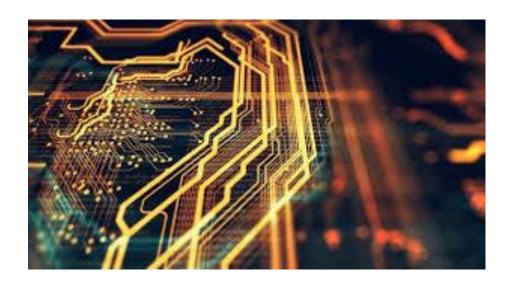BARRE Juliette
4TS1

In-422 : Final assignment

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I.   Introduction

In this practical work we will schedual 4 different periodic tasks, with their priority, WCET and period. To do that we will in a first time analyse each task, verify the schedulability and implement the code on FreeRTOS.

II.   Method

Task 1 involves printing a small string "Working," which typically doesn't require much execution time. We can set a Worst Case Execution Time (WCET) of 1ms and a period of 5ms for this task.

Task 2 also involves printing but includes a small operation. The WCET could be 2ms due to this operation, with a period of 20ms.

Task 3 demands more execution time, so we can assign a WCET of 5ms and a period of 50ms, primarily because of an operation involving two long integers.

Task 4 entails performing a binary search on a list of 50 elements (with a complexity O (log n)). The WCET will vary based on the list's length, but for a list of 50 elements, we can set a WCET of 10ms and a period of 50ms.

III.   Results

We calculate the Utilization in order to verify the schedulability :

$U = 1/5 + 2/20 + 5/50 + 10/50 = 0.6 < 1 \Rightarrow$ it is schedulable.

Task	C_i	T_i	p_i
t_1	1	5	0
t_2	2	20	1
t_3	5	50	2
t_4	10	50	3