COAL LAB 06 - 13 Mar 2025

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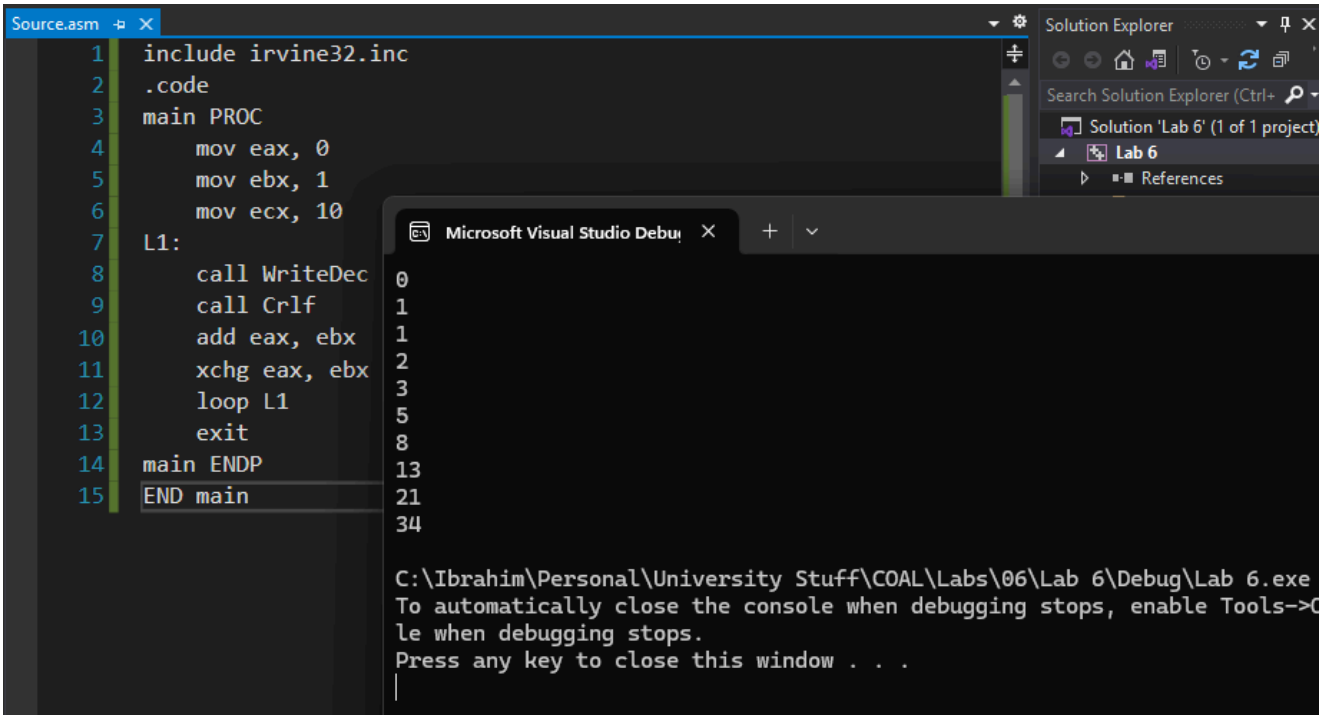
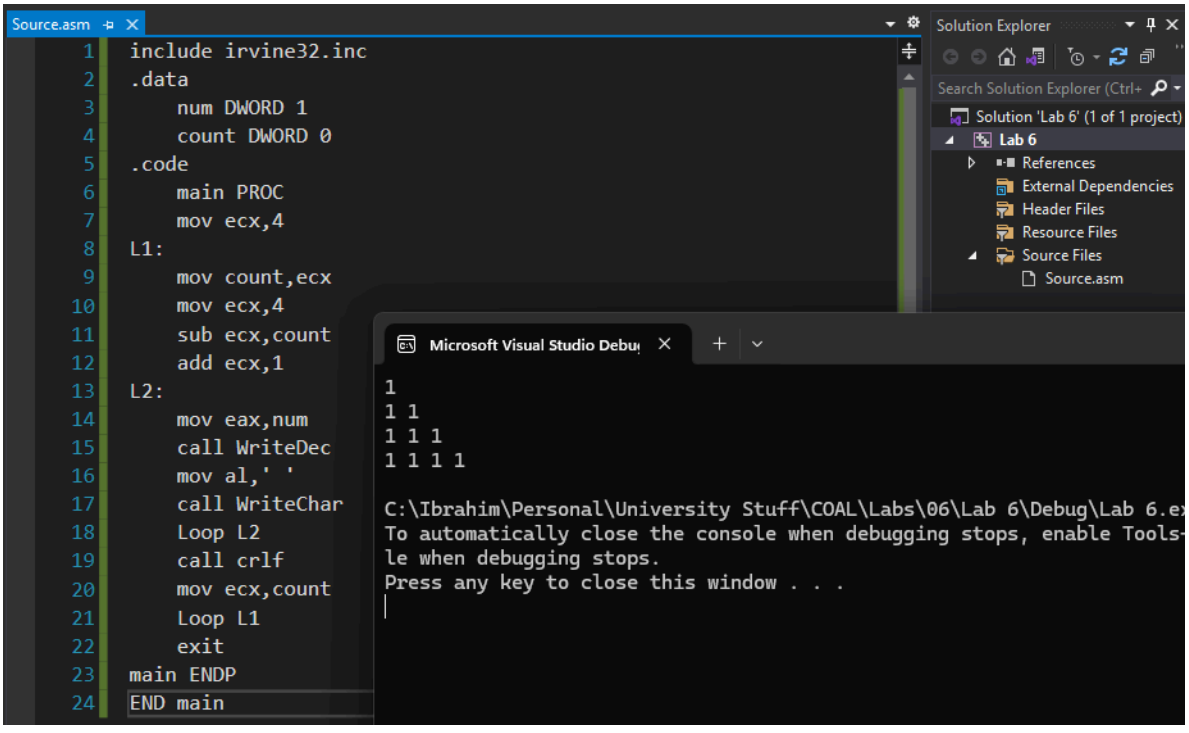
Task 1:

```
include irvine32.inc
.code
main PROC
    mov eax, 0
    mov ebx, 1
    mov ecx, 10
L1:
    call WriteDec
