Problem 2305: Fair Distribution of Cookies

Problem Information

Difficulty: Medium
Acceptance Rate: 69.71%
Paid Only: No
Tags: Array, Dynamic Programming, Backtracking, Bit Manipulation, Bitmask

Problem Description

You are given an integer array `cookies`, where `cookies[i]` denotes the number of cookies in the `ith` 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] <= 105` * `2 <= k <= cookies.length`

Code Snippets

C++:

```cpp
class Solution {
public:
int distributeCookies(vector<int>& cookies, int k) {


}
};
```

Java:

```java
class Solution {
public int distributeCookies(int[] cookies, int k) {


}
}
```

Python3:

```python
class Solution:
def distributeCookies(self, cookies: List[int], k: int) -> int:
```