Problem I
Inspecting Illumination
Problem ID: inspectingillumination

This is an interactive problem

The Zoldyck mansion is enormous, with dozens of rooms and hundreds of illuminating sources — light bulbs, chandeliers, lamps, etc.

You are recently hired by the Zoldyck family as a butler. Your daily job involves sitting in the illumination control room and control all the illuminating sources in the mansion.

In the control room, there are n switches. Each switch controls exactly one illuminating source. Switches and illuminating sources are numbered from 1 to n, inclusive. However, there is no documentation, so you **do not know** which switch controls which illuminating source.

Thus, your only choice is to repeat the following operation:

- Toggle some of the switches (at least one).
- Go around the entire mansion, check all the state of all n illuminating sources.

As the mansion is enormous, you want to go around it at most 32 times.

Interaction

First your program reads the integer n ($1 \le n \le 1\,000$).
Then the following process repeats:

- Your program writes to the standard output one of the following:
  - ASK k a_1 a_2 ... a_k ($1 \le k \le n, 1 \le a_i \le n$ and all a_i are unique) — you toggle k switches $a_1, a_2, \ldots, a_k$, and want to know what are the k illuminating sources which are toggled.
  - ANSWER b_1 b_2 ... b_n ($1 \le b_i \le n$) — you want to answer that the illuminating source i is controlled by the switch b_i.
- If your program asks a query, k integers will be available in the standard input, representing the illuminating sources which were toggled, in any order. Your program should then read them.
- If your program prints an answer, it should then terminate. You are allowed to print an answer exactly once.

Note that you are allowed to interact at most $32 + 1 = 33$ times, 32 interactions for asking queries and 1 interaction for answering.

Note

After printing a query do not forget to output end of line and flush the output. Otherwise, your submission may be rejected. To do this, use:

- `fflush(stdout)` or `cout.flush()` in C++;
- `System.out.flush()` in Java;
- `stdout.flush()` in Python.

Read	Sample Interaction 1	Write
	5	
ASK 1 1		
	1	
ASK 2 1 2		
	1 3	
ASK 3 1 2 3		
	1 3 4	
ASK 4 1 2 3 4		
	1 2 3 4	
ASK 5 1 2 3 4 5		
	1 2 3 4 5	
ANSWER 1 4 2 3 5		