COAL LAB TASK 07

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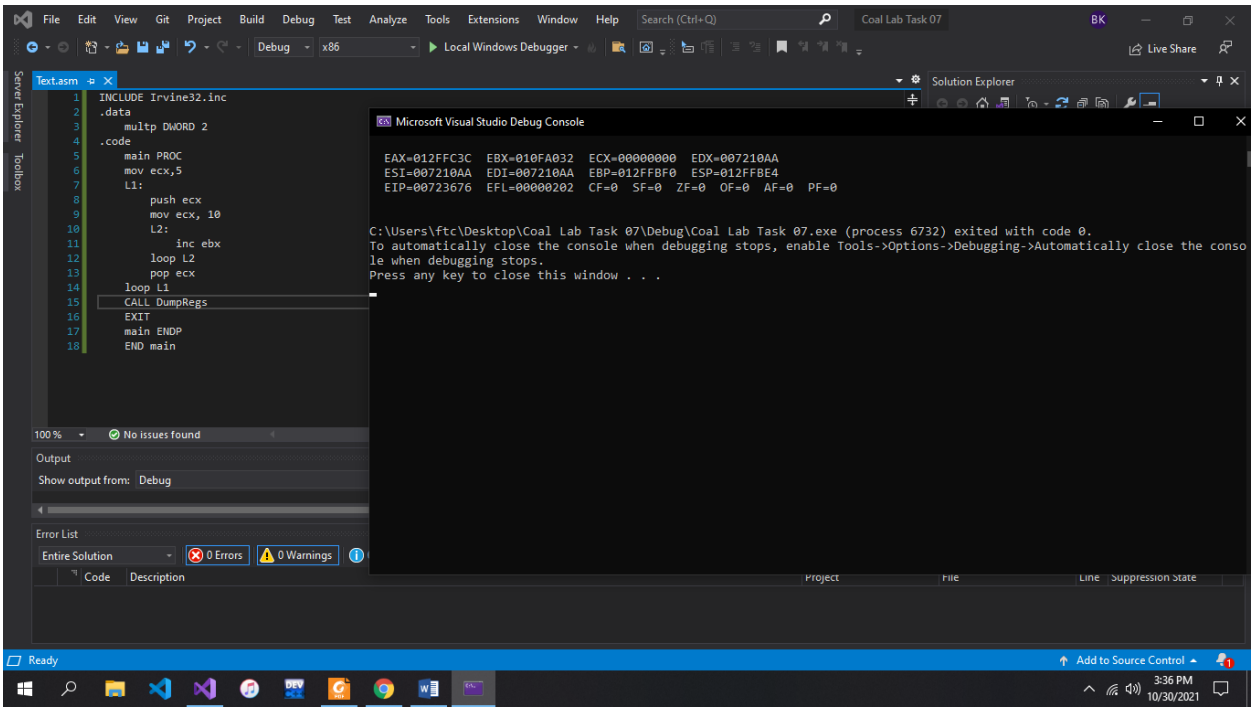
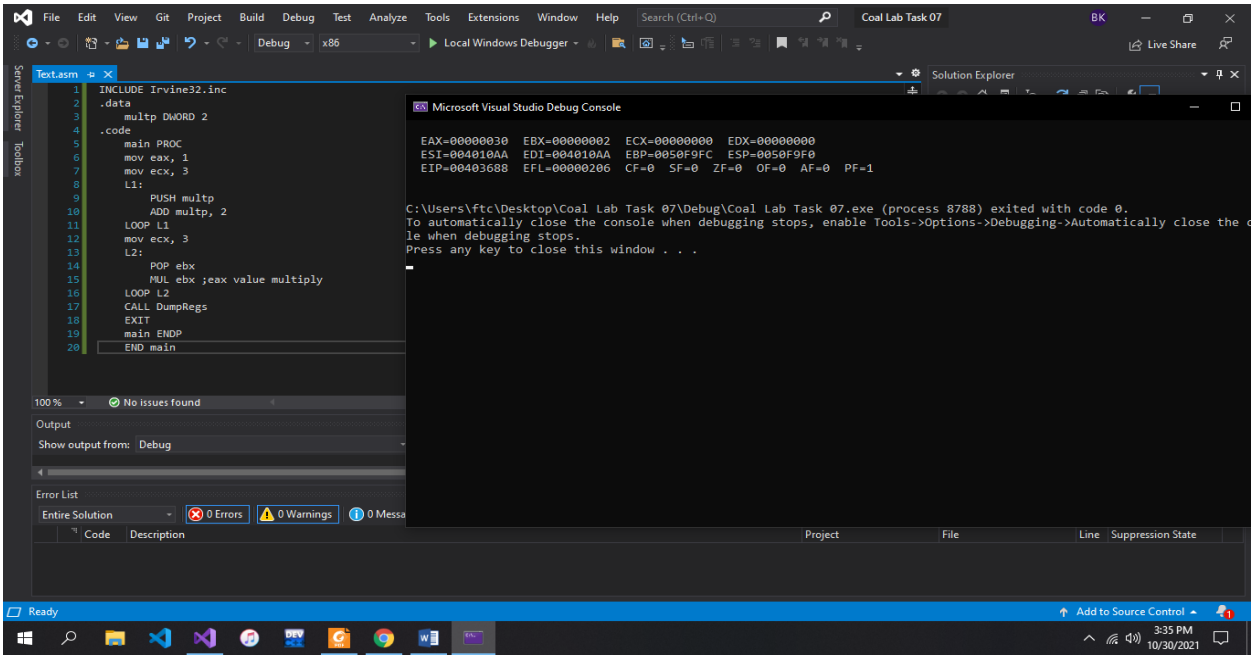
20K-0477

