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Assignment 3

Git: https://github.tamu.edu/agarwal-220196/FreeRTOS.git

TASK SET 1:

T1(2, 0.5), T2(3, 1.2), T3(6, 0.5)

Total Utilization = sum of (execution time / period)
$$0.5/2 + 1.2/3 + 0.5/6 = \mathbf{0.733}$$

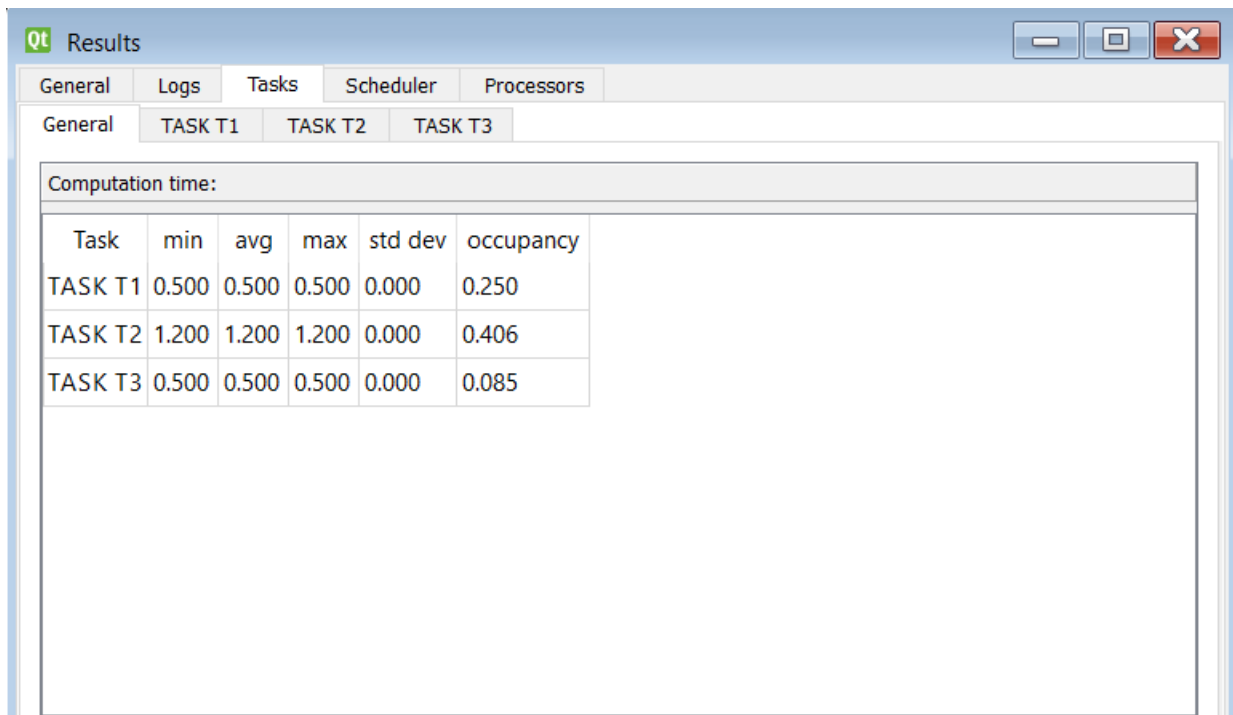URM (n) = n x (2^1/n - 1)
Thus, URM (3) = 3x(2^1/3 - 1) = **0.799**

Since 0.733 < 0.799 < 1, the URM schedulability test of RM scheduler says that this task set is feasible.

Q: What is the utilization factor of the system and what is the value for Urm(3)

A: Utilization factor: 0.733 URM(3): 0.799

Q: What is the minimum/maximum/average response time of all tasks?

A:

Qt Results

General	Logs	Tasks	Scheduler	Processors

General	TASK T1	TASK T2	TASK T3

Computation time:

Task	min	avg	max	std dev	occupancy
TASK T1	0.500	0.500	0.500	0.000	0.250
TASK T2	1.200	1.200	1.200	0.000	0.406
TASK T3	0.500	0.500	0.500	0.000	0.085

Q: Is any task missing the deadline? Which task? Where?

