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/* The following code example is taken from the book
 * "The C++ Standard Library – A Tutorial and Reference, 2nd Edition"
 * by Nicolai M. Josuttis, Addison-Wesley, 2012
 *
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 */
#include <string>
#include <iostream>
#include <algorithm>
#include <cctype>
#include <regex>
using namespace std;

int main()
{
    // create a string
    string s("The zip code of Braunschweig in Germany is 38100");
    cout << "original: " << s << endl;

    // lowercase all characters
    transform (s.cbegin(), s.cend(), // source
               s.begin(), // destination
               [] (char c) { // operation
                   return tolower(c);
               });
    cout << "lowered: " << s << endl;

    // uppercase all characters
    transform (s.cbegin(), s.cend(), // source
               s.begin(), // destination
               [] (char c) { // operation
                   return toupper(c);
               });
    cout << "uppered: " << s << endl;

    // search case-insensitive for Germany
    string g("Germany");
    string::const_iterator pos;
    pos = search (s.cbegin(), s.cend(), // source string in which to search
                  g.cbegin(), g.cend(), // substring to search
                  [] (char c1, char c2) { // comparison criterion
                      return toupper(c1) == toupper(c2);
                  });
    if (pos != s.cend()) {
        cout << "substring \"" << g << "\" found at index "
              << pos - s.cbegin() << endl;
    }
}

```