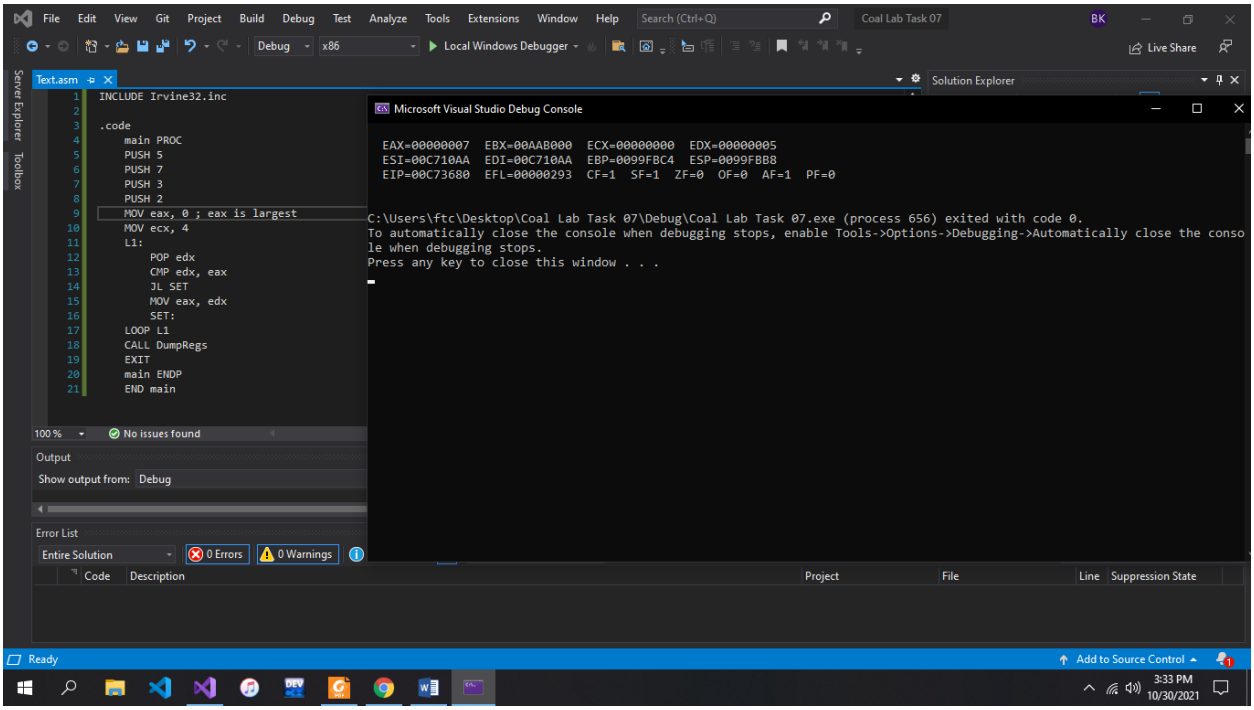
Example: Stack and Nested loops



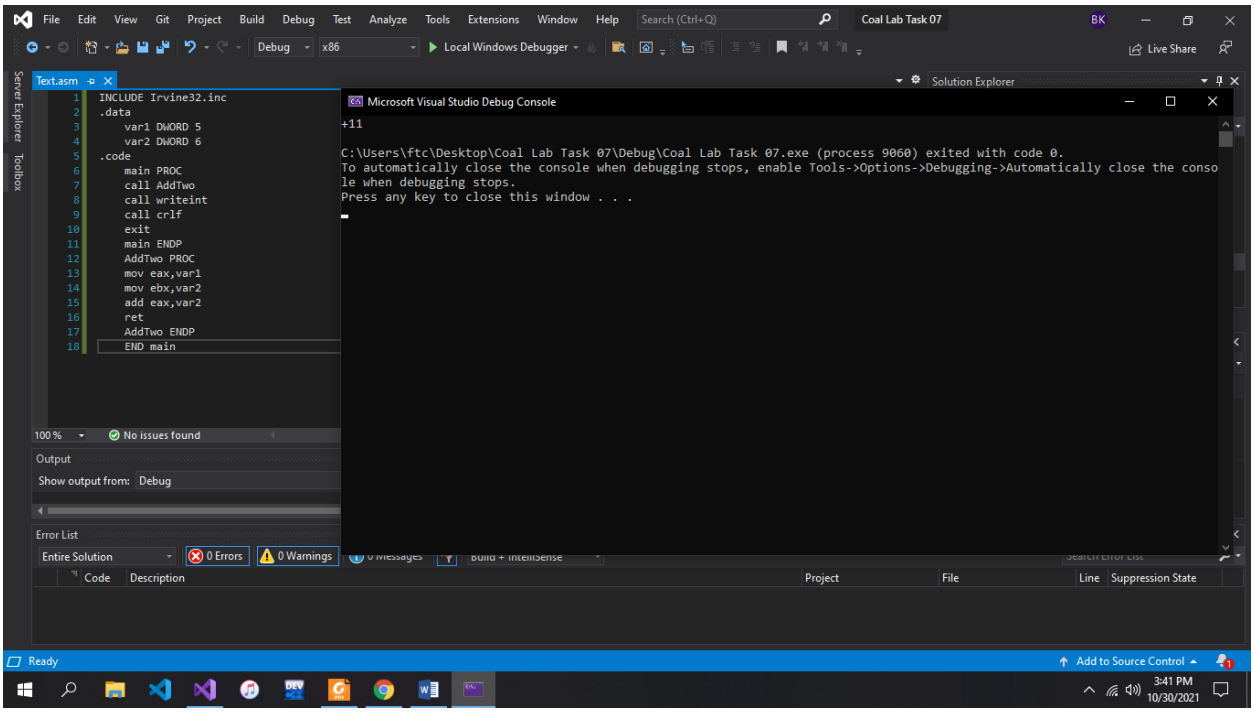
Example: Display the product of three integers using stack.



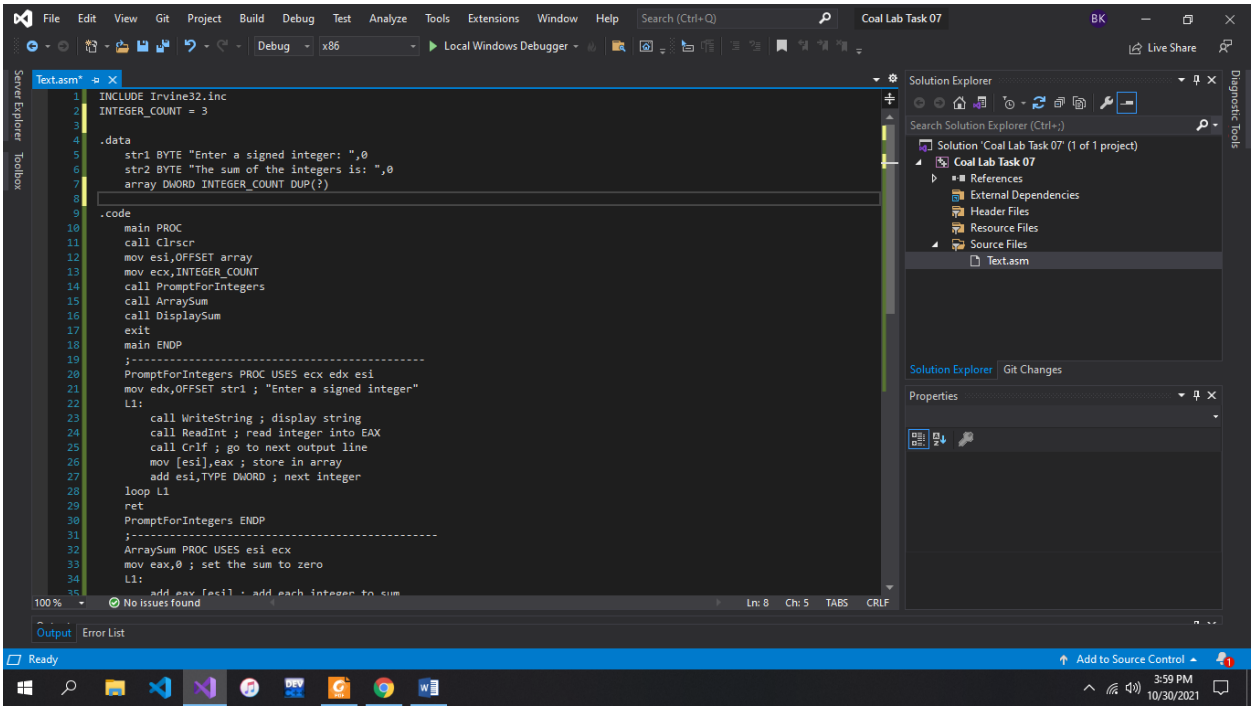
Example: To find the largest number through stack.

