

1. Create a user-defined interrupt handler for the timer ISR and a task for processing. The timer should be scheduled on a regular basis, and the interrupt handler should signal the processing task. To ensure that the timer is being triggered with the correct periodicity, pass the interrupt timing to the processing task.

```
Welcome to the EK-TM4C123GXL FreeRTOS Demo!  
Task3 created at Time: 0  
Entering timer interrupt at Time: 2500  
Entering timer interrupt at Time: 5000  
Entering timer interrupt at Time: 7500  
Entering timer interrupt at Time: 10000  
Entering timer interrupt at Time: 12500  
Entering timer interrupt at Time: 15000  
Entering timer interrupt at Time: 17500  
Entering timer interrupt at Time: 20000  
Entering timer interrupt at Time: 22500  
Entering timer interrupt at Time: 25000  
Entering timer interrupt at Time: 27500  
Entering timer interrupt at Time: 30000
```

2. Create a pair of tasks that signal each other. The first task performs some computation, signals the other task, and waits for a signal from that task. The second task repeats the same pattern so that they alternate. Each task should complete a defined amount of work, such as computing a specified number of Fibonacci values. Profile each task so that one task is executing for 10 ms and the other for 40 ms.

```
Welcome to the EK-TM4C123GXL FreeRTOS Demo!  
Task1 create  
Task2 crdeated  
Time taken for Fibonacci is 10 ms  
Now Task 2 should run  
Time taken for Fibonacci is 40 ms  
Now Task 1 should run  
Time taken for Fibonacci is 10 ms  
Now Task 2 should run  
Time taken for Fibonacci is 40 ms  
Now Task 1 should run  
Time taken for Fibonacci is 10 ms  
Now Task 2 should run  
Time taken for Fibonacci is 41 ms
```

3. Modify the timer ISR to signal two tasks with different frequencies: one task every 30 ms and the other every 80 ms. Use your processing load from #2 to run 10 ms of processing on the 30-ms task and 40 ms of processing on the 80-ms task.

```
Welcome to the EK-TM4C123GXL FreeRTOS Demo!  
Task4 created  
Task5 created  
Task 4 runs at Time : 30  
Task 4 stops at Time : 39  
Task 4 runs at Time : 60  
Task 4 stops at Time : 69  
Task 5 runs at Time : 80  
Task 4 runs at Time : 90  
Task 4 stops at Time : 99  
Task 5 stops at Time : 117  
Task 4 runs at Time : 120  
Task 4 stops at Time : 129  
Task 4 runs at Time : 150  
Task 4 stops at Time : 159  
Task 5 runs at Time : 160  
Task 4 runs at Time : 180  
Task 4 stops at Time : 189  
Task 5 stops at Time : 208  
Task 4 runs at Time : 210  
Task 4 stops at Time : 220  
Task 4 runs at Time : 240  
Task 4 stops at Time : 249  
Task 5 runs at Time : 250  
Task 4 runs at Time : 270  
Task 4 stops at Time : 279  
Task 5 stops at Time : 298  
Task 4 runs at Time : 300
```