Semi-Alternating Substring

You are given a string S of length N containing only characters 'a' and 'b'. A substring (contiguous fragment) of S is called a semi-alternating substring if it does not contain three identical consecutive characters. In other words, it does not contain either 'aaa' or 'bbb' substrings. Note that whole S is its own substring.

Write a function:

```
int solution(string &S)
```

which, given a string S, returns the length of the longest semi-alternating substring of S.

Examples:

1. Given S = "baaabbabbb", your function should return 7, which is the length of "aabbabb", the longest semi-alternating substring.

2. Given S = "babba", your function should return 5, since whole sis semi-alternating.

3. Given S = "abaaaa", your function should return 4, because the first four letters of S create a semi-alternating substring.

Write an efficient algorithm for the following assumptions:

- N is an integer within the range (1, 200,000);
- String S consists only of the characters "a" and/or "b".