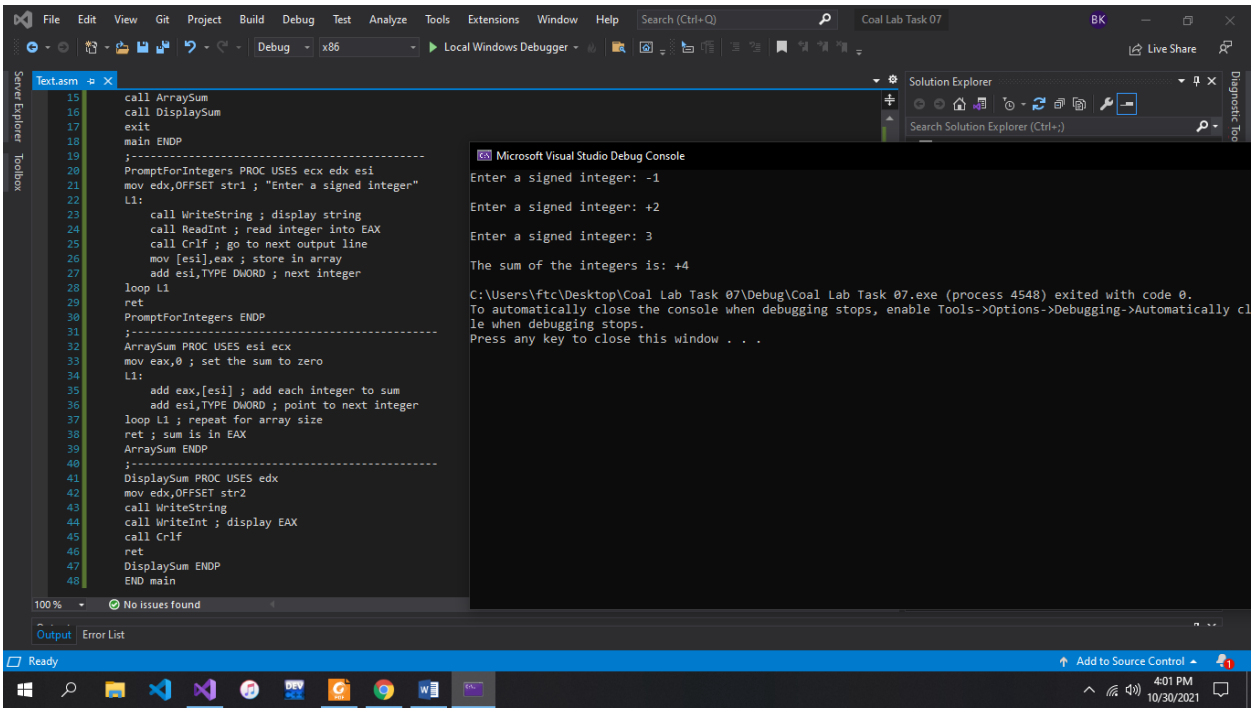


Example#01:

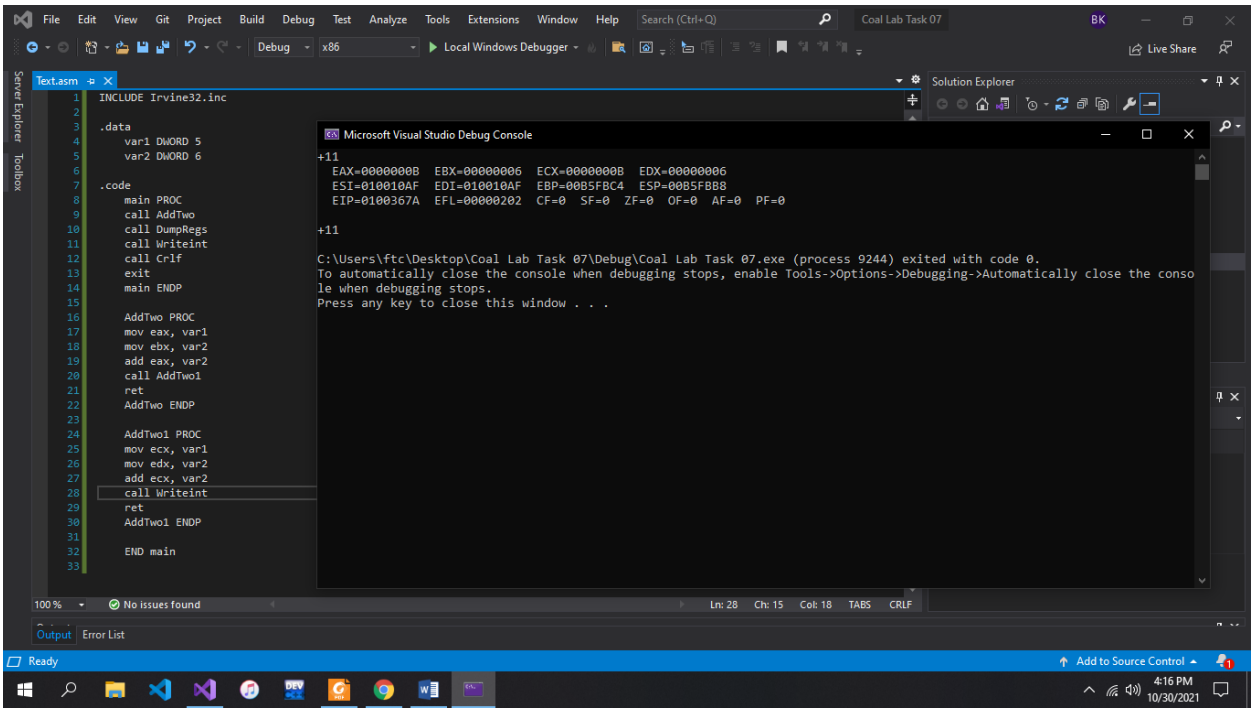


Example#02:

