COAL-LAB 8

TASK 1:

```
INCLUDE Irvine32.inc
.data
msg1 byte "Integers Found Equal to number ",0
msg2 byte "No Integer is Equal!",0
sign byte " = ",0
integers dword ?
larger dword ?
x dword ?
y dword ?
z dword ?
w dword ?

.code
main PROC
mov w,0
mov esi, offset integers
mov z,esi
mov ecx,4

input:
call readint
mov [esi],eax
add esi,4
loop input
mov esi,z

mov ecx,4
mov edi, offset integers



call crlf

mov z,4
compare:
cmp w, 4
je fin
mov eax,[edi]
```

```
mov ecx,z
cmp z,0
je fin

compare2:
add esi,4
mov ebx,[esi]
mov x,eax
cmp eax, ebx
je cond
call crlf
mov edx,offset msg2
call writestring

loop compare2

add edi,4
sub z,1

loop compare

cond:
add edi,4
add w,1
cmp w,1
jg equal
jmp compare2
loop cond

equal:
call crlf
mov eax,w
call writeint
mov edx,offset msg1
call writestring
mov eax,x
call writeint
add esi,4
jmp compare
cmp w, 4
je fin
loop equal


fin:
```

exit
loop fin

main ENDP
END main

my code.asm

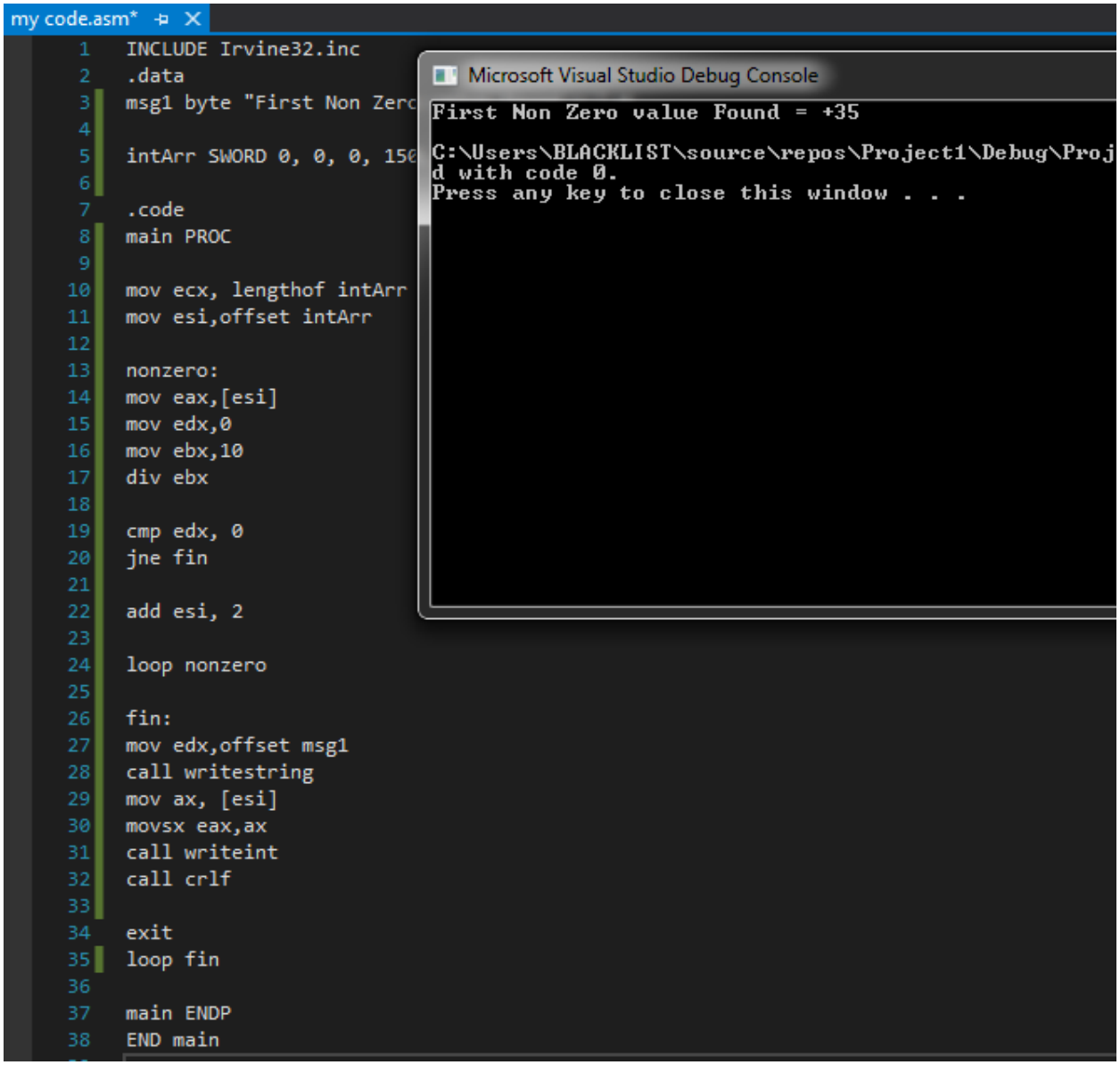
```
1   INCLUDE Irvine32.inc
2   .data
3   msg1 byte "Integers Found Equal to number ",0
4   msg2 byte "No Integer is Equal!",0
5   sign byte " = ",0
6   integers dword ?
7   larger dword ?
8   x dword ?
9   y dword ?
10  z dword ?
11  w dword ?
12
13  .code
14  main PROC
15  mov w,0
16  mov esi, offset integers
17  mov z,esi
18  mov ecx,4
19
20  input:
21  call readint
22  mov [esi],eax
23  add esi,4
24  loop input
25  mov esi,z
26
27  mov ecx,4
28  mov edi, offset integers
29
30
31
32  call crlf
33
34  mov z,4
35  compare:
36  cmp w, 4
37  je fin
38  mov eax,[edi]
```

