

Problem F: Fun Array

Advanced Algorithms for Programming Contests

Restrictions

Time: 4 seconds

Memory: 512 MB

Problem description

Alice has conceived of a very fun array consisting of n integers a_1, \dots, a_n . Of course Bob wants to know it, but she refuses to share it with him. Instead, she will just answer at most n questions of a certain kind: In each question, Bob needs to name k pairwise distinct indices i_1, \dots, i_k in the range from 1 to n and in response Alice will tell him the sum of the corresponding elements, $a_{i_1} + \dots + a_{i_k}$. Can you help Bob to figure out the array?

Interaction Protocol

First you are given the parameters n and k ($2 \leq n \leq 1000, 1 \leq k < n$). Then you may ask up to n questions. Each of those questions must be posed in the form `"? i1 i2 ... ik"` ($1 \leq i_j \leq n, i_{j_1} \neq i_{j_2} \forall j_1 \neq j_2$), as in the sample below. In response to each question, the answer will be given to you as a single integer on a new line. Finally, you should communicate the fully deduced array, using the format `"! a1 a2 ... an"`. After doing this, your program should terminate immediately. Posing an invalid question will cause the verdict **Run Error**. Printing any wrong number in the final line of output will cause the verdict **Wrong Answer**. It is guaranteed that all entries of Alice's array lie in the range from -10^6 to 10^6 .

Sample input and output

Input	Output
4 2	? 1 2
17	? 3 4
19	? 4 2
18	! 7 8 9 10

Note that the questions and their answers in this sample did not actually determine the array, e.g. $a = [17, 0, 1, 18]$ would also have been possible.