

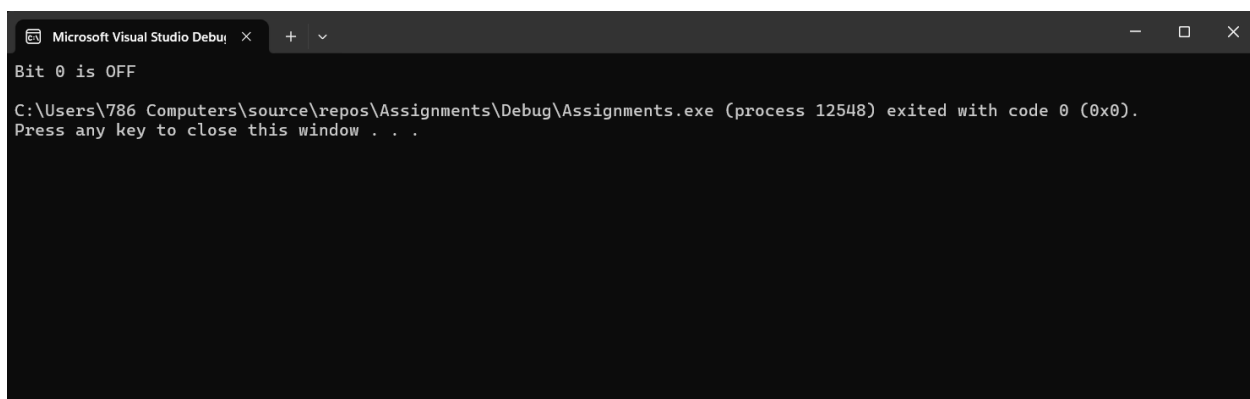
COAL ASSIGNMENT 7

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Task 1:

```
INCLUDE Irvine32.inc
.data
msgOn BYTE "Bit 0 is ON",0
msgOff BYTE "Bit 0 is OFF",0
.code
main PROC
call Clrscr
mov al, 10101101b
mov bl, 10010101b
mov cl, 11110000b
or al, cl ; combining the bits
and al, 0AAh ; clear odd bit
or al, 055h
xor al, 0FFh
test al, 1
jnz onBit
jz offBit
onBit:
mov edx, OFFSET msgOn
call WriteString
jmp EndofProgram
offBit:
mov edx, OFFSET msgOff
call WriteString
EndofProgram:
call Crlf
exit
main ENDP
END main
```



The screenshot shows a Windows-style window titled "Microsoft Visual Studio Debug Console". The window has a dark background and contains the following text:

```
Bit 0 is OFF

C:\Users\786 Computers\source\repos\Assignments\Debug\Assignments.exe (process 12548) exited with code 0 (0x0).
Press any key to close this window . . .
```

