

.model small

.data

a db 13H

.code

mov ax, @data ; Initialize data section

mov ds, ax

mov al, a ; Load number1 in al

and al, 0f0h ; mask lower nibble

mov cl, 04h

rcr al, cl ; rotate it 4 times to right to make it 09h

mov bh, al ; store result in bh

call disp ; display the upper nibble

mov al, a ; Load number1 in al

and al, 0fh ; mask upper nibble

mov bh, al ; store result in bh

call disp ; display the lower nibble

mov ah, 4cH ; Terminate Program

int 21H

disp proc near

mov ch, 02h ; Count of digits to be displayed

mov cl, 04h ; Count to roll by 4 bits

l2: rol bh, cl ; roll bh so that msb comes to lsb

mov dl, bh ; load dl with data to be displayed

and dl, 0fH ; get only lsb

cmp dl, 09 ; check if digit is 0-9 or letter A-F

jbe l4

add dl, 07 ; if letter add 37H else only add 30H

l4: add dl, 30H

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    mov     ah, 02      ; Function 2 under INT 21H (Display character)
    int     21H
    dec     ch          ; Decrement Count
    jnz     l2
    mov     ah, 02h
    mov     dl, ''
    int     21h
    endp
ret
end
```