    call Crlf
    add eax, ebx
    xchg eax, ebx
    loop L1
    exit
main ENDP
END main
```



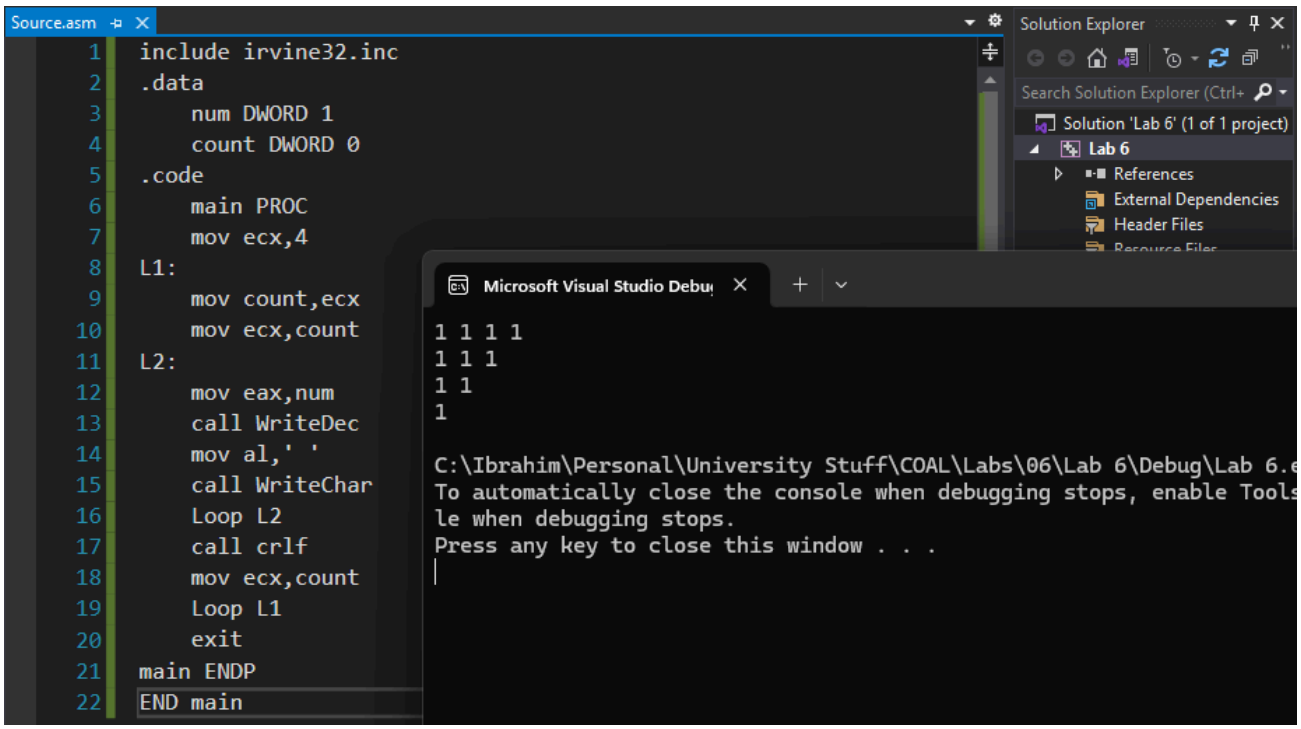
Task 2 - Part 1:

```
include irvine32.inc
.data
	num DWORD 1
	count DWORD 0
.code
	main PROC
	mov ecx,4
L1:
	mov count,ecx
	mov ecx,4
	sub ecx,count
