

**Name** : Ibadullah

**Roll No** : 19k-0259

## Assignment: 03

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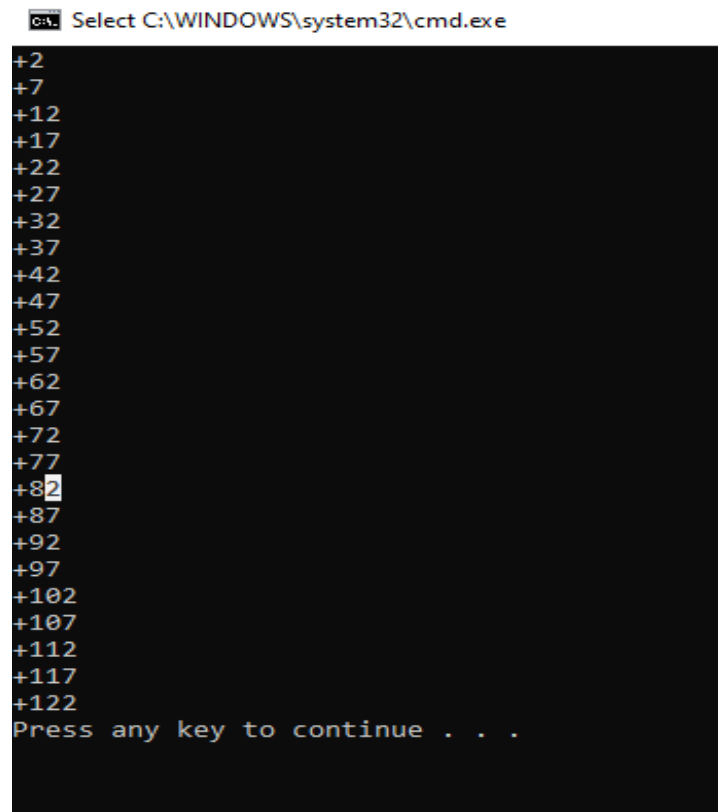
### Task 1: (a)

#### **Code:**

```
INCLUDE Irvine32.inc
.code
main PROC
mov eax, 2
mov ecx, 25
l1:
    call writeInt
    call crlf
    add eax, 5
Loop l1

exit
main ENDP
END main
```

#### **Screenshot:**



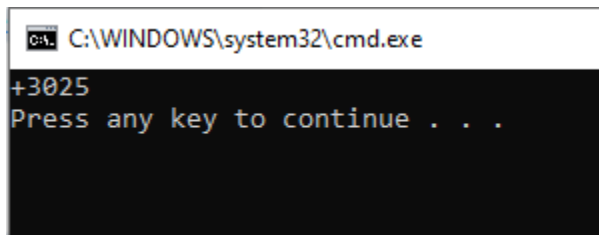
```
C:\> Select C:\WINDOWS\system32\cmd.exe
+2
+7
+12
+17
+22
+27
+32
+37
+42
+47
+52
+57
+62
+67
+72
+77
+82
+87
+92
+97
+102
+107
+112
+117
+122
Press any key to continue . . .
```

## **Task 1: (b)**

### **Code:**

```
INCLUDE Irvine32.inc
.data
array WORD 1,2,3,4,5,6,7,8,9,10
Sum DWORD 0
.code
main PROC
mov esi, 0
mov ecx, 10
l1:
    movzx eax, array[esi*TYPE array]
    mov ebx, eax
    mul eax
    mul ebx
    add Sum, eax
    INC esi
    mov eax, 0
    mov ebx, 0
Loop l1
mov eax, Sum
Call WriteInt
call crlf
exit
main ENDP
END main
```

### **Screenshot:**



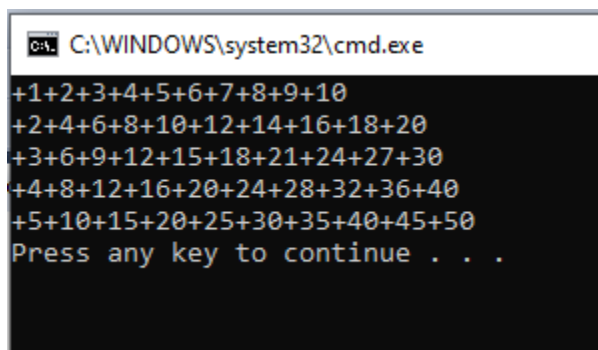
**NOTE: Output is showing the final Sum of 10 Numbers.**

