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1  /*
2  Write a program that takes two strings, concatenates them using strcat(), and
   prints the result.
3  Implement a custom version of strlen() and compare it with the built-in
   function.
4  Use strcmp() to sort an array of strings alphabetically.
5  */
6
7  #include <iostream>
8  #include <cstring> // For strcat(), strlen(), strcmp()
9  using namespace std;
10
11 // Custom strlen() function
12 int custom_strlen(const char* str) {
13     int length = 0;
14     while (str[length] != '\0') {
15         length++;
16     }
17     return length;
18 }
19
20 // Function to sort an array of strings using strcmp()
21 void sort_strings(char arr[][50], int n) {
22     char temp[50];
23     for (int i = 0; i < n - 1; i++) {
24         for (int j = i + 1; j < n; j++) {
25             if (strcmp(arr[i], arr[j]) > 0) { // If arr[i] > arr[j], swap
26                 strcpy(temp, arr[i]);
27                 strcpy(arr[i], arr[j]);
28                 strcpy(arr[j], temp);
29             }
30         }
31     }
32 }
33
34 int main() {
35     // Task 1: String Concatenation using strcat()
36     char str1[50] = "Hello, ";
37     char str2[50] = "World!";
38     strcat(str1, str2); // Concatenates str2 to str1
39     cout << "Concatenated String: " << str1 << endl;
40
41     // Task 2: Custom strlen() vs. Built-in strlen()
42     cout << "Custom strlen: " << custom_strlen(str1) << endl;
43     cout << "Built-in strlen: " << strlen(str1) << endl;
44
45     // Task 3: Sorting Strings using strcmp()
46     char words[5][50] = {"Banana", "Apple", "Mango", "Cherry", "Grapes"};
47     int n = 5;
48 }
```

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49     sort_strings(words, n);
50
51     cout << "Sorted Strings: " << endl;
52     for (int i = 0; i < n; i++) {
53         cout << words[i] << endl;
54     }
55
56     return 0;
57 }
58
```