

214. Shortest Palindrome

QuestionEditorial Solution

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- Total Accepted: **22022**
- Total Submissions: **107353**
- Difficulty: **Hard**

Given a string S, you are allowed to convert it to a palindrome by adding characters in front of it. Find and return the shortest palindrome you can find by performing this transformation.

For example:

Given "aacecaaa", return "aaacecaaa".

Given "abcd", return "dcbabcd".

Credits:

Special thanks to [@ifanchu](#) for adding this problem and creating all test cases. Thanks to [@Freezen](#) for additional test cases.

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```
class Solution {
public:
    string shortestPalindrome(string s) {
        string s2 = s;
        reverse(s2.begin(), s2.end());
        string ss = s + "#" + s2;
        int n = ss.length();
        int next[n];
        int j = -1;
        next[0] = j;
        for(int i = 1; i < n; i++)
        {
            while(j > -1 && ss[i] != ss[j+1]) j = next[j];
            if(ss[i] == ss[j+1]) j++;
            next[i] = j;
        }
        int m = s2.length() - next[n-1] - 1;
        return s2.substr(0, m) + s;
    }
};
```