

COAL LAB 7

Questions:

Task#1:

Take an array of 10 numbers move word-type of data into another empty array using stack push

and pop technique.

Task#2

Write a program which displays the addition of three integers through a stack.

Task#3

Write a program having procedures are used to calculate the total sum of 2 arrays (each array having 5-elements). The sum of 1-array in 1st procedure and in 2nd procedure have sum of 2-array. And the 3rd procedure add the results of both.

Task#4

Print the following pattern using a function call in which number of columns is pass through a variable.

*

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Task#5

Write a function that asks the user for a number n and prints the sum of the numbers 1 to n

Q1

```
INCLUDE Irvine32.inc
```

```

.data
str1 BYTE "Enter the number: " , 0

arr WORD 10 DUP(?) ; array of 10 elements
arr2 WORD 10 DUP(?) ;

.code
main PROC

;taking input
mov eax , 0
mov esi , 0
mov ecx , 10

input:
mov edx , offset str1
call Writestring
call Readint
mov arr[esi] , ax
add esi , 2

loop input

mov eax , 0
mov esi , 0
mov ecx , 10

transfer:
mov bx , arr[esi]
push bx ; value pushed in stack
pop dx
mov arr2[esi] , dx
add esi , 2

loop transfer

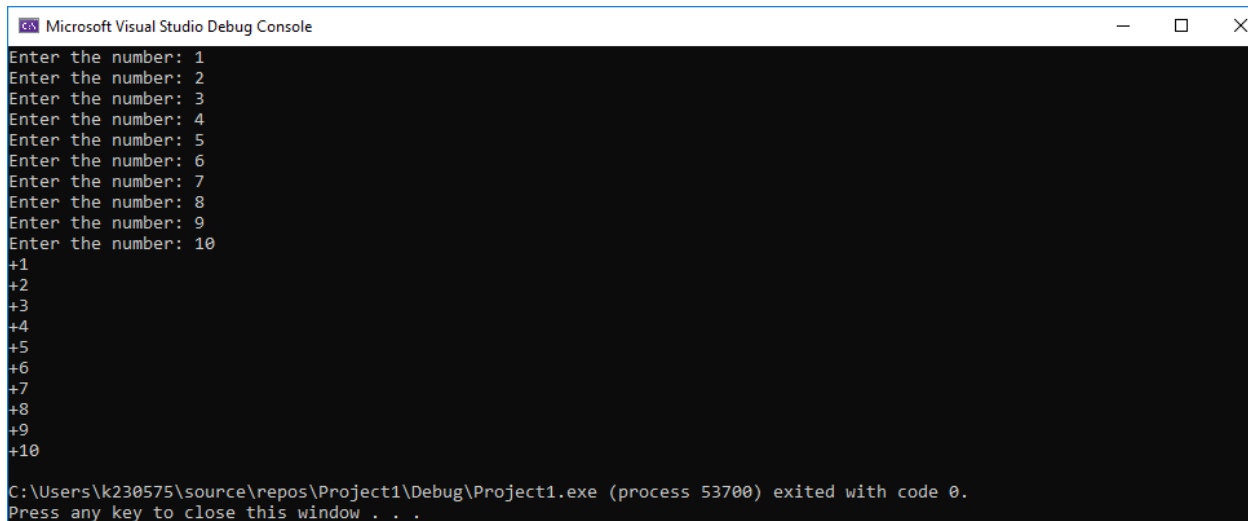
;printing data
mov ecx , 10
mov eax , 0
mov esi , 0

print:
mov ax , arr2[esi]
call Writeint
call crlf
add esi , 2

loop print

```

```
exit
main ENDP
END main
```

A screenshot of the Microsoft Visual Studio Debug Console window. The window has a title bar with the text "Microsoft Visual Studio Debug Console" and standard window controls (minimize, maximize, close). The console output is as follows:
Enter the number: 1
Enter the number: 2
Enter the number: 3
Enter the number: 4
Enter the number: 5
Enter the number: 6
Enter the number: 7
Enter the number: 8
Enter the number: 9
Enter the number: 10
+1
+2
+3
+4
+5
+6
+7
+8
+9
+10
C:\Users\k230575\source\repos\Project1\Debug\Project1.exe (process 53700) exited with code 0.
Press any key to close this window . . .

Q2

Code:

```
INCLUDE Irvine32.inc

.data
var1 DWORD 10
var2 DWORD 5
var3 DWORD 20

.code
main PROC

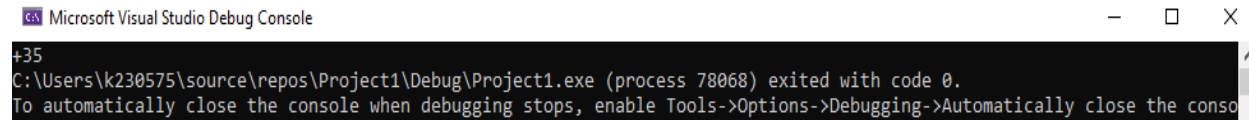
;pushing the values in the stack
mov eax , 0
mov eax , var1
push eax
mov ebx ,var2
push ebx
mov ecx , var3
push ecx

;popping the values out of stack and adding it
mov eax , 0
mov ebx , 0
mov ecx , 0
pop eax
pop ebx
```

```
add eax , ebx
pop ecx
add eax , ecx
```

```
call Writeint
```

```
exit
main ENDP
END main
```



```
Microsoft Visual Studio Debug Console
+35
C:\Users\k230575\source\repos\Project1\Debug\Project1.exe (process 78068) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
```