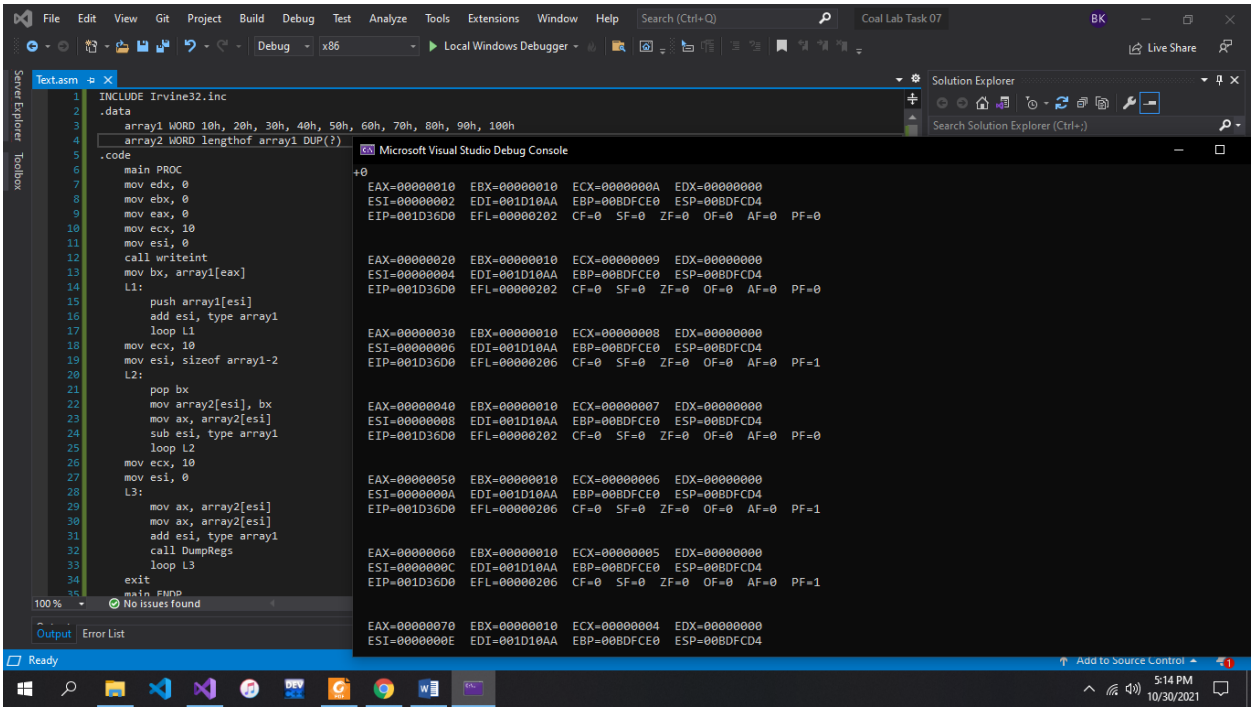

Text.asm*
INCLUDE Irvine32.inc
INTEGER_COUNT = 3
.data
str1 BYTE "Enter a signed integer: ",0
str2 BYTE "The sum of the integers is: ",0
array DWORD INTEGER_COUNT DUP(?)
.code
main PROC
call Clrscr
mov esi,OFFSET array
mov ecx,INTEGER_COUNT
call PromptForIntegers
call ArraySum
call DisplaySum
exit
main ENDP
;---
PromptForIntegers PROC USES ecx edx esi
mov edx,OFFSET str1 ; "Enter a signed integer"
L1:
call WriteString ; display string
call ReadInt ; read integer into EAX
call Crlf ; go to next output line
mov [esi],eax ; store in array
add esi,TYPE DWORD ; next integer
loop L1
ret
PromptForIntegers ENDP
;---
ArraySum PROC USES esi ecx
mov eax,0 ; set the sum to zero
L1:
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'Coal Lab Task 07' (1 of 1 project)
Coal Lab Task 07
References
External Dependencies
Header Files
Resource Files
Source Files
Text.asm
Properties
No issues found
Output
Error List
Ready
Add to Source Control

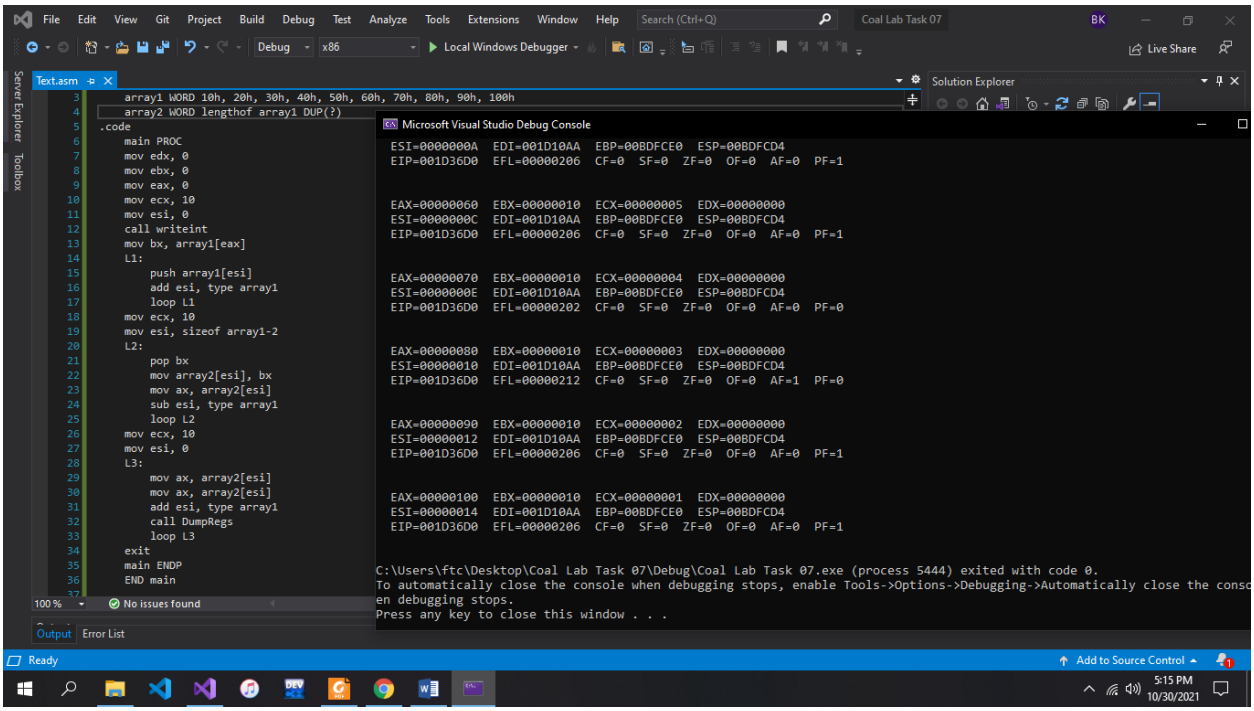

Text.asm
call ArraySum
call DisplaySum
exit
main ENDP
;---
PromptForIntegers PROC USES ecx edx esi
mov edx,OFFSET str1 ; "Enter a signed integer"
L1:
call WriteString ; display string
call ReadInt ; read integer into EAX
call Crlf ; go to next output line
mov [esi],eax ; store in array
add esi,TYPE DWORD ; next integer
loop L1
ret
PromptForIntegers ENDP
;---
ArraySum PROC USES esi ecx
mov eax,0 ; set the sum to zero
L1:
add eax,[esi] ; add each integer to sum
add esi,TYPE DWORD ; point to next integer
loop L1 ; repeat for array size
ret ; sum is in EAX
ArraySum ENDP
;---
DisplaySum PROC USES edx
mov edx,OFFSET str2
call WriteString
call WriteInt ; display EAX
call Crlf
ret
DisplaySum ENDP
END main
Microsoft Visual Studio Debug Console
Enter a signed integer: -1
Enter a signed integer: +2
Enter a signed integer: 3
The sum of the integers is: +4
C:\Users\ftc\Desktop\Coal Lab Task 07\Debug\Coal Lab Task 07.exe (process 4548) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically cl
le when debugging stops.
Press any key to close this window . . .
No issues found
Output
Error List
Ready
Add to Source Control

