2052. Minimum Cost to Separate Sentence Into Rows

Description

You are given a string `sentence` containing words separated by spaces, and an integer `k`. Your task is to separate `sentence` into **rows** where the number of characters in each row is **at most** `k`. You may assume that `sentence` does not begin or end with a space, and the words in `sentence` are separated by a single space.

You can split `sentence` into rows by inserting line breaks between words in `sentence`. A word **cannot** be split between two rows. Each word must be used exactly once, and the word order cannot be rearranged. Adjacent words in a row should be separated by a single space, and rows should not begin or end with spaces.

The **cost** of a row with length `n` is `(k - n)`^{2}, and the **total cost** is the sum of the **costs** for all rows **except** the last one.

- For example if `sentence = "i love leetcode"` and `k = 12`:
  - Separating `sentence` into `"i"`, `"love"`, and `"leetcode"` has a cost of `(12 - 1)`^{2} `+ (12 - 4)`^{2} `= 185`.
  - Separating `sentence` into `"i love"`, and `"leetcode"` has a cost of `(12 - 6)`^{2} `= 36`.
  - Separating `sentence` into `"i"`, and `"love leetcode"` is not possible because the length of `"love leetcode"` is greater than `k`.

Return *the **minimum** possible total cost of separating* `sentence` *into rows.*

Example 1:

```
Input: sentence = "i love leetcode", k = 12
Output: 36
Explanation:
Separating sentence into "i", "love", and "leetcode" has a cost of (12 − 1) ² + (12 − 4) ² = 185.
Separating sentence into "i love", and "leetcode" has a cost of (12 − 6) ² = 36.
Separating sentence into "i", "love leetcode" is not possible because "love leetcode" has length 13.
36 is the minimum possible total cost so return it.
```

Example 2:

```
Input: sentence = "apples and bananas taste great", k = 7
Output: 21
Explanation
Separating sentence into "apples", "and", "bananas", "taste", and "great" has a cost of (7 − 6) ² + (7 − 3) ² + (7 − 7) ² + (7 − 5) ² = 21.
21 is the minimum possible total cost so return it.
```

Example 3:

```
Input: sentence = "a", k = 5
Output: 0
Explanation:
The cost of the last row is not included in the total cost, and since there is only one row, return 0.
```

Constraints:

- `1 <= sentence.length <= 5000`
- `1 <= k <= 5000`
- The length of each word in `sentence` is at most `k`.
- `sentence` consists of only lowercase English letters and spaces.
- `sentence` does not begin or end with a space.
- Words in `sentence` are separated by a single space.