Microsoft Visual Studio Debug Console

```
1
2
1
3


No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
+2Integers Found Equal to number +1
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
No Integer is Equal!
C:\Users\BLACKLIST\source\repos\Project
d with code 0.
Press any key to close this window . .
```

TASK 2:

```
INCLUDE Irvine32.inc
.data
msg1 byte "First Non Zero value Found = ",0

intArr SWORD 0, 0, 0, 150, 120, 35, -12, 66, 4, 0

.code
main PROC

mov ecx, lengthof intArr
mov esi,offset intArr

nonzero:
mov eax,[esi]
mov edx,0
mov ebx,10
div ebx

cmp edx, 0
jne fin

add esi, 2

loop nonzero

fin:
mov edx,offset msg1
call writestring
mov ax, [esi]
movsx eax,ax
call writeint
call crlf

exit
loop fin

main ENDP
END main
```



TASK 3:

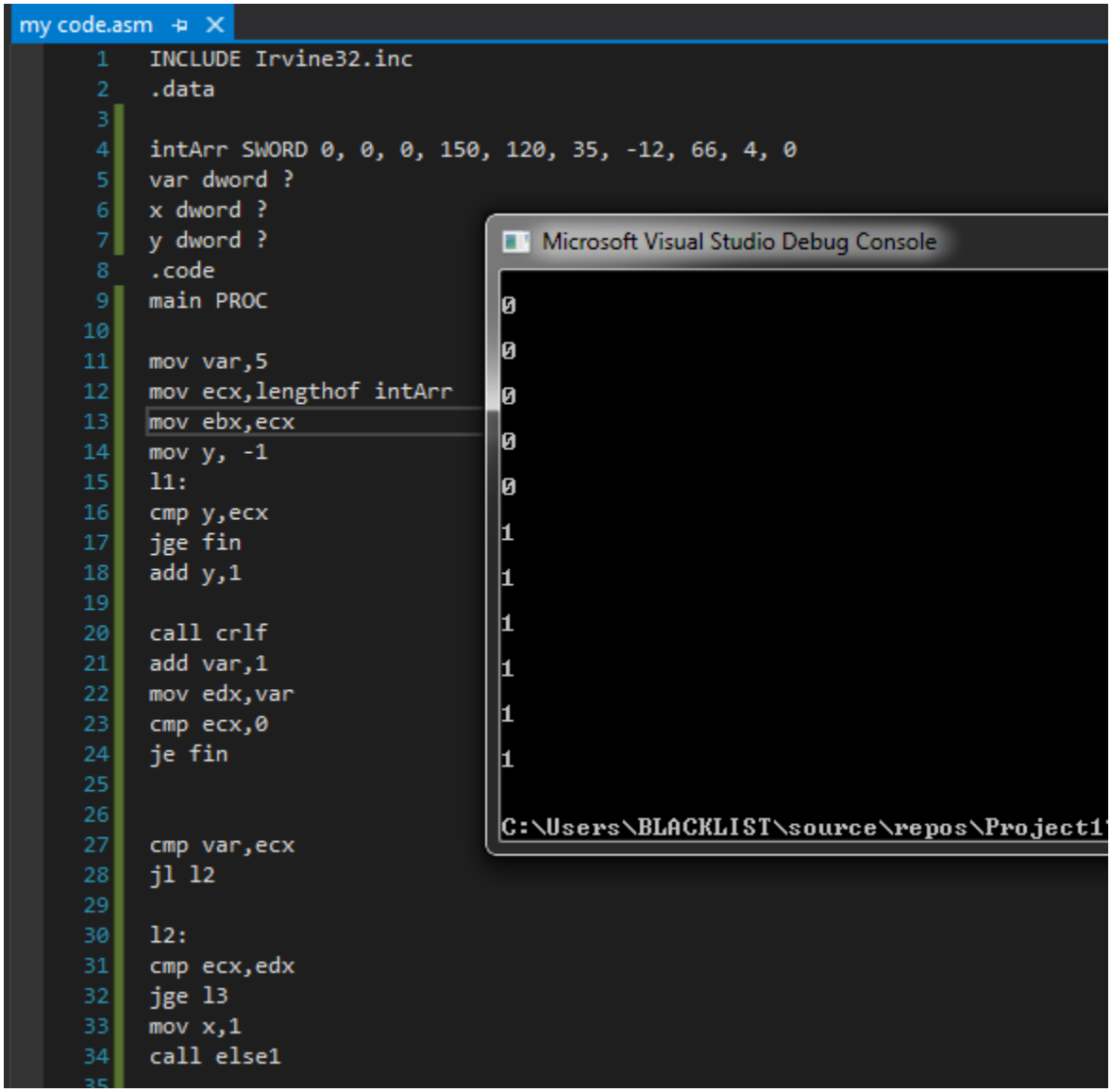
INCLUDE Irvine32.inc
.data

intArr SWORD 0, 0, 0, 150, 120, 35, -12, 66, 4, 0
var dword ?
x dword ?
y dword ?
.code
main PROC

```
mov var,5
mov ecx,lengthof intArr
mov ebx,ecx
mov y, -1
l1:
cmp y,ecx
jge fin
add y,1

call crlf
add var,1
mov edx,var
cmp ecx,0
je fin


cmp var,ecx
jl l2

l2:
cmp ecx,edx
jge l3
mov x,1
call else1

l3:
mov x,0
mov eax,x
call writedec
call crlf
jmp l1
loop l3

loop l1

else1:

mov eax,x
call writedec
call crlf

jmp l1
loop else1

fin:
```

