

COAL Lab 11

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Task 1:

```
1  INCLUDE Irvine32.inc
2  .data
3  str1 byte "127aj~3#*b",0
4  count dword LENGTHOF str1
5  msg1 byte "accorded at position:",0
6  position dword ?
7
8  .code
9  main proc
10     push count
11     push OFFSET str1
12     call scanstr
13     mov position,eax
14     mov eax,count
15     mov ebx,position
16     sub eax,ebx
17     dec eax
18     mov position,eax
19     mov edx,OFFSET msg1
20     call WriteString
21     call crlf
22     mov eax,position
23     call WriteDec
24     call crlf
25     exit
26 main endp
27
28 scanstr proc
29     push ebp
30     mov ebp,esp
31     pushad
32     mov edi,[ebp+8]
33     mov al,'#'
34     mov ecx,[ebp+12]
35     cld
36     repne scasb
37     jnz exitt
38     dec edi
39     mov[ebp+12],ecx
40
41     exitt:
42     popad
43     mov eax,[ebp+12]
44     pop ebp
45     ret 8
46 scanstr endp
47 end main
```

C:\WINDOWS\system32\cmd.exe

```
accorded at position:
8
Press any key to continue . . .
```

Task 2:

```
1  INCLUDE Irvine32.inc
2  .data
3  source BYTE "MARTIN  "
4  dest   BYTE "MARTINEZ"
5  str1   BYTE "Source is smaller",0dh,0ah,0
6  str2   BYTE "Source is not smaller",0dh,0ah,0
7
8  .code
9  main PROC
10     cld                     ; direction = forward
11     mov esi,OFFSET source
12     mov edi,OFFSET dest
13     mov cx,LENGTHOF source
14     repe cmpsb
15     jnb source_smaller
16     mov edx,OFFSET str2
17     jmp done
18
19 source_smaller:
20     mov edx,OFFSET str1
21
22 done:
23     call WriteString
24     exit
25 main ENDP
26 END main
```

C:\WINDOWS\system32\cmd.exe

Source is smaller
Press any key to continue . . .

Task 3:

```
1  INCLUDE Irvine32.inc
2
3  Str_copy PROTO,
4      source:PTR BYTE,      ; source string
5      target:PTR BYTE       ; target string
6
7  Str_length PROTO,
8      pString:PTR BYTE      ; pointer to string
9
10 .data
11 string_1 BYTE "ABCDEFGH",0
12 string_2 BYTE 100 DUP(?)
13
14 .code
15 main PROC
16     call Clrscr
17
18     INVOKE Str_copy,        ; copy string_1 to string_2
19         ADDR string_1,
20         ADDR string_2
21
22     mov edx,OFFSET string_2
23     call WriteString
24     call Crlf
25
26     exit
27 main ENDP
28
29 END main
```

C:\WINDOWS\system32\cmd.exe

ABCDEFGH
Press any key to continue . . .

Task 4:

```
1  INCLUDE Irvine32.inc
2
3  .data
4  table8 BYTE 10h, 20h, 30h, 40h, 50h
5          BYTE 60h, 70h, 80h, 90h, 0A0h
6          BYTE 0B0h, 0C0h, 0D0h, 0E0h, 0F0h
7  RowSize = 5
8  msg1 BYTE "Enter row number: ",0
9  msg2 BYTE "The sum is: ",0
10
11 .code
12 main PROC
13 ; Demonstrate Base-Index mode:
14
15     mov     edx,OFFSET msg1      ; "Enter row number:"
16     call    WriteString
17     call    ReadInt              ; EAX = row number
18
19     mov     ebx,OFFSET table8
20     mov     ecx,RowSize
21     call    calc_row_sum         ; EAX = sum
22
23     mov     edx,OFFSET msg2      ; "The sum is:"
24     call    WriteString
25     call    WriteHex             ; write sum in EAX
26     call    Crlf
27
28     exit
29 main ENDP
30
31
32 ;-----
33 ; calc_row_sum PROC uses ebx ecx edx esi
34 ;
35 ; Calculates the sum of a row in a byte matrix.
36 ; Receives: EBX = table offset, EAX = row index,
37 ;           ECX = row size, in bytes.
38 ; Returns:  EAX holds the sum.
39 ;-----
40
41     mul     ecx                  ; row index * row size
42     add     ebx,eax              ; row offset
43     mov     eax,0                ; accumulator
44     mov     esi,0                ; column index
45
46 L1: movzx   edx,BYTE PTR[ebx + esi] ; get a byte
47     add     eax,edx              ; add to accumulator
48     inc     esi                  ; next byte in row
49     loop    L1
50
51     ret
52 calc_row_sum ENDP
53
54 END main
```

C:\WINDOWS\system32\cmd.exe

```
Enter row number: 4
The sum is: 00000198
Press any key to continue . . .
```