

## MT01 ECE2560 Sp 2022

Due date: Sunday Feb. 27, 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. Make sure to comment your program:

Place an array labeled *array* in FRAM with the following 16 bit signed decimal elements:

-11, -300, -28, -11, 99, -41, -310, -11, 121, -99

**Hint:** to use signed decimals in CCS simply use the following syntax:

array: .word -11, -300, -28, -11, 99, -41, -310, -11, 121, -99

Create a 16 bit variable named *count* in RAM with an initial value of 0

**Task:** Use a single *for loop* (alternate implementation, page 15, lesson 11) and a single *if statement* (alternate implementation, page 9, lesson 11) to determine the number of negative elements in the array. Store the number of negative elements in the variable *count*. It is a requirement that you use the structure for the *for loop* and *if statement* (alternate implementations) as described in lesson 11.

**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 class.

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) Picture or Text containing the pseudo code
- ii) Picture containing the flow chart
- iii) Assembly language source code in MS Word format. **Picture or pdf format is not permissible for the source code.**
- 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) Screenshots of the memory browser showing *array* and *count* (after running and pausing your program). Use "16-bit Signed Int" format in the memory browser to display the values in the memory as signed decimal numbers.