K230013
BAI-4A
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# COAL

# LAB 7

**TASK1:**

INCLUDE Irvine32.inc

.data

    array dword 1,2,3,4,5,6,7,8,9,0

    array2 dword 10 dup(?)

.code

main proc

    mov eax,0

    mov ecx,10

    mov esi,offset array

    mov ebx,0

    mov edi,offset array2

l1:

```asm
push [esi +ebx*Type array]

pop eax

mov array2[ebx*Type array2],eax

inc ebx

loop l1

mov ecx,10

mov ebx,0

l2:

mov eax,array2[ebx*Type array]

call writedec

call crlf

inc ebx

loop l2

exit

main ENDP

END main
```
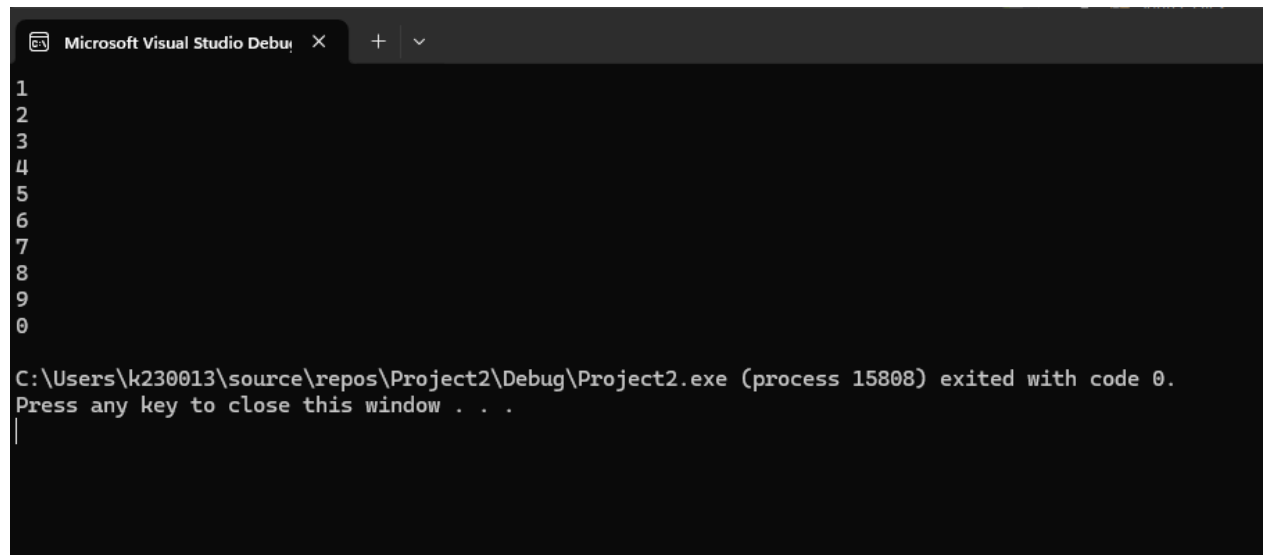
**OUTPUT:**

```
1
2
3
4
5
6
7
8
9
0

C:\Users\k230013\source\repos\Project2\Debug\Project2.exe (process 15808) exited with code 0.
Press any key to close this window . . .
```

**TASK2:**

```
INCLUDE Irvine32.inc

.data
num1 WORD 5
num2 WORD 10
num3 WORD 15
sum  DWORD ?

.code
main PROC

    PUSH num1
    PUSH num2
    PUSH num3

    ; Pop and add them
    POP AX
    MOVZX EAX, AX
    POP BX
    MOVZX EBX, BX
    ADD EAX, EBX
    POP CX
    MOVZX ECX, CX
    ADD EAX, ECX

    MOV sum, EAX

    ; Display the sum
    CALL WriteDec
    CALL Crlf

    EXIT
main ENDP
END main
```

