**60-266 Lab 2**

OBJECTIVES:

i) To learn how to build and test a source program written in assembly language.

ii) To learn how to use the debugger.

The program **lab2.asm** is given below. We will use the debugger to add and remove breakpoints, and correct errors in the program. Then we will assemble, link and run the program.

STEP 1: Create a text file **lab2.asm** as given below.

STEP 2: Open Visual Studio and select **Open 🡪 Project/Solution** from the **File** menu.

STEP 3: Navigate to **C:\Irvine\examples\Project\_sample\** folder and open the file name **Project.sln**. In the *Solution Explorer* window, click the mouse next to the item named **Project** to expand it.

STEP 4: Right-click on **main.asm** in the *Solution Explorer* window. In the context menu, select **Exclude from Project**.

STEP 5: Drag your **lab2.asm** file with the mouse from a Windows Explorer window onto the name of your project in the *Solution Explorer* window. Double-click the file named **lab2.asm** to open it in the *Editor window*.

STEP 6: Select **Build Project** from the **Build** menu and fix any errors detected by the Assembler.

STEP 7: Insert a “Break” in the program, at the mov eax, val1 statement, by clicking on the left border.

STEP 8: Display the *register window* by selecting **Windows 🡪 Registers** from the **Debug** menu.

STEP 9: Check the values of val1 and val2 in the *watch window*.

STEP 10: Use F10 key to step through the program. View the contents of registers and variables at each step.

Answer the following questions:

What location (offset) is the instruction sub ecx, 500h stored in?

What is the content of register eax **before** executing instruction mov eax, val1

What is the content of register eax **after** executing instruction mov eax, val1

TITLE LAB 2 (lab2.asm)

Comment !

Description: This program illustrates addition and subtraction of 16-bit and 32-bitintegers and uses a call DumpRegs statement to display the register values.

WARNING: This program contains errors.

!

TITLE Program Lab2 (lab2sol.asm)

INCLUDE Irvine32.inc

.data

val1 dword 4040h

val2 word 1555h

val3 byte “Hello World”, 0

.code

main PROC

mov EDX, offset val3

call WriteString

call crlf

mov eax,val1

add eax,val2

mov ecx, val2

sub ecx, 500h

mov ebx, 3000h

add eax,bx

sub ax,cx

add val2, cx

mov eax, 1111h

add val1, eax

call DumpRegs

exit

main ENDP

END main