Name: **Kashif Ali**
Roll No: **20P-0648**
Section: **3D**

Lab-11 Tasks

Test.asm*

```asm
1   INCLUDE Irvine32.inc
2   .data
3   str1 byte '127&j~3#^&*#*#45^', 0
4   msg1 byte "Index is: ", 0
5
6   count DWORD ?
7   .code
8
9   main PROC
10
11  call Scan_string
12
13  exit
14  main ENDP
15
16  Scan_string PROC
17
18      mov count, 0
19      mov ecx, LENGTHOF str1
20      mov bl, '#'
21
22      L1:
23          movzx eax, byte PTR str1[count]
24          cmp al, bl
25          je done
26          inc count
27
28          loop L1
29
30      done:
31          mov eax, count
32          mov edx, OFFSET msg1
33          call WriteString
34          call Writedec
35
36      ret
37  Scan_string ENDP
38
39
40  END main
41
```

Microsoft Visual Studio Debug Console

Index is: 7
C:\Users\AA\source\repos\Assembly Practice\Debug\Assembly Practice.exe (process 14796) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .

Task - 1

Microsoft Visual Studio Debug Console

```
Index is: 7
C:\Users\AA\source\repos\Assembly Practice\Debug\Assembly Practice.exe (process 19332) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

Task - 2

```asm
INCLUDE Irvine32.inc
.data
str1 byte '127&j~3#^&*#*845^', 0
msg1 byte "Index is: ", 0

count DWORD ?
.code

main PROC

push OFFSET str1
push '#'

call Scan_string

exit
main ENDP

Scam_string PROC

    push ebp
    mov ebp, esp


    mov count, 0
    mov ecx, LENGTHOF str1
    mov bl, '#'

    l1:
        movzx eax, byte PTR str1[count]
        cmp al, bl
        je done
        inc count

        loop l1

    done:
        mov eax, count
        mov edx, OFFSET msg1
        call WriteString
        call Writedec

        mov esp, ebx
        pop ebp

    ret 6
Scam_string ENDP


END main
```

Debug ▾ x86 ▾   ▶ Local Windows Debugger ▾

Test.asm* ⊞ ✕

```
msg1 byte "Strings are equal.", 0
msg2 byte "Strings are not equal.", 0
count DWORD ?

.code
main PROC
call IsCompare

exit
main ENDP


IsCompare PROC

mov eax, OFFSET str1
mov ebx, OFFSET str2

mov count, 0

mov ecx, 8

    L1:
        cmp eax, ebx
        je ad

    back:
        loop L1

    ad:
        inc count
        cmp count, 8
        je next
        jmp false


    next:
        mov edx, OFFSET msg1
        call WriteDec
    false:
        mov edx, OFFSET msg2
        call WriteDec

    ret

IsCompare ENDP


END main
```

Microsoft Visual Studio Debug Console

```
Strings are equal.
C:\Users\AA\source\repos\Assembly Practice\Debug\Assembly Practice.exe (process 16552) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Task - 3

Solution Explorer

Search Solution Explorer (Ctrl+;)

- Solution 'Assembly Practice' (1 of 1 project)
  - Assembly Practice
    - References
    - External Dependencies
    - Header Files
    - Resource Files
    - Source Files

64 %   ✓ No issues found   Ln: 9   Ch: 14   TABS   CRLF

Ready

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help   Search (Ctrl+Q)   Assembly Practice

Debug x86 Local Windows Debugger

Test.asm

```
INCLUDE Irvine32.inc
.data

prompt1 byte 'Original String: ', 0
prompt2 byte 'Reversed String: ', 0
str1 byte '12345678', 0
revstr byte LENGTHOF str1
count DWORD 0
str2 byte '87654321', 0

.code
main PROC

    ;call reverse_string

    mov edx, OFFSET prompt1
    call writeString
    mov edx, OFFSET str1
    call writeString
    call CRLF
    mov edx, OFFSET prompt2
    call writeString
    mov edx, OFFSET str2
    call writeString


exit
main ENDP

reverse_string PROC

    mov eax, OFFSET str1
    mov ecx, LENGTHOF str1
    mov ebx, OFFSET revstr

    l1:
        ;mov eax[ecx], mov ebx[count]
        inc count

    loop l1

reverse_string ENDP



END main
```

