

Computer Organization and Architecture Lab

LAB ASSIGNMENT - 9

E. Likhith

AP22110010386

CSE-F

1. Write a program in assembly language to take two single-digit numbers as input and display whether they are equal or not.

Code:

ORG 100h

MOV DX, OFFSET msg_input1

MOV AH, 09h

INT 21h

; Read the first digit from the user

MOV AH, 01h

INT 21h

MOV BL, AL

; Display the message "Enter the second digit: "

MOV DX, OFFSET msg_input2

MOV AH, 09h

INT 21h

; Read the second digit from the user

MOV AH, 01h

INT 21h

MOV CL, AL

; Compare the two digits

CMP BL, CL

JE digits_equal ; Jump if equal

; Display message for not equal

MOV DX, OFFSET msg_not_equal

MOV AH, 09h

INT 21h

JMP end_program

digits_equal:

; Display message for equal

MOV DX, OFFSET msg_equal

MOV AH, 09h

INT 21h

end_program:

; Terminate the program

MOV AH, 4Ch

INT 21h

; Data section with messages

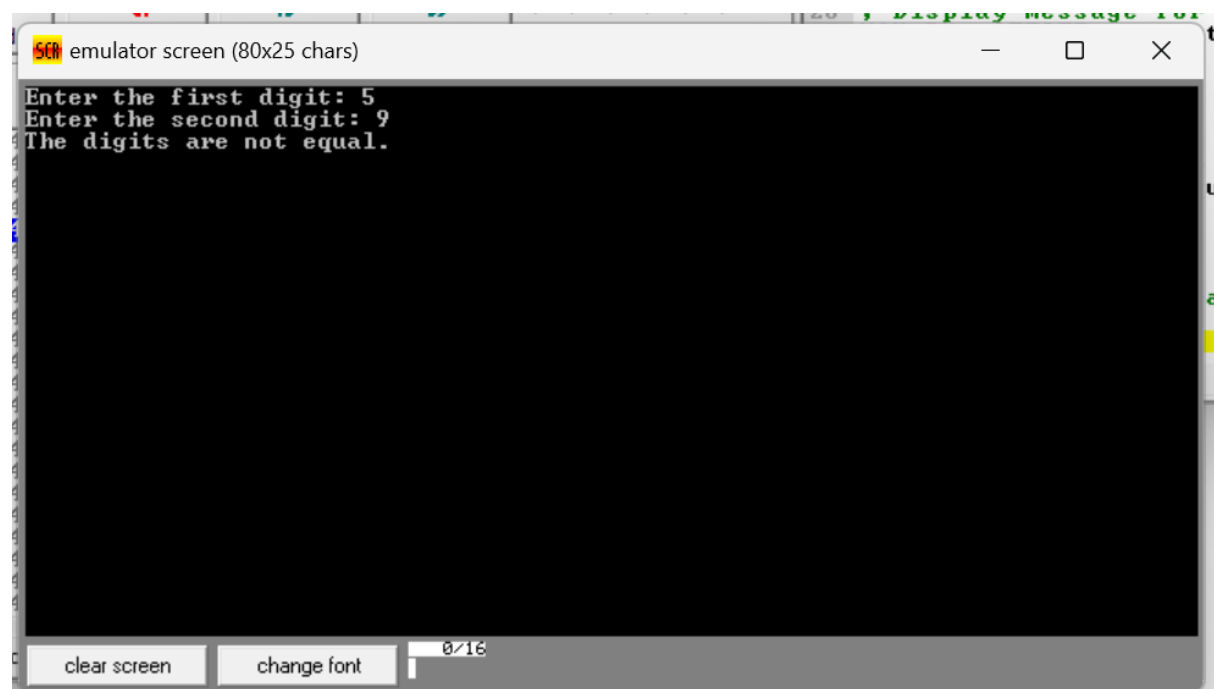
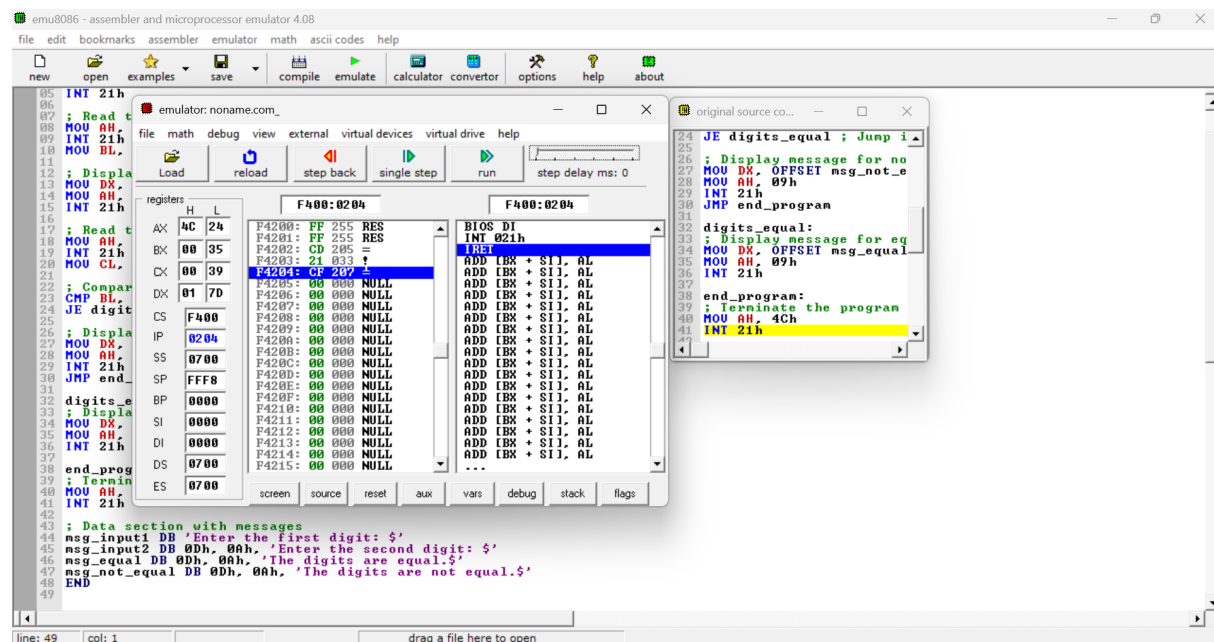
msg_input1 DB 'Enter the first digit: \$'