Example#03:

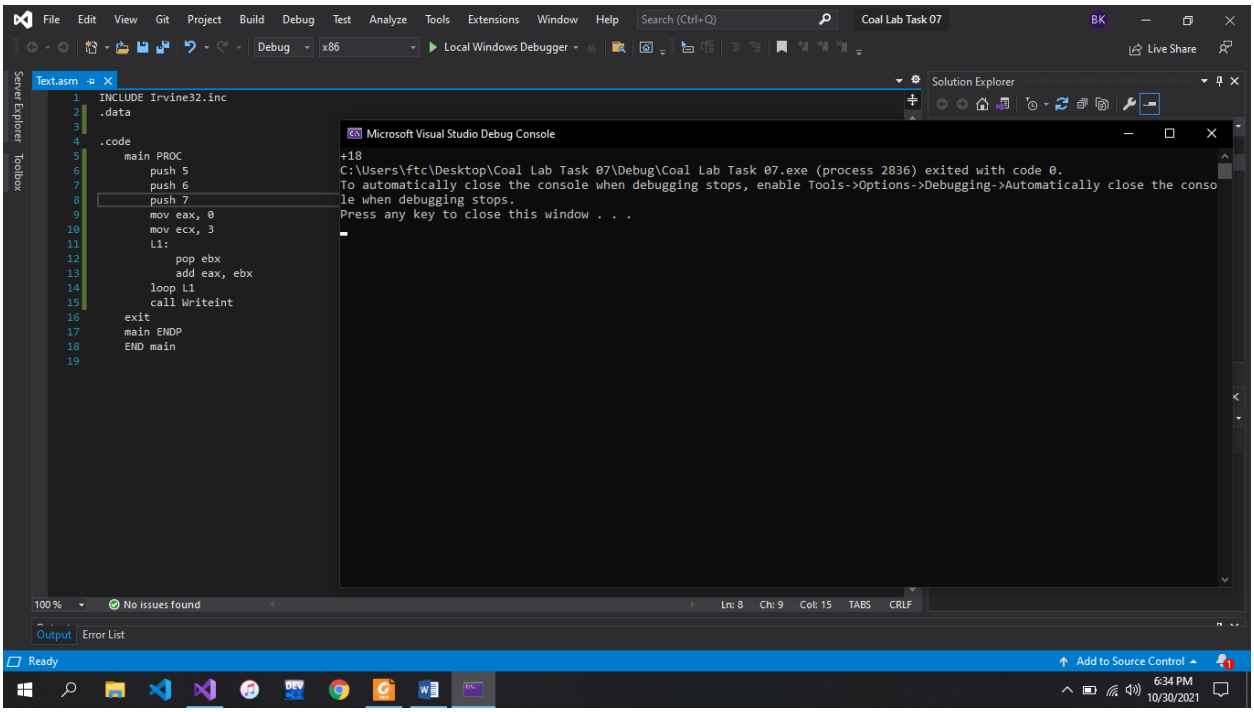


Task#01:

