

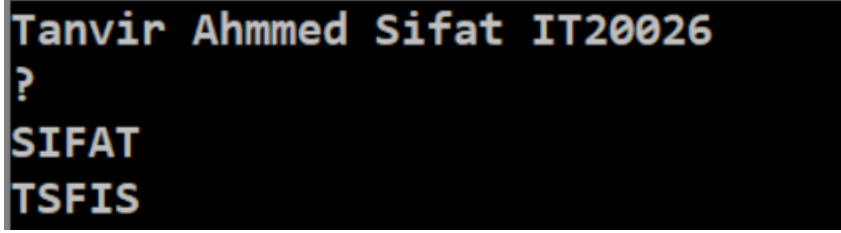
Problem-01: Write a program to reverse a string.

Solution:

```
INCLUDE "emu8086.inc"          INC CX
.model small                   JMP goto
.stack 100h                    I2:
.data                          printn
.code                          JCXZ return
main PROC                      top:
    printn "Tanvir Ahmmed Sifat MOV AH,2
    IT20026"                   POP DX
    printn "?"                 INT 21h
    MOV CX,0                   LOOP top
    goto:                      return:
    MOV AH,1                   MOV AH,4CH
    INT 21h                    INT 21H
    CMP AL,0dh                 main ENDP
    JE I2                      END main
    PUSH AX
```

Output:

 emulator screen (80x25 chars)



```
Tanvir Ahmmed Sifat IT20026
?
SIFAT
TSFIS
```

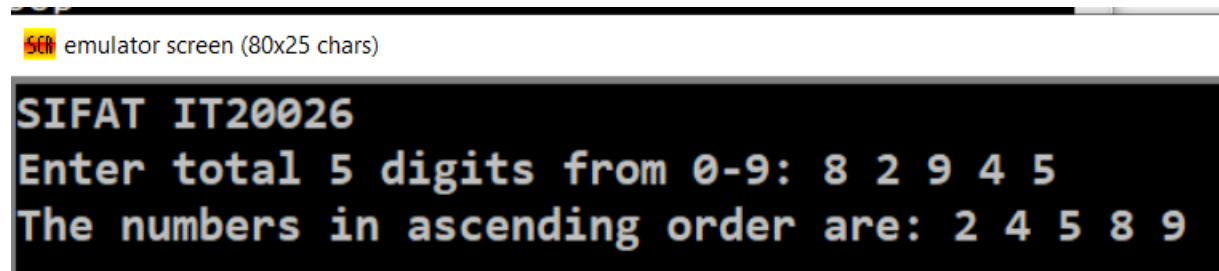
Problem- 02: Write a program that prompts the user to enter total five digits from 0-9 and prints them in the sorted way.

Solution:

include emu8086.inc	inc si
.model small	mov ah,2
.stack 100h	mov dl,32
.data	int 21h
a db "Enter total 5 digits from 0-9 : \$"	loop input
b db 10,13,"The numbers in ascending order are : \$"	lea dx,b
arr db 5 dup(?)	mov ah,9
.code	int 21h
main proc	mov cx,4
printn "SIFAT IT20026"	lea si,arr
mov ax,@data	outerloop:
mov ds,ax	mov di,si
mov ah,9	inc di
lea dx,a	push cx
int 21h	innerloop:
mov cx,5	mov al,[si]
lea si,arr	mov bl,[di]
input:	cmp al,bl
mov ah,1	jg swap
int 21h	back:
mov [si],al	inc di
	loop innerloop
	pop cx

inc si	mov dl,[si]
loop outerloop	int 21h
jmp printarr	mov dl,32
swap:	int 21h
mov [si],bl	inc si
mov [di],al	loop print
jmp back	exit:
printarr:	mov ah, 4ch
mov cx,5	int 21h
lea si,arr	main endp
print:	end main
mov ah,2	

Output:



The screenshot shows a terminal window titled "SIFAT IT20026" with the following text:

```

SIFAT IT20026
Enter total 5 digits from 0-9: 8 2 9 4 5
The numbers in ascending order are: 2 4 5 8 9
  
```

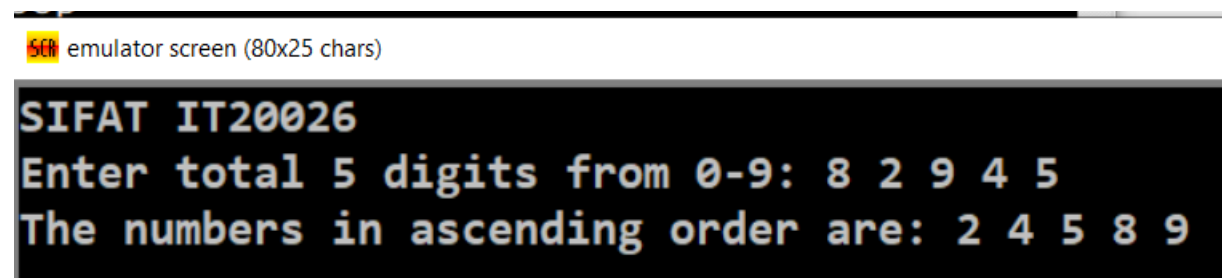
Problem - 03: Write a program that lets the user type some text, consisting of words separated by blanks, ending with a carriage return, and displays the text in the same word order as entered, but with the letters in each word reversed.

Solution:

```
include emu8086.inc
.model small
.stack 100h
.data
msg_in db "Enter a text: $"
msg_out db 0ah, 0dh, "Each word
reversed: $"
.code
main proc
    printn "SIFAT IT20026"
    mov ax, @data
    mov ds, ax
    mov ah, 9
    lea dx, msg_in
    int 21h
    xor cx, cx
INPUT:
    mov ah, 1
    int 21h
    cmp al, 0dh
    je BR_INPUT
    xor ah, ah
    push ax
    inc cx
    jmp INPUT
BR_INPUT:
    cmp cx, 0
    je PRINT
    mov bx, 50h
REVERSE:
    pop dx
    xchg bx, sp
    push dx
    xchg bx, sp
    loop REVERSE
PRINT:
    mov ah, 9
    lea dx, msg_out
    int 21h
    xchg bx, sp
    mov ah, 2
WHILE:
    xor cx, cx
```

WORD:	pop dx
cmp sp, 50h	int 21h
jge BR_WORD	loop Print1
pop dx	xchg bx, sp
cmp dx, 20h	cmp sp, 50h
je BR_WORD	jge BR_WHILE
xchg bx, sp	mov dl, 20h
push dx	int 21h
inc cx	jmp WHILE
xchg bx, sp	BR_WHILE:
jmp WORD	mov ah, 4ch
BR_WORD:	int 21h
xchg bx, sp	main endp
Print1:	end main

Output:



```

SCR emulator screen (80x25 chars)

SIFAT IT20026
Enter total 5 digits from 0-9: 8 2 9 4 5
The numbers in ascending order are: 2 4 5 8 9
  
```