2024. Maximize the Confusion of an Exam

Description

A teacher is writing a test with n true/false questions, with `'T'` denoting true and `'F'` denoting false. He wants to confuse the students by **maximizing** the number of **consecutive** questions with the **same** answer (multiple trues or multiple falses in a row).

You are given a string `answerKey`, where `answerKey[i]` is the original answer to the ith question. In addition, you are given an integer `k`, the maximum number of times you may perform the following operation:

- Change the answer key for any question to `'T'` or `'F'` (i.e., set `answerKey[i]` to `'T'` or `'F'`).

Return *the* ***maximum*** *number of consecutive* `'T'` *s or* `'F'` *s in the answer key after performing the operation at most* `k` *times* .

Example 1:

```
Input:  answerKey = "TTFF", k = 2
Output: 4
Explanation: We can replace both the 'F's with 'T's to make answerKey = " TTTT ".
There are four consecutive 'T's.
```

Example 2:

```
Input:  answerKey = "TFFT", k = 1
Output: 3
Explanation: We can replace the first 'T' with an 'F' to make answerKey = " FFF T".
Alternatively, we can replace the second 'T' with an 'F' to make answerKey = "T FFF ".
In both cases, there are three consecutive 'F's.
```

Example 3:

```
Input:  answerKey = "TTFTTFTT", k = 1
Output: 5
Explanation: We can replace the first 'F' to make answerKey = " TTTTT FTT"
Alternatively, we can replace the second 'F' to make answerKey = "TTF TTTTT ".
In both cases, there are five consecutive 'T's.
```

Constraints:

- `n == answerKey.length`
- $1 <= n <= 5 * 10^4$
- `answerKey[i]` is either `'T'` or `'F'`
- `1 <= k <= n`