

Problem 3035: Maximum Palindromes After Operations

Problem Information

Difficulty: **Medium**

Acceptance Rate: 0.00%

Paid Only: No

Problem Description

You are given a

0-indexed

string array

words

having length

n

and containing

0-indexed

strings.

You are allowed to perform the following operation

any

number of times (

including

zero

):

Choose integers

i

,

j

,

x

, and

y

such that

$0 \leq i, j < n$

,

$0 \leq x < \text{words}[i].\text{length}$

,

$0 \leq y < \text{words}[j].\text{length}$

, and

swap

the characters

words[i][x]

and

words[j][y]

.

Return

an integer denoting the

maximum

number of

palindromes

words

can contain, after performing some operations.

Note:

i

and

j

may be equal during an operation.

Example 1:

Input:

words = ["abbb", "ba", "aa"]

Output:

3

Explanation:

In this example, one way to get the maximum number of palindromes is: Choose $i = 0$, $j = 1$, $x = 0$, $y = 0$, so we swap `words[0][0]` and `words[1][0]`. `words` becomes `["bbbb", "aa", "aa"]`. All strings in `words` are now palindromes. Hence, the maximum number of palindromes achievable is 3.

Example 2:

Input:

`words = ["abc", "ab"]`

Output:

2

Explanation:

In this example, one way to get the maximum number of palindromes is: Choose $i = 0$, $j = 1$, $x = 1$, $y = 0$, so we swap `words[0][1]` and `words[1][0]`. `words` becomes `["aac", "bb"]`. Choose $i = 0$, $j = 0$, $x = 1$, $y = 2$, so we swap `words[0][1]` and `words[0][2]`. `words` becomes `["aca", "bb"]`. Both strings are now palindromes. Hence, the maximum number of palindromes achievable is 2.

Example 3:

Input:

`words = ["cd", "ef", "a"]`

Output:

1

Explanation:

In this example, there is no need to perform any operation. There is one palindrome in words "a". It can be shown that it is not possible to get more than one palindrome after any number of operations. Hence, the answer is 1.

Constraints:

$1 \leq \text{words.length} \leq 1000$

$1 \leq \text{words}[i].\text{length} \leq 100$

`words[i]`

consists only of lowercase English letters.

Code Snippets

C++:

```
class Solution {
public:
    int maxPalindromesAfterOperations(vector<string>& words) {

    }
};
```

Java:

```
class Solution {
    public int maxPalindromesAfterOperations(String[] words) {

    }
}
```

Python3:

```
class Solution:
    def maxPalindromesAfterOperations(self, words: List[str]) -> int:
```

Python:

```

class Solution(object):
    def maxPalindromesAfterOperations(self, words):
        """
        :type words: List[str]
        :rtype: int
        """

```

JavaScript:

```

/**
 * @param {string[]} words
 * @return {number}
 */
var maxPalindromesAfterOperations = function(words) {

};

```

TypeScript:

```

function maxPalindromesAfterOperations(words: string[]): number {

};

```

C#:

```

public class Solution {
    public int MaxPalindromesAfterOperations(string[] words) {

    }
}

```

C:

```

int maxPalindromesAfterOperations(char** words, int wordsSize) {

}

```

Go:

```

func maxPalindromesAfterOperations(words []string) int {

}

```

Kotlin:

```
class Solution {  
    fun maxPalindromesAfterOperations(words: Array<String>): Int {  
  
    }  
}
```

Swift:

```
class Solution {  
    func maxPalindromesAfterOperations(_ words: [String]) -> Int {  
  
    }  
}
```

Rust:

```
impl Solution {  
    pub fn max_palindromes_after_operations(words: Vec<String>) -> i32 {  
  
    }  
}
```

Ruby:

```
# @param {String[]} words  
# @return {Integer}  
def max_palindromes_after_operations(words)  
  
end
```

PHP:

```
class Solution {  
  
    /**  
     * @param String[] $words  
     * @return Integer  
     */  
    function maxPalindromesAfterOperations($words) {  
  
    }  
}
```

```
}
```

Dart:

```
class Solution {  
  int maxPalindromesAfterOperations(List<String> words) {  
  
  }  
}
```

Scala:

```
object Solution {  
  def maxPalindromesAfterOperations(words: Array[String]): Int = {  
  
  }  
}
```

Elixir:

```
defmodule Solution do  
  @spec max_palindromes_after_operations(words :: [String.t]) :: integer  
  def max_palindromes_after_operations(words) do  
  
  end  
end
```

Erlang:

```
-spec max_palindromes_after_operations(Words :: [unicode:unicode_binary()])  
-> integer().  
max_palindromes_after_operations(Words) ->  
.
```

Racket:

```
(define/contract (max-palindromes-after-operations words)  
  (-> (listof string?) exact-integer?)  
)
```


Solutions

C++ Solution:

```
/*
 * Problem: Maximum Palindromes After Operations
 * Difficulty: Medium
 * Tags: array, string, greedy, hash, sort
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(n) for hash map
 */

class Solution {
public:
    int maxPalindromesAfterOperations(vector<string>& words) {

    }
};
```

Java Solution:

```
/**
 * Problem: Maximum Palindromes After Operations
 * Difficulty: Medium
 * Tags: array, string, greedy, hash, sort
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(n) for hash map
 */

class Solution {
    public int maxPalindromesAfterOperations(String[] words) {

    }
}
```

Python3 Solution:

```
"""
Problem: Maximum Palindromes After Operations
```

```

Difficulty: Medium
Tags: array, string, greedy, hash, sort

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
Space Complexity: O(n) for hash map
"""

class Solution:
    def maxPalindromesAfterOperations(self, words: List[str]) -> int:
        # TODO: Implement optimized solution
        pass

```

Python Solution:

```

class Solution(object):
    def maxPalindromesAfterOperations(self, words):
        """
        :type words: List[str]
        :rtype: int
        """

```

JavaScript Solution:

```

/**
 * Problem: Maximum Palindromes After Operations
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 * @param {string[]} words
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var maxPalindromesAfterOperations = function(words) {

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```
/**
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 */

function maxPalindromesAfterOperations(words: string[]): number {

};
```

C# Solution:

```
/*
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 * Tags: array, string, greedy, hash, sort
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 */

public class Solution {
    public int MaxPalindromesAfterOperations(string[] words) {

    }
}
```

C Solution:

```
/*
 * Problem: Maximum Palindromes After Operations
 * Difficulty: Medium
 * Tags: array, string, greedy, hash, sort
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 * Approach: Use two pointers or sliding window technique
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```

* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(n) for hash map
*/

int maxPalindromesAfterOperations(char** words, int wordsSize) {

}

```

Go Solution:

```

// Problem: Maximum Palindromes After Operations
// Difficulty: Medium
// Tags: array, string, greedy, hash, sort
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
// Space Complexity: O(n) for hash map

func maxPalindromesAfterOperations(words []string) int {

}

```

Kotlin Solution:

```

class Solution {
    fun maxPalindromesAfterOperations(words: Array<String>): Int {

    }
}

```

Swift Solution:

```

class Solution {
    func maxPalindromesAfterOperations(_ words: [String]) -> Int {

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impl Solution {
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Ruby Solution:

```
# @param {String[]} words
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PHP Solution:

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class Solution {

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