Microsoft Visual Studio Debug Console

Original String: 12345678
Reversed String: 87654321
C:\Users\AA\source\repos\Assembly Practice\Debug\Assembly Practice.exe (process 8816) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
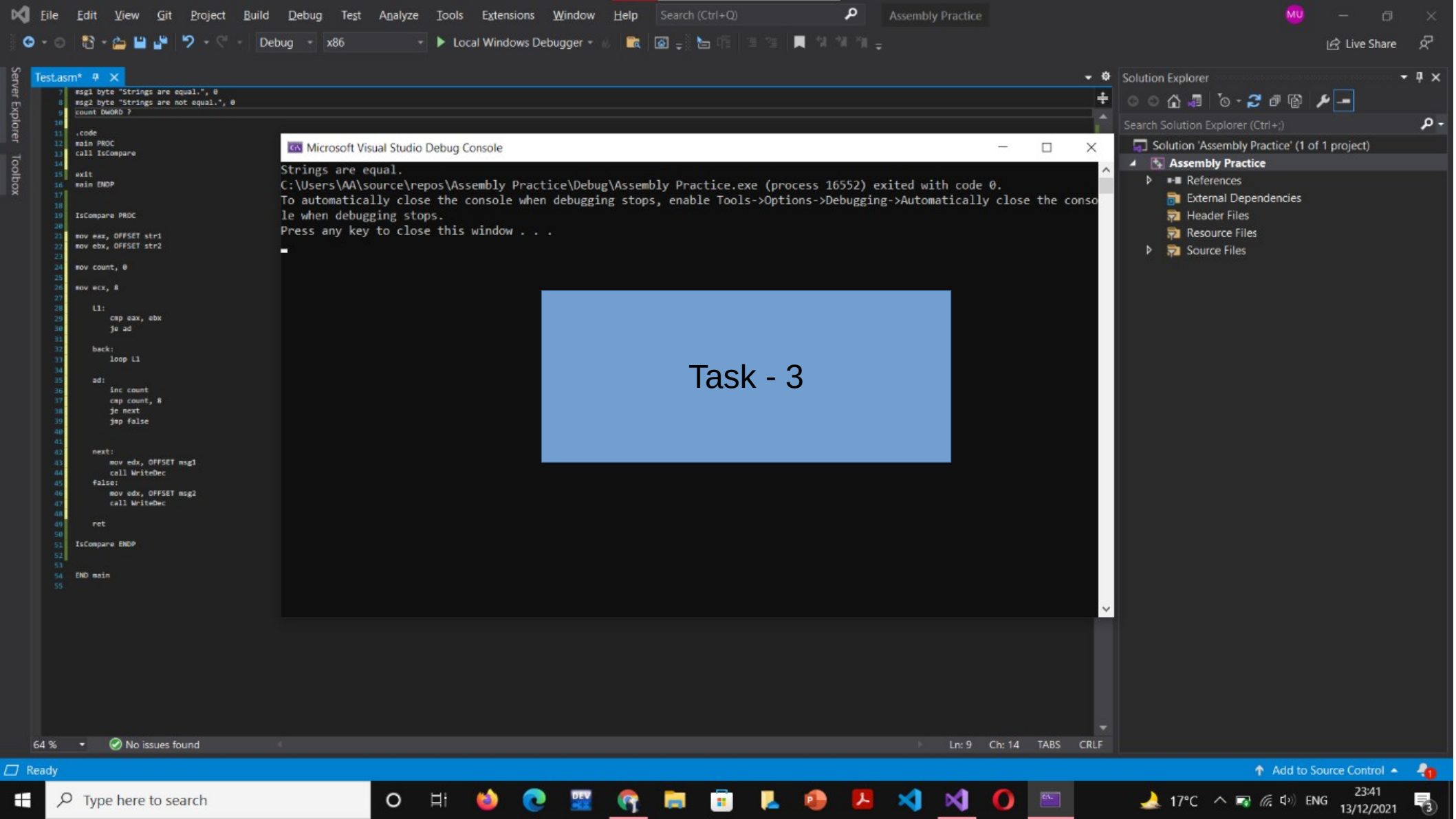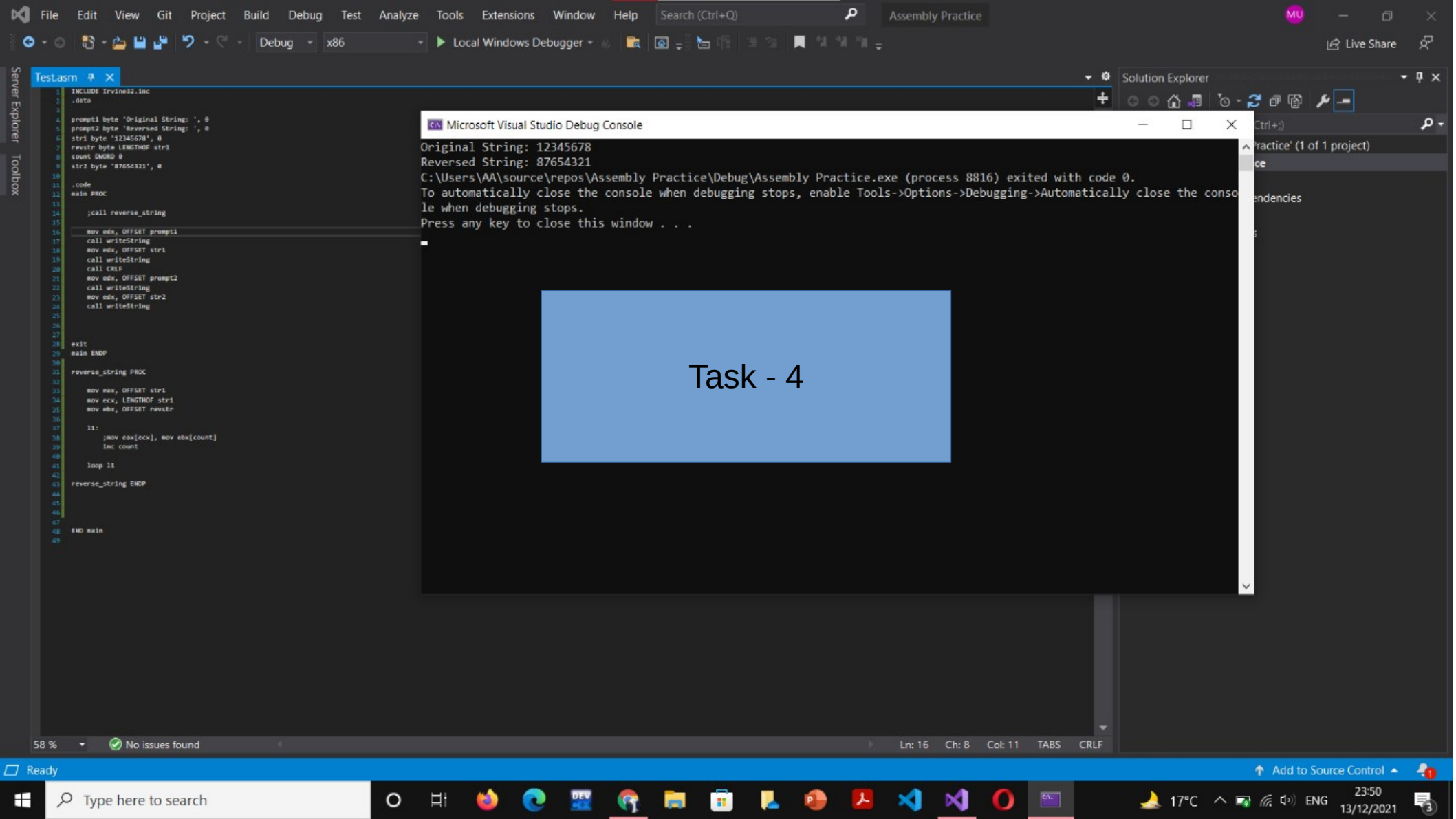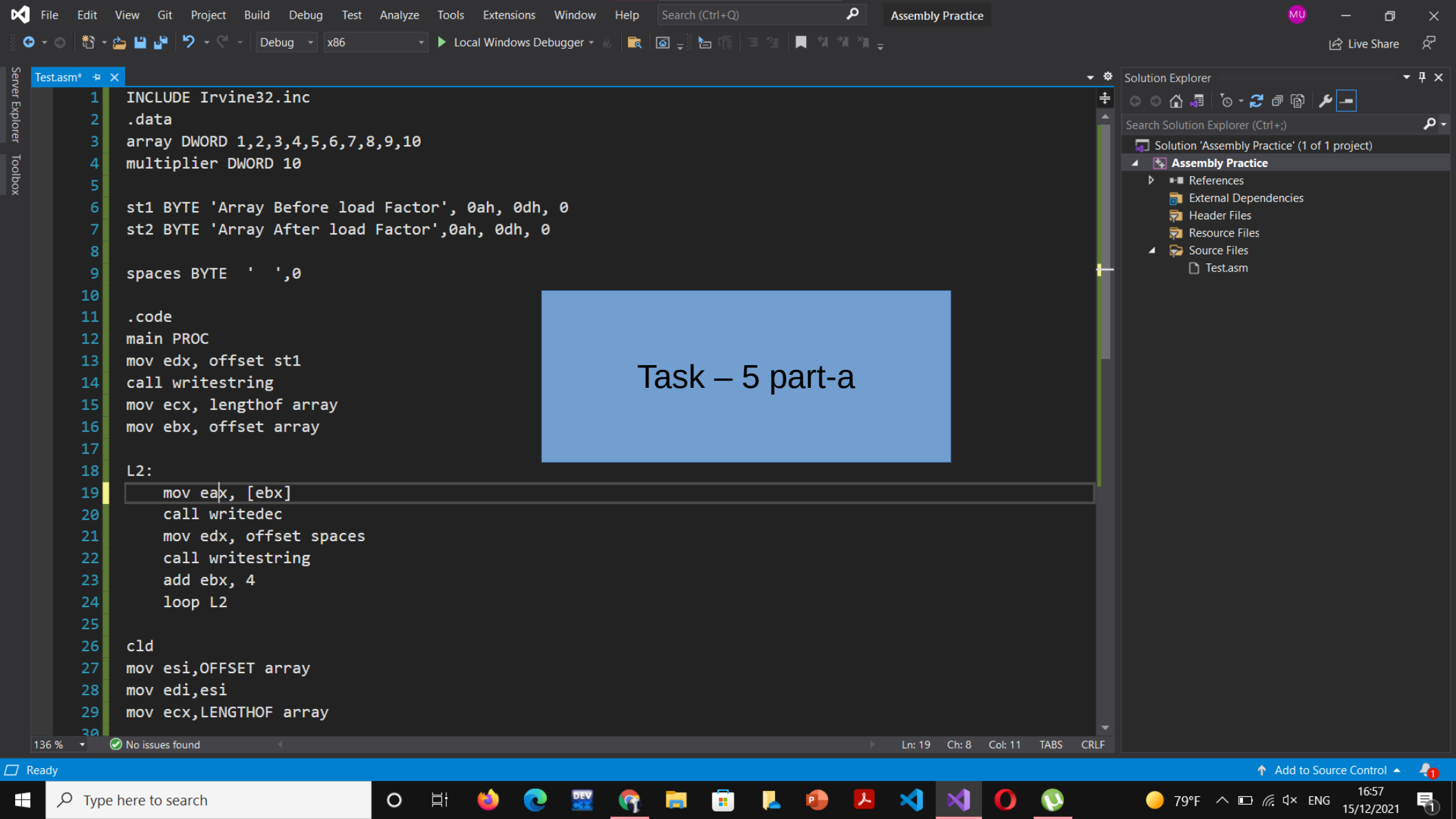