call crlf
exit
loop fin

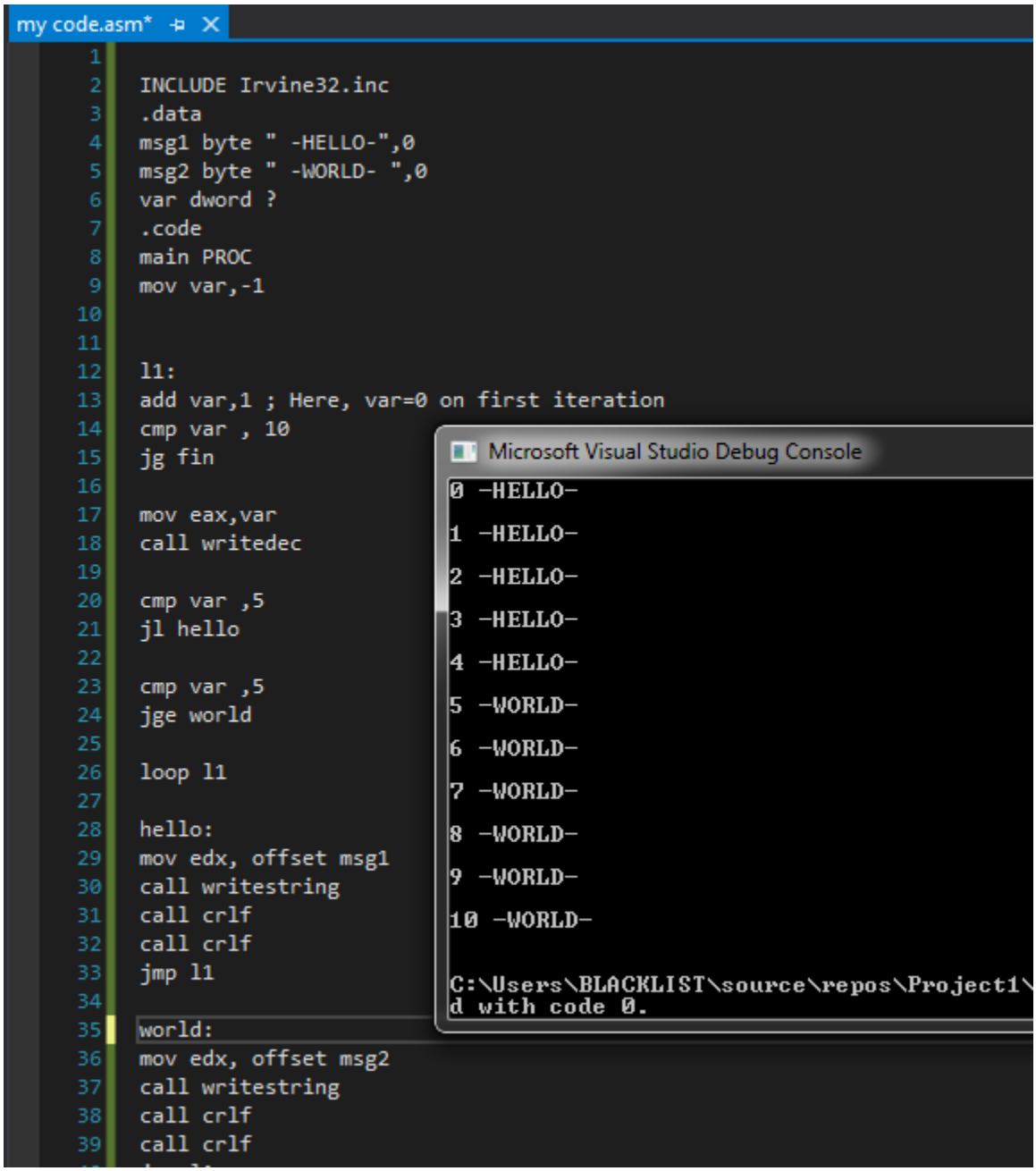
main ENDP
END main



TASK 4:

INCLUDE Irvine32.inc

```
.data
msg1 byte " -HELLO-",0
msg2 byte " -WORLD- ",0
var dword ?
.code
main PROC
mov var,-1


l1:
add var,1 ; Here, var=0 on first iteration
cmp var , 10
jg fin

mov eax,var