Task 2:

```
INCLUDE Irvine32.inc
.data
prompt BYTE "Enter number ",0
msg1 BYTE "Largest (Unsigned) = ",0
msg2 BYTE "Largest (Signed) = ",0

nums    DWORD 3 DUP(?)
largestU DWORD ?
largestS DWORD ?

.code
main PROC
    call Clrscr

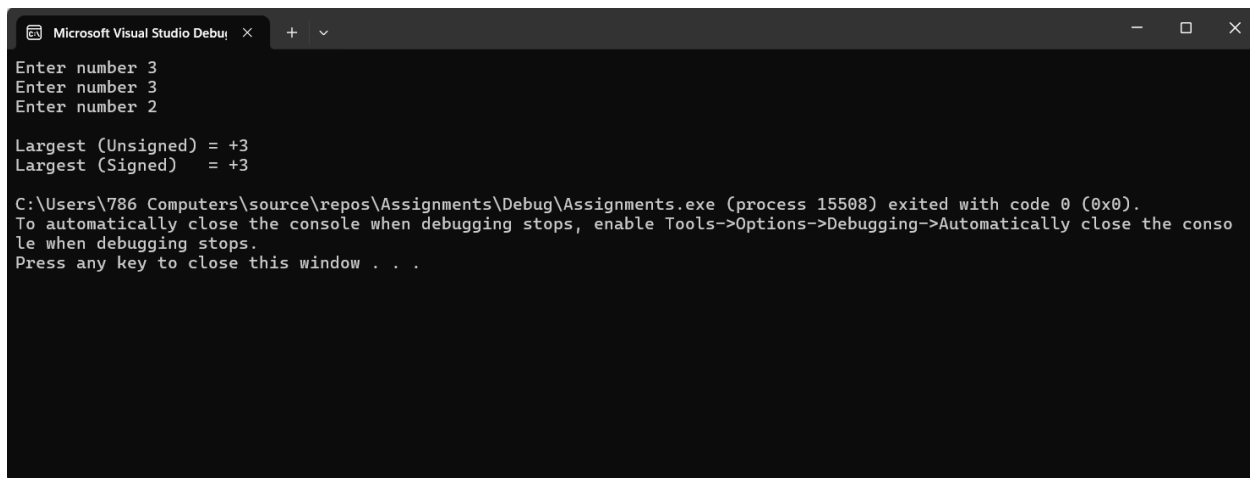
    mov ecx, 3
    mov esi, OFFSET nums
input_loop:
    mov edx, OFFSET prompt
    call WriteString
    call ReadInt
    mov [esi], eax
    add esi, 4
    loop input_loop

    ;unsigned biggest
    mov esi, OFFSET nums
    mov ecx, 2
    mov eax, [esi]
next_unsigned:
    add esi, 4
    mov ebx, [esi]
    cmp eax, ebx
    jb u_update
    jmp u_skip
u_update:
    mov eax, ebx
u_skip:
    loop next_unsigned
    mov largestU, eax
    ;signed biggest
    mov esi, OFFSET nums
    mov ecx, 2
    mov eax, [esi]
next_signed:
    add esi, 4
    mov ebx, [esi]
    cmp eax, ebx
    jl s_update
    jmp s_skip
s_update:
    mov eax, ebx
s_skip:
    loop next_signed
```

```
mov largestS, eax

call Crlf
mov edx, OFFSET msg1
call WriteString
mov eax, largestU
call WriteInt
call Crlf

mov edx, OFFSET msg2
call WriteString
mov eax, largestS
call WriteInt
call Crlf
exit
main ENDP
END main
```



The screenshot shows a Visual Studio Debug Console window with a dark background. The title bar reads "Microsoft Visual Studio Debug Console" with standard window controls. The output text is as follows:

