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.

   - **Submit the following:**
     - Save your source code as Lastname1.asm and upload the Lastname1.asm
     - Screenshot showing that AL register contains the correct result.

2. **(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.

   - **Submit the following:**
     - Save your source code as Lastname2.asm and upload the Lastname2.asm
     - Screenshot showing that BX register contains the correct result.

3. (3 points) True/False

   (2.1) The instruction, `var BYTE A`

   Stores character 'A' in to variable named *var*.

   (2.2) The instruction, `var WORD "ABC"`

   stores the string 'ABC' in to variable named *var*.

   (2.3) The instruction, `var DWORD "ABCD"`

   stores the characters 'A','B','C','D' in to variable named *var*.

4. (2 points) Declare a variable:

   ```
   Var1 WORD 4 DUP (5 DUP (7) )
   ```

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

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.