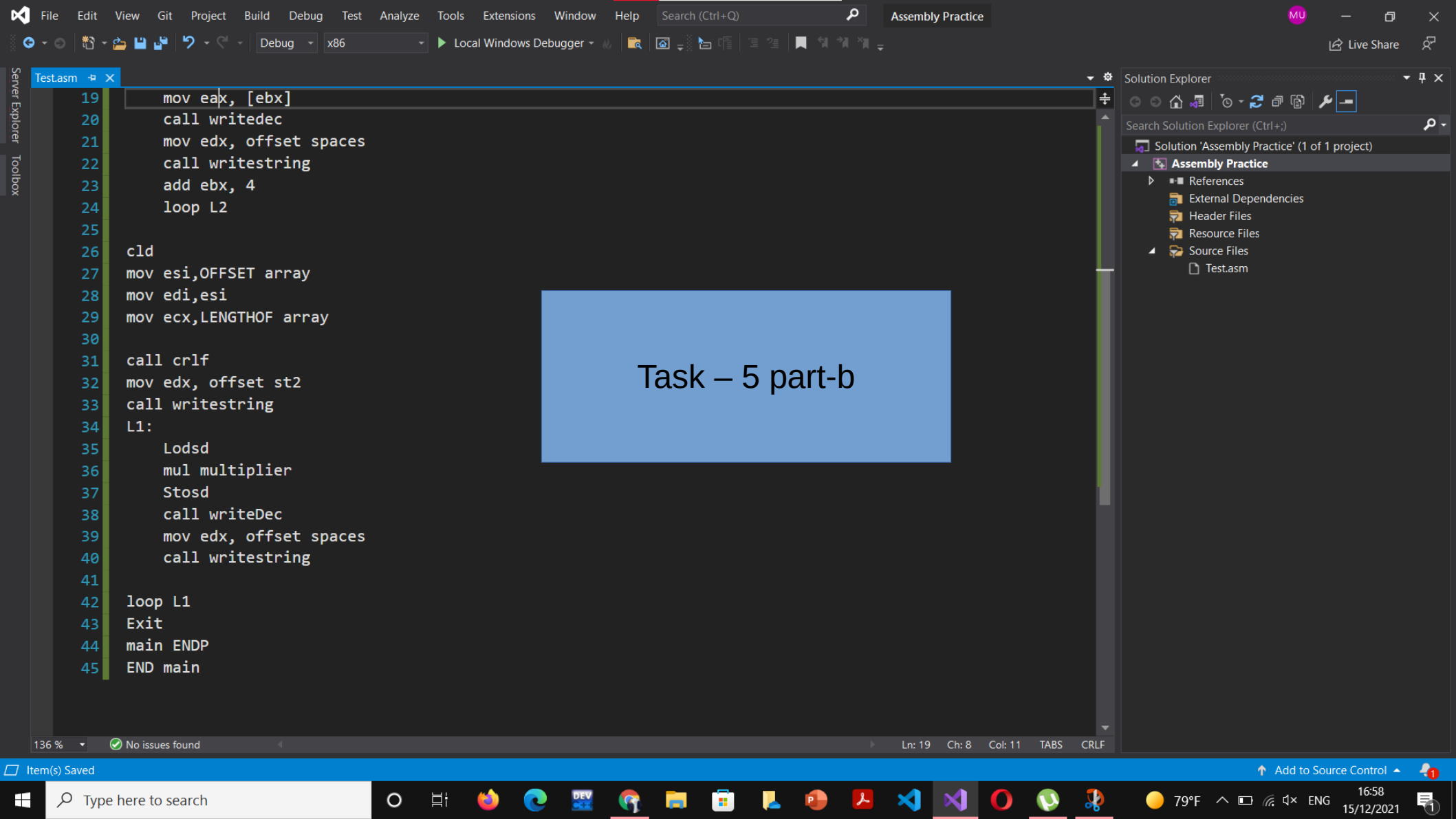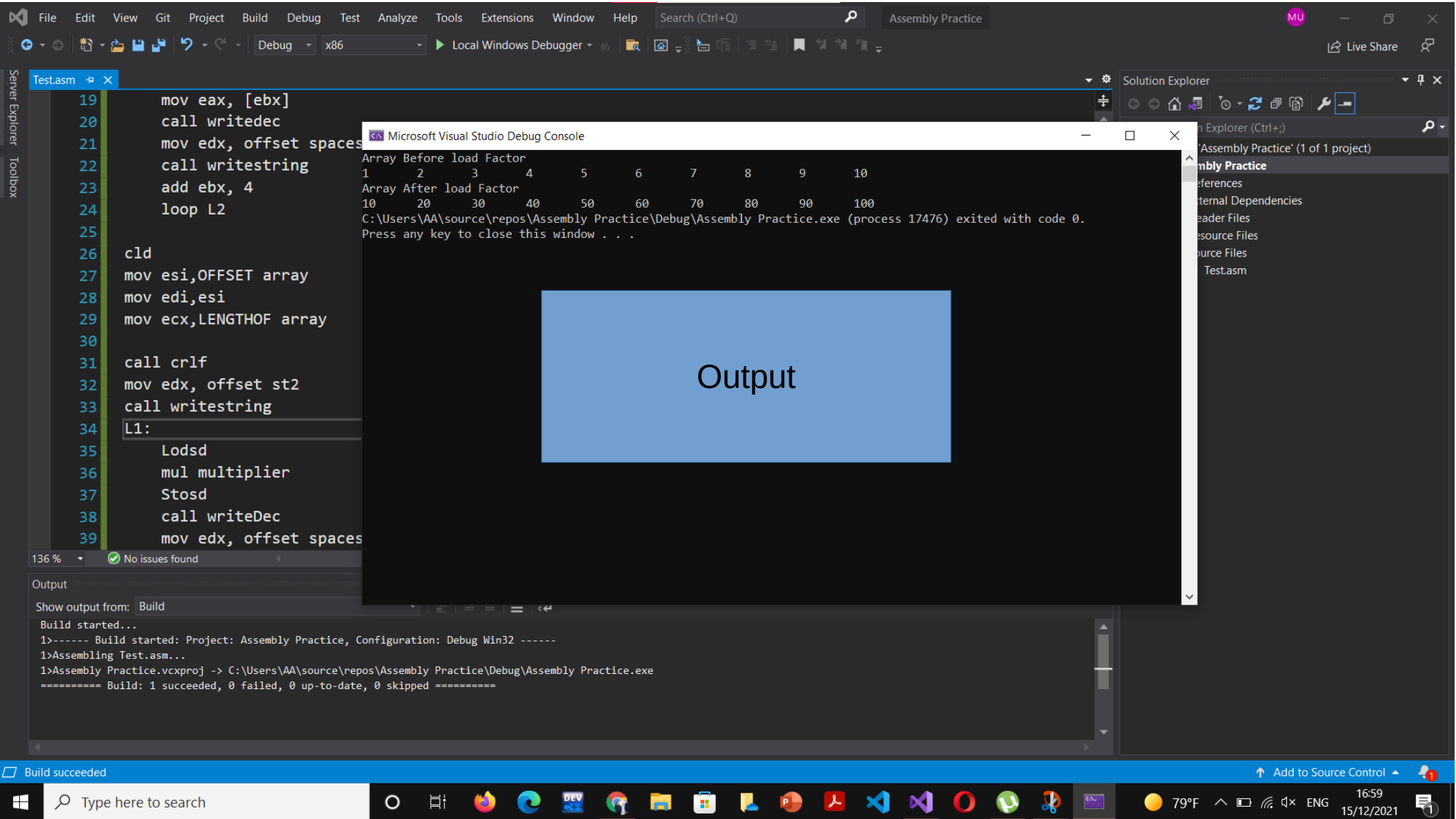Press any key to close this window . . .

