MT02 ECE2560 Au 2021

Due date: Sunday Oct. 31, 11:59pm
Collaboration with other students is not allowed

Use Code Composer Studio and your Launchpad to write and execute one complete assembly language program to perform the following task. Use variables in RAM or values in core registers to store temporary values (Do not use core registers R0, R1, R2 and R3). Make sure to comment your program:

Place an array labeled *a* in RAM with the following 8 bit signed decimal elements:
-4, 30, 2, -22, 31, 42, 30, 41, 51, 0

Task: Use a single *for loop* (alternate implementation, page 15, lesson 11) and a single *if-else structure* (alternate implementation, page 13, lesson 11) to replace all even values of the array with 0, and all odd values by 1. It is a requirement that you use the structure for the *for loop* and *if-else structure* (alternate implementations) as described in lesson 11.

Hint to determine even or odd: The least significant bit (when expresses as a binary number) of an even number is equal to 0. The least significant bit (when expresses as a binary number) of an odd number is equal to 1.
Note: Use the *Indexed addressing mode* to access the elements of the array. Use the *register addressing mode* to access the values stored in core registers. Use the *absolute addressing mode* to access the values stored in variables. Use *immediate addressing mode* for constants and literals. Your program should be complete following all the practices taught in the class. Although all screencasts are important, specifically watch screencasts 10, 11, 12 for relevant material.

Use the word template and instructions contained on our web site to submit your screenshots to Carmen. Do not email directly to your TA or me. Files emailed to the TA or me will not be accepted. Include the following in your submission:

i) Pseudo code (Word or pdf format)
ii) Figure containing the flow chart
iii) Assembly language source code (Word format only)
iv) Screenshot of the "General" tab of the properties screen of your project. Note: In CCS, right click on your project folder in "project browser" and choose "properties" to get to the properties screen.
v) In the debugger execute your program (green play button) and pause (suspend) it. While the program is paused (suspended) take the following screenshot (use "8 bit Signed Int" to display the data as decimal numbers):
Screenshot of the memory browser showing the array *a.*

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