call writedec

cmp var ,5
jl hello

cmp var ,5
jge world

loop l1

hello:
mov edx, offset msg1
call writestring
call crlf
call crlf
jmp l1

world:
mov edx, offset msg2
call writestring
call crlf
call crlf
jmp l1

fin:
exit
loop fin

main ENDP
END main
```



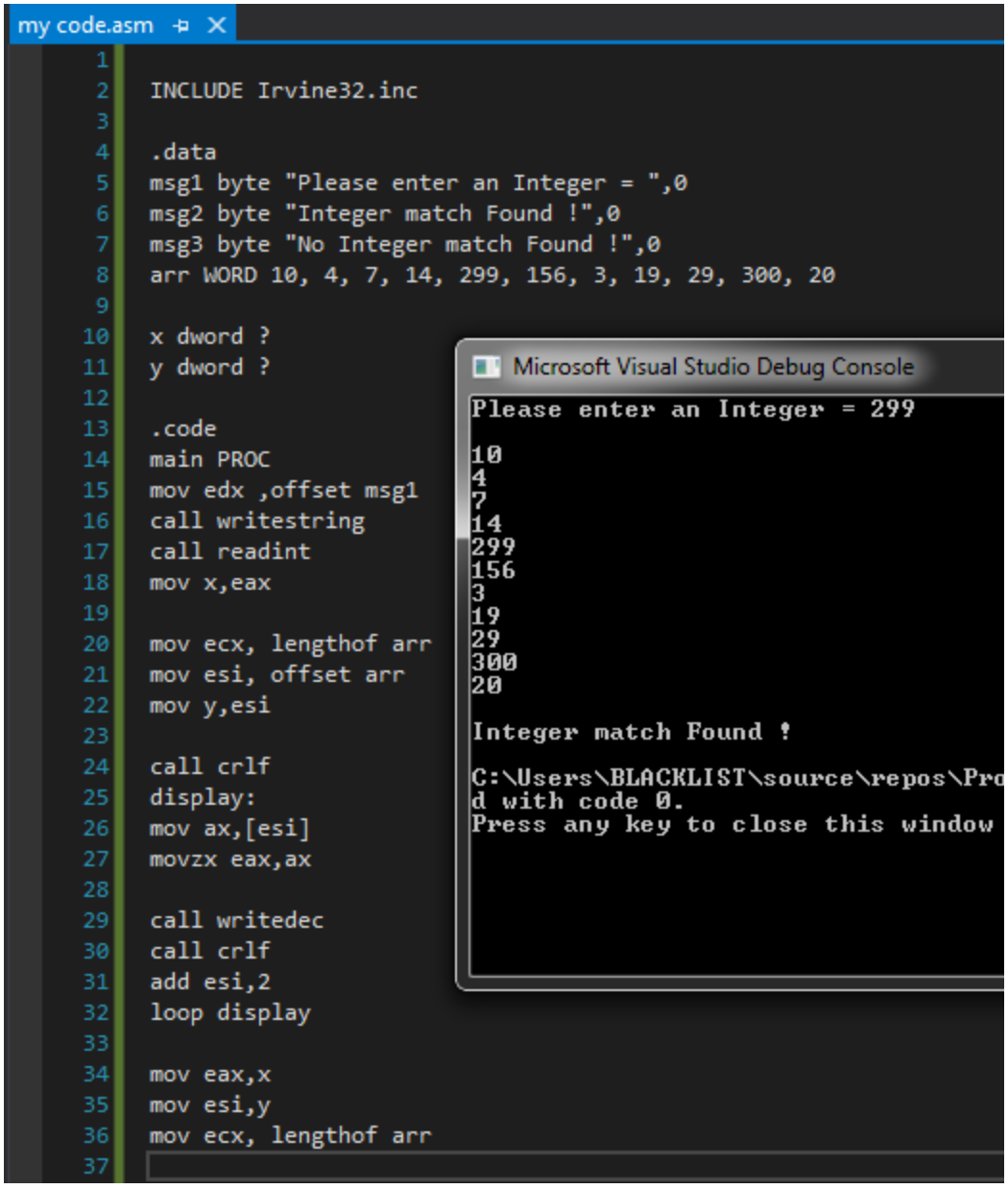
TASK 5:

