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| **American University of Sharjah**  **College of Engineering**  Dept of Computer Science & Engg  P. O. Box 26666  Sharjah, UAE | A picture containing logo  Description automatically generated | **Instructors:** Dr. Aliaa Moualla  **Lab Instructor:** Sameer Alawnah  **Office:** EB1-0012C  **Phone**: 971-6-515-4940  **e-mail**: salawnah@aus.edu  **Semester**: Spring 2024 |

**CMP 220L - Programming II**

**Lab #4 – Strings**

**Note: using ChatGPT will be considered a violation of the AUS integrity code.**

**Objectives:**

* To practice strings.

Using Visual Studio 2022, write the below programs, compile and provide screenshots of output.

Note: you are required to submit copy of the code + screenshots of program run for each exercise.

**Exercise #1**

Create a C++ program that includes the <iostream> and <string> headers.

1. In the main() function, declare a string variable called text and initialize it with a sentence of your choice.
2. Print the original sentence using cout.
3. Use the size() method to determine and print the length (number of characters) of the original sentence.
4. Ask the user to enter a word or substring they want to erase from the original sentence.
5. Use the erase() method to remove all occurrences of the entered word/substring from the original sentence. Ensure that the erasure is case-sensitive.
6. Print the modified sentence without the erased word/substring.
7. Use the size() method again to display the new length of the modified sentence and compare it to the original length.
8. Test your program with different sentences and substrings to ensure it works correctly.
9. Ask the user to enter a starting index (start\_index) and a length (sub\_length) for a substring.
10. Use the substr function to extract the substring from sentence starting at the start\_index and of length sub\_length.
11. Print the extracted substring to the user.

**Sample output**

A screenshot of a computer

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#include <iostream>

#include <string>

**using** **namespace** std;

**int** main(){

string text = "This is a sample sentence with some words.";

cout << text << endl;

cout << "Length of original sentence: " << text.size() << endl;

string word;

cout << "Enter a word or substring to erase: ";

cin >> word;

**int** index = text.find(word);

text. erase(index, word.length());

cout << "Modified Sentence: " << text << endl;

cout << "Length of modified sentence: " << text.size() << endl;

**int** startindex=0;

**int** sublength=0;

cout << "Enter starting index: ";

cin >> startindex;

cout << "Enter subtring length: ";

cin >> sublength;

string Ext = text.substr(startindex, sublength);

cout << "Extracted substr: " << Ext << endl;

**return** 0;

**return** 0;

}A screenshot of a computer screen

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