UITS

UNIVERSITY OF INFORMATION TECHNOLOGY AND SCIENCES

Assignment on

Lab Report -07

Course Title

Microprocessor and MicroControllers

Course Code

CSE 360

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Date of Submission

10 Nov, 2025

Problem No: 01

Experiment No: 07

Experiment Name: Check Whether a String Is Palindrome or Not Using Assembly Language

Process:

A palindrome is a sequence of characters that reads the same forward and backward. In this program, the entered string is compared character by character from both ends toward the center. If all character's match, the string is a palindrome; otherwise, it is not.

Algorithm:

1. Start the program.

2. Initialize the data segment.

3. Take the input string from the user.

4. Store the string in memory.

5. Determine the length of the string.

6. Compare characters from the beginning and end:

o If all corresponding characters match, continue.

o If any mismatch occurs, set a flag to indicate "not palindrome".

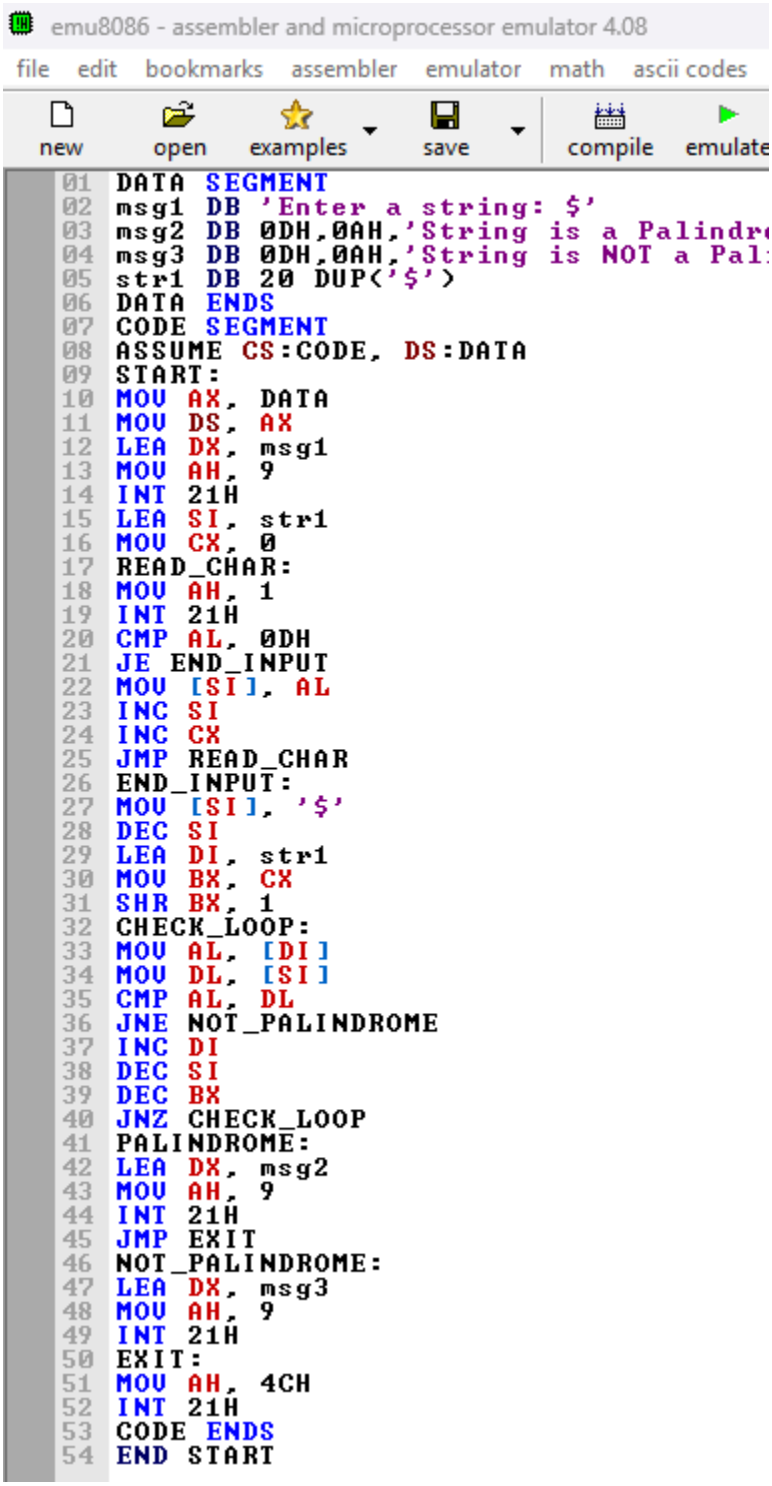
7. Display the appropriate message:

o "String is a palindrome."