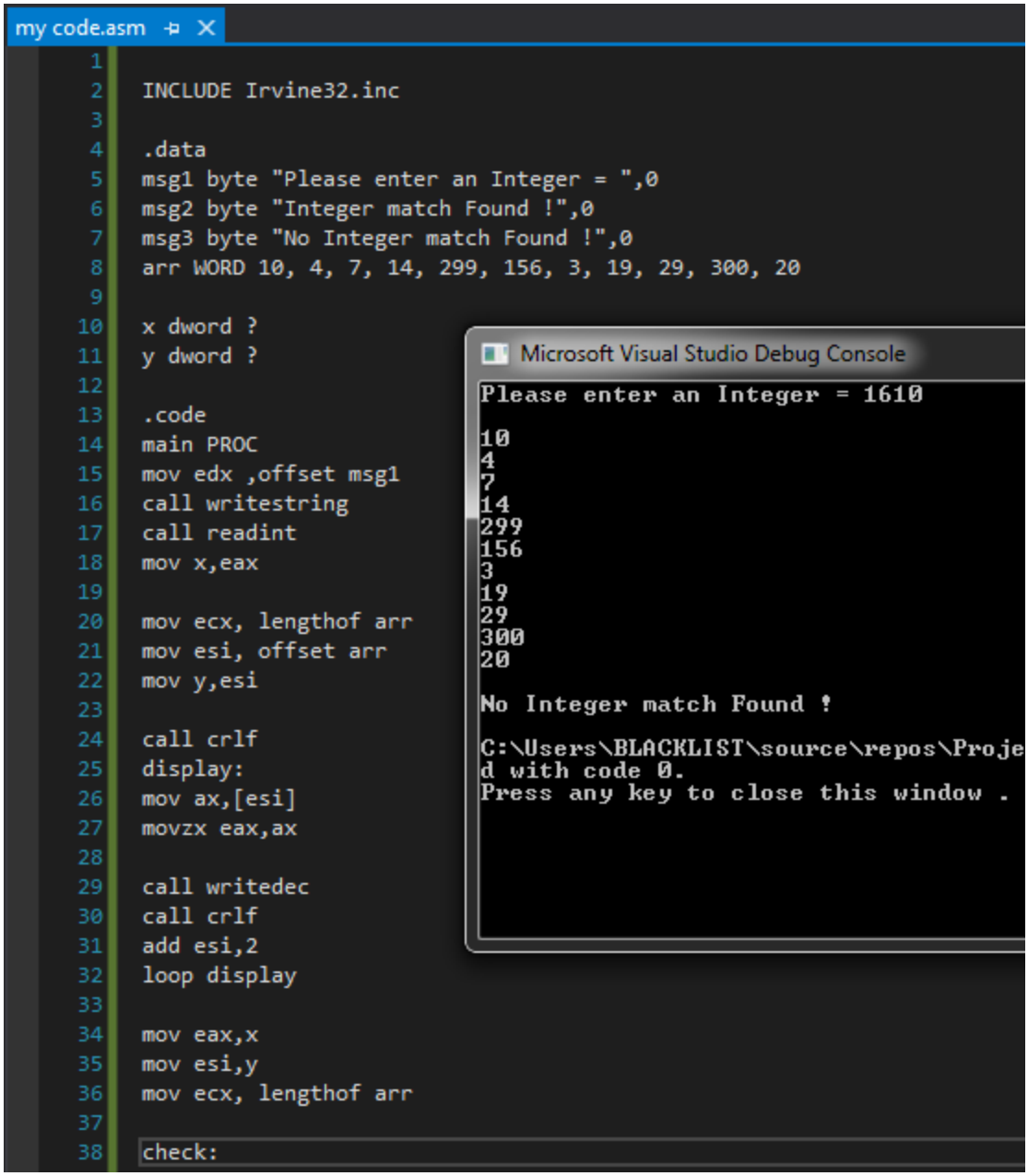
INCLUDE Irvine32.inc

.data

```
msg1 byte "Please enter an Integer = ",0
msg2 byte "Integer match Found !",0
msg3 byte "No Integer match Found !",0
arr WORD 10, 4, 7, 14, 299, 156, 3, 19, 29, 300, 20

x dword ?
y dword ?

.code
main PROC
mov edx ,offset msg1
call writestring
call readint
mov x,eax

mov ecx, lengthof arr
mov esi, offset arr
mov y,esi

call crlf
display:
mov ax,[esi]
movzx eax,ax

call writedec
call crlf
add esi,2
loop display

mov eax,x
mov esi,y
mov ecx, lengthof arr

check:
mov bx,[esi]
movzx ebx,bx

cmp ax,bx
je found
add esi,2

loop check

jmp notfound

found:
```

```
call crlf
mov edx , offset msg2
call writestring
call crlf
exit
loop found

notfound:
call crlf
mov edx , offset msg3
call writestring
call crlf
exit
loop notfound


main ENDP
END main
```


