

Student name:  
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## Assignment 2 Report

**Instruction:** Complete the report then convert it to PDF to submit.

**Academic Honesty Pledge:** I affirm that I have not given or received any unauthorized help in this assignment, and that this work is my own. Any authorized references are acknowledged below.

**Sign or type your name here:** \_\_\_\_\_ Vikram Thangavel \_\_\_\_\_

### Function strgLen( s )

- References: <https://www.programiz.com/c-programming/c-strings#:~:text=In%20C%20programming%2C%20a%20string,at%20the%20end%20by%20default.>
- Error conditions: No error conditions. Regardless of type of characters used for input, it will always output length. Even if the length is 0.
- Brief algorithm: String is analyzed by counting number of characters and returns the total which is the length.
- Running time of the function (algorithm):  $O(n)$
- Brief explanation of the running time: For loop is used to counter number of characters in the string. One loop of iteration used.

### Function strgCopy( s, d )

- References: <https://www.programmingsimplified.com/c/source-code/c-program-copy-strings>
- Error conditions No error conditions.
- Brief algorithm: Every character of first string is assigned to another string in order to copy the whole string.
- Running time of the function (algorithm):  $O(n)$
- Brief explanation of the running time: For loop is used and iteration provides the copying of characters to another string.

### Function strgChangeCase( s )

- References: <https://www.programiz.com/c-programming/examples/alphabet#:~:text=The%20ASCII%20value%20of%20the,that%20number%20is%20an%20alphabet.>
- Error conditions: No error conditions.
- Brief algorithm: String's characters are analyzed and reversed for their cases such as lower cases are turned into uppercases and uppercases are turned into lower cases.

- Running time of the function (algorithm):  $O(n)$
- Brief explanation of the running time: For loop is used in order to take every character from string and reverse its case. Only one loop.

#### **Function strgDiff( s1, s2 )**

- References: <https://www.programmingsimplified.com/c-program-compare-two-strings>
- <https://codedost.com/c/basic-c-programs/c-program-compare-two-strings-without-using-string-function-strcmp/>
- Error conditions (if any): No error conditions.
- Brief algorithm: Each character from string is analyzed and checked if they match other string. If they don't, index is returned. If they match, it returns code -1.
- Running time of the function (algorithm):  $O(n)$
- Brief explanation of the running time: For loop is used to check each character. Inside the loop, there is a if statement and outside the for loop, there is a if and else statement.

#### **Function strgInterleave( s1, s2, s3 )**

- References: <https://beginnersbook.com/2015/02/c-program-to-concatenate-two-strings-without-using-strcat/>
- <https://www.w3schools.in/c-program/concatenate-two-strings-without-using-strcat/>
- <https://www.programiz.com/c-programming/examples/concatenate-string>
- Error conditions No error conditions.
- Brief algorithm: Two strings are compared to see which one is the smallest. Then, with the smallest string, it is used to merge the two strings alternatively until both strings have the same amount of characters to merge. After, the left-over characters are concatenated to the final string.
- Running time of the function (algorithm):  $O(n)$
- Brief explanation of the running time: In this function, there exists three for loops but, they are used in order which means no nesting is involved. Each of the for loops are present in the if statements.