Q-1 Switch & LED Blinking with STM32G070RB:

There is a tactile switch (**only one switch**) and LED connected to the microcontroller in a NUCLEO-G070RB board. The LED is off initially. Depending on switch press, the LED blinks in following way.

1st Switch press: LED blinks at frequency of 0.5 Hz.

2nd Switch press: LED blinks at frequency of 1 Hz.

3rd Switch press: LED blinks at frequency of 2 Hz.

4th Switch press: LED turns off.

5th Switch press: considered 1st switch press and the LED blinking cycle repeats.

Create circuit and code for target microcontroller. Assume relevant functions. Also, optimize for power consumption. Use micro-controllers low power modes to achieve it.

(After the assignment and 1st video call interview, in the in person interview at Nosh's office this needs to be showcase on a NUCLEO board.)

Q-2 C program in an online compiler,

1. Use timer to simulate data generated by external sensor. Setup the timer to trigger every second and generates random number (0 to 5) of random bytes and adds this to a globally accessible data structure.
2. Separately wake up periodically (every 10s), checks if 50 bytes are stored in the globally accessible data structure and prints only the latest 50 bytes (in hex value) and deletes the printed bytes from the data structure.

3. For example, 1st second 4 bytes are added, 2nd second 3 bytes are added and 10th second there are 39 bytes are in the buffer. Thus at 10th second data is not printed. At 20th second, if there are more than 50 bytes in the buffer, the main thread only prints the latest 50 bytes and deletes them.

Considerations:

- Make an application that can be run on online c compiler platforms like https://www.programiz.com/c-programming/online-compiler/.
- Share in a Github repository the code and relevant documentation.
- State all relevant assumptions that you've made for this project.