my code.asm
INCLUDE Irvine32.inc
.data
msg1 byte "Please enter an Integer = ",0
msg2 byte "Integer match Found !",0
msg3 byte "No Integer match Found !",0
arr WORD 10, 4, 7, 14, 299, 156, 3, 19, 29, 300, 20
x dword ?
y dword ?
.code
main PROC
mov edx ,offset msg1
call writestring
call readint
mov x,eax
mov ecx, lengthof arr
mov esi, offset arr
mov y,esi
call crlf
display:
mov ax,[esi]
movzx eax,ax
call writedec
call crlf
add esi,2
loop display
mov eax,x
mov esi,y
mov ecx, lengthof arr
Microsoft Visual Studio Debug Console
Please enter an Integer = 299
10
4
7
14
299
156
3
19
29
300
20
Integer match Found !
C:\Users\BLACKLIST\source\repos\Pro
d with code 0.
Press any key to close this window



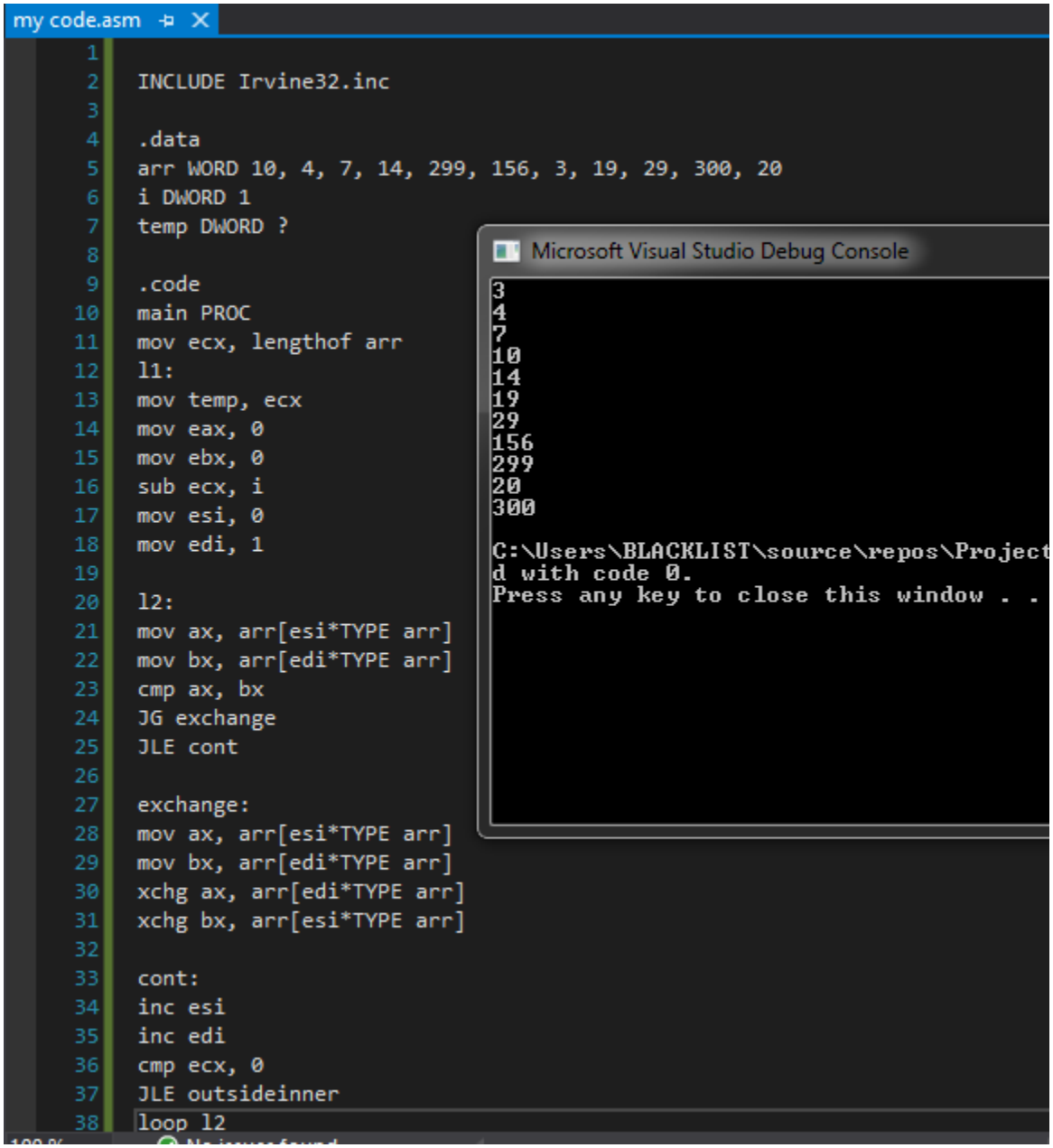
TASK 6:

