Experiment Name:

Write a program that lets the user type some text, consisting of words separated by blanks, ending with a carriage return and displays the text in the same word order as entered, but with the letters in each word reversed.

Theory:

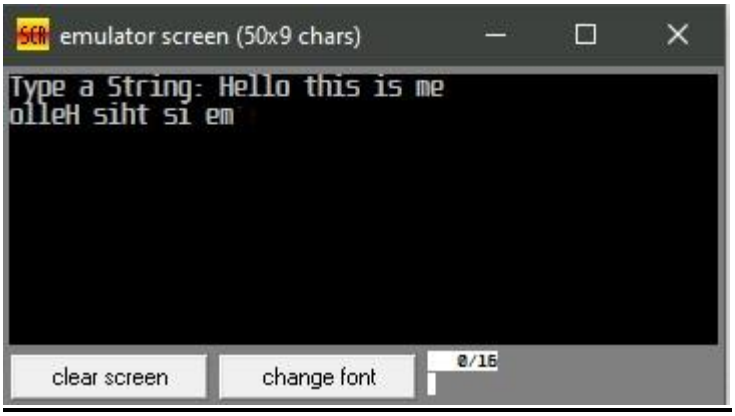
The objective of this program is to reverse each word of a text by the same order as they were taken as input. That reversed string or text need to be printed in the output. For this program in assembly, While loop, CMP, Stack, array was used as well as the required instructions and some registers to execute the solution.

Code:

```
.MODEL SMALL
.STACK 100H
.CODE
.DATA
   PROMPT DB 'Type a String: $'
   ARR DB 50 DUB (?)
MAIN PROC
   MOV AX,@DATA
   MOV DS,AX

   XOR BX,BX
   XOR CX,CX

   MOV AH,9
   LEA DX,PROMPT
   INT 21H

C:
   MOV AH,1
   INT 21H
   CMP AL,0DH
   JE END_WHILE

   PUSH AX
   INC CX
   CMP AL,20H
   JE TOP
   JMP C

   TOP:
      POP DX
      MOV ARR[BX],DL
```

```
        INC BX

        LOOP TOP
        JMP C

END_WHILE:
    MOV ARR[BX],20H
    INC BX

O:
    POP DX
    MOV ARR[BX],DL
    INC BX

    LOOP O

    MOV AH,2
    MOV DL,0DH
    INT 21H
    MOV DL,0AH
    INT 21H
    XOR BX,BX
    PRINT:
        INC BX
        MOV CL,ARR[BX]
        CMP CL,00H
        JE EXIT

        MOV AH,2
        MOV DL,CL
        INT 21H
        LOOP PRINT

EXIT:
    MOV AH,4CH
    INT 21H

    MAIN ENDP
END MAIN
```

Output:



Discussion:

In the above program, a text/string was taken as input and was pushed in a stack using a loop. In the loop CMP instructions were used to check the whether a enter was pressed or not. If it a space was pressed then it jumped to TOP block to pop and store the character into an pre-declared array. Then it went back to C block to take the next input word. This process was repeated until an enter button was pressed. After pressing the enter button, it was checked in the CMP and moved to END_WHILE block to show the whole array as output by printing it on the console.