

## TP 2 - Problem 10 - I

```
1  #include <cstring>
2  #include <iostream>
3
4  #define SHOW(arg) std::cout << "Macro SHOW "" #arg """: " << (arg) << '\n';
5
6  // Only to learn pointer arithmetic.
7  int count1(char const *chr_ptr, char target) {
8      int n{};
9      while (*chr_ptr != '\0')
10         if (*chr_ptr++ == target)
11             ++n;
12     return n;
13 }
14
15 // Using the "strchr" function from the C standard library.
16 int count2(char const *chr_ptr, char target) {
17     int n{};
18     char const *ptr{chr_ptr};
19     while ((ptr = std::strchr(ptr, target)) != nullptr) {
```

## TP 2 - Problem 10 - II

```
20     ++n;
21     // The terminating null character is considered to be a part of the
22     // string and can be found if searching for '\0'.
23     if (*ptr == '\0')
24         break;
25     ++ptr;
26 }
27 return n;
28 }
29
30 int main() {
31     SHOW(count1("122", '0'))
32     SHOW(count2("122", '0'))
33     SHOW(count1("122", '1'))
34     SHOW(count2("122", '1'))
35     SHOW(count1("122", '2'))
36     SHOW(count2("122", '2'))
37     SHOW(count1("122", '\0'))
38     SHOW(count2("122", '\0'))
```

## TP 2 - Problem 10 - III

```
39     return 0;  
40 }
```

### Output:

```
1  Macro SHOW "count1("122", '0')": 0  
2  Macro SHOW "count2("122", '0')": 0  
3  Macro SHOW "count1("122", '1')": 1  
4  Macro SHOW "count2("122", '1')": 1  
5  Macro SHOW "count1("122", '2')": 2  
6  Macro SHOW "count2("122", '2')": 2  
7  Macro SHOW "count1("122", '\0')": 0  
8  Macro SHOW "count2("122", '\0')": 1
```