

A. Writing Code

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Programmers working on a large project have just received a task to write exactly m lines of code. There are n programmers working on a project, the i -th of them makes exactly a_i bugs in every line of code that he writes.

Let's call a sequence of non-negative integers v_1, v_2, \dots, v_n a *plan*, if $v_1 + v_2 + \dots + v_n = m$. The programmers follow the plan like that: in the beginning the first programmer writes the first v_1 lines of the given task, then the second programmer writes v_2 more lines of the given task, and so on. In the end, the last programmer writes the remaining lines of the code. Let's call a plan *good*, if all the written lines of the task contain at most b bugs in total.

Your task is to determine how many distinct *good* plans are there. As the number of plans can be large, print the remainder of this number modulo given positive integer mod .

Input

The first line contains four integers n, m, b, mod ($1 \leq n, m \leq 500, 0 \leq b \leq 500; 1 \leq mod \leq 10^9 + 7$) — the number of programmers, the number of lines of code in the task, the maximum total number of bugs respectively and the modulo you should use when printing the answer.

The next line contains n space-separated integers a_1, a_2, \dots, a_n ($0 \leq a_i \leq 500$) — the number of bugs per line for each programmer.

Output

Print a single integer — the answer to the problem modulo mod .

Examples

input
3 3 3 100 1 1 1
output
10

input
3 6 5 1000000007 1 2 3
output
0

input
3 5 6 11 1 2 1
output
0