NatWest Code Test

Thank you for taking the time to complete this code test. We appreciate you taking the time to complete this test, hopefully you'll find it interesting too. You can choose the coding language of your choice to provide the solution between JavaScript and Python.

Problem Statement

Given a set of distinct integers, print the size of a maximal subset of **S** where the sum of any **2** numbers in **S** is *not* evenly divisible by **k**.

Example

S = [19, 10, 12, 10, 24, 25, 22] k = 4

One of the arrays that can be created is **S[0] = [10, 12, 25].** Another is **S[1] = [19, 22, 24].** After testing all permutations, the maximum length solution array has **3** elements.

Function Description

Complete the *nonDivisibleSubset* function in the editor below.

nonDivisibleSubset has the following parameter(s):

- *int S[n]*: an array of integers
- *int k*: the divisor

Returns

- *int:* the length of the longest subset of **S** meeting the criteria

Input Format

The first line contains **2** space-separated integers, **n** and **k**, the number of values in **S** and the *non* factor.
The second line contains **n** space-separated integers, each an **S[i]**, the unique
values of the set.

Constraints

- All of the given numbers are distinct.

Sample Input

STDIN	Function
4 3	S[ ] size n = 4, k = 3
1 7 2 4	S = [1, 7, 2, 4]

Sample Output

```
3
```

Explanation

The sums of all permutations of two elements from **S = {1, 7, 2, 4}** are:

```
1 + 7 = 8
1 + 2 = 3
1 + 4 = 5
7 + 2 = 9
7 + 4 = 11
2 + 4 = 6
```

Only **S = {1, 7, 4}** will not ever sum to a multiple of **k = 3**.

Deliverables

- Project containing source code for your solution.
- Any instructions to run the solution.
- A short description of what you have implemented.

Please check-in your code to a GitHub repository, add a detailed readme file and provide details and access.