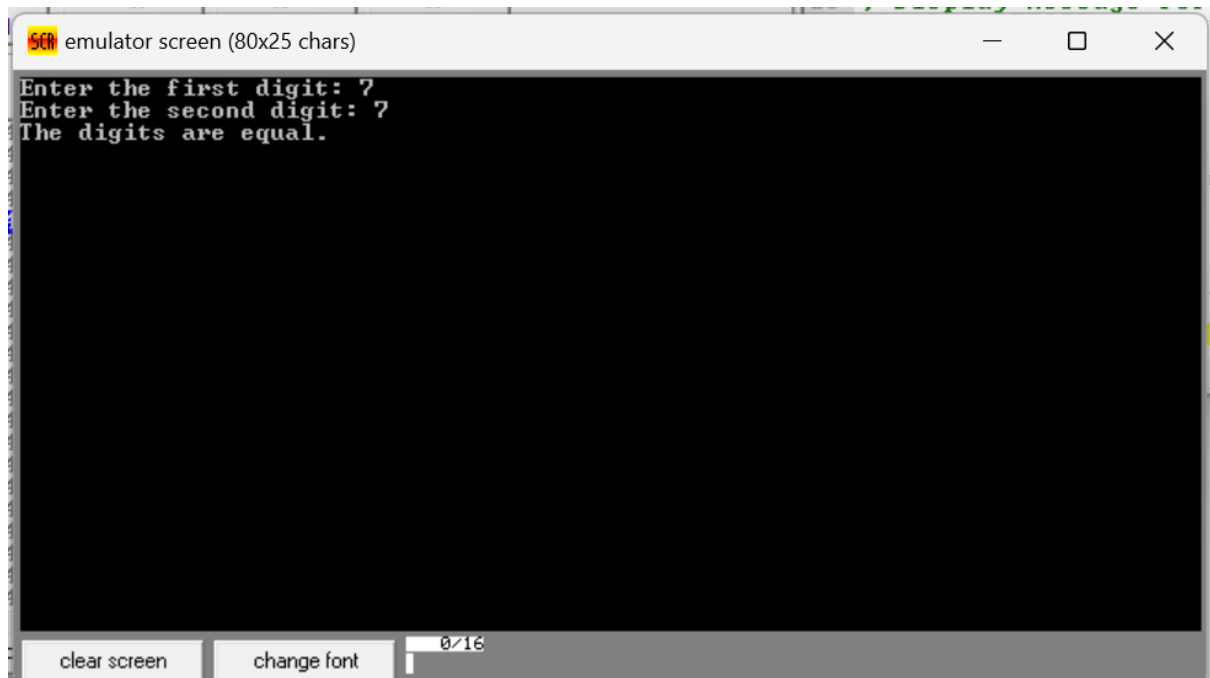
msg_input2 DB 0Dh, 0Ah, 'Enter the second digit: \$'

```
msg_not_equal DB 0Dh, 0Ah, 'The digits are not equal.$'
```

END

Output:





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

Code:

```
ORG 100h
```

```
MOV DX, OFFSET msg_input
```

```
MOV AH, 09h
```

```
INT 21h
```

```
MOV AH, 01h
```

```
INT 21h
```

```
CMP AL, '0'
```

```
JB invalid_input
```

```
CMP AL, '9'
```

```
JA invalid_input
```

AND AL, 1

JZ even_number

MOV DX, OFFSET msg_odd

MOV AH, 09h

INT 21h

JMP end_program

even_number:

MOV DX, OFFSET msg_even

MOV AH, 09h

INT 21h

JMP end_program

invalid_input:

MOV DX, OFFSET msg_invalid

MOV AH, 09h

INT 21h

end_program:

MOV AH, 4Ch

INT 21h

msg_input DB 'Enter a single-digit number: \$'

msg_even DB 0Dh, 0Ah, 'The number is even.\$'

msg_odd DB 0Dh, 0Ah, 'The number is odd.\$'

msg_invalid DB 0Dh, 0Ah, 'Invalid input. Please enter a single-digit number (0-9).\$'

END

Output:

