CSC 3210 – Assignment #4
Fall 2021
Due 11/18/21, 11:59 PM

1. **(9 points)** Write an assembly program to implement the following.

```
sum = 0
i = 0
j = 12
var1 = 3
var2 = 3
var3 = 0
while ( (i < 20) and (j> -2)){
    if (var1 > var3):
        var1 =var1 - i
    else if (var2 < var3):
        var2 =var2 + j
    else:
        var3 = var3+ i

    sum = var1 + var2+ var3
    i = i+1
    j = j-1
}
```

- Use short-circuit evaluation
- Assume that A, B, and X are 16-bit signed integers variables
- You are not allowed to make any logical reduction to the code. You need to implement it the way it is provided.
    -
    - **Submit the following:**
        - Rename the asm file using your last name as Lastname1.asm and submit it.
        - Screenshot of the code
        - Then run the code until you reach INVOKE ExitProcess, 0
        - Then take a screenshot of the watch window showing Sum variable content.

2. **(6 points)** Write an assembly program to test if the MSB in the register **al** is set:
    - If it is set, then divide the content of **al** by 8 using the appropriate shift instruction and exit.
    - Else, if it is not set, then multiply the content of **al** by 4 using the appropriate shift instruction and exit.
    - When checking **al MSB,** do not change **al** content.
    - Assume that **al** is equal to the *signed integer* 88h.
    - You need to come up with the appropriate ***mask*** to check the MSB.
    - Run your program using the debugger to verify your answers.
        - **Submit the following:**
            - Rename the asm file using your last name as Lastname2.asm and submit it.
            - Screenshot of the code
            - Then run the code until you reach INVOKE ExitProcess, 0
            - Then take a screenshot of the register window.

Note:

- **Comment header** for .ASM files:

  Student Name

  Class: CSC3210

  Assignment#: 4

  Description: This program …….
- Follow the program standards as presented in your book. Pay more attention to code comments and consistent indentation.

- Create a new project for every question. Do not use one project with multiple .asm files.