

COAL Lab 09

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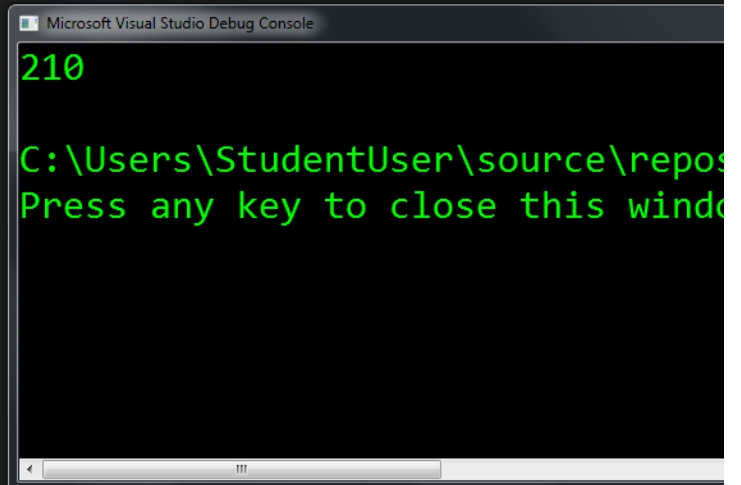
Roll No: 21K-3195

Section: BCS-3J

Instructor: Sir Kashan Hussain

Task 1:

```
1 ; Sufiyaan Usmani
2 ; 21K-3195
3 ; BCS-3J
4 ; Task 1
5
6 INCLUDE Irvine32.inc
7
8 .data
9     bMinutes BYTE ?
10 .code
11     main PROC
12         mov eax, 0
13         mov eax, 10
14         mov ebx, eax
15         shl eax, 4
16         add eax, ebx
17         shl ebx, 2
18         add eax, ebx
19         call WriteDec
20         call Crlf
21         exit
22     main ENDP
23     END main
```



Task 2:

```
1 ; Sufiyaan Usmani
2 ; 21K-3195
3 ; BCS-3J
4 ; Task 2
5
6 INCLUDE Irvine32.inc
7
8 .data
9
10 .code
11 main PROC
12     mov eax, 0
13     mov ax, -128
14     call DumpRegs
15     call Crlf
16     sal eax, 16
17     sar eax, 16
18     call DumpRegs
19     call Crlf
20     exit
21 main ENDP
22 END main
```

Microsoft Visual Studio Debug Console

```
EAX=0000FF80 EBX=7EFDE000 ECX=00000000 EDX=0024100A
ESI=00000000 EDI=00000000 EBP=0046F9AC ESP=0046F9A4
EIP=0024366E EFL=00000246 CF=0 SF=0 ZF=1 OF=0 AF=0 PF=1

EAX=FFFFFF80 EBX=7EFDE000 ECX=00000000 EDX=0024100A
ESI=00000000 EDI=00000000 EBP=0046F9AC ESP=0046F9A4
EIP=0024367E EFL=00000282 CF=0 SF=1 ZF=0 OF=0 AF=0 PF=0

C:\Users\StudentUser\source\repos\Project23\Debug\Project23.exe (p
```

Task 3:

```
1 ; Sufiyaan Usmani
2 ; 21K-3195
3 ; BCS-3J
4 ; Task 3
5
6 INCLUDE Irvine32.inc
7 .data
8     bMinutes BYTE ?
9 .code
10 main PROC
11     mov edx, 0
12     mov eax, 0
13     mov dx, 0010011001101010b
14     mov ax, dx
15     shr ax, 5
16     and ax, 0000000000111111b
17     mov bMinutes, al
18     call WriteDec
19     call Crlf
20     exit
21 main ENDP
22 END main
```

C:\WINDOWS\system32\cmd.exe

```
51
Press any key to conti
```

Task 4:

```
1 ; Sufiyaan Usmani
2 ; 21K-3195
3 ; BCS-3J
4 ; Task 4
5
6 INCLUDE Irvine32.inc
7 .data
8     Str1 BYTE "Now with SHRD", 0
9 .code
10 main PROC
11     mov eax, 0
12     mov ebx, 0
13     mov ax, 0101010101010101b
14     mov bx, 1010101010101010b
15     shr bx, 1
16     rcr ax, 1
17     call WriteBin
18     call Crlf
19     mov edx, 0
20     mov edx, OFFSET Str1
21     call WriteString
22     call Crlf
23     mov ax, 0101010101010101b
24     mov bx, 1010101010101010b
25     shrd ax, bx, 1
26     call WriteBin
27     call Crlf
28     exit
29 main ENDP
30 END main
```

```
C:\WINDOWS\system32\cmd.exe
0000 0000 0000 0000 0010 1010 1010 1010
Now with SHRD
0000 0000 0000 0000 0010 1010 1010 1010
Press any key to continue . . .
```

Task 5:

```
1 ; Sufiyaan Usmani
2 ; 21K-3195
3 ; BCS-3J
4 ; Task 5
5
6 INCLUDE Irvine32.inc
7 .data
8     Val1 SWORD -40
9     Val2 SWORD +20
10    Val3 SWORD -2
11    Temp SWORD ?
12 .code
13 main PROC
14     mov eax, 0
15     mov ebx, 0
16     mov edx, 0
17     mov ax, val2
18     mov bx, val3
19     idiv bx
20     sal eax, 16
21     sar eax, 16
22     mov ecx, 0
23     mov ecx, eax
24     mov eax, 0
25     mov edx, 0
26     mov ax, val1
27     cwd
28     mov ebx, 0
29     mov bx, val2
30     idiv bx
31     sal eax, 16
32     sar eax, 16
33     imul ecx
34     sal ecx, 16
35     sar ecx, 16
36     call WriteInt
37     call Crlf
38     exit
39 main ENDP
40 END main
```

```
C:\WINDOWS\system32\cmd.exe
+20
Press any key to continue . . .
```

Task 6:

```
1 ; Sufiyaan Usmani
2 ; 21K-3195
3 ; BCS-3J
4 ; Task 6
5
6 INCLUDE Irvine32.inc
7 .data
8     Num1    QWORD    3A2C098FDE6273EDh
9     Num2    QWORD    26D371B41CA8B4F6h
10 .code
11     main PROC
12         mov eax, 0
13         mov edx, 0
14         mov eax, DWORD PTR Num1
15         mov edx, DWORD PTR Num1[4]
16         add eax, DWORD PTR Num2
17         adc edx, DWORD PTR Num2[4]
18         call WriteDec
19         mov eax, edx
20         cmp eax, 0
21         JE Ex
22         call WriteDec
23     Ex:
24         call Crlf
25         exit
26     main ENDP
27     END main
```

C:\WINDOWS\system32\cmd.exe

42118125791627355971

Press any key to continue . . .