

National University of Computer and Emerging Sciences, Lahore Campus



Course:	Programming Fundamentals	Course Code:	CS 118
Program:	BS(Computer Science)	Semester:	Fall 2020
Due Date	18-Nov-2020 at 11:59 pm	Total Marks:	20
Section:	CS-1G	Page(s):	1
Type:	Homework 2	Weightage	2-2.5

Important Instructions:

1. Submit all questions in a single cpp file named as your roll number, i.e. 20_1111.cpp
2. You are not allowed to copy solutions from other students. We will check your code for plagiarism using plagiarism checkers. If any sort of cheating is found, negative marks will be given to all students involved.
3. Test your code for the main function given in attached main.cpp. Your final solution file should also contain the given main function.
4. Late submission of your solution is not allowed

You can only use strlen (built-in) function. You cannot use any other built-in function.

(2 marks)

- a. Write a function **strCat** which is passed as parameters two strings, str1 and str2. The function will append str2 at the end of str1. For example, Assume that str1="Hello" and str2="World", then after calling strCat(str1, str2), str1 should become "HelloWorld". There must not be any change in str2. The signature of this function should be: **void strCat(char str1[], const char str2[])**.

(10 marks)

- b. Write a function **removeAllOccurrences** which is passed as parameters two strings, one string is main string and the other string is substring. Your function will remove all occurrences of substring from the main string. For example if main string is "I am enrolled in Computer Science. Computer Science is an emerging field.", and substring is "Computer"; then after calling removeAllOccurrences, the main string should become "I am enrolled in Science. Science is an emerging field.". The function signature should be **int removeAllOccurrences(char mainstr[], char const substr[])**. The function will return the count of total occurrences removed.

Note: For part (b), you are not allowed to use a third temporary character array.

(8 marks)

- c. Write a function **doubleToChar** which converts a double number passed as a parameter into a string which will be stored in a character array also passed as a parameter. For example if a double number is 2.341, then the function will convert it into string as arr={'+', '2', '.', '3', '4', '1', '\0'}. If the number is negative, i.e., -2.341, then arr={'-', '2', '.', '3', '4', '1', '\0'}. The function signature should be, void **doubleToChar(double const num, char arr[])**.

Run the following main program (also attached as cpp file with the homework) to test your functions:

```

int main()
{
    char string1[100] = "Hello World. ";
    char string2[19] = "I am from Pakistan";

    strCat(string1, string2);
    cout << "After concatenation, string1 has become: " << string1 << endl;

    char biggerString[108] = "I am enrolled in Computer Science. Computer Science is an emerging
Field. A smart phone is also a Computer.";
    char smallerString[100] = "Computer";

    cout << "The number of occurrences of substring: " << removeAllOccurrences(biggerString,
smallerString);
    cout << "After calling removeAllOccurrences: " << biggerString << endl;

    char arr[100];
    doubleToChar(-18.356, arr);

    for (int i = 0; i < strlen(arr); i++)
    {
        cout << arr[i];
    }
    cout << endl;
    return 0;
}

```