# CSC 3210 – Assignment #2 Spring 2021

**Due date: 03/01/21 11:59 PM**

**Objective:** Learn memory organization/layout, data transfer concepts and instructions, direct memory access, memory allocation.

**Requirements:**

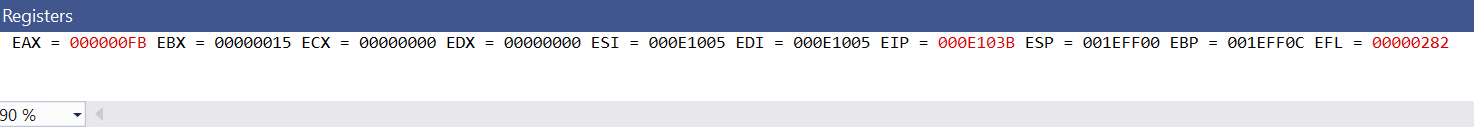
1. **(5 points) Implement the following expression in assembly language:**

AL = (val3 + 7) - (var2 + val1) + (5/3)\*7

* + - * Assume that val1, val2, and val3 are 8-bit integer variables - Initialize val1 with 12, val2 with 9, and val3 with 2
      * You are only allowed to use 8-bit registers.
      * Use ONLY mov, add, sub instructions whenever needed. - Use the debugger to verify your answer.

o **Submit the following:**

§ Save your source code as Lastname1.asm and upload the Lastname1.asm § Screenshot showing that AL register contains the correct result.



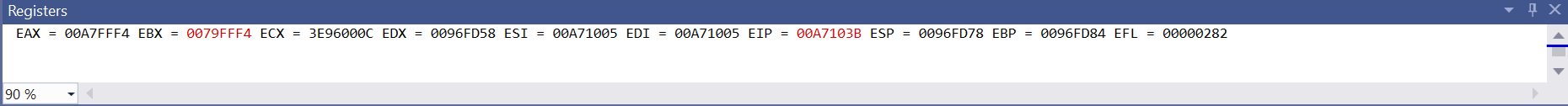
1. **(5 points) Implement the following expression in assembly language:**

BX = –val2 + 7 - (- val3 + val1)

* + - * Assume that val1, val2, and val3 are **8-bit integer variables**
      * Initialize val1 with 12, val2 with 9, and val3 with 2
      * You are only allowed to use **16-bit registers** to hold intermediate results, whenever needed.
      * Use mov, add, sub, movzx, movzx, or neg instructions whenever needed.
      * Use the debugger to verify your answer.

o **Submit the following:**

§ Save your source code as Lastname2.asm and upload the Lastname2.asm § Screenshot showing that BX register contains the correct result.



1. (3 points) True/False
   1. The instruction, var BYTE A

Stores character ‘A’ in to variable named *var*. FALSE

* 1. The instruction, var WORD “ABC”

stores the string ‘ABC’ in to variable named *var*. TRUE

* 1. The instruction, var DWORD “ABCD”

stores the characters ‘A’,’B’,’C’,’D’ in to variable named *var*. TRUE

1. (2 points) Declare a variable:

Var1 WORD 4 DUP (5 DUP (7) )

What is the total size of the array *Var1*? Explain your answer.

Var1 has 20 elements, each 1 WORD long. I found it by dividing the length of the array by 2, as each WORD is 2 BYTES. It is 40 BYTES long in total.

**Note:**

* **Submit** your source code by **only** uploading **.ASM file** using **iCollege** in the respective assignment dropbox: § Lastname1.ASM, Lastname2.ASM § **Comment header** for .ASM files:

Student: Full name

Class: CSC3210

Assignment#: 2

Description: This program ………….

* Follow the program standards as presented in your book. Pay more attention to code comments and consistent indentation.