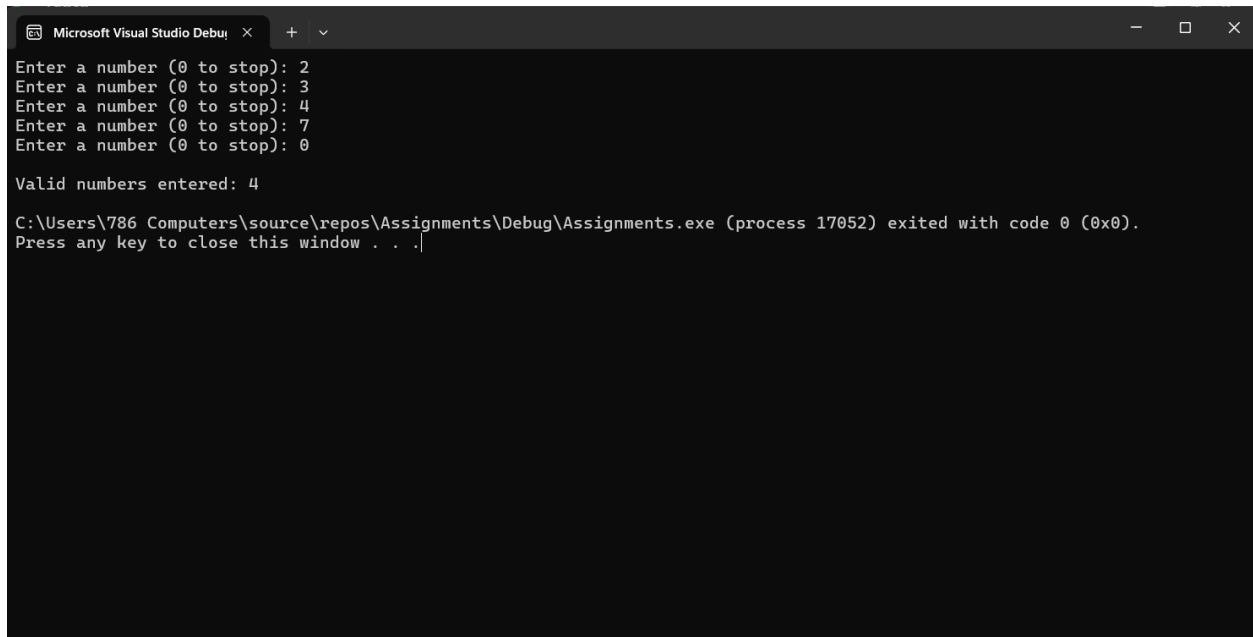
```
Enter number 3
Enter number 3
Enter number 2

Largest (Unsigned) = +3
Largest (Signed)   = +3

C:\Users\786 Computers\source\repos\Assignments\Debug\Assignments.exe (process 15508) exited with code 0 (0x0).
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 3:

```
INCLUDE Irvine32.inc
.data
msg1 BYTE "Enter a number (0 to stop): ",0
msg2 BYTE "Valid numbers entered: ",0
.code
main PROC
call Clrscr
mov ecx,5
mov eax,0
mov ebx,0
L1:
mov edx,OFFSET msg1
call WriteString
call ReadInt
cmp eax,0
je done
inc ebx
loopnz L1
done:
call CrLf
mov edx,OFFSET msg2
call WriteString
mov eax,ebx
call WriteDec
call CrLf
exit
main ENDP
END main
```



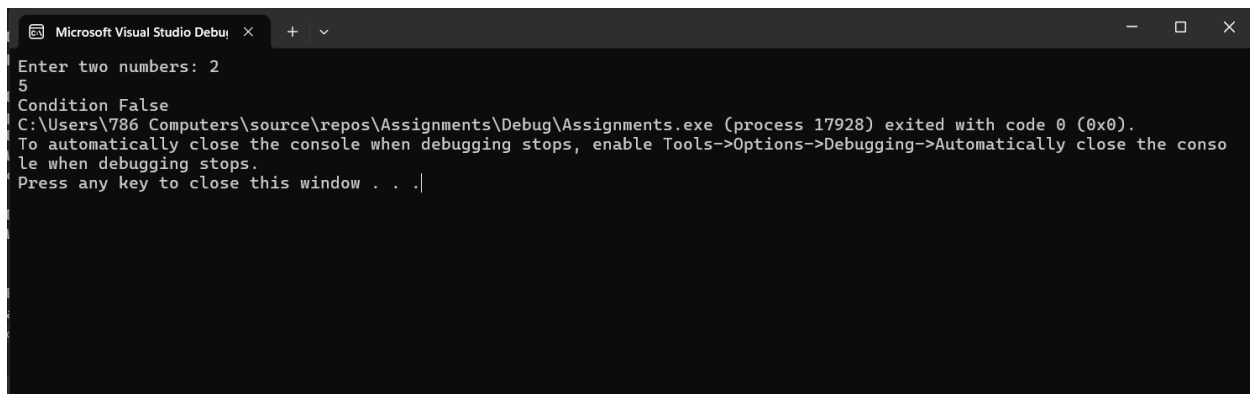
```
Microsoft Visual Studio Debug Console
Enter a number (0 to stop): 2
Enter a number (0 to stop): 3
Enter a number (0 to stop): 4
Enter a number (0 to stop): 7
Enter a number (0 to stop): 0