Q3

```
INCLUDE Irvine32.inc
```

```
.data
arr1 DWORD 1 , 2 , 3 , 4 , 5
arr2 DWORD 6 , 7 , 8 , 9 , 10
```

```
sum1 DWORD ?
sum2 DWORD ?
```

```
.code
main PROC
```

```
call Arr1Sum
call Arr2Sum
call Sum
exit
```

```
;procedure to calculate the sum of first array
```

```
Arr1Sum PROC
mov eax , 0
mov esi , 0
mov ecx , 5
L1:
add eax , arr1[esi *TYPE arr1]
inc esi
loop L1
;call Writeint
mov sum1 , eax
```

```
ret
Arr1Sum ENDP
```

;procedure to calculate the sum of second array

Arr2Sum PROC

mov eax , 0

mov esi , 0

mov ecx , 0

mov ecx , 5

L2:

add eax , arr2[esi *TYPE arr2]

inc esi

loop L2

mov sum2 , eax

ret

Arr2Sum ENDP

;procedure to add the sum of both the arrays

Sum PROC

mov eax , 0

mov eax , sum1

add eax , sum2

call Writeint ; printing the sum

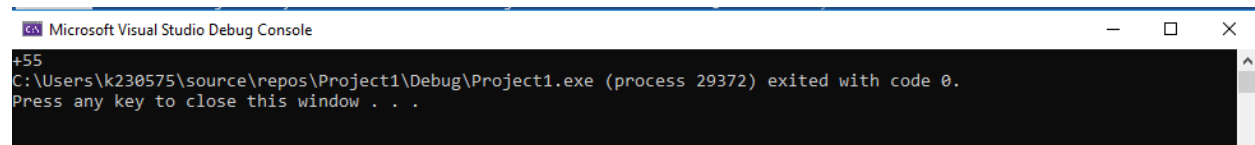
ret

Sum ENDP

;exit

main ENDP

END main

A screenshot of the Microsoft Visual Studio Debug Console window. The title bar reads "Microsoft Visual Studio Debug Console". The console output shows a green prompt "+55" followed by the message "C:\Users\k230575\source\repos\Project1\Debug\Project1.exe (process 29372) exited with code 0." and "Press any key to close this window . . .". The window has standard Windows controls (minimize, maximize, close) in the top right corner.

Q4

Code:

INCLUDE Irvine32.inc

.data

spaces DWORD 5

rows DWORD ?

cols DWORD 1

.code

main PROC

```

call printPattern
exit
main ENDP

printPattern PROC
mov ecx,5

L1:
mov rows,ecx
mov ecx,spaces

L2:
mov al," "
call writechar

LOOP L2

dec spaces
mov ecx,cols

L3:
mov al,"*"
call writechar

LOOP L3

inc cols
call crlf
mov ecx,rows
LOOP L1
ret
printPattern ENDP
END main

```

```

*
**
***
****
*****

C:\Users\anas\source\repos\Project2\Debug\Project2.exe (process 12292) exited with code 0 (0x0).
Press any key to close this window . . .

```

Q5

Code:

```
INCLUDE Irvine32.inc
```

```
.data
```

```
str1 BYTE "Enter the number n: " , 0
```

```
n DWORD ?
```

count DWORD ?

```
.code
main PROC
mov edx , offset str1
call Writestring
call Readint
mov n , eax

call SumN
exit

SumN PROC
mov eax , 0
mov ecx , n
mov eax , n

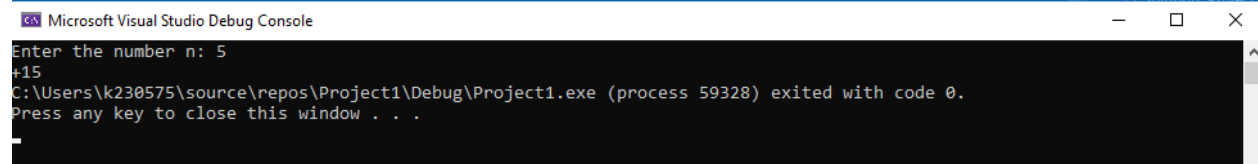
L1:
dec n
add eax , n

loop L1

call Writeint

ret
SumN ENDP

main ENDP
END main
```



The screenshot shows the Microsoft Visual Studio Debug Console window. The title bar reads "Microsoft Visual Studio Debug Console". The console output is as follows:

```
Enter the number n: 5
+15
C:\Users\k230575\source\repos\Project1\Debug\Project1.exe (process 59328) exited with code 0.
Press any key to close this window . . .
```

The window has standard Windows window controls (minimize, maximize, close) in the top right corner.