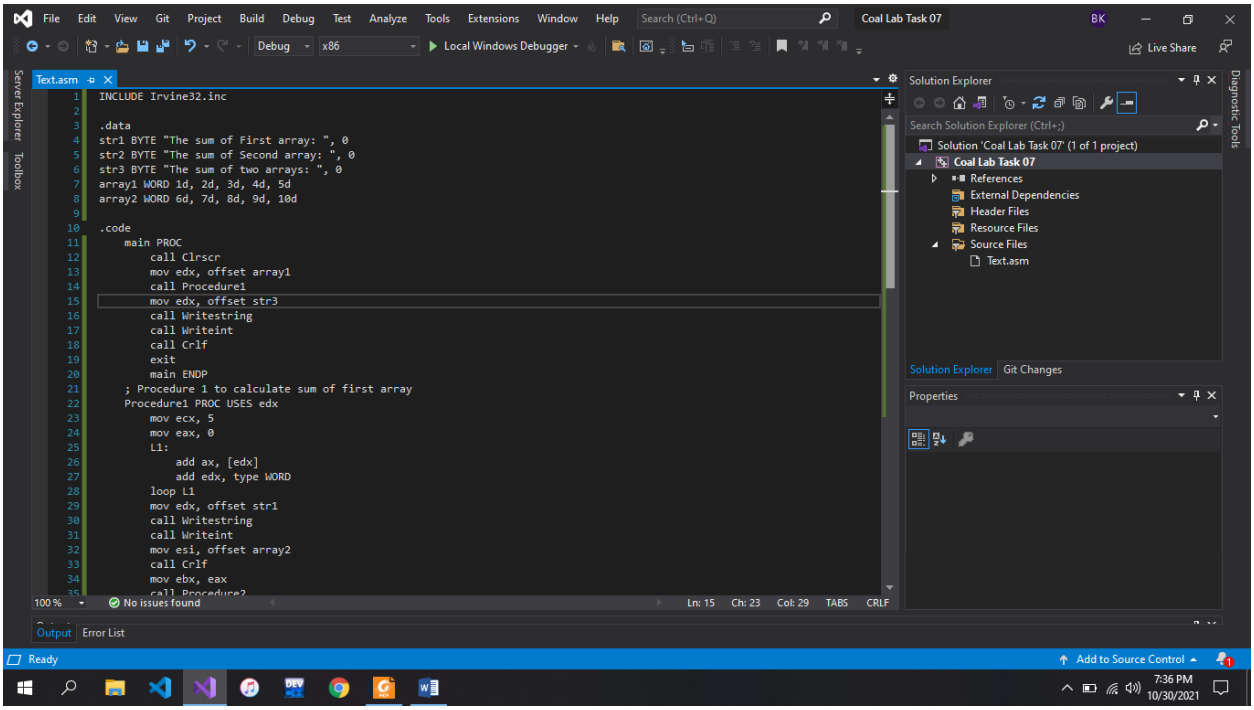


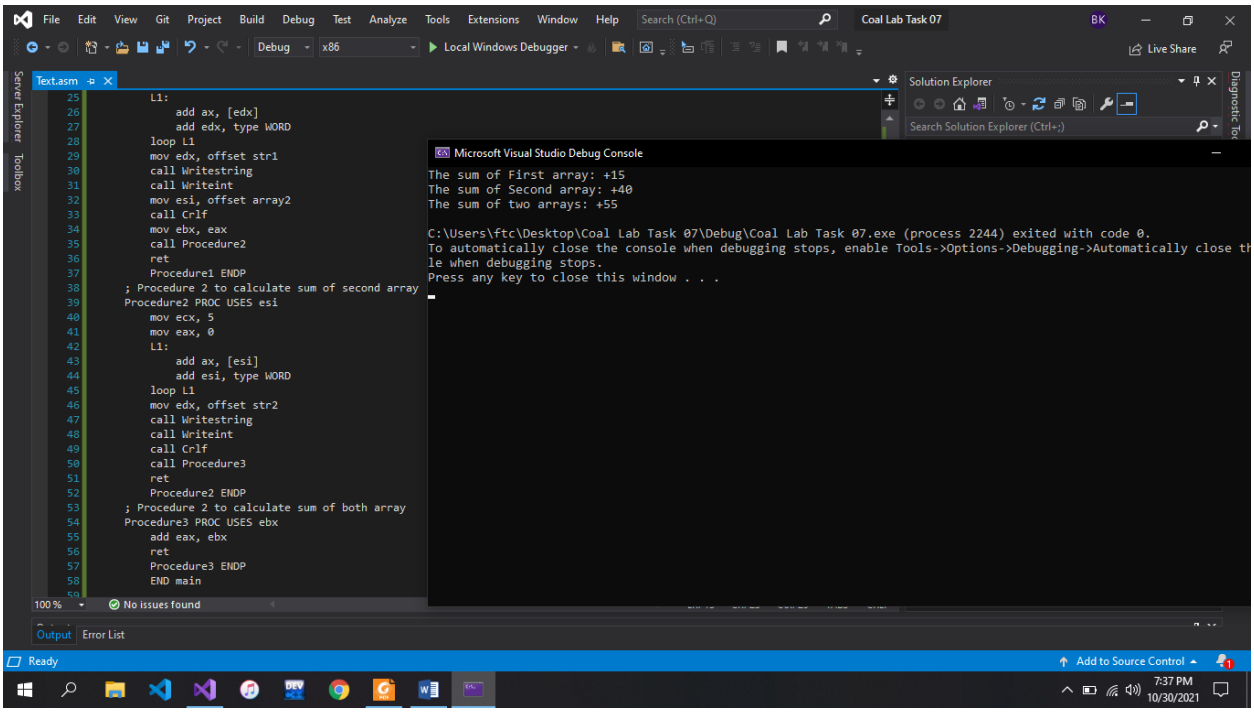

Text.asm
array1 WORD 10h, 20h, 30h, 40h, 50h, 60h, 70h, 80h, 90h, 100h
array2 WORD lengthof array1 DUP(?)
.code
main PROC
mov edx, 0
mov ebx, 0
mov eax, 0
mov ecx, 10
mov esi, 0
call writeint
mov bx, array1[eax]
L1:
push array1[esi]
add esi, type array1
loop L1
mov ecx, 10
mov esi, sizeof array1-2
L2:
pop bx
mov array2[esi], bx
mov ax, array2[esi]
sub esi, type array1
loop L2
mov ecx, 10
mov esi, 0
L3:
mov ax, array2[esi]
mov ax, array2[esi]
add esi, type array1
call DumpRegs
loop L3
exit
main ENDP
END main
Microsoft Visual Studio Debug Console
ESI=0000000A EDI=001D10AA EBP=00BDFCE0 ESP=00BDFCD4
EIP=001D36D0 EFL=00000206 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=1
EAX=00000060 EBX=00000010 ECX=00000005 EDX=00000000
ESI=0000000C EDI=001D10AA EBP=00BDFCE0 ESP=00BDFCD4
EIP=001D36D0 EFL=00000206 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=1
EAX=00000070 EBX=00000010 ECX=00000004 EDX=00000000
ESI=0000000E EDI=001D10AA EBP=00BDFCE0 ESP=00BDFCD4
EIP=001D36D0 EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0
EAX=00000080 EBX=00000010 ECX=00000003 EDX=00000000
ESI=00000010 EDI=001D10AA EBP=00BDFCE0 ESP=00BDFCD4
EIP=001D36D0 EFL=00000212 CF=0 SF=0 ZF=0 OF=0 AF=1 PF=0
EAX=00000090 EBX=00000010 ECX=00000002 EDX=00000000
ESI=00000012 EDI=001D10AA EBP=00BDFCE0 ESP=00BDFCD4
EIP=001D36D0 EFL=00000206 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=1
EAX=00000100 EBX=00000010 ECX=00000001 EDX=00000000
ESI=00000014 EDI=001D10AA EBP=00BDFCE0 ESP=00BDFCD4
EIP=001D36D0 EFL=00000206 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=1
C:\Users\ftc\Desktop\Coal Lab Task 07\Debug\Coal Lab Task 07.exe (process 5444) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
en debugging stops.
Press any key to close this window . . .
No issues found
Output
Error List
Ready
Add to Source Control
5:15 PM
10/30/2021

Task#02:

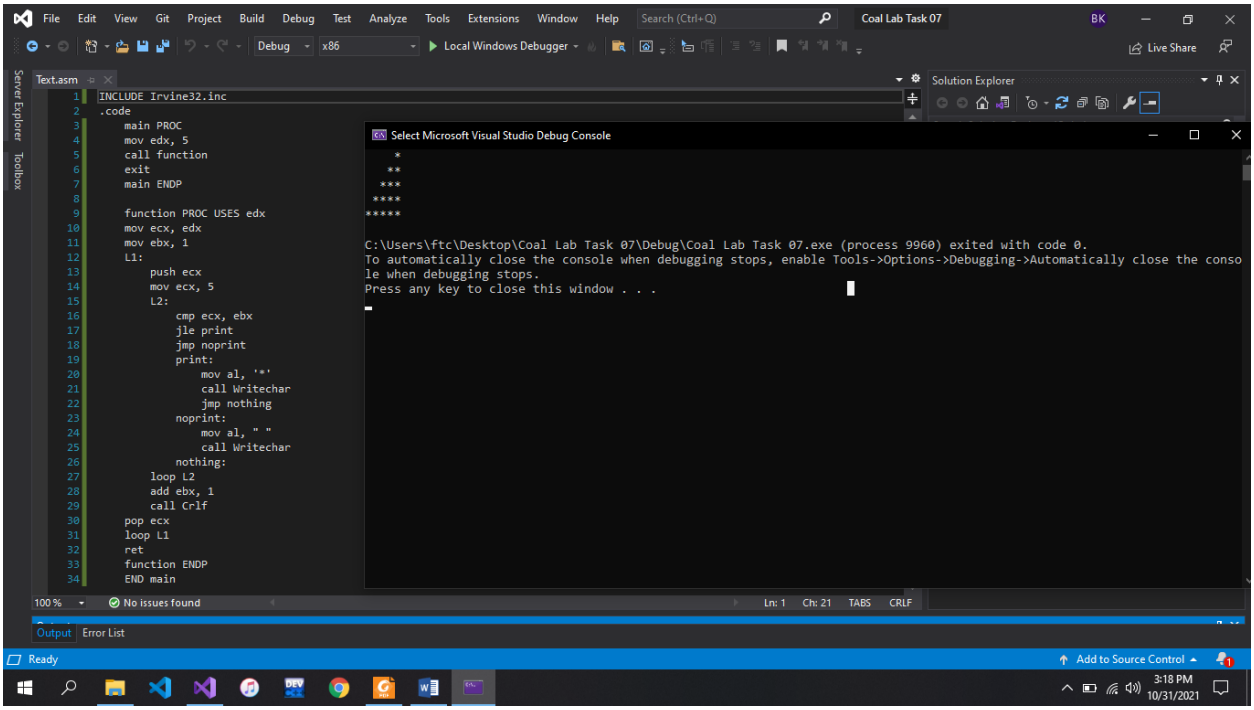

Text.asm
INCLUDE Irvine32.inc
.data
.code
main PROC
push 5
push 6
push 7
mov eax, 0
mov ecx, 3
L1:
pop ebx
add eax, ebx
loop L1
call Writeint
exit
main ENDP
END main
Microsoft Visual Studio Debug Console
+18
C:\Users\ftc\Desktop\Coal Lab Task 07\Debug\Coal Lab Task 07.exe (process 2836) exited with code 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 . . .
No issues found
Ln: 8 Ch: 9 Col: 15 TABS CRLF
Output
Error List
Ready
Add to Source Control
6:34 PM
10/30/2021

Task#03:

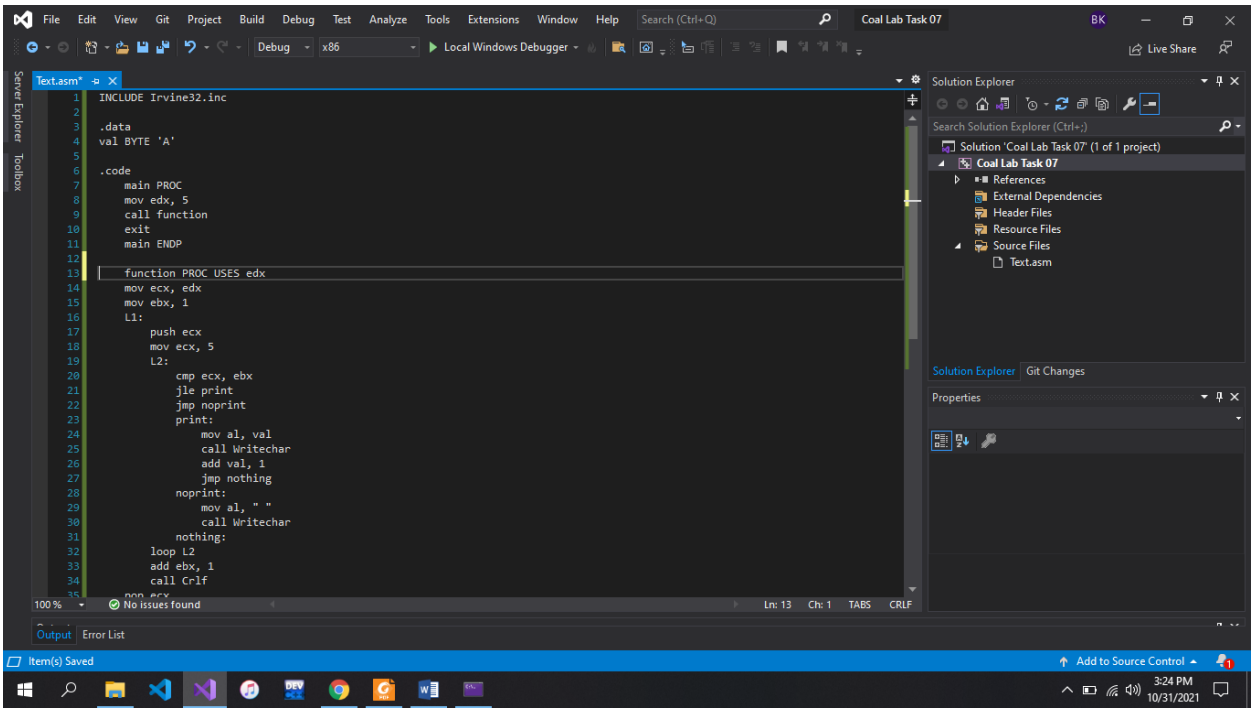

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Coal Lab Task 07
Debug x86 Local Windows Debugger
Live Share
Text.asm
INCLUDE Irvine32.inc
.data
str1 BYTE "The sum of First array: ", 0
str2 BYTE "The sum of Second array: ", 0
str3 BYTE "The sum of two arrays: ", 0
array1 WORD 1d, 2d, 3d, 4d, 5d
array2 WORD 6d, 7d, 8d, 9d, 10d
.code
main PROC
call Clrscr
mov edx, offset array1
call Procedure1
mov edx, offset str3
call Writestring
call Writeint
call Crlf
exit
main ENDP
; Procedure 1 to calculate sum of first array
Procedure1 PROC USES edx
mov ecx, 5
mov eax, 0
L1:
add ax, [edx]
add edx, type WORD
loop L1
mov edx, offset str1
call Writestring
call Writeint
mov esi, offset array2
call Crlf
mov ebx, eax
Solution Explorer
Search Solution Explorer (Ctrl+;)
Solution 'Coal Lab Task 07' (1 of 1 project)
Coal Lab Task 07
References
External Dependencies
Header Files
Resource Files
Source Files
Text.asm
Solution Explorer Git Changes
Properties
No issues found
Ln: 15 Ch: 23 Col: 29 TABS CRLF
Output Error List
Ready
Add to Source Control
7:36 PM
10/30/2021