INCLUDE Irvine32.inc

.data
arr WORD 10, 4, 7, 14, 299, 156, 3, 19, 29, 300, 20
i DWORD 1
temp DWORD ?

```
.code
main PROC
mov ecx, lengthof arr
l1:
mov temp, ecx
mov eax, 0
mov ebx, 0
sub ecx, i
mov esi, 0
mov edi, 1

l2:
mov ax, arr[esi*TYPE arr]
mov bx, arr[edi*TYPE arr]
cmp ax, bx
JG exchange
JLE cont

exchange:
mov ax, arr[esi*TYPE arr]
mov bx, arr[edi*TYPE arr]
xchg ax, arr[edi*TYPE arr]
xchg bx, arr[esi*TYPE arr]

cont:
inc esi
inc edi
cmp ecx, 0
JLE outsideinner
loop l2

outsideinner:
mov ecx, temp
inc i
loop l1
mov edi, 0
mov ecx, LENGTHOF arr
mov esi, 0

l3:
mov ax, arr[esi*TYPE arr]
inc esi
call writedec
call crlf
loop l3
```

exit
main ENDP
END main



TASK 7:

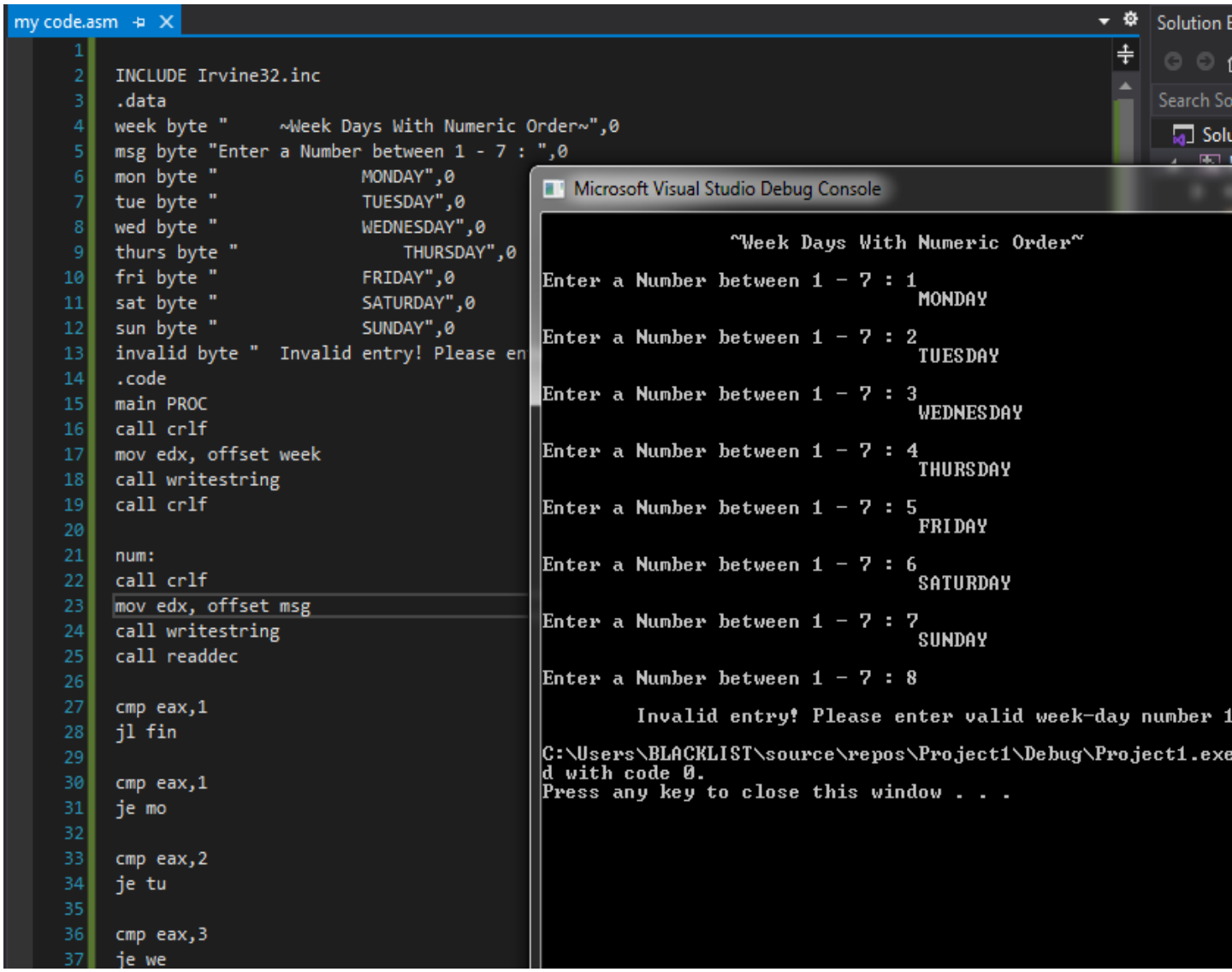
INCLUDE Irvine32.inc
.data
week byte " ~Week Days With Numeric Order~",0
msg byte "Enter a Number between 1 - 7 : ",0

```
mon byte "                    MONDAY",0
tue byte "                    TUESDAY",0
wed byte "                    WEDNESDAY",0
thurs byte "                  THURSDAY",0
fri byte "                    FRIDAY",0
sat byte "                    SATURDAY",0
sun byte "                    SUNDAY",0
invalid byte "Invalid entry! Please enter valid week-day number 1 - 7!",0
.code
main PROC
call crlf
mov edx, offset week
call writestring
call crlf

num:
call crlf
mov edx, offset msg
call writestring
call readdec

cmp eax,1
jl fin

cmp eax,1
je mo

cmp eax,2
je tu

cmp eax,3
je we

cmp eax,4
je th

cmp eax,5
je fr

cmp eax,6
je sa

cmp eax,7
je su

cmp eax,7
```

```
jge fin

loop num

mo:
mov edx, offset mon
call writestring
call crlf
jmp num

tu:
mov edx, offset tue
call writestring
call crlf
jmp num

we:
mov edx, offset wed
call writestring
call crlf
jmp num

th:
mov edx, offset thurs
call writestring
call crlf
jmp num

fr:
mov edx, offset fri
call writestring
call crlf
jmp num

sa:
mov edx, offset sat
call writestring
call crlf
jmp num

su:
mov edx, offset sun
call writestring
call crlf
jmp num
```

