

COSE321 Computer Systems Design

Assignment #3

No late turn-in accepted

Write a program (assembly + C) satisfying the following requirements. Then, execute the program on Zedboard.

- ① **ARM assembly:** Turn on only one LED at a time, starting from LED0 (LD0) to LED7 (LD7) and wrapping around (LD0 → LD1 → LD2 → LD3 → LD4 → LD5 → LD6 → LD7 → LD0 → LD1 ...)
 - Check out the switch input at the beginning of each iteration
 - LED's on duration is set based on the switch input, as described in ②
- ② **C code:** Take input from the switches on the board. (there are 8 switches: SW7 ~ SW0). SW7 has the highest priority and SW0 has the lowest. It means that, for example, if SW7 is in the up position, SW6 ~ SW0 positions are ignored.
 - If SW7 is in the up position, the on duration is roughly 100 msec
 - If SW6 is in the up position, the on duration is roughly 200 msec
 - If SW5 is in the up position, the on duration is roughly 300 msec
 - If SW4 is in the up position, the on duration is roughly 400 msec
 - If SW3 is in the up position, the on duration is roughly 500 msec
 - If SW2 is in the up position, the on duration is roughly 600 msec
 - If SW1 is in the up position, the on duration is roughly 700 msec
 - If SW0 is in the up position, the on duration is roughly 800 msec
 - Otherwise, the LED's on duration is roughly 1 second.

What and How to submit:

1. Upload **your code (both C and assembly)** to Blackboard.
2. Upload **video clip (3-min?)** to Blackboard. Your video clip should have **at least** the following contents:
 - Your smiling face
 - Understandable explanation of your C and assembly code
 - Demo on Zedboard

Note: This is an individual assignment. You are welcome to discuss, but DO NOT COPY solution. If you are found to copy a solution from others or slightly modify the solution from others, both of you will be given zero credits.