

















Basic Programming Challenges

Non-Divisible Subset





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

Input Format

The first line contains 2 space-separated integers, n and k, respectively.

The second line contains n space-separated integers (we'll refer to the i^{th} value as a_i) describing the unique values of the set.

Constraints

- $1 \le n \le 10^5$
- $1 \le k \le 100$
- $1 \le a_i \le 10^9$
- All of the given numbers are distinct.

Output Format

Print the size of the largest possible subset (S').

Sample Input

4 3

1 7 2 4

Sample Output

3

Explanation

The largest possible subset of integers is $S' = \{1, 7, 4\}$, because no two integers will have a sum that is evenly divisible by k = 3:

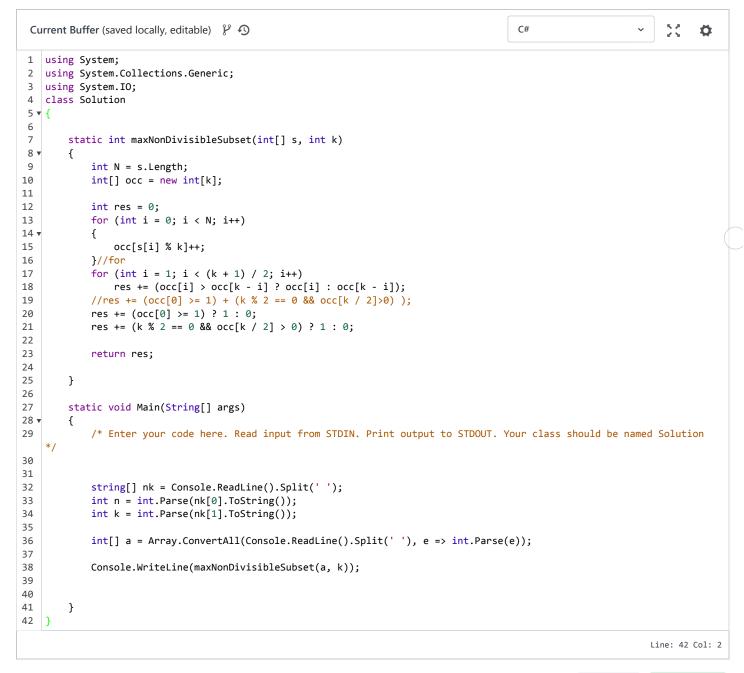
- 1+7=8, and 8 is not evenly divisible by 3.
- 1+4=5, and 5 is not evenly divisible by 3.
- 7 + 4 = 11, and 11 is not evenly divisible by 3.

The number $\bf 2$ cannot be included in our subset because it will produce an integer that is evenly divisible by $\bf k=3$ when summed with any of the other integers in our set:

- 1+2=3, and $\frac{3}{3}=1$ (remainder 0)
- 4+2=6, and $\frac{6}{3}=2$ (remainder 0).
- 7+2=9, and $\frac{9}{3}=3$ (remainder 0).

Thus, we print the length of S' on a new line, which is 3.

Submissions: 22098
Max Score: 20
Difficulty: Medium
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- ✓ Test Case #0
- ✓ Test Case #3
- ✓ Test Case #6
- ✓ Test Case #9
- ✓ Test Case #12✓ Test Case #15

- ✓ Test Case #1
- ✓ Test Case #4
- ✓ Test Case #7
- ✓ Test Case #10
- ✓ Test Case #13

- ✓ Test Case #2
- ✓ Test Case #5
- ✓ Test Case #8
- ✓ Test Case #11
- ✓ Test Case #14

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