASK T1	Periodic	<input checked="" type="checkbox"/> Yes	0	3	-	3	0.5	
2	TASK T2	Periodic	<input checked="" type="checkbox"/> Yes	0	4.0	-	3.0	1.5	
3	TASK T3	Periodic	<input checked="" type="checkbox"/> Yes	0	7.0	-	5.0	1.0	
4	TASK T4	Sporadic	<input checked="" type="checkbox"/> Yes	-	-	50.0	30.0	10.0	

Qt Results			
General			
Logs			
Tasks			
Scheduler			
Processors			
Observation Window:			
from 0.00 to 100.00 ms			
Configure...			
	Total load	Payload	System
CPU 1	0.7900	0.7900	0.0000
Average	0.7900	0.7900	0.0000



### **1. What is the minimum/maximum/average response time of all tasks?**

For Task 1 :

Minimum Response Time = 0.5

Average Response Time = 0.5

Maximum Response Time = 0.5

For Task 2 :

Minimum Response Time = 1.5

Average Response Time = 1.84

Maximum Response Time = 2.0

For Task 3 :

Minimum Response Time = 1.0

Average Response Time = 1.9

Maximum Response Time = 3.0

### **2. Is any task missing the deadline? Which task? Where?**

None of the periodic tasks miss deadlines. But Task 4, Sporadic Task misses deadline at time 80.

### **3. Is the sporadic job meeting its deadline?**

No. Sporadic job misses deadline.

### **4. What is the response time for the sporadic job?**

Response time for sporadic jobs is 30. i.e., it starts at time 50 and ends at time 80.

### **5. Which scheduler is better in this example; EDF or RM?**

In this case EDF scheduler is better, because with this scheduler sporadic task does not miss deadlines.