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| <b>Roll No:</b>             | 65                                      |
| <b>Class/Sem:</b>           | SE/IV                                   |
| <b>Experiment No.:</b>      | 5                                       |
| <b>Title:</b>               | Program to display string in Lowercase. |
| <b>Date of Performance:</b> | 07/02/24                                |
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| <b>Marks:</b>               |   |
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**Aim:** Program to display string in Lowercase.

**Theory:**

The program will take Uppercase string as input and convert it to lowercase string. Int 21h is a DOS interrupt. To use the DOS interrupt 21h load with the desired sub-function. Load other required parameters in other registers and make a call to INT 21h.

INT 21h/AH = 9

output of string at DS: • String must be terminated by "\$"

example :

```
org 100h
```

```
mov dx, offset msg
```

```
mov ah, 9
```

```
int 21h
```

```
ret
```

```
msg db "hello world $"
```

INT 21h/AH = 0AH – input of string to DS:DX, first byte is buffer size, second byte is number of chars actually read this function does not add '\$' in the end of string to print using INT 21h/AH = 9 you must set dollar character at the end of it and start printing from address DS : DX + 2. The function does not allow to enter more characters than the specified buffer size.



**Algorithm:**

1. Start.
2. Initialize the Data Segment.
3. Display message -1.
4. Input the string.
5. Display message-2.
- 6 Take the character count in CX.
7. Point to the first character.
8. Convert it to Lowercase.
9. Display the character.
10. Decrement the character coun.
11. If not Zero, repeat from step 6.
12. To terminate the program, using the DOS interrupt:
  - 1) Initialize AH with 4CH
  - 2) Call interrupt INT 21H.
13. Stop.

**Code :**

org 100h

.data

m1 db 10, 13, 'Enter the string in uppercase :\$'

m2 db 10, 13, 'The lowercase string is :\$'

buff db 80

.code

lea dx, m1

mov ah, 09h

int 21h

lea dx, buff

mov ah, 0ah

int 21h

lea dx, m2

mov ah, 09h

int 21h

mov cl, [buff+1]

lea bx, buff+2

l1:

mov dx, [bx]

add dx, 20h

mov ah, 02h

int 21h

inc bx

loop l1

ret



### Output :

```
01 org 100h
02
03 .data
04 m1 db 10, 13, 'Enter the string in uppercase :$'
05 m2 db 10, 13, 'The lowercase string is :$'
06 buff db 80
07
08 .code
09 lea dx, m1
10
11 mov ah, 09h
12 int 21h
13
14 lea dx, buff
15
16 mov ah, 0ah
17 int 21h
18
19 lea dx, m2
20
21 mov ah, 09h
22 int 21h
23
24 mov cl, [buff+1]
25 lea bx, buff+2
26
27 l1:
28 mov dx, [bx]
29 add dx, 20h
30
31 mov ah, 02h
32 int 21h
33
34 inc bx
35 loop l1
36
37 ret
```

```
20 mov ah, 09h
21 int 21h
22
23 mov cl, [buff+1]
24 lea bx, buff+2
25
26 l1:
27 mov dx, [bx]
28 add dx, 20h
29
30 mov ah, 02h
31 int 21h
32
33 inc bx
34 loop l1
35
36 ret
```

```
emulator screen (80x25 chars)
Enter the string in uppercase:BARI
The lowercase string is:bari
```

### Conclusion :

In conclusion, the program designed to display strings in lowercase effectively demonstrates the fundamental concepts of string manipulation and programming logic. By transforming inputted strings into lowercase, the program enhances readability and standardizes data for various applications. Through this project, we've gained valuable insights into the implementation of string functions and the importance of user-friendly interfaces. As we continue to refine our coding skills, this program serves as a foundational step towards tackling more complex challenges in software development.