	add ecx,1
L2:
	mov eax,num
	call WriteDec
	mov al,' '
	call WriteChar
	Loop L2
	call crlf
	mov ecx,count
	Loop L1
	exit
main ENDP
END main
```



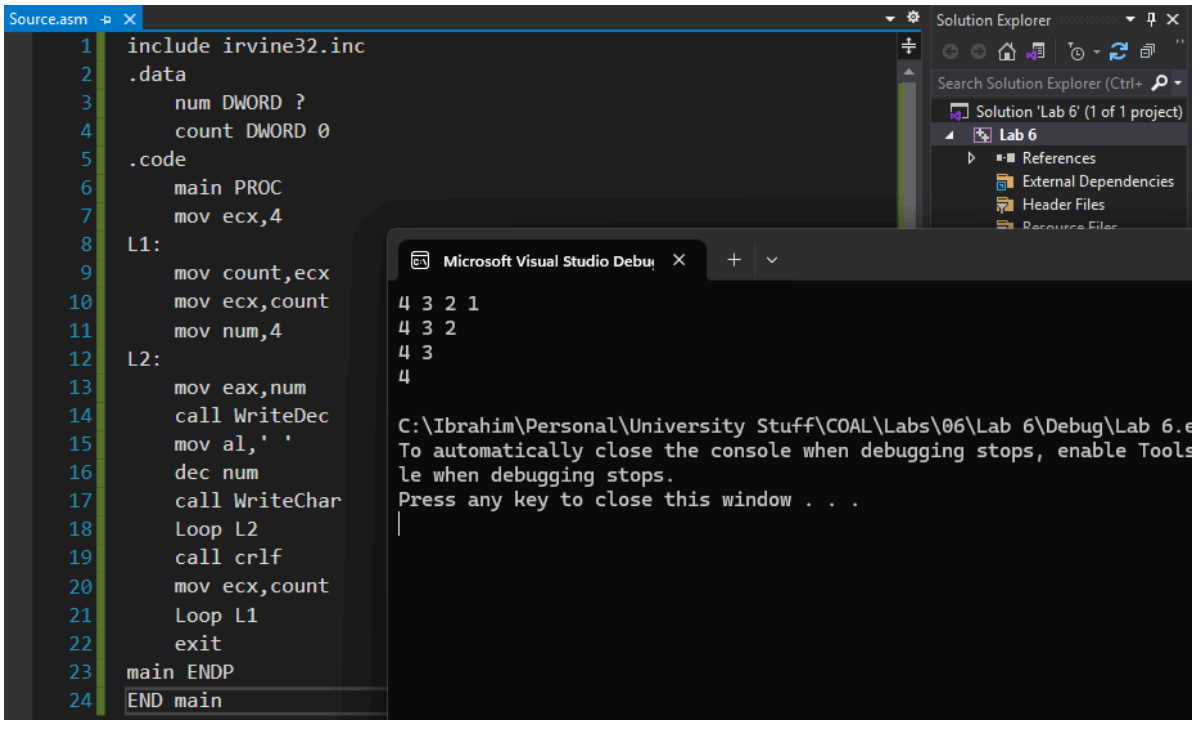
Task 2 - Part 2:

```
include irvine32.inc
.data
	num DWORD 1
	count DWORD 0
.code
	main PROC
