

Analysis of character counting problem

Convert all the characters in a string to all lower case letters.

For a string, say `string text = "One, Two, Buckle Your Shoe!";`

- Use array subscript to access individual character of the string:
`text[0]` refers to character 'O', `text[1]` refers to character 'n', etc.
The last character is `text[text.length()-1]`
- `toupper(ch)` is a function that converts character 'ch' to upper case character
`tolower(ch)` is a function that converts character 'ch' to lower case character
For example `text[0] = tolower[text[0]];` converts `text[0]` to 'o'.
These functions are defined in `<cctype>` header file

Count the number of appearance of each character in the string. Store these count values in an array.

- When a letter 'a' is encountered, add 1 to array value `count[0]`
When a letter 'b' is encountered, add 1 to array value `count[1]`
....
When a letter 'z' is encountered, add 1 to array value `count[25]`
- How to convert character 'a' to array index 0?
→ `'a' - 'a' → 0`
How to convert character 'b' to array index 1?
→ `'b' - 'a' → 1`
How to convert character 'c' to array index 1?
→ `'c' - 'a' → 2`
...

After the counts are computed, how to display the character and the count value corresponding to that character?

- Given the array index value, to display the corresponding character, do:
`cout << char('a' + index);`
For example, when index is 0, `cout << char('a'+index);` displays 'a'
when index is 1, `cout << char('a'+index);` displays 'b'
....
when index is 25, `cout << char('a'+index);` displays 'z'