There is a soccer match between team A and team B. Each team tries to score more goals than their opponents.

N goals are scored in the match. You are given a string S with N characters. Each character is either '`A`' or '`B`'. The i-th goal is scored by a team S[i]. For example, for a string S = "`ABBAAA`" the match progresses as follows:

- Initially, there is a draw condition, 0:0.
- Team A scores, so they are winning 1:0.
- Team B scores, so the result is now 1:1 (another draw).
- Team B scores, so B is winning 2:1.
- Team A scores, so the status is again a draw, 2:2.
- Team A scores, so A is now winning 3:2.
- Team A scores, so A finally wins 4:2.

You cheer team A on, and you celebrate each time team A takes the lead (i.e. team A scores a goal after a draw). Count the number of times you celebrate.

Write a function:

```
func Solution(S string) int
```

that, given a string S with N characters (representing all goals in the match), returns the number of times team A takes the lead.

For example, for a string S = "`ABBAAA`" (analysed above) your function should return 2. Team A takes the lead after scoring the very first goal (when the score becomes 1:0), and they also take the lead when the score becomes 3:2.

Given a string S = "`BABBAA`", your function should return 0 since team A doesn't take the lead even once.

Assume that:

- N is an integer within the range [1..50];
- Each character in S is '`A`' or '`B`'.

In your solution, focus on **correctness**. The performance of your solution will not be the focus of the assessment.

Tom works in a warehouse. A billion (1,000,000,000) boxes are arranged in a row. They are numbered from one to one billion (from left to right). Some boxes contain a basketball (at most one basketball in each box). In total, there are N basketballs.

Tom wants to organize the warehouse. He would like to see all the basketballs arranged next to each other (they should occupy a consistent interval of boxes). In one move, Tom can take one basketball and move it into an empty box. What is the minimum number of moves needed to organize the basketballs in the warehouse?

Write a function:

```
func Solution(A []int) int
```

that, given an array A containing N integers, denotes the positions of the basketballs (the numbers of the boxes in which they are placed) and returns the minimum number of moves needed to organize the basketballs in the warehouse.

For example, given: A = [6, 4, 1, 7, 10], your function should return 2 because the minimum number of moves needed to arrange all basketballs next to each other is 2. There are several ways to do it. For example, you could move the ball from the first box to the fifth, and the ball from the tenth box to the eighth. You could also move the ball from the first box to the fifth, and the ball from the tenth box to the third instead. In any case, you need at least two moves.

Assume that:

- N is an integer within the range [1..50,000];
- each element of array A is an integer within the range [1..1,000,000,000];
- numbers in array A are pairwise distinct.

Complexity:

- expected worst-case time complexity is O(N*log(N));
- expected worst-case space complexity is O(1), beyond input storage (not counting the storage required for input arguments).

Elements of input arrays can be modified.