

## Program No.3

; Write an X86/64 ALP to find the largest of given  
Byte/Word/Dword/64-bit

```
section .data
    array db 11h,59h,33h,22h,44h

    msg1 db 10,"ALP to find the largest number in an array",10
    msg1_len equ $ - msg1

    msg2 db 10,"The Array contains the elements : ",10
    msg2_len equ $ - msg2

    msg3 db 10,10, "The Largest number in the array is : ",10,13
    msg3_len equ $ - msg3

section .bss
    counter resb 1
    result resb 4

%macro write 2
    mov rax,1
    mov rdi,1
    mov rsi,%1
    mov rdx,%2
    syscall
%endmacro

section .text
    global _start

_start:

    write msg1 , msg1_len
    write msg2 , msg2_len

    mov byte[counter],05
    mov rsi,array
next:   mov al,[rsi]
        push rsi
        call disp
        pop rsi
        inc rsi
```

```

    dec byte[counter]
    jnz next

write msg3 , msg3_len

    mov byte[counter],05
    mov rsi, array
    mov al, 0          ; al is an 8 bit register , al stores
max
repeat: cmp al,[rsi]      ;cmp opr1 , opr2 : opr1 - opr2
        jg skip
        mov al,[rsi]
skip:   inc rsi
        dec byte[counter]
        Jnz repeat

    call disp

    mov rax,60
    mov rdi,1
    syscall

disp:
    mov bl,al ;store number in bl
    mov rdi, result ;point rdi to result variable
    mov cx,02 ;load count of rotation in cl
up1:
    rol bl,04 ;rotate number left by four bits
    mov al,bl ;move lower byte in dl
    and al,0fh ; get only LSB
    cmp al,09h ;compare with 39h
    jg add_37 ;if grater than 39h skip add 37
    add al,30h
    jmp skip1 ;else add 30
add_37: add al,37h
skip1:  mov [rdi],al ;store ascii code in result variable
        inc rdi ;point to next byte
        dec cx ;decrement the count of digits to display
        jnz up1 ;if not zero jump to repeat

write result , 4

ret

```

## Output:

```
student@student-Vostro-3902: ~/Downloads/Ratnapal
student@student-Vostro-3902:~/Downloads/Ratnapal$ nasm -f elf64 mp3.asm
student@student-Vostro-3902:~/Downloads/Ratnapal$ ld -s -o mp3 mp3.o
student@student-Vostro-3902:~/Downloads/Ratnapal$ ./mp3

ALP to find the largest number in an array

The Array contains the elements :
1159332244

The Largest number in the array is :
59student@student-Vostro-3902:~/Downloads/Ratnapal$
```