o "String is not a palindrome."

8. Stop the program.

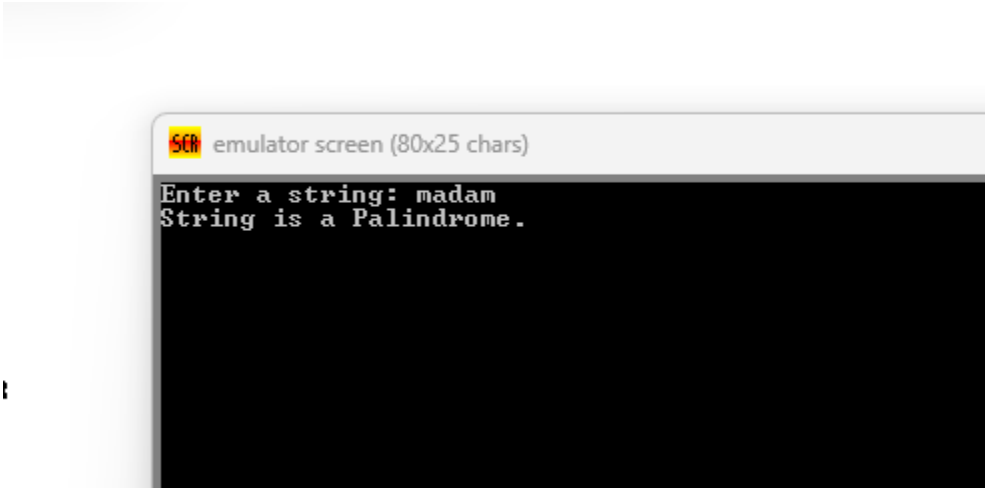
Implementation:




```
01 DATA SEGMENT
02 msg1 DB 'Enter a string: $'
03 msg2 DB 0DH,0AH,'String is a Palindr
04 msg3 DB 0DH,0AH,'String is NOT a Pal
05 str1 DB 20 DUP('$')
06 DATA ENDS
07 CODE SEGMENT
08 ASSUME CS:CODE, DS:DATA
09 START:
10 MOV AX, DATA
11 MOV DS, AX
12 LEA DX, msg1
13 MOV AH, 9
14 INT 21H
15 LEA SI, str1
16 MOV CX, 0
17 READ_CHAR:
18 MOV AH, 1
19 INT 21H
20 CMP AL, 0DH
21 JE END_INPUT
22 MOV [SI], AL
23 INC SI
24 INC CX
25 JMP READ_CHAR
26 END_INPUT:
27 MOV [SI], '$'
28 DEC SI
29 LEA DI, str1
30 MOV BX, CX
31 SHR BX, 1
32 CHECK_LOOP:
33 MOV AL, [DI]
34 MOV DL, [SI]
35 CMP AL, DL
36 JNE NOT_PALINDROME
37 INC DI
38 DEC SI
39 DEC BX
40 JNZ CHECK_LOOP
41 PALINDROME:
42 LEA DX, msg2
43 MOV AH, 9
44 INT 21H
45 JMP EXIT
46 NOT_PALINDROME:
47 LEA DX, msg3
48 MOV AH, 9
49 INT 21H
50 EXIT:
51 MOV AH, 4CH
52 INT 21H
53 CODE ENDS
54 END START
```

Result:

The application displays every character array element on the screen. Every string in the string array is printed on a separate line by the application.



Conclusion:

The assembly language program to reverse a string was successfully implemented and executed. The program demonstrated pointer manipulation and character find out as palindrome in 8086 assembly.