	mov ecx,4
L1:
	mov count,ecx
	mov ecx,count
L2:
	mov eax,num
	call WriteDec
	mov al,' '
	call WriteChar
	Loop L2
	call crlf
	mov ecx,count
	Loop L1
	exit
main ENDP
END main
```



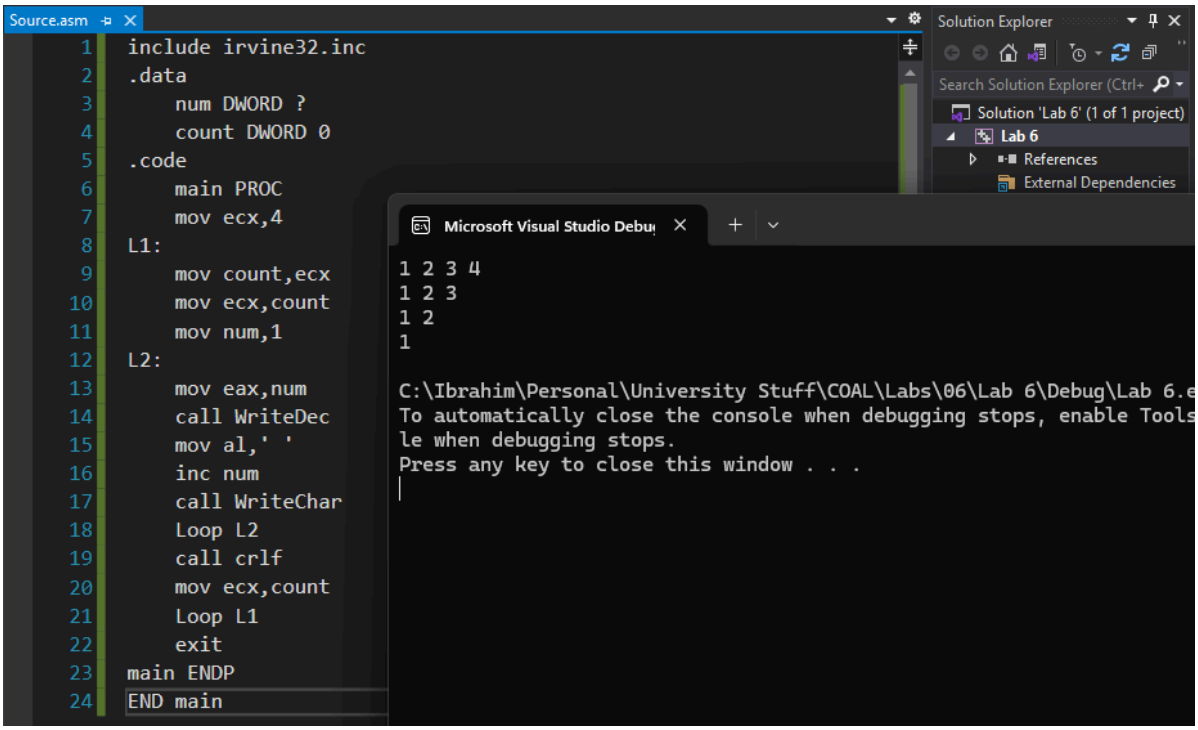
Task 2 - Part 3:

```
include irvine32.inc
.data
	num DWORD ?
