| BLG351E<br><br>Experiment 5<br>“7-Segment Display and Interrupt Subroutine”<br>REPORT | CRN | 12635 |
|---|---|---|
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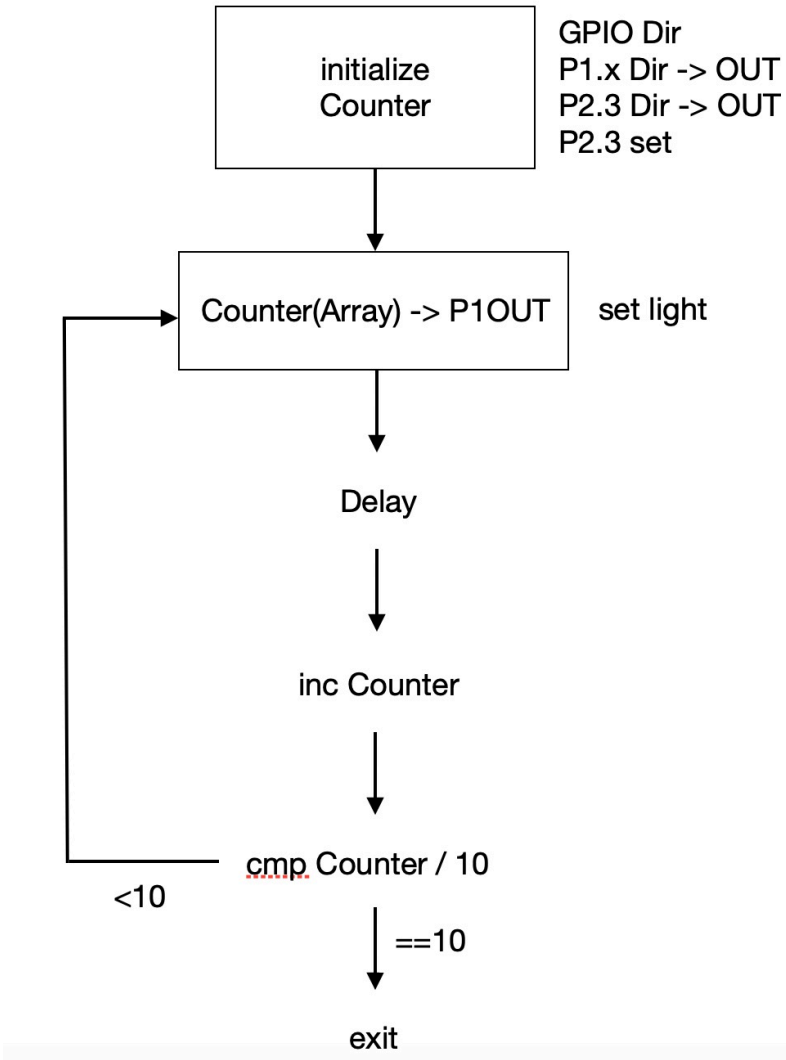
Q1) (60 pts.) Draw the flowchart of your counter program in part 1.




Q2) (40 pts.) Briefly explain the advantages/disadvantages of using *busy-waiting* and *interrupt mechanism* in order to detect an event in a computer system in your **own** words **at most** 150 words.

Busy waiting keeps CPU busy by polling the input signal. The sampling frequency of the input is limited by the frequency of the polling instruction. If the code size gets bigger the polling frequency decreases. Being signaled by the hardware, interrupts do not have the sampling problem. Their sampling frequency is decided by the interrupt controller hardware. Thus interrupts have response times which are not bounded by software. Using interrupts allows the CPU to do other more useful things as busy waiting blocks other code.

Regarding disadvantages interrupts require special hardware in place to work. They might add complexity to the board and CPU design slightly. It adds more complexity to the software. The control logic can get to states in no particular order which requires careful design of shared resources between ISR and the rest of the code.