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**LAB TASK 4**

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**QUESTION 1**

.model small

.stack 100h

.data

msg db "Enter a number between 0 and 9: $"

even db "The given number is even$"

odd db "The given number is odd$"

.code

main proc

mov ax, @data

mov ds, ax

mov ah, 09h

lea dx, msg

int 21h

mov ah, 01h ; read character input

int 21h

sub al, '0'

cmp al, 0 ; check if number is less than 0

jl invalid

cmp al, 9 ; check if number is greater than 9

jg invalid

mov ah, 0 ; clear ah register

mov bl,2

div bl ; divide by 2 for finding even or odd

cmp ah, 0 ; check if remainder is 0

je even\_num

jmp odd\_num

even\_num:

mov ah, 09h

lea dx, even

int 21h

jmp exit

odd\_num:

mov ah, 09h

lea dx, odd

int 21h

invalid:

mov ah,4ch

int 21h

exit:

mov ax, 4C00h ; exit program

int 21h

end main

**QUESTION 3**

.model small

.stack 100h

.data

arr db 'a', 'b', 'c', 'd', 'e', 'f', 'g', 'h' ; Array of characters

prompt db 'Enter a character (a-h): $'

found\_msg db 'The character is found.$'

not\_found\_msg db 'The character is not found.$'

input\_char db ? ; Variable to store user input

newline db 0Dh, 0Ah, '$' ; New line characters

.code

main:

; Initialize the data segment

mov ax, @data

mov ds, ax

; Print prompt for user input

mov ah, 09h

lea dx, prompt

int 21h

; Read character from input

mov ah, 01h

int 21h

mov input\_char, al ; Store the input character

; Initialize pointer to the array

lea si, arr ; Load address of the array

mov cx, 8 ; Length of the array

; Loop through the array to check for the character

check\_loop:

cmp al, [si] ; Compare input character with the array element

je char\_found ; If equal, jump to char\_found

inc si ; Move to the next character in the array

loop check\_loop ; Loop until all elements are checked

; If we reach here, the character was not found

jmp char\_not\_found

char\_found:

; Print found message

mov ah, 09h

lea dx, found\_msg

int 21h

jmp exit

char\_not\_found:

; Print not found message

mov ah, 09h

lea dx, not\_found\_msg

int 21h

exit:

; Print newline

mov ah, 09h

lea dx, newline

int 21h

; Exit program

mov ax, 4C00h

int 21h

end main