**Assignment No.5**

**Title:-**Write 64-bit ALP to convert HEX 4-digit input to BCD 5-digit output.

%macro scall 4

mov rax,%1

mov rdi,%2

mov rsi,%3

mov rdx,%4

syscall

%endmacro

section .data

m1 db 10,"Enter 4 digit Hex Number:"

l1 equ $-m1

m2 db 10,13,"Equivalent BCD number is:"

l2 equ $-m2

section .bss

buf resb 6

digitcount resb 1

char\_ans resb 4

section .text

global \_start

\_start:

scall 1,1,m1,l1

scall 0,0,buf,5

call accept\_proc

mov ax,bx ;(AX=DIVIDEND=FFFFH)

call h2bproc

;=================================EXIT============================

mov rax,60

mov rdi,0

syscall

;=================HEX TO BCD PROCEDURE========================

h2bproc:

mov rbx,0Ah

back:

xor rdx,rdx

div rbx

push dx

inc byte[digitcount]

cmp rax,0h

jne back

scall 01,01,m2,l2

print\_bcd:

pop dx

add dl,30h

mov [char\_ans],dl

scall 01,01,char\_ans,1

dec byte[digitcount]

jnz print\_bcd

ret

;=====================ACCEPT PROCEDURE========================

accept\_proc:

mov bx,0000h

; xor bx,bx

mov ax,0000h

mov rcx,4

mov rsi,buf

next\_digit:

rol bx,04

mov al,[rsi]

cmp al,39h

jbe label1

sub al,07h

label1: sub al,30h

add bx,ax

inc rsi

loop next\_digit

ret

**OUTPUT:-**

;:~$ nasm -f elf64 hex2bcd.asm

;:~$ ld -o hex2bcd hex2bcd.o

;:~$ ./hex2bcd

;Enter 4 digit Hex Number:FFFF

;Equivalent BCD number is:65535

;:~$ ./hex2bcd

;Enter 4 digit Hex Number:00FF

;Equivalent BCD number is:255

;:~$ ./hex2bcd

;Enter 4 digit Hex Number:000F

;Equivalent BCD number is:15

;:~$ ./hex2bcd

;Enter 4 digit Hex Number:F000

;Equivalent BCD number is:61440

;:~$ ./hex2bcd

;Enter 4 digit Hex Number:0FF0

;Equivalent BCD number is:4080

;:~$

**Name**: Yashraj Vijay Aware

**Division**: D1

**Roll No**:224006

**Prn No**: 22110167