Name: Sudhir Kasanavesi
SBU ID: 108492541

Report on per-task response time and deadline misses between scheduling algorithms

RMS is static priority scheduling algorithm whereas EDF and LST are dynamic priority scheduling algorithm.

For an input as below (input_2 file in the folder). <Task, Period, Deadline> as <1,5,2> and <2,7,4>: The U can be computed as 2/5 + 4/7 = 34/35 which is approximately 0.97 which according to the schedulability test for all the algorithms is < 1. For RMS we cannot predict whether it is schedulable or not, but the simulation for these tasks indicate that the tasks are completed for a hyper-period of 35 time units with no deadline misses.
Task 2 => # of pre-empts in RMS = 5
Task 2 => # of pre-empts in EDF = 2
Task 2 => # of pre-empts in LST = 5
From the above example we can infer that in case if the tasks are schedulable without missing deadlines, then the EDF performs well minimizing the number of pre-empts thus reducing the overload of context switching. RMS, in order to enforce fixed priority ordering the number of pre-emptions that occur in RMS are much greater than EDF.
Task 2 => average response time in RMS = 6.8
Task 2 => average response time in EDF = 5.6
Task 2 => average response time in LST = 6.8
For the above example we can infer that for average response time, since RMS gives more emphasis on not to miss deadline, it tends to increase the number of pre-empts and thus it maximizes the minimum lateness of the task. In LST, a task with a smaller slack preempts a task with a larger slack. This approach maximizes the minimum lateness of tasks. Thus we see that the average-response time in LST is greater than that of EDF.

For an input as below (input_1 file in the folder). <Task, Period, Deadline> as <1,10,4>, <2,7,1> and <3,9,5>: The U can be computed as (4/10) + (1/7) + (5/9) which is approximately 1.09. This is not schedulable using RMS whereas it is inferred from the simulations when it is ran for hyperperiod of 630 time units. The deadline misses are given below:

	RMS	LST	EDF
Task1	50	0	17
Task2	0	62	0
Task3	0	0	32

Since the RMS gives fixed priorities, if a task misses deadline, it will be prone to miss most oftenly. Whereas for dynamic priority scheduling algorithms like LST and EDF, the deadline misses are spread out for EDF.