

National University of Computer and Emerging Sciences



Laboratory Manual
for
Computer Organization and Assembly Language Programming

Course Instructor	Aleena Ahmad
Lab Instructor	Sana Ejaz
Semester	Fall 2024

Department of Computer Science

FAST-NU, Lahore, Pakistan

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: \$\$s\$fhgrts\$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: "ggggdddddyyyyakxxxuwuww"

String after Compression:

Str: "gdyakxuw"