VT16 – EL2450 – Assignment II

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1 Question 1

Rate Monotonic is an scheduling method that assigns fixed priorities to tasks, proportional to its activation frequency. That means that for any given tasks J_a, J_b with periods $T_a < T_b$, J_a is assigned a higher priority than J_b.

2 Question 2

A set of periodic tasks $\{J_i\}$ is schedulable with Rate Monotonic scheduling if

$$U = \sum_i \frac{C_i}{T_i} \leq n(2^{1/n} - 1)$$

In the case where $T_1 = 20, T_2 = 29, T_3 = 35$ ms and $C_i = 6$ ms, $i = \{1, 2, 3\}$, $U = 0.678$ and $n(2^{1/n} - 1) = 0.78$. Hence tasks J_1, J_2, J_3 are schedulable with RM.

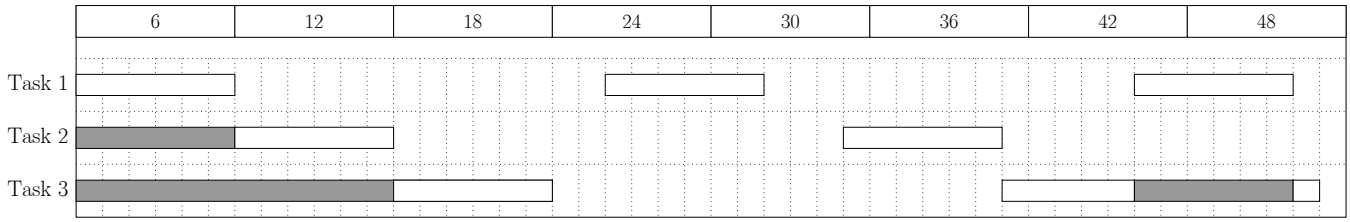

Figure 1: A portion of the RM schedule σ for tasks J_1, J_2, J_3. Shaded areas denote the waiting time.