Microprocessor LAB

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S6 CSE
Roll no : 5

Algorithm

1. Load the count value in CL register
2. Initialize AX as Zero
3. Initialize BX as Zero
4. Load the address of the array in SI register
5. Load the byte of array to BL register
6. Add AX and BX register value.
7. Increment the SI memory location
8. Decrement CL register value by one
9. If CL value become zero then go to next step, otherwise go to step 5
10. Load the address of the result in DI register
11. Final result is move into the DI location AX to DI.

Program

```
Data segment
arr db 2,1,2,7,2
len dw $-arr
sum dw ?
data ends
code segment
assume ds:data, cs:code
start : mov ax,data
        mov ds,ax
        lea si, arr
        mov dx, 0

        mov cx, len
repeat : mov bl, arr[si]
         mov bh, 0
         add dx, bx
         inc si
         loop repeat
         add dx, 48
         mov sum, dx
         mov ah,2
         int 21h
         mov ah, 4ch
         int 21h
code ends
end start.
```
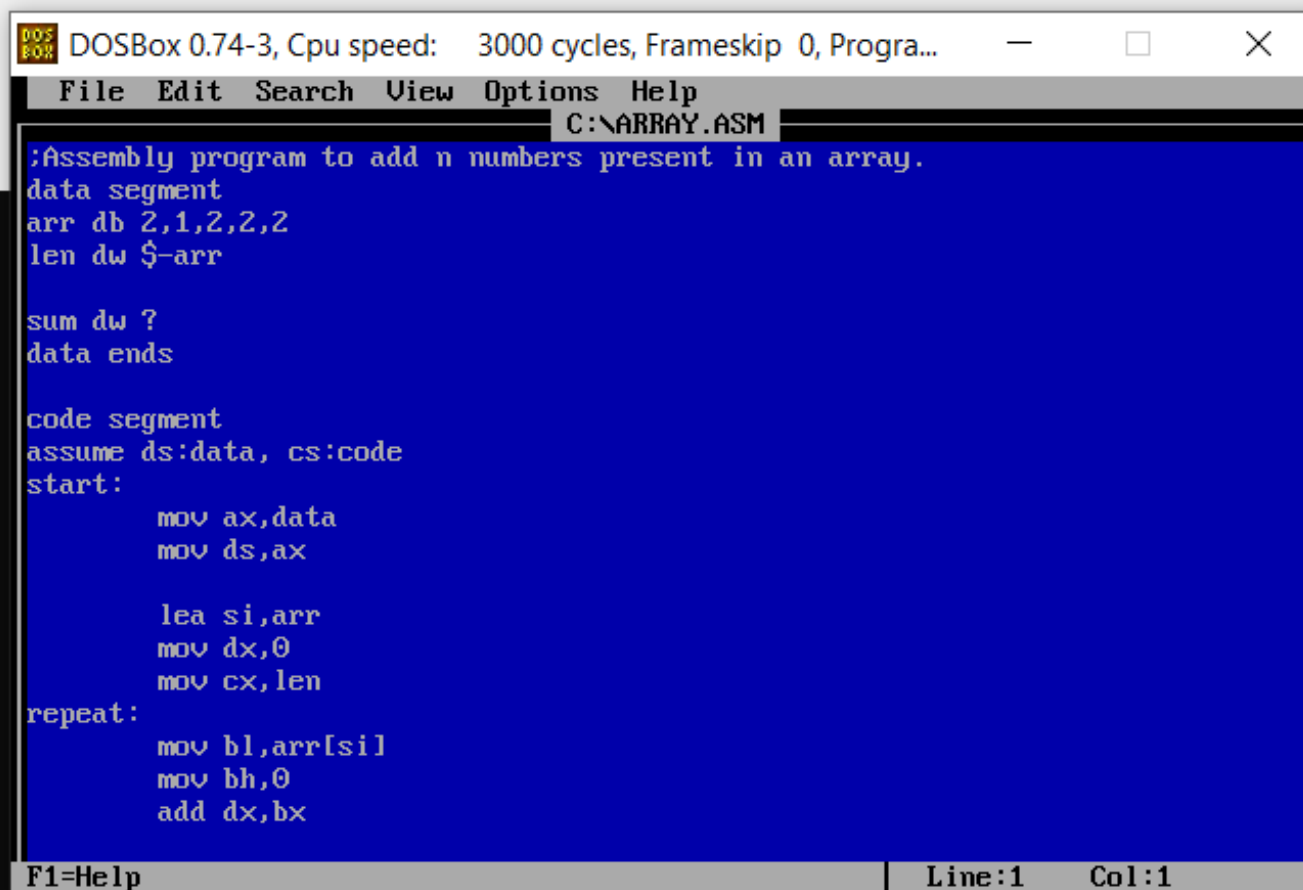
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Progra...

File   Edit   Search   View   Options   Help

C:\ARRAY.ASM

```
;Assembly program to add n numbers present in an array.
data segment
arr db 2,1,2,2,2
len dw $-arr

sum dw ?
data ends

code segment
assume ds:data, cs:code
start:
        mov ax,data
        mov ds,ax

        lea si,arr
        mov dx,0
        mov cx,len
repeat:
        mov bl,arr[si]
        mov bh,0
        add dx,bx
```

F1=Help   Line:1   Col:1

```asm
        lea si,arr
        mov dx,0
        mov cx,len
repeat:
        mov bl,arr[si]
        mov bh,0
        add dx,bx

        inc si
        loop repeat
        add dx,48

        mov sum,dx

        mov ah,2
        int 21h
        mov ah,4ch
        int 21h
code ends
end start
```

Select DOSBox Status Window

DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Progra…

```
7
C:\>edit array.ASM

C:\>masm array.asm
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserved.

Object filename [array.OBJ]: ;

  51602 + 464942 Bytes symbol space free

      0 Warning Errors
      0 Severe  Errors

C:\>link array.obj

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.

Run File [ARRAY.EXE]: ;
LINK : warning L4021: no stack segment

C:\>array.exe
9
C:\>_
```