	count DWORD 0
.code
	main PROC
	mov ecx,4
L1:
	mov count,ecx
	mov ecx,count
	mov num,4
L2:
	mov eax,num
	call WriteDec
	mov al,' '
	dec num
	call WriteChar
	Loop L2
	call crlf
	mov ecx,count
	Loop L1
	exit
main ENDP
END main
```



Task 2 - Part 4:

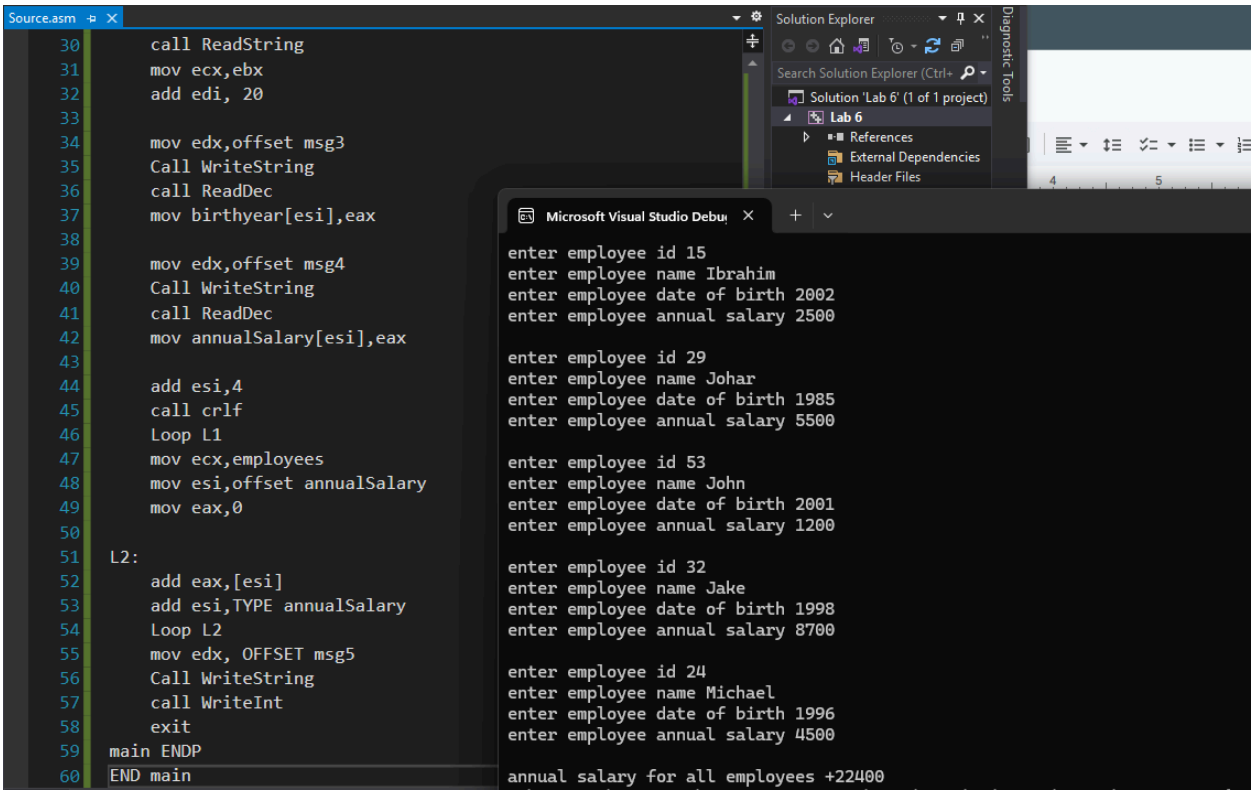
```
include irvine32.inc
.data
	num DWORD ?
