

String Assignment

For this assignment, you must implement 4 functions that operate on strings. The four functions are: `stringLength()`, `stringCountChar()`, `stringToUpper()`, and `stringCopy()`. To do this assignment, you are given a starting code with everything but the bodies of the four functions you must write.

You are given complete implementations of `main()` and one other function, called `stringReplaceChar()`. The `main()` function will exercise your code and allow you to demonstrate that it is working. The `stringReplaceChar()` does something that is needed for this code, but also demonstrates how to write code to operate on a string. You may use it as a model for how to write your own functions to go through a string and do work on elements of the string.

The `stringLength()` function must return the length of the string. The code must also prevent the search of null from continuing beyond the end of the array. The size of the array is the second argument.

The `stringCountChar()` function must count the number of times a character in the string matches the character given by the first argument to the function, and return that count. As in all string functions, it must also take care not to run beyond the given size of the array that contains the string.

The `stringToUpper()` function must replace any characters that are lower case letters with the corresponding upper case letter. To detect lower case letters you must use the fact that lower case letters in ASCII have consecutive values, with 'a' being the lowest, and 'z' being the highest. To convert to upper case, you must use the fact that the upper case letters in ASCII are also consecutive, so the difference between the lower case code and the upper case code is the same for all letters.

The `stringCopy()` function must copy the string in the source array to the destination array. In the process, it must not exceed the size of the destination array. If the destination array is filled, the string must still end with a null character, so you must copy as much as you can, but leave room for that one last character value which must be '\0'. Make sure that after copying, the string is ended by a null ('\0') character.