**1. Write a program in assembly language to take two single-digit numbers as input and**

**display whether they are equal or not.**

ORG 100h ; Origin, to specify that the program starts at 100h (COM file format)

; Display message for first number input

MOV DX, OFFSET msg\_input1

MOV AH, 09h ; Function 09h to display a string

INT 21h ; Call DOS interrupt to print the input message

; Read first number

MOV AH, 01h ; Function 01h to read a single character from input

INT 21h ; Call DOS interrupt to read the first digit

SUB AL, 30h ; Convert ASCII to decimal (subtract '0')

MOV BL, AL ; Store first number in BL

; Display message for second number input

MOV DX, OFFSET msg\_input2

MOV AH, 09h ; Function 09h to display a string

INT 21h ; Call DOS interrupt to print the input message

; Read second number

MOV AH, 01h ; Function 01h to read a single character from input

INT 21h ; Call DOS interrupt to read the second digit

SUB AL, 30h ; Convert ASCII to decimal (subtract '0')

MOV BH, AL ; Store second number in BH

; Compare the two numbers

CMP BL, BH ; Compare BL and BH

JE equal\_msg ; If they are equal, jump to equal\_msg

; Display message "The numbers are not equal."

MOV DX, OFFSET not\_equal\_msg

MOV AH, 09h ; Function 09h to display a string

INT 21h ; Call DOS interrupt to print the output message

JMP end\_program ; Jump to the end of the program

equal\_msg:

; Display message "The numbers are equal."

MOV DX, OFFSET equal\_msg\_txt

MOV AH, 09h ; Function 09h to display a string

INT 21h ; Call DOS interrupt to print the output message

end\_program:

; Terminate the program

MOV AH, 4Ch ; Function 4Ch to terminate the program

INT 21h ; Call DOS interrupt to exit

; Data section

msg\_input1 DB 0Dh, 0Ah, 'Enter the first digit: $'

msg\_input2 DB 0Dh, 0Ah, 'Enter the second digit: $'

equal\_msg\_txt DB 0Dh, 0Ah, 'The numbers are equal.$'

not\_equal\_msg DB 0Dh, 0Ah, 'The numbers are not equal.$'

END

**OUTPUT**

**A computer screen with white text

Description automatically generatedA computer screen with white text

Description automatically generated**

**2. Write a program in assembly language to check whether a single-digit number is odd or**

**even.**

CODE  
  
  
ORG 100h ; Origin, to specify that the program starts at 100h (COM file format)

; Display message for single digit number input

MOV DX, OFFSET msg\_input1

MOV AH, 09h ; Function 09h to display a string

INT 21h ; Call DOS interrupt to print the input message

; Read single digit number

MOV AH, 01h ; Function 01h to read a single character from input

INT 21h ; Call DOS interrupt to read the first digit

SUB AL, 30h ; Convert ASCII to decimal (subtract '0')

MOV BL, AL ; Store first number in BL

; Check if the number is odd or even

MOV AL, BL ; Move first number to AL

AND AL, 01h ; Perform bitwise AND with 1 to check if the number is odd

JZ first\_even ; If zero flag is set, the number is even

MOV DX, OFFSET odd\_msg1

JMP display\_first ; If the number is odd, jump to display

first\_even:

MOV DX, OFFSET even\_msg1

display\_first:

MOV AH, 09h ; Function 09h to display a string

INT 21h ; Call DOS interrupt to print the result of first number

end\_program:

; Terminate the program

MOV AH, 4Ch ; Function 4Ch to terminate the program

INT 21h ; Call DOS interrupt to exit

; Data section

msg\_input1 DB 0Dh, 0Ah, 'Enter the single digit number: $'

odd\_msg1 DB 0Dh, 0Ah, 'The single digit number is odd.$'

even\_msg1 DB 0Dh, 0Ah, 'The single digit number is even.$'

END

**OUTPUT**

A computer screen with a black screen

Description automatically generatedA computer screen shot of a black screen

Description automatically generated