Task - 4

Solution Explorer

Practice' (1 of 1 project)

58 %   No issues found   Ln: 16   Ch: 8   Col: 11   TABS   CRLF
Ready

```asm
INCLUDE Irvine32.inc
.data
array DWORD 1,2,3,4,5,6,7,8,9,10
multiplier DWORD 10

st1 BYTE 'Array Before load Factor', 0ah, 0dh, 0
st2 BYTE 'Array After load Factor',0ah, 0dh, 0

spaces BYTE '  ',0

.code
main PROC
mov edx, offset st1
call writestring
mov ecx, lengthof array
mov ebx, offset array

L2:
    mov eax, [ebx]
    call writedec
    mov edx, offset spaces
    call writestring
    add ebx, 4
    loop L2

cld
mov esi,OFFSET array
mov edi,esi
mov ecx,LENGTHOF array
```

Task – 5 part-a

```asm
        mov eax, [ebx]
        call writedec
        mov edx, offset spaces
        call writestring
        add ebx, 4
        loop L2

cld
mov esi,OFFSET array
mov edi,esi
mov ecx,LENGTHOF array

call crlf
mov edx, offset st2
call writestring
L1:
        Lodsd
        mul multiplier
        Stosd
        call writeDec
        mov edx, offset spaces
        call writestring

loop L1
Exit
main ENDP
END main
```

Task – 5 part-b

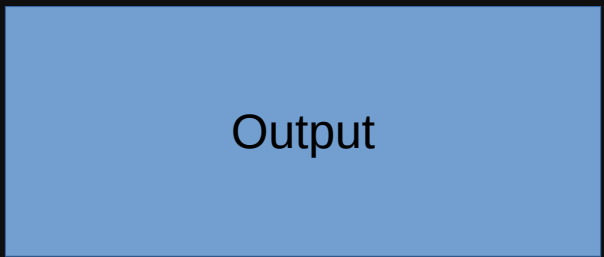Test.asm

```
19          mov eax, [ebx]
20          call writedec
21          mov edx, offset spaces
22          call writestring
23          add ebx, 4
24          loop L2
25
26      cld
27      mov esi,OFFSET array
28      mov edi,esi
29      mov ecx,LENGTHOF array
30
31      call crlf
32      mov edx, offset st2
33      call writestring
34      L1:
35          Lodsd
36          mul multiplier
37          Stosd
38          call writeDec
39          mov edx, offset spaces
```