Valid numbers entered: 4

C:\Users\786 Computers\source\repos\Assignments\Debug\Assignments.exe (process 17052) exited with code 0 (0x0).
Press any key to close this window . . .|
```

Task 4:

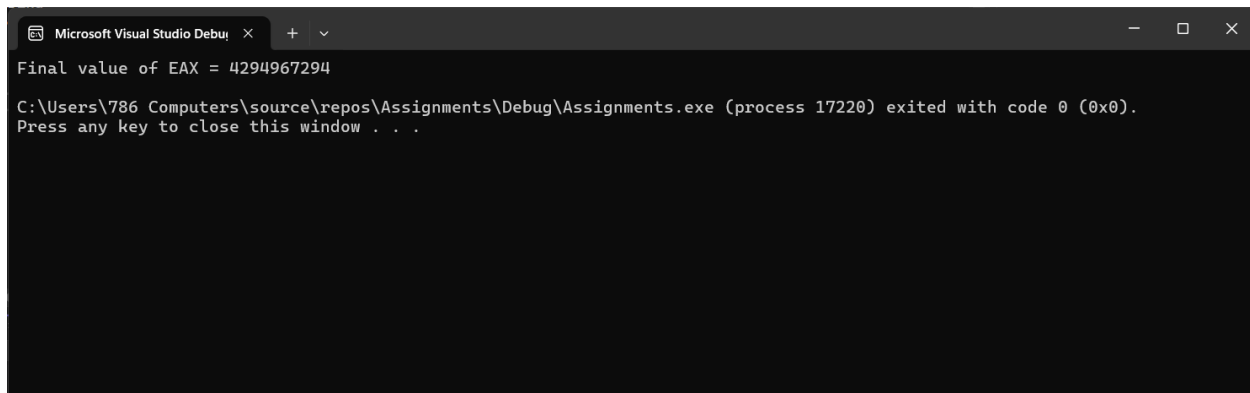
```
INCLUDE Irvine32.inc
.data
prompt BYTE "Enter two numbers: ", 0
PTrue BYTE "Condition True", 0
PFalse BYTE "Condition False", 0
.code
main PROC
MOV EDX, OFFSET prompt
CALL WriteString
CALL ReadInt
MOV EDX,EAX
CALL ReadInt
MOV EBX,EAX
; a > b
CMP EDX,EBX
JLE fp
; a < 100
CMP EDX,100
JGE fp
MOV EDX, OFFSET PTrue
CALL WriteString
JMP done
fp:
MOV EDX, OFFSET PFalse
CALL WriteString
done:
EXIT
main ENDP
END main
```



```
Microsoft Visual Studio Debug  x + v
Enter two numbers: 2
5
Condition False
C:\Users\786 Computers\source\repos\Assignments\Debug\Assignments.exe (process 17928) exited with code 0 (0x0).
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 5:

```
INCLUDE Irvine32.inc
.data
msg BYTE "Final value of EAX = ",0
.code
main PROC
    mov eax, 10
whileLoop:
    cmp eax, 0
    jl endLoop
    sub eax, 3
    jge whileLoop
endLoop:
    mov edx, OFFSET msg
    call WriteString
    call WriteDec
    call Crlf
    exit
main ENDP
END main
```

A screenshot of a Microsoft Visual Studio Debug Console window. The window has a title bar with the text "Microsoft Visual Studio Debug" and standard window controls (minimize, maximize, close). The console output shows the final value of EAX as 4294967294, followed by a message indicating the program exited with code 0 (0x0). The text "Press any key to close this window . . ." is also visible.

```
Microsoft Visual Studio Debug  X + v
Final value of EAX = 4294967294
C:\Users\786 Computers\source\repos\Assignments\Debug\Assignments.exe (process 17220) exited with code 0 (0x0).
Press any key to close this window . . .
```