

Pair Sums

Given a list of n integers $arr[0 \dots (n-1)]$, determine the number of different pairs of elements within it which sum to k .

If an integer appears in the list multiple times, each copy is considered to be different; that is, two pairs are considered different if one pair includes at least one array index which the other doesn't, even if they include the same values.

Signature

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int numberOfWays(int[] arr, int k)
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Input

n is in the range $[1, 100,000]$.

Each value $arr[i]$ is in the range $[1, 1,000,000,000]$.

k is in the range $[1, 1,000,000,000]$.

Output

Return the number of different pairs of elements which sum to k .

Example 1

$n = 5$

$k = 6$

$arr = [1, 2, 3, 4, 3]$

output = 2

The valid pairs are 2+4 and 3+3.

Example 2

$n = 5$

$k = 6$

$arr = [1, 5, 3, 3, 3]$

output = 4

There's one valid pair 1+5, and three different valid pairs 3+3 (the 3rd and 4th elements, 3rd and 5th elements, and 4th and 5th elements).