136 %   ✓ No issues found

Microsoft Visual Studio Debug Console

```
Array Before load Factor
1       2       3       4       5       6       7       8       9       10
Array After load Factor
10      20      30      40      50      60      70      80      90      100
C:\Users\AA\source\repos\Assembly Practice\Debug\Assembly Practice.exe (process 17476) exited with code 0.
Press any key to close this window . . .
```
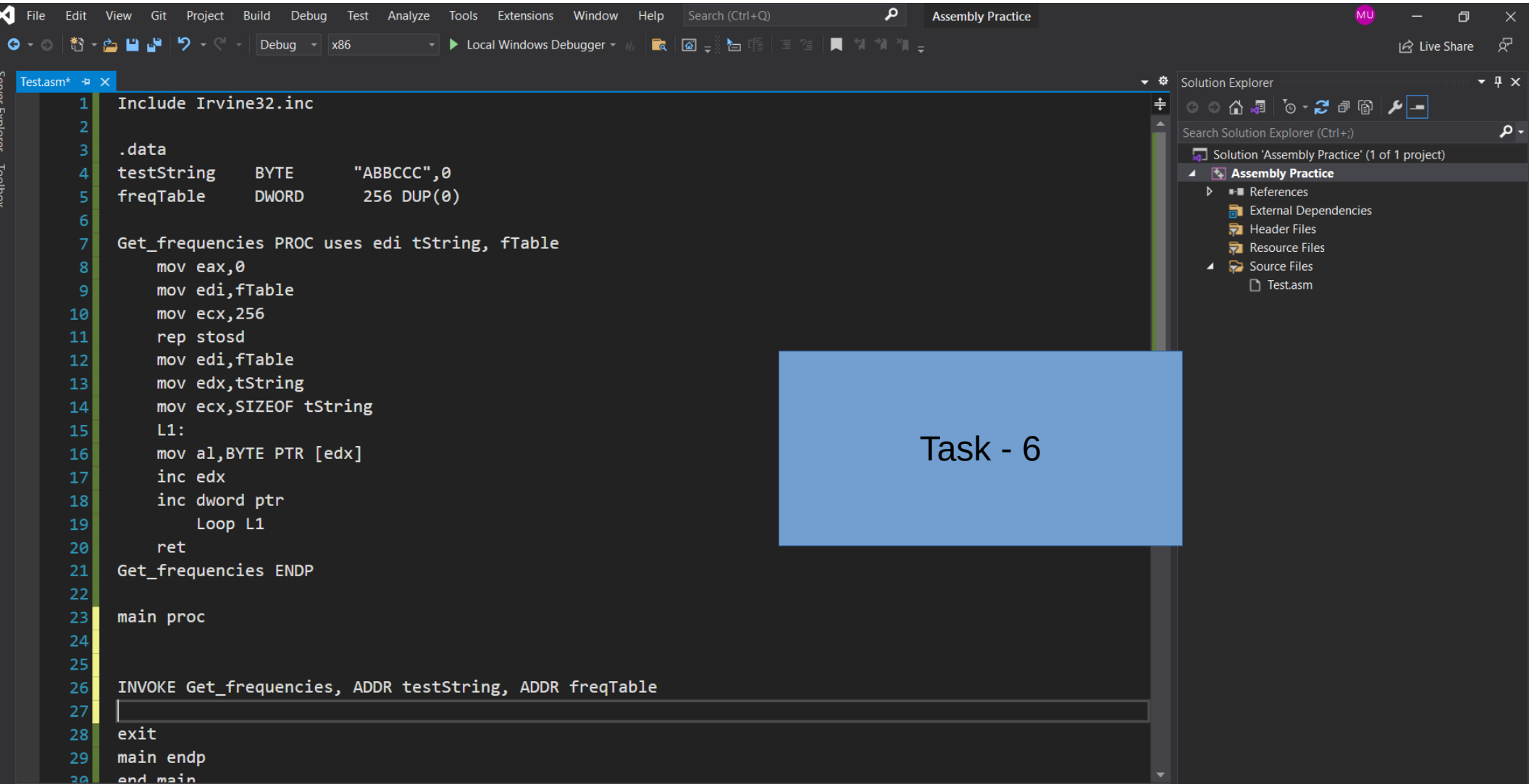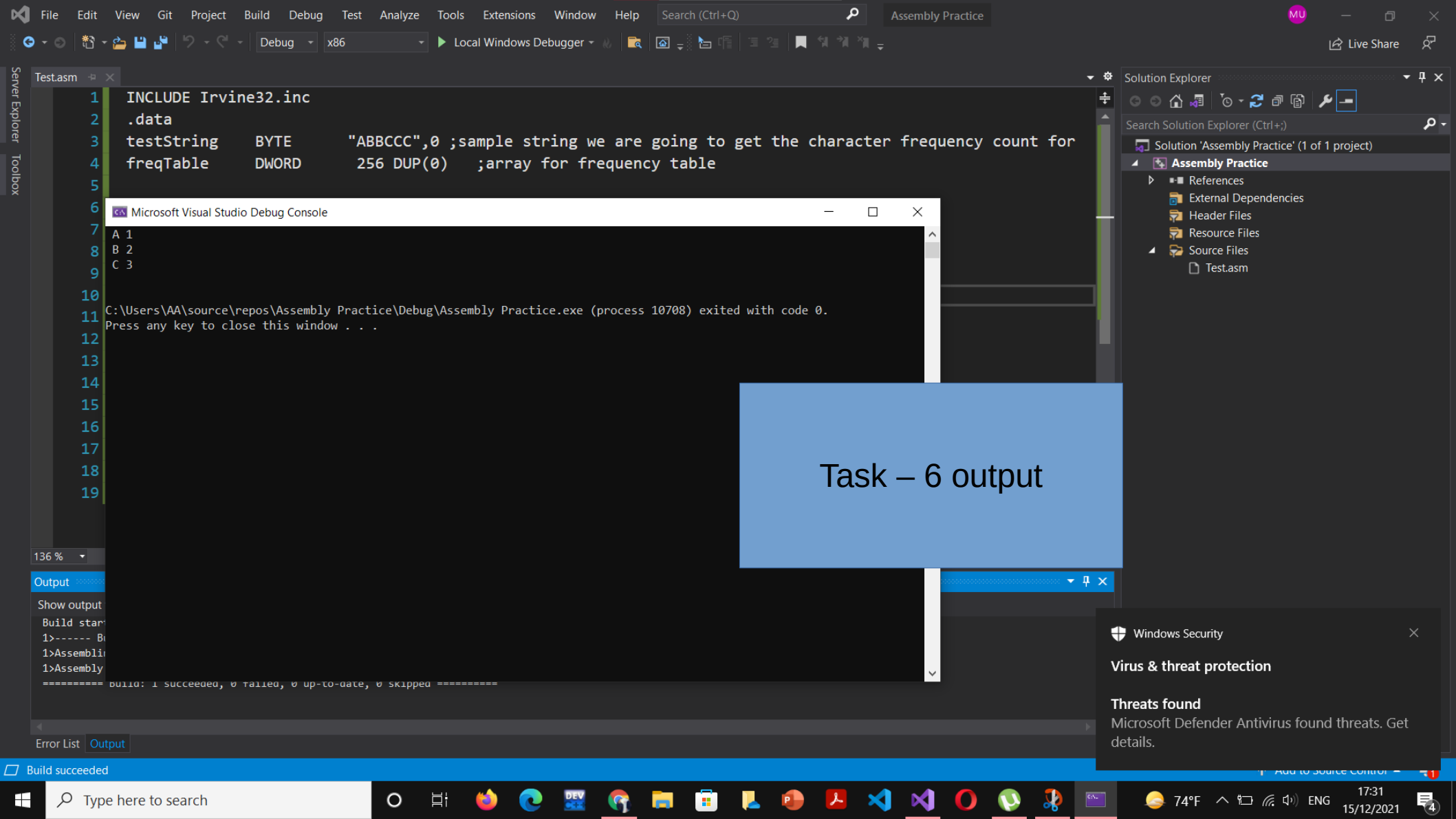
Output

Output

Show output from: Build

```
Build started...
1>------ Build started: Project: Assembly Practice, Configuration: Debug Win32 ------
1>Assembling Test.asm...
1>Assembly Practice.vcxproj -> C:\Users\AA\source\repos\Assembly Practice\Debug\Assembly Practice.exe
========== Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped ==========
```

```asm
Include Irvine32.inc

.data
testString      BYTE        "ABBCCC",0
freqTable       DWORD       256 DUP(0)

Get_frequencies PROC uses edi tString, fTable
    mov eax,0
    mov edi,fTable
    mov ecx,256
    rep stosd
    mov edi,fTable
    mov edx,tString
    mov ecx,SIZEOF tString
    L1:
    mov al,BYTE PTR [edx]
    inc edx
    inc dword ptr
        Loop L1
    ret
Get_frequencies ENDP

main proc


    INVOKE Get_frequencies, ADDR testString, ADDR freqTable

exit
main endp
end main
```

Task - 6

Task – 6 output

Thank You

...