1418. Fair Distribution of Cookies

Difficulty : Medium

https://leetcode.com/problems/fair-distribution-of-cookies

You are given an integer array `cookies`, where `cookies[i]` denotes the number of cookies in the `i`th bag. You are also given an integer `k` that denotes the number of children to distribute **all** the bags of cookies to. All the cookies in the same bag must go to the same child and cannot be split up.

The **unfairness** of a distribution is defined as the **maximum total** cookies obtained by a single child in the distribution.

Return *the **minimum** unfairness of all distributions.*

Example 1:

```
Input: cookies = [8,15,10,20,8], k = 2
Output: 31
Explanation: One optimal distribution is [8,15,8] and [10,20]
- The 1st child receives [8,15,8] which has a total of 8 + 15 + 8 = 31 cookies.
- The 2nd child receives [10,20] which has a total of 10 + 20 = 30 cookies.
The unfairness of the distribution is max(31,30) = 31.
It can be shown that there is no distribution with an unfairness less than 31.
```

Example 2:

```
Input: cookies = [6,1,3,2,2,4,1,2], k = 3
Output: 7
Explanation: One optimal distribution is [6,1], [3,2,2], and [4,1,2]
- The 1st child receives [6,1] which has a total of 6 + 1 = 7 cookies.
- The 2nd child receives [3,2,2] which has a total of 3 + 2 + 2 = 7 cookies.
- The 3rd child receives [4,1,2] which has a total of 4 + 1 + 2 = 7 cookies.
The unfairness of the distribution is max(7,7,7) = 7.
It can be shown that there is no distribution with an unfairness less than 7.
```

Constraints:

- `2 <= cookies.length <= 8`
- `1 <= cookies[i] <= 10`^{5}
- `2 <= k <= cookies.length`