fin:
call crlf
mov edx, offset invalid
call writestring
call crlf
exit
loop fin

main ENDP
END main



TASK 8:

```
INCLUDE Irvine32.inc

.data
msg byte "Enter a character : ",0
msg2 byte "Character is an Alphabet!",0
msg3 byte "Character is not an Alphabet!",0
letter byte 65,0

.code
main PROC
call crlf
mov edx, offset msg
call writestring
call readchar

call writechar
call crlf

mov ecx ,255

mov edx,offset letter

compare:
cmp al,letter
je ALPHA
inc letter
loop compare

call crlf
mov edx, offset msg3
call writestring
call crlf
exit

ALPHA:
call crlf
mov edx, offset msg2
call writestring
call crlf
exit
loop ALPHA

main ENDP
```

END main

my code.asm

```
1
2   INCLUDE Irvine32.inc
3
4   .data
5   msg byte "Enter a character : ",0
6   msg2 byte "Character is an Alphabet!",0
7   msg3 byte "Character is not an Alphabet!",0
8   letter byte 65,0
9
10  .code
11  main PROC
12  call crlf
13  mov edx, offset msg
14  call writestring
15  call readchar
16
17  call writechar
18  call crlf
19
20  mov ecx ,255
21
22  mov edx,offset letter
23
24  compare:
25  cmp al,letter
26  je ALPHA
27  inc letter
28  loop compare
29
30  call crlf
31  mov edx, offset msg3
32  call writestring
33  call crlf
34  exit
35
36  ALPHA:
37  call crlf
38  mov edx, offset msg2
```

Microsoft Visual Studio Debug Console

```
Enter a character : A

Character is an Alphabet!

C:\Users\BLACKLIST\source\repos\Proj
d with code 0.
Press any key to close this window .
```

my code.asm

```
1
2   INCLUDE Irvine32.inc
3
4   .data
5   msg byte "Enter a character : ",0
6   msg2 byte "Character is an Alphabet!",0
7   msg3 byte "Character is not an Alphabet!",0
8   letter byte 65,0
9
10  .code
11  main PROC
12  call crlf
13  mov edx, offset msg
14  call writestring
15  call readchar
16
17  call writechar
18  call crlf
19
20  mov ecx ,122
21
22  mov edx,offset letter
23
24  compare:
25  cmp al,letter
26  je ALPHA
27  inc letter
28  loop compare
29
30  call crlf
31  mov edx, offset msg3
32  call writestring
33  call crlf
34  exit
35
36  ALPHA:
37  call crlf
38  mov edx, offset msg2
```

Microsoft Visual Studio Debug Console

```
Enter a character : 9

Character is not an Alphabet!

C:\Users\BLACKLIST\source\repos\Pro
d with code 0.
Press any key to close this window
```

NAME: MAQBOOL AHMED
ROLLNO: 20K-1610