	count DWORD 0
.code
	main PROC
	mov ecx,4
L1:
	mov count,ecx
	mov ecx,count
	mov num,1
L2:
	mov eax,num
	call WriteDec
	mov al,' '
	inc num
	call WriteChar
	Loop L2
	call crlf
	mov ecx,count
	Loop L1
	exit
main ENDP
END main
```



Task 3:

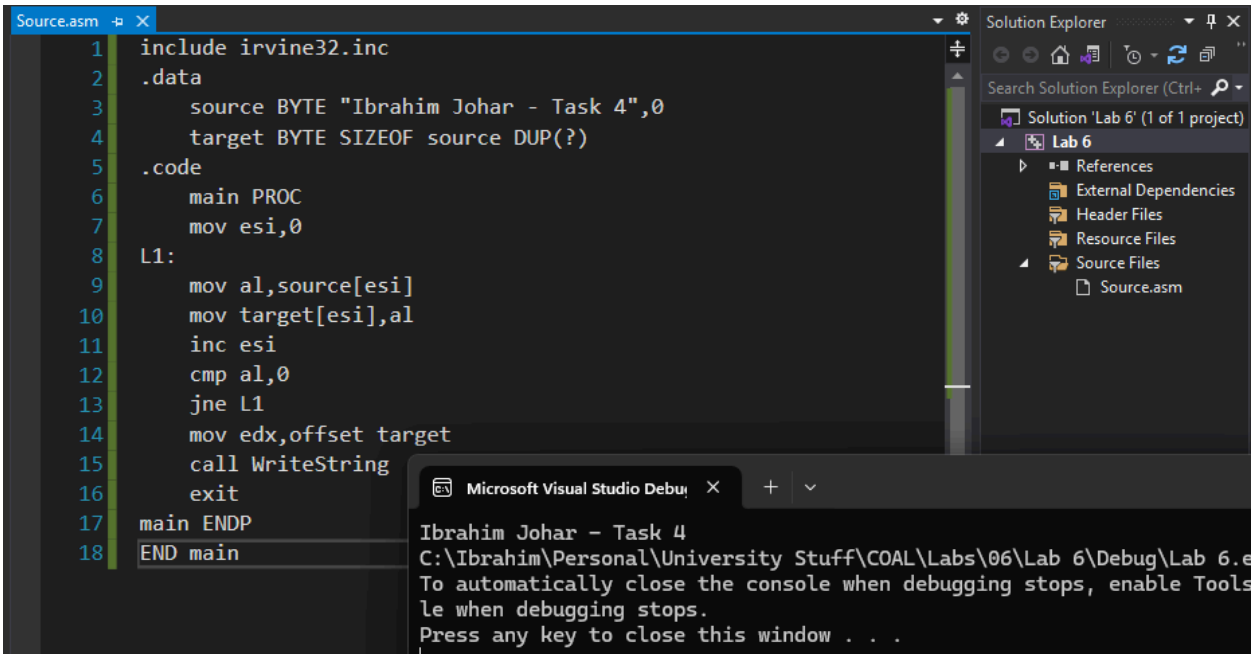
```
include irvine32.inc
.data
	employees DWORD 5
	Ids DWORD 5 DUP(?)
	names BYTE 5 DUP(20 Dup(?))
	birthyear DWORD 5 DUP(?)
	annualSalary DWORD 5 DUP(?)
