EMBSYS100 - AU19
ASSIGNMENT 07

Goal

The goals for the assignment this week:

1. Practice setting up a user-defined vector table.
2. Practice dealing with interrupts and the use of the SysTick timer.

Problems:

1. Starting from the blinking LED code that you created using the GPIO registers:
    a. Define your own vector table.
    b. Enable use of CMSIS in project options settings.
    c. Add the files "**stm32f401xe.h**" & "**system_stm32f4xx.h**" to the folder where "main.c" is saved. *You should be able to get these files thru STM32CubeMX. You could also get them by downloading the zip file "CMSIS_STM32_Device_Specific_Files.zip" from canvas site under the link Assignment\A06 folder*
    d. Enable the use of the SysTick timer and its interrupt.
    e. Replace the delay() function with the use of the SysTick timer to blink the user LED.
    f. Set a break point inside the SysTick_Handler interrupt and capture a snapshot of the stack once inside the interrupt and LR value. Explain what are the values stored on the stack at the moment the Handler gets invoked.

2. **Bonus:** Improve your delay function to rely on the use of the SysTick timer instead of the busy-wait loop.
    a. Function prototype: **void delay(uint32_t delayInMilliseconds)**
    b. Use the function in your main.c file to blink the LED every 2 seconds.
    c. Hint: Setup the SysTick timer to trigger an interrupt every 1ms.

What to turn in and how:

- Check in all your homework in your repo under the folder "**assignment07**".
- Your folder should contain the following:
    - Turn in your source code files only (for example: main.c, …etc.) and any other files that you have authored.
    - Turn in answers to questions in markdown file format.
- Submit a link to your GitHub repo assignment:
    - Ex: "https://github.com/<account_id>/embsys100/assignment07"