## Task 2:

### Code:

```
INCLUDE Irvine32.inc
.data
Ibadullah DWORD    1,2,3,4,5,6,7,8,9,10
           DWORD    2,4,6,8,10,12,14,16,18,20
           DWORD    3,6,9,12,15,18,21,24,27,30
           DWORD    4,8,12,16,20,24,28,32,36,40
           DWORD    5,10,15,20,25,30,35,40,45,50
.code
main PROC
mov esi, 0
mov ebx, 1
mov ecx, 5
l1:
    PUSH ecx
    mov ecx, 10
    l2:
        cmp ebx, 11
        je equal
        mov eax, Ibadullah[esi*TYPE Ibadullah]
        call writeInt
        ;call PrintSpace
        INC esi
        INC ebx
        equal:
    Loop l2
    mov ebx, 1
    call crlf
    POP ecx
Loop l1
exit
main ENDP
END main
```

### Screenshot:



```
C:\WINDOWS\system32\cmd.exe
+1+2+3+4+5+6+7+8+9+10
+2+4+6+8+10+12+14+16+18+20
+3+6+9+12+15+18+21+24+27+30
+4+8+12+16+20+24+28+32+36+40
+5+10+15+20+25+30+35+40+45+50
Press any key to continue . . .
```

### Task 3:

a)

Registers  
EAX = 00B64000

Registers  
EAX = 00000400

b)

Registers  
EAX = 00B64002

Registers  
EAX = 06000000

c)

Registers  
EAX = 00B64007

Registers  
EAX = 00007000

d)

Registers  
EAX = 00B64003

Registers  
EAX = 00060002

e)

Registers  
EAX = 00B6400C

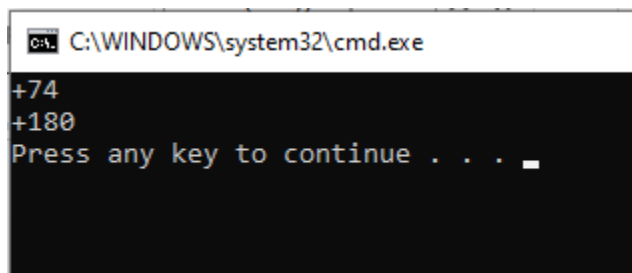
Registers  
EAX = 00000702

## **Task 4:**

### **Code:**

```
INCLUDE Irvine32.inc
.data
arrayW DW 50,20,90,101,450
arrayB DB 10,24,67,90,100
Ibadullah WORD ?,?
.code
main PROC
mov esi, 0
mov edi, 0
mov ecx, 2
l1:
    mov al, BYTE PTR arrayW[esi*TYPE arrayW]
    INC esi
    add al, BYTE PTR arrayB[esi*TYPE arrayB]
    INC esi
    mov BYTE PTR Ibadullah[edi], al
    INC edi
    mov eax, 0
Loop l1
mov al, BYTE PTR Ibadullah+0
call WriteInt
call crlf
mov al, BYTE PTR Ibadullah+1
call WriteInt
call crlf
exit
main ENDP
END main
```

### **Screenshot:**



### Task 5:

(a):

**AX: 5816**

**AL: 16**

**AH: 58**

**CX: 1003**

**CL: 03**

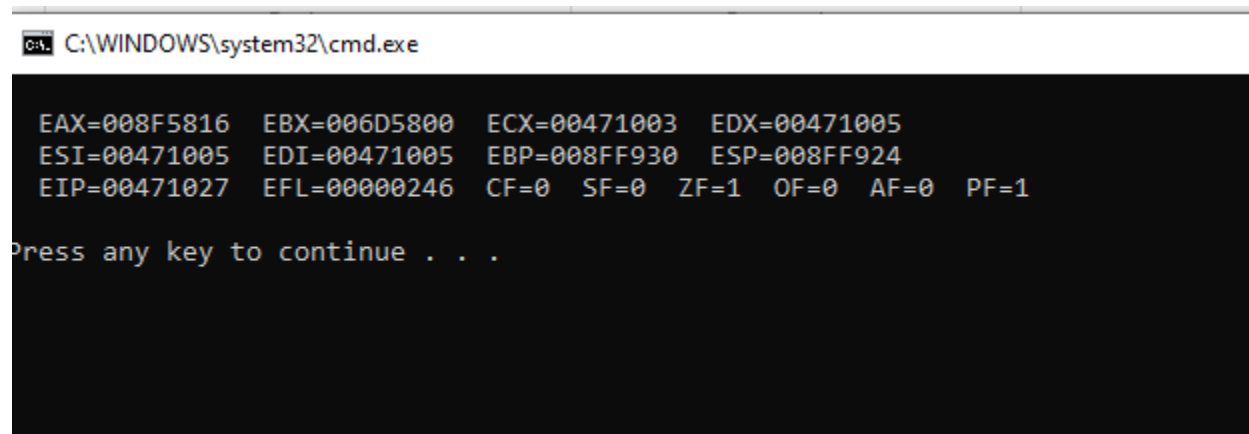
**CH: 10**

**DX: 1005**

**DL: 05**

**DH: 10**

**Screenshot:**



A screenshot of a Windows command prompt window. The title bar shows the path "C:\WINDOWS\system32\cmd.exe". The command prompt displays the following register values:

```
EAX=008F5816  EBX=006D5800  ECX=00471003  EDX=00471005  
ESI=00471005  EDI=00471005  EBP=008FF930  ESP=008FF924  
EIP=00471027  EFL=00000246  CF=0   SF=0   ZF=1   OF=0   AF=0   PF=1
```

Below the register values, the prompt says "Press any key to continue . . .".

(b):

**AX: 8B91**

**AL: 91**

**AH: 8B**

**CX: 0010**

**CL: 10**

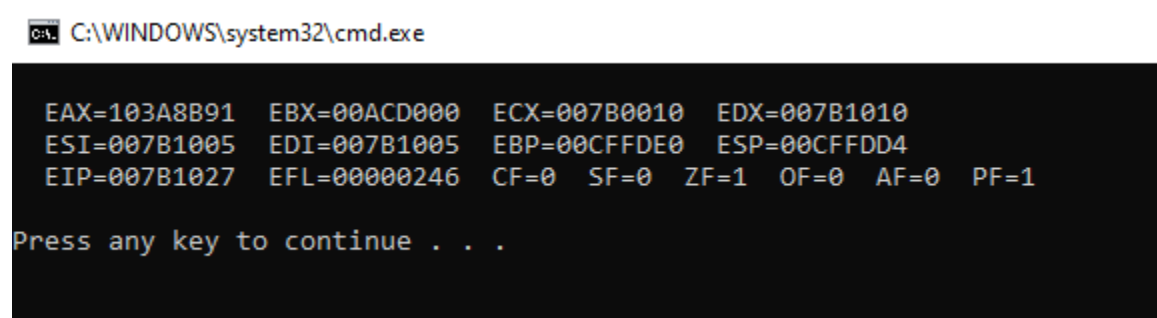
**CH: 00**

**DX: 1010**

**DL: 10**

**DH: 10**

**Screenshot:**



A screenshot of a Windows command prompt window. The title bar shows the path "C:\WINDOWS\system32\cmd.exe". The command prompt displays the following register values:

```
EAX=103A8B91  EBX=00ACD000  ECX=007B0010  EDX=007B1010  
ESI=007B1005  EDI=007B1005  EBP=00CFFDE0  ESP=00CFFDD4  
EIP=007B1027  EFL=00000246  CF=0   SF=0   ZF=1   OF=0   AF=0   PF=1
```

Below the register values, the prompt says "Press any key to continue . . .".

## **Task 6:**

### **Code:**

```
INCLUDE Irvine32.inc
.data
var1 BYTE 1
var2 BYTE 6
var3 BYTE 4
var4 BYTE 8
msg1 BYTE "Yes, this is Armstrong.",0
msg2 BYTE "No, this is not a Armstrong.",0
Sum DWORD 0
.code
main PROC
movzx eax, var1
movzx ebx, var2
movzx edx, var3
mov ecx, 35
l1:
    add ebx, 6
Loop l1
mov ecx, 15
l2:
    add edx, 4
Loop l2
mov ecx, 63

add sum, eax
add sum, ebx
add sum, edx
mov eax, 0
movzx eax, Var4
mov ecx, 63
l3:
    add eax, 8
Loop l3
add sum, eax
cmp sum, 1648
je equal
mov edx, OFFSET msg2
call WriteString
call crlf
jmp not_equal
equal:
mov edx, OFFSET msg1
call WriteString
call crlf
not_equal:
exit
main ENDP
END main
```

### **Screenshot:**

C:\WINDOWS\system32\cmd.exe

No, this is not a Armstrong.  
Press any key to continue . . .