A: NO task is missing deadline.

Q: If a deadline is missed, could it be avoided by changing the scheduler?

A: The RM scheduler is able to schedule it with god feasibility.

TASK SET 2:

T1(2, 0.5, 1.9) T2(5, 2) T3(1, 0.1, 0.5) T4(10, 5, 20)

Q: What is the utilization factor of the system and what is the value for Urm(4)

A: Utilization factor: 1.25 URM(4): 0.757. Since utilization factor is more than 1, it is not feasible.
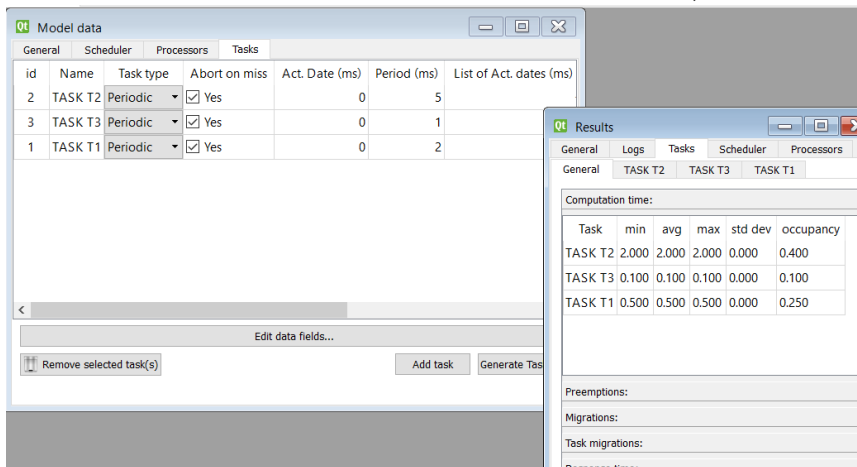
Q: What is the minimum/maximum/average response time of all tasks?

A: Sim so is unable to schedule it since it misses deadline.
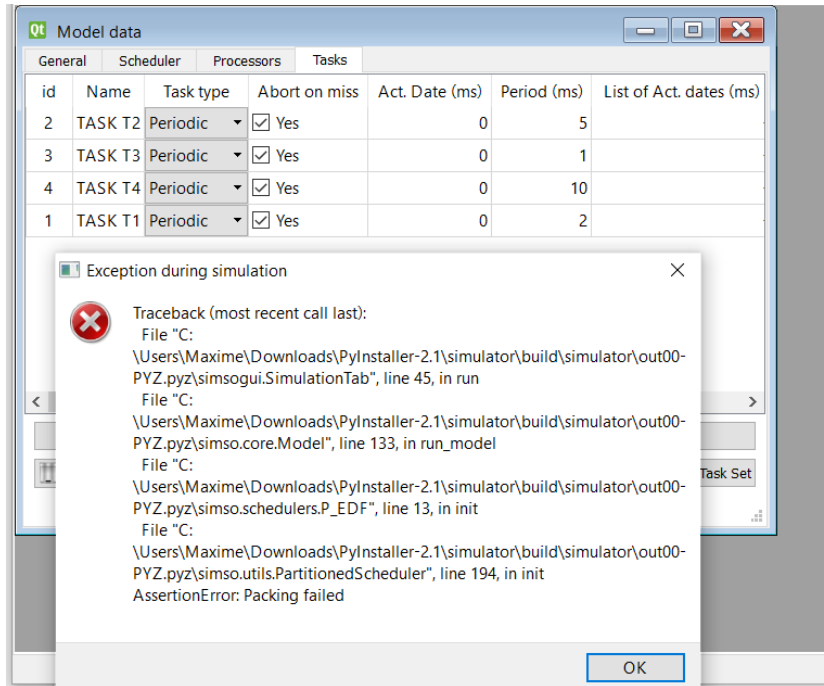
Q: Is any task missing the deadline? Which task? Where?

A: Yes the 4th task. Because when that task is removed, it runs fine.

Q: If a deadline is missed, could it be avoided by changing the scheduler?

A: No because the utilization factor is more than 1