Lab1 2023/09/15

B09901055 楊倢綺

Code: https://github.com/KellySayHello/Embedded-Lab

1. What is the effect or the meaning of the initial value of the semaphore?
   When a semaphore is set to 0, it means that there are no available resources or permissions initially. When a semaphore is set to 1, it means that there is one available resource or permission initially. One thread can access the controlled resource or critical section without needing to wait.
   In the experiment, semaphore is set to 0 at first so no thread can get in thus no LED will turn on. Until we press the button, the semaphore will be released and one thread can get in.

2. What is the purpose of the C keyword volatile in the program?
   Volatile is used in a program to indicate to the compiler that a particular variable can be modified in the main memory instead of changing it in the register. The variable's value may change at any time, by changing the value in main memory, these transitions can be seen and shared by all threads immediately.

3. What are the roles played by the parameters of methods fall() and rise() in class InterruptIn?
   (Hint: the parameters are functions, which are registered as callback functions. Please see https://os.mbed.com/docs/mbed-os/v6.15/apis/interruptin.html)
   fall() and rise() methods are used to register callback functions that get called when a digital input pin transitions from one state to another(high->low or low->high). The parameters passed to these methods are the functions that will be executed when the specified edge (falling or rising) is detected on the input pin. These callback functions play specific roles in responding to these transitions.