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 1^{st} child receives [8,15,8] which has a total of 8 + 15 + 8 = 31 cookies.

- The 2^{nd} 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 1^{st} child receives [6,1] which has a total of 6 + 1 = 7 cookies.

- The 2^{nd} child receives [3,2,2] which has a total of 3 + 2 + 2 = 7 cookies.

- The 3^{rd} 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