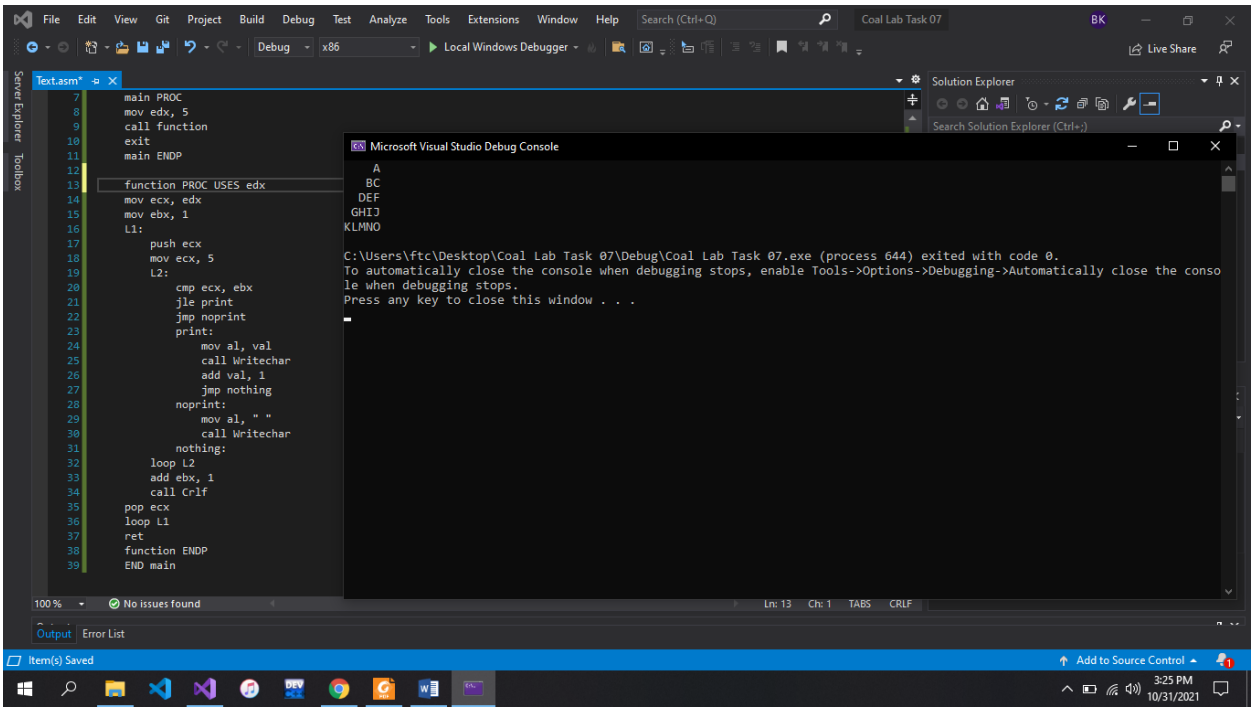

File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help
Coal Lab Task 07
Debug x86 Local Windows Debugger
Live Share
Text.asm
L1:
add ax, [edx]
add edx, type WORD
loop L1
mov edx, offset str1
call Writestring
call Writeint
mov esi, offset array2
call Crlf
mov ebx, eax
call Procedure2
ret
Procedure1 ENDP
; Procedure 2 to calculate sum of second array
Procedure2 PROC USES esi
mov ecx, 5
mov eax, 0
L1:
add ax, [esi]
add esi, type WORD
loop L1
mov edx, offset str2
call Writestring
call Writeint
call Crlf
call Procedure3
ret
Procedure2 ENDP
; Procedure 2 to calculate sum of both array
Procedure3 PROC USES ebx
add eax, ebx
ret
Procedure3 ENDP
END main
Microsoft Visual Studio Debug Console
The sum of First array: +15
The sum of Second array: +40
The sum of two arrays: +55
C:\Users\ftc\Desktop\Coal Lab Task 07\Debug\Coal Lab Task 07.exe (process 2244) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close th
le when debugging stops.
Press any key to close this window . . .
Solution Explorer
Search Solution Explorer (Ctrl+;)
No issues found
Output Error List
Ready
Add to Source Control
7:37 PM
10/30/2021

Task#04:

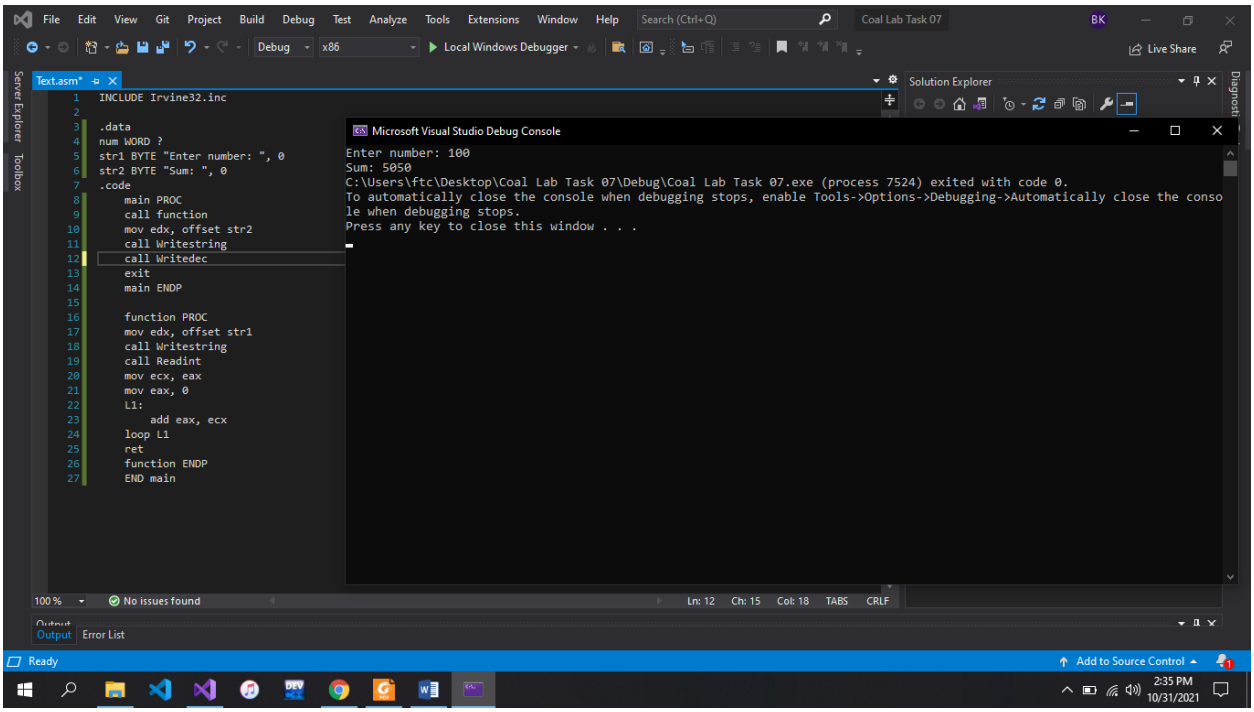


Task#05:




Text.asm*
main PROC
mov edx, 5
call function
exit
main ENDP
function PROC USES edx
mov ecx, edx
mov ebx, 1
L1:
push ecx
mov ecx, 5
L2:
cmp ecx, ebx
jle print
jmp noprint
print:
mov al, val
call Writechar
add val, 1
jmp nothing
noprint:
mov al, " "
call Writechar
nothing:
loop L2
add ebx, 1
call Crlf
pop ecx
loop L1
ret
function ENDP
END main
Microsoft Visual Studio Debug Console
A
BC
DEF
GHIJ
KLMNO
C:\Users\ftc\Desktop\Coal Lab Task 07\Debug\Coal Lab Task 07.exe (process 644) 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#06:


Text.asm*
INCLUDE Irvine32.inc
.data
num WORD ?
str1 BYTE "Enter number: ", 0
str2 BYTE "Sum: ", 0
.code
main PROC
call function
mov edx, offset str2
call Writestring
call Writedec
exit
main ENDP
function PROC
mov edx, offset str1
call Writestring
call Readint
mov ecx, eax
mov eax, 0
L1:
add eax, ecx
loop L1
ret
function ENDP
END main
Microsoft Visual Studio Debug Console
Enter number: 100
Sum: 5050
C:\Users\ftc\Desktop\Coal Lab Task 07\Debug\Coal Lab Task 07.exe (process 7524) 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 . . .