Problem 698: Partition to K Equal Sum Subsets

Problem Information

Difficulty: Medium
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

Given an integer array

nums

and an integer

k

, return

true

if it is possible to divide this array into

k

non-empty subsets whose sums are all equal.

Example 1:

Input:

nums = [4,3,2,3,5,2,1], k = 4

Output:

true

Explanation:

It is possible to divide it into 4 subsets (5), (1, 4), (2,3), (2,3) with equal sums.

Example 2:

Input:

nums = [1,2,3,4], k = 3

Output:

false

Constraints:

1 <= k <= nums.length <= 16

1 <= nums[i] <= 10

4

The frequency of each element is in the range

[1, 4]

.

Code Snippets

C++:

```
class Solution {
public:
bool canPartitionKSubsets(vector<int>& nums, int k) {
```

```
}
};
```

Java:

```
class Solution {
public boolean canPartitionKSubsets(int[] nums, int k) {

}
}
```

Python3:

```
class Solution:
def canPartitionKSubsets(self, nums: List[int], k: int) -> bool:
```

Python:

```
class Solution(object):
def canPartitionKSubsets(self, nums, k):
"""
:type nums: List[int]
:type k: int
:rtype: bool
"""
```

JavaScript:

```
/**
* @param {number[]} nums
* @param {number} k
* @return {boolean}
*/
var canPartitionKSubsets = function(nums, k) {

};
```

TypeScript:

```
function canPartitionKSubsets(nums: number[], k: number): boolean {

};
```

C#:

```
public class Solution {
public bool CanPartitionKSubsets(int[] nums, int k) {

}
}
```

C:

```
bool canPartitionKSubsets(int* nums, int numsSize, int k) {

}
```

Go:

```
func canPartitionKSubsets(nums []int, k int) bool {

}
```

Kotlin:

```
class Solution {
fun canPartitionKSubsets(nums: IntArray, k: Int): Boolean {

}
}
```

Swift:

```
class Solution {
func canPartitionKSubsets(_ nums: [Int], _ k: Int) -> Bool {

}
}
```

Rust:

```
impl Solution {
pub fn can_partition_k_subsets(nums: Vec<i32>, k: i32) -> bool {

}
}
```

Ruby:

```
# @param {Integer[]} nums
# @param {Integer} k
# @return {Boolean}
def can_partition_k_subsets(nums, k)

end
```

PHP:

```
class Solution {

/**
* @param Integer[] $nums
* @param Integer $k
* @return Boolean
*/
function canPartitionKSubsets($nums, $k) {

}
}
```

Dart:

```
class Solution {
bool canPartitionKSubsets(List<int> nums, int k) {

}
}
```

Scala:

```
object Solution {
def canPartitionKSubsets(nums: Array[Int], k: Int): Boolean = {

}
}
```

Elixir:

```
defmodule Solution do
@spec can_partition_k_subsets(nums :: [integer], k :: integer) :: boolean
```

```
def can_partition_k_subsets(nums, k) do

end
end
```

Erlang:

```
-spec can_partition_k_subsets(Nums :: [integer()], K :: integer()) ->
boolean().
can_partition_k_subsets(Nums, K) ->
.
```

Racket:

```
(define/contract (can-partition-k-subsets nums k)
(-> (listof exact-integer?) exact-integer? boolean?)
)
```

Solutions

C++ Solution:

```
/*
* Problem: Partition to K Equal Sum Subsets
* Difficulty: Medium
* Tags: array, dp
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(n) or O(n * m) for DP table
*/

class Solution {
public:
bool canPartitionKSubsets(vector<int>& nums, int k) {

}
};
```

Java Solution:

```
/**
* Problem: Partition to K Equal Sum Subsets
* Difficulty: Medium
* Tags: array, dp
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(n) or O(n * m) for DP table
*/

class Solution {
public boolean canPartitionKSubsets(int[] nums, int k) {

}
}
```

Python3 Solution:

```
"""
Problem: Partition to K Equal Sum Subsets
Difficulty: Medium
Tags: array, dp

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
Space Complexity: O(n) or O(n * m) for DP table
"""

class Solution:
def canPartitionKSubsets(self, nums: List[int], k: int) -> bool:
# TODO: Implement optimized solution
pass
```

Python Solution:

```
class Solution(object):
def canPartitionKSubsets(self, nums, k):
"""
:type nums: List[int]
:type k: int
:rtype: bool
"""
```

JavaScript Solution:

```
/**
* Problem: Partition to K Equal Sum Subsets
* Difficulty: Medium
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/**
* @param {number[]} nums
* @param {number} k
* @return {boolean}
*/
var canPartitionKSubsets = function(nums, k) {

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TypeScript Solution:

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* Time Complexity: O(n) or O(n log n)
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function canPartitionKSubsets(nums: number[], k: number): boolean {

};
```

C# Solution:

```
/*
* Problem: Partition to K Equal Sum Subsets
* Difficulty: Medium
```

```
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*/

public class Solution {
public bool CanPartitionKSubsets(int[] nums, int k) {

}
}
```

C Solution:

```
/*
* Problem: Partition to K Equal Sum Subsets
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bool canPartitionKSubsets(int* nums, int numsSize, int k) {

}
```

Go Solution:

```
// Problem: Partition to K Equal Sum Subsets
// Difficulty: Medium
// Tags: array, dp
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// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
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func canPartitionKSubsets(nums []int, k int) bool {
```

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}
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Kotlin Solution:

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class Solution {
fun canPartitionKSubsets(nums: IntArray, k: Int): Boolean {

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class Solution {
func canPartitionKSubsets(_ nums: [Int], _ k: Int) -> Bool {

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impl Solution {
pub fn can_partition_k_subsets(nums: Vec<i32>, k: i32) -> bool {

}
}
```

Ruby Solution:

```
# @param {Integer[]} nums
# @param {Integer} k
# @return {Boolean}
def can_partition_k_subsets(nums, k)
```

```
end
```

PHP Solution:

```
class Solution {

/**
* @param Integer[] $nums
* @param Integer $k
* @return Boolean
*/
function canPartitionKSubsets($nums, $k) {

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object Solution {
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