	msg1 db 'enter employee id ',0
	msg2 db 'enter employee name ',0
	msg3 db 'enter employee date of birth ',0
	msg4 db 'enter employee annual salary ',0
	msg5 db 'annual salary for all employees ',0
.code
	main PROC
	mov ecx,employees
	mov esi,0
	mov edi,0
L1:
	mov edx,offset msg1
	call WriteString
	call ReadDec
	mov Ids[esi],eax

	mov edx,offset msg2
	call WriteString
	mov ebx,ecx
	mov edx,offset names
	add edx,edi
	mov ecx,20
	call ReadString
	mov ecx,ebx
	add edi, 20

	mov edx,offset msg3
	Call WriteString
	call ReadDec
	mov birthyear[esi],eax
```

```
        mov edx,offset msg4
        Call WriteString
        call ReadDec
        mov annualSalary[esi],eax

        add esi,4
        call crlf
        Loop L1
        mov ecx,employees
        mov esi,offset annualSalary
        mov eax,0

L2:
        add eax,[esi]
        add esi,TYPE annualSalary
        Loop L2
        mov edx, OFFSET msg5
        Call WriteString
        call WriteInt
        exit
main ENDP
END main
```



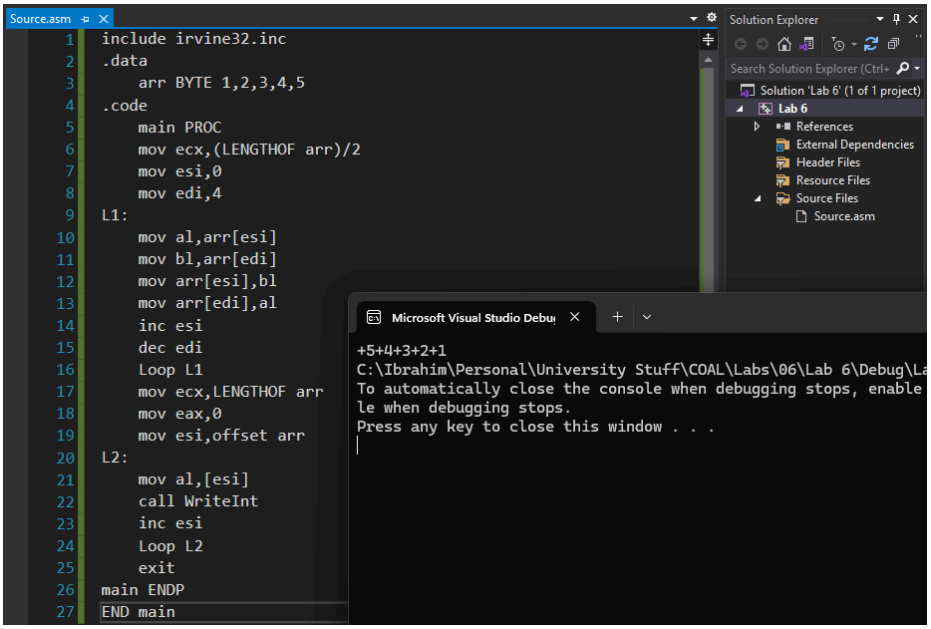
Task 4:

```
include irvine32.inc
.data
	source BYTE "Ibrahim Johar - Task 4",0
	target BYTE SIZEOF source DUP(?)
.code
	main PROC
	mov esi,0
L1:
	mov al,source[esi]
	mov target[esi],al
	inc esi
	cmp al,0
	jne L1
	mov edx,offset target
	call WriteString
	exit
main ENDP
END main
```



Task 5:

```
include irvine32.inc
.data
	arr BYTE 1,2,3,4,5
.code
	main PROC
	mov ecx,(LENGTHOF arr)/2
	mov esi,0
	mov edi,4
L1:
	mov al,arr[esi]
	mov bl,arr[edi]
	mov arr[esi],bl
	mov arr[edi],al
	inc esi
	dec edi
	Loop L1
	mov ecx,LENGTHOF arr
	mov eax,0
	mov esi,offset arr
L2:
	mov al,[esi]
	call WriteInt
	inc esi
	Loop L2
	exit
main ENDP
END main
```



Task 6:

```
include irvine32.inc
.data
	arr DWORD 8,5,1,2,6
	count DWORD ?
.code
	main PROC
	mov ecx,LENGTHOF arr
L1:
	mov count,ecx
	mov ecx,LENGTHOF arr
	dec ecx
	mov esi,0
L2:
	mov eax,arr[esi]
	mov edi,esi
	add edi,TYPE arr
	mov ebx,arr[edi]
	CMP eax,ebx
	JG SWAPPING
L3:
	add esi,TYPE arr
	Loop L2
	mov ecx,count
	Loop L1
	JMP DISPLAY
	SWAPPING:
	mov arr[edi],eax
	mov arr[esi],ebx
	JMP L3
	DISPLAY:
	mov ecx,LENGTHOF arr
	mov esi,0
L4:
	mov eax,arr[esi]
	call WriteInt
	mov al,' '
	call WriteChar
```

```
        add esi,TYPE arr
        Loop L4
        exit
main ENDP
END main
```