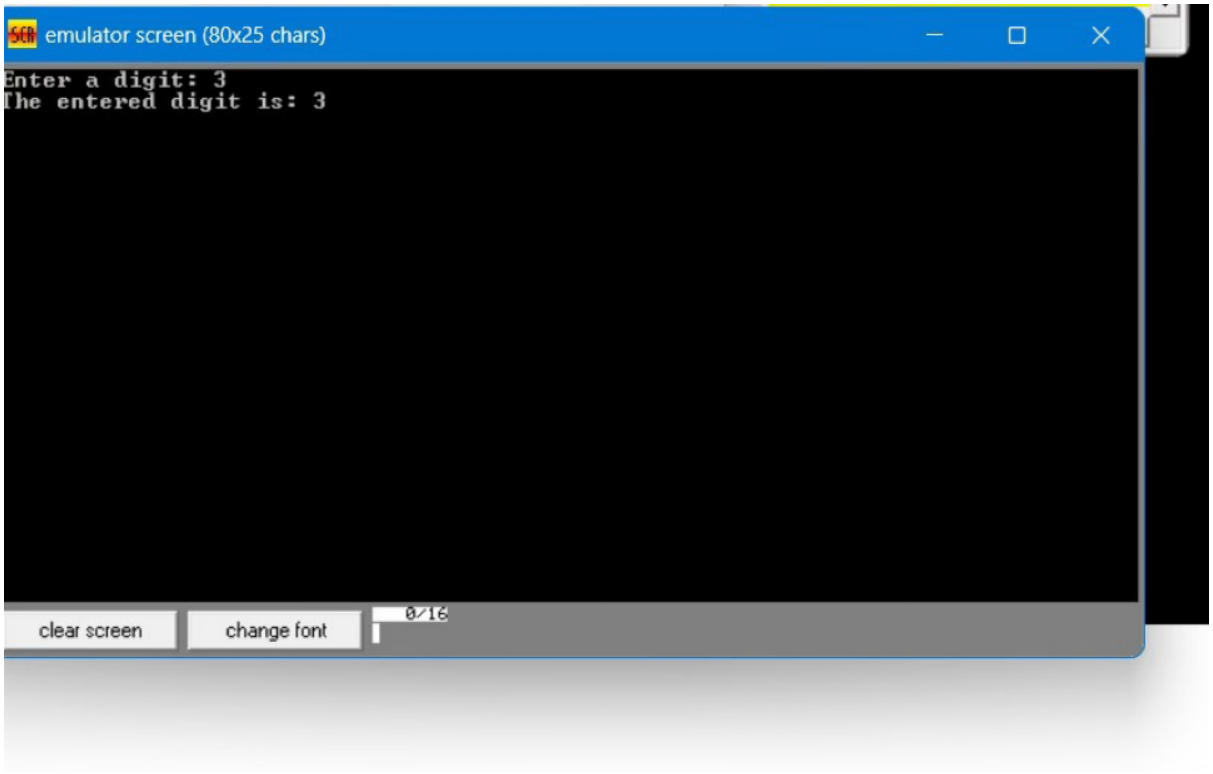
1. Write a program in assembly language to take a single-digit integer from the user and print it on the screen.

//code:

```
org 100h
;display message"enter a digit:"
mov dx, offset msg_input
mov ah, 09h
int 21h

;read single line character from the user
mov ah,01h
int 21h
mov bl,al

;check the character
cmp al, '0'
jl notdigit
cmp al, '9'
jg notdigit

;print the message
mov dx, offset msg_output
mov ah, 09h
int 21h

;print entered digit
mov dl, bl
mov ah,02h
int 21h
jmp endprogram

  ;if the given data is not valid the it show error
notdigit:
mov dx, offset msg_error
mov ah,09h
int 21h
 ;terminate the program
endprogram:
mov ah,4ch
int 21h

msg_input  db 'Enter a digit: $'
msg_output db 0dh, 0ah, 'The entered digit is: $'
msg_error  db 0dh, 0ah, 'Error: Not a digit! $'
```

end

output:



2.Write a program in assembly language to take two single-digit integers from the user and print the result of subtraction on the screen.

//code:

```
ORG 100h

_start:
   ; Display message "Enter first digit: "
   MOV DX, OFFSET msg_input1
   MOV AH, 09h
   INT 21h

   ; Get the first single-digit integer from the user
   MOV AH, 01h
   INT 21h
   CMP AL, '0'
   JL InvalidInput
```

```
    CMP AL, '9'
    JG InvalidInput
    SUB AL, '0'
    MOV BL, AL

    ; Display message "Enter second digit: "
    MOV DX, OFFSET msg_input2
    MOV AH, 09h
    INT 21h

    ; Get the second single-digit integer from the user
    MOV AH, 01h
    INT 21h
    CMP AL, '0'
    JL InvalidInput
    CMP AL, '9'
    JG InvalidInput
    SUB AL, '0'
    MOV BH, AL

    ; Perform the subtraction (BL - BH)
    SUB BL, BH

    ; Convert the result back to ASCII
    ADD BL, '0'

    ; Display the result message
    MOV DX, OFFSET msg_output
    MOV AH, 09h
    INT 21h

    ; Display the result of the subtraction
    MOV DL, BL
    MOV AH, 02h
    INT 21h

    JMP EndProgram      ; End program execution

InvalidInput:
    ; If input is not a valid digit, display an error message
    MOV DX, OFFSET msg_error
    MOV AH, 09h
    INT 21h

EndProgram:
    ; Terminate the program
    MOV AH, 4Ch
```

INT 21h

```
msg_input1  DB 'Enter first digit: $'
msg_input2  DB 0Dh, 0Ah, 'Enter second digit: $'
msg_output  DB 0Dh, 0Ah, 'The result is: $'
msg_error   DB 0Dh, 0Ah, 'Error: Invalid input! $'

END
```

Output