COA LAB TASK – 9

AP22110010351

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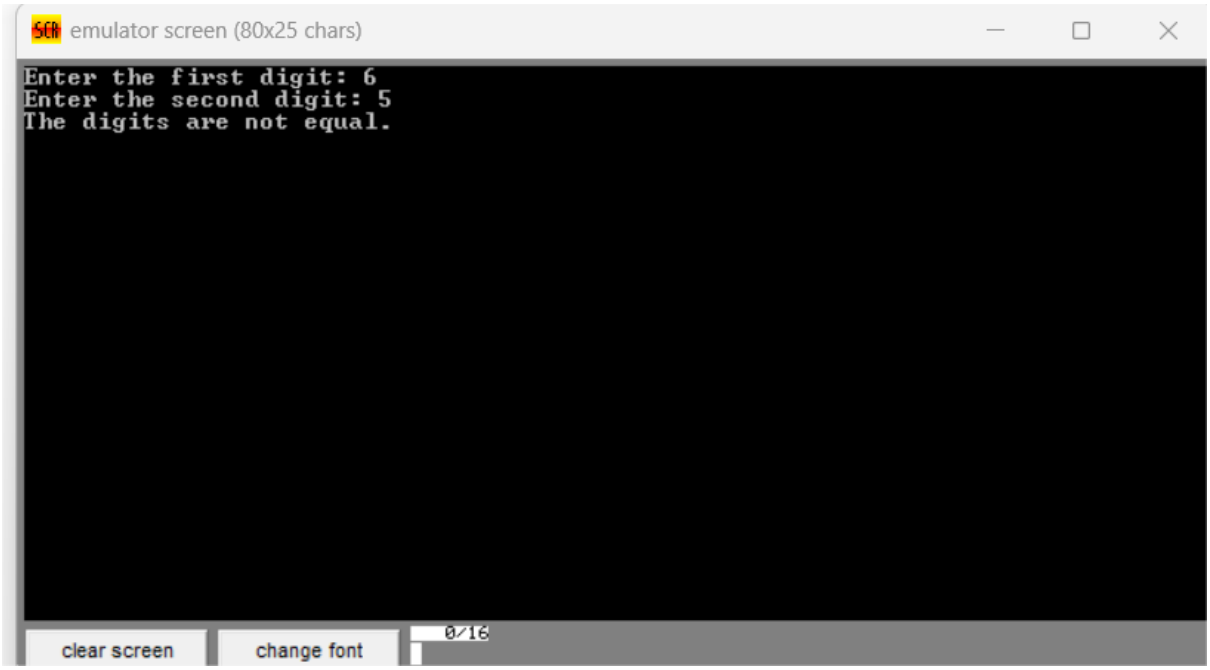
1.Write a program in assembly language to take two single-digit numbers as input and display whether they are equal or not.

```
ORG 100h
; Display the message "Enter the first digit: "
MOV DX, OFFSET msg_input1
MOV AH, 09h
INT 21h
; Read the first digit from the user
MOV AH, 01h
INT 21h
SUB AL, '0'       ; Convert ASCII to integer
MOV BL, AL        ; Store the first digit in BL
; 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
SUB AL, '0'       ; Convert ASCII to integer
MOV CL, AL        ; Store the second digit in CL
; Compare the two digits
CMP BL, CL        ; Compare the two digits
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: $'
msg_equal   DB 0Dh, 0Ah, 'The digits are equal.$'
msg_not_equal DB 0Dh, 0Ah, 'The digits are not equal.$'
END
```

OUTPUT:

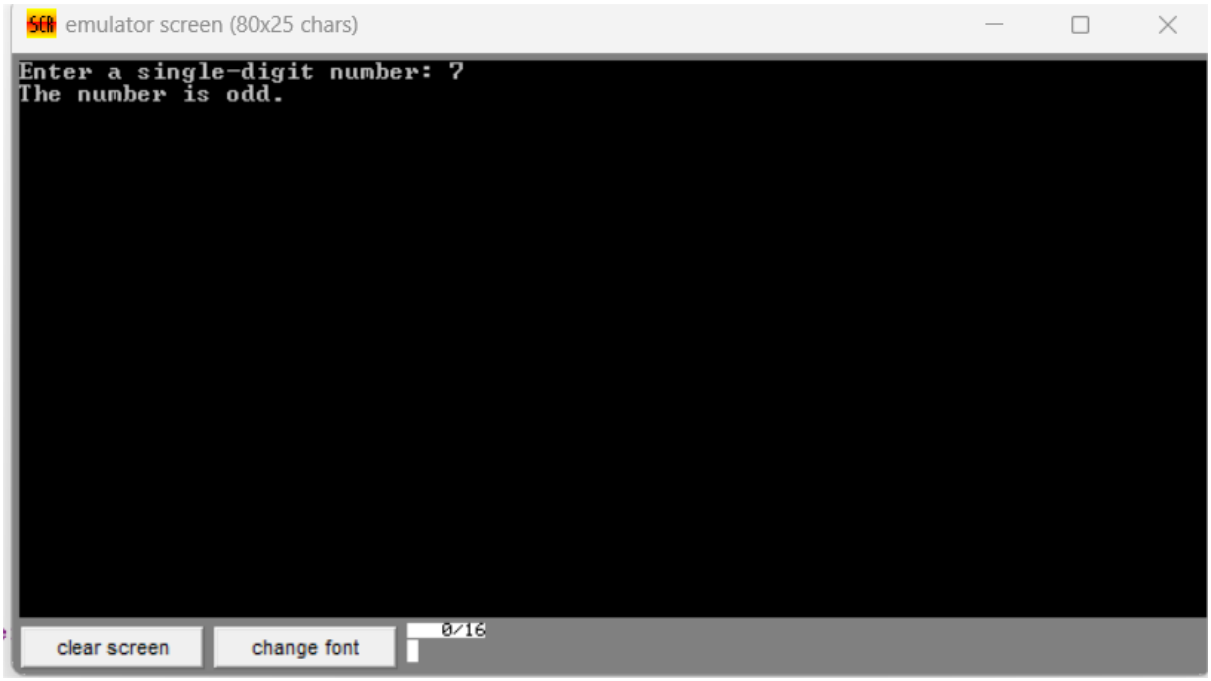


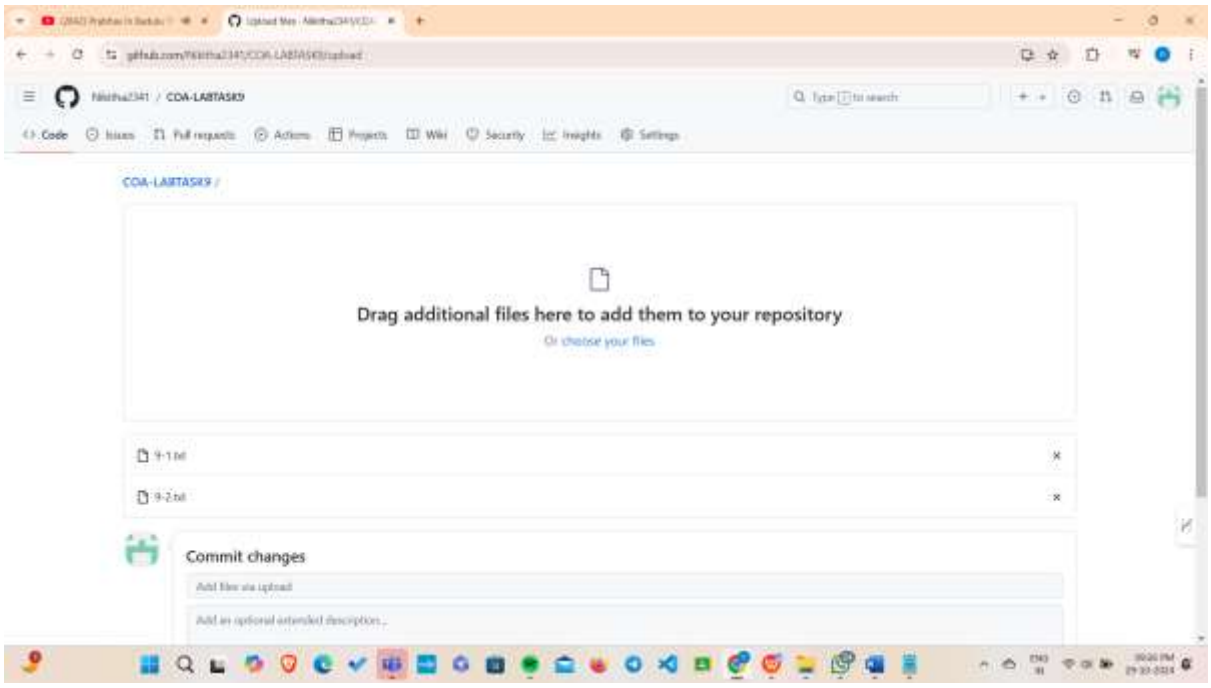
2. Write a program in assembly language to check whether a single-digit number is odd or even.

```
ORG 100h
; Display the message "Enter a single-digit number: "
MOV DX, OFFSET msg_input
MOV AH, 09h
INT 21h
; Read the digit from the user
MOV AH, 01h
INT 21h
SUB AL, '0'         ; Convert ASCII to integer
; Check if the digit is between 0 and 9
CMP AL, 0           ; Check if less than 0
JB  invalid_input   ; If below 0, jump to invalid input
CMP AL, 9           ; Check if greater than 9
JA  invalid_input   ; If above 9, jump to invalid input
; Check if the number is odd or even
AND AL, 1           ; AND with 1 to check the least significant bit
```

```
JZ  even_number     ; If result is 0, it's even
; Display message for odd
MOV DX, OFFSET msg_odd
MOV AH, 09h
INT 21h
JMP end_program
even_number:
; Display message for even
MOV DX, OFFSET msg_even
MOV AH, 09h
INT 21h
JMP end_program
invalid_input:
; Display invalid input message
MOV DX, OFFSET msg_invalid
MOV AH, 09h
INT 21h
end_program:
; Terminate the program
MOV AH, 4Ch
INT 21h
; Data section with messages
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:





GITHUB LINK :: https://github.com/Nikitha2341/COA-LABTASK9/upload