**OUTPUT:**

```
30

C:\Users\k230013\source\repos\Project2\Debug\Project2.exe (process 12252) exited with code 0.
Press any key to close this window . . .
```

**TASK3:**

```
INCLUDE Irvine32.inc
.DATA
    array1 DWORD 10, 20, 30, 40, 50
    array2 DWORD 5, 15, 25, 35, 45
    arrSize DWORD 5
    sum1 DWORD ?
    sum2 DWORD ?
    totalSum DWORD ?
.CODE
main PROC
    PUSH OFFSET array1
    PUSH arrSize
    CALL SumArray
    MOV sum1, EAX
    PUSH OFFSET array2
    PUSH arrSize
    CALL SumArray
    MOV sum2, EAX
    PUSH sum1
    PUSH sum2
    CALL AddSums
    MOV totalSum, EAX
    MOV EAX, totalSum
    CALL WriteDec
    CALL Crlf
    INVOKE ExitProcess, 0
main ENDP
SumArray PROC
    PUSH EBP
    MOV EBP, ESP
```

```
    MOV ECX, [EBP+8]
    MOV ESI, [EBP+12]
    XOR EAX, EAX
SumLoop:
    ADD EAX, DWORD PTR [ESI]
    ADD ESI, 4
    LOOP SumLoop
    POP EBP
    RET 8
SumArray ENDP
AddSums PROC
    PUSH EBP
    MOV EBP, ESP
    MOV EAX, [EBP+8]
    ADD EAX, [EBP+12]
    POP EBP
    RET 8
AddSums ENDP
END main
```

**OUTPUT:**



```
. 275

C:\Users\it\source\repos\COALLAB6\Debug\COALLAB6.exe (process 20496) exited with code 0 (0x0).
Press any key to close this window . . .
```

**TASK4:**
```
.386
.model flat, stdcall
.stack 4096
include Irvine32.inc

.data
    star db '*',0
    space db ' ',0
    max_rows = 5

.code
main PROC
    mov ecx, 1

print_loop:
    cmp ecx, max_rows
    jg exit_program
    mov eax, max_rows
    sub eax, ecx
    mov ebx, eax
print_spaces:
    cmp ebx, 0
    jle print_stars
    mov edx, offset space
    call WriteString
    dec ebx
    jmp print_spaces

print_stars:
    mov edx, offset star
```

```
    mov ebx, ecx

print_star:
    call WriteString
    dec ebx
    jnz print_star

    call Crlf
    inc ecx
    jmp print_loop

exit_program:
    exit
main ENDP
END main
```

**OUTPUT:**

```
    *
   **
  ***
 ****
*****

C:\Users\it\source\repos\COALLAB6\Debug\COALLAB6.exe (process 7180) exited with code 0 (0x0).
Press any key to close this window . . .
```

**TASK5:**

INCLUDE Irvine32.inc

```
.DATA
    prompt  BYTE "Enter a number: ", 0
    sumMsg  BYTE "The sum of numbers from 1 to ", 0
    resultMsg BYTE " is ", 0
    num DWORD ?
    totalSum DWORD ?

.CODE
main PROC
    MOV EDX, OFFSET prompt
    CALL WriteString

    CALL ReadInt
    MOV num, EAX

    MOV ECX, num
    XOR EAX, EAX

sumLoop:
    ADD EAX, ECX
    LOOP sumLoop

    MOV totalSum, EAX

    MOV EDX, OFFSET sumMsg
    CALL WriteString

    MOV EAX, num
```

```
        CALL WriteDec

        MOV EDX, OFFSET resultMsg
        CALL WriteString

        MOV EAX, totalSum
        CALL WriteDec

        CALL Crlf

    INVOKE ExitProcess, 0
main ENDP

END main
```

**OUTPUT:**

```
Enter a number: 5
The sum of numbers from 1 to 5 is 15

C:\Users\it\source\repos\COALLAB6\Debug\COALLAB6.exe (process 7232) exited with code 0 (0x0).
Press any key to close this window . . .
```