

A A A A B B B A A B B B

$$A = 3 + 1 = 4$$

$$B = 1 + 2 = 3$$

A B A B A B A

A A A A B B A B A A A B B B B

A A A B A B B

$$A = 0 \times 2 = 0$$

$$B = 0 \times 1 = 0$$

## 2038. Remove Colored Pieces if Both Neighbors are the Same Color

There are  $n$  pieces arranged in a line, and each piece is colored either by 'A' or by 'B'. You are given a string `colors` of length  $n$  where `colors[i]` is the color of the  $i^{\text{th}}$  piece.

Alice and Bob are playing a game where they take **alternating turns** removing pieces from the line. In this game, Alice moves **first**.

- Alice is only allowed to remove a piece colored 'A' if **both its neighbors** are also colored 'A'. She is **not allowed** to remove pieces that are colored 'B'.
- Bob is only allowed to remove a piece colored 'B' if **both its neighbors** are also colored 'B'. He is **not allowed** to remove pieces that are colored 'A'.
- Alice and Bob **cannot** remove pieces from the edge of the line.
- If a player cannot make a move on their turn, that player **loses** and the other player **wins**.

Assuming Alice and Bob play optimally, return `true` if Alice wins, or return `false` if Bob wins.

**Input:** `colors = "AAABABB"`

**Output:** `true`

**Explanation:**

`AAABABB` -> `AABABB`

Alice moves first.

She removes the second 'A' from the left since that is the only 'A' whose neighbors are both 'A'.

Now it's Bob's turn.

Bob cannot make a move on his turn since there are no 'B's whose neighbors are both 'B'.

Thus, Alice wins, so return `true`.

```
class Solution {
    public boolean winnerOfGame(String colors) {
        int[] countSteps = new int[2]; // 0th index for alice, 1st index for bob.

        int n = colors.length(), i = 0;
        while (i < n) {
            int countChar = 0;
            char ch = colors.charAt(i);
            while (i < n && ch == colors.charAt(i)){
                i++;
                countChar++;
            }

            countSteps[ch - 'A'] += Math.max(0, countChar - 2);
        }

        return countSteps[0] > countSteps[1];
    }
}
```

