

National University of Computer and Emerging Sciences



Laboratory Manual

for

Computer Organization and Assembly Language Programming

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OBJECTIVES:

- Enhance Understanding of Advanced String and Screen Manipulation
- Practice String Search, Replace and Compression.
- Learn to Trim and Search in Strings.

Instructions:

1. Submit work in a single Word file with screenshots of meaningful results.
2. Make proper subroutines
3. Use Delay Function (if required)

Task 1: Write a program that scrolls the Screen 3 rows Up and 3 rows down in an infinite loop without losing any data of screen. (First call printstr to print 5,5 strings in top and bottom 5 rows of screen to test your ScrollUpAndDown functionality.)

abc: times 32 dw 0 ; space for 32 words

xyz: times 256 dw 0 ; space for 256 words

Task 2: [SCAS] Write a program that takes a c-string *myStr* and two characters *charToFind* and *charToReplace* from user and replaces all the occurrences of *charToFind* with *charToReplace* in *myStr*. Your program should create a space of 50 characters on heap in order to save *myStr*.

Sample output:

```
InputString: ddsdfhgrtsdfhjghjksdd
CharToFind: d
CharToReplace: $
ModifiedString: $$$sfhgrts$fhjghjks$$
```

Task 3:

A) TrimStart(char* str)

Write a function that takes a string and removes all the space in start of the string.

Sample Output:

Before TrimStart

str: " Hello How are you?"

After TrimStart

str: "Hello How are you?"

- B)** Write a function that searches a substring from a string and highlights the found substring. If the string is not found it will not highlight anything.

Sample Run:

String: "I am a student of COAL"

Substring: "student"

Printed String after Search: "I am a student of COAL"

C) **String Compression**

Write a function that compresses a string by removing consecutive occurrences of same character.

Sample Run:

String Before Compression:

Str: "ggggdddddyyyakxxuww"

String after Compression:

Str: "gdyakxuw"