

```
1 // Homework
2 /*
3 Write a short recursive C++ function that determines if a string s is a
4 palindrome, that is, it is equal to its reverse. For example, "racecar"
5 and "gohangasalamiimalasagnahog" are palindromes.
6 Note: Your implementation has to be recursive. Zero points for non-
    recursive code
7 even if it's correct.
8 */
9
10 #include <iostream>
11 #include <string>
12
13 bool isPalinHelper(std::string& s, int begin, int end) {
14
15     // Base case: If the string has one character or none, it's a
        palindrome.
16     if (begin >= end) {
17         return true;
18     }
19
20     // Check if the characters at the current positions are equal.
21     if (s[begin] != s[end]) {
22         return false;
23     }
24
25     // Recursively check the substring between begin and end.
26     return isPalinHelper(s, begin + 1, end - 1);
27 }
28
29 bool isPalin(std::string& s) {
30     return isPalinHelper(s, 0, s.size()-1);
31 }
32
33 int main() {
34
35     std::string s1{"racecar"}; // Palindrome
36     if (isPalin(s1)) std::cout << s1 << " is a palindrome" << std::endl;
37     else std::cout << s1 << " is not a palindrome" << std::endl;
38
39     std::string s2{"racecars"}; // Not a palindrome
40     if (isPalin(s2)) std::cout << s2 << " is a palindrome" << std::endl;
41     else std::cout << s2 << " is not a palindrome" << std::endl;
42
43     std::string s3{"gohangasalamiimalasagnahog"};
44     if (isPalin(s3)) std::cout << s3 << " is a palindrome" << std::endl;
45     else std::cout << s3 << " is not a palindrome" << std::endl;
46 }
47
```