The Subset Sum Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 mebibytes

Nomem and his master Roxeh are doing a little research together on the famous subset sum problem. So they tried the following experiment.

- Nomem chose a positive integer n and Roxeh chose a positive integer m.
- Nomem constructed an array of size n with positive integer elements not exceeding m. Roxeh constructed an array of size m with positive integer elements not exceeding n.
- Nomem will choose a non-empty subset of indices from his array and add them up. Similarly, Roxeh will choose a non-empty subset of indices from his array and add them up.
- Their target is to choose the subsets so as to minimize the absolute difference of the two sums they get.

Before completing the experiment, some of their fellow researchers sent in a link of a Krunker match. So they assigned you to complete the experiment while they're busy saving the world.

Input

The first line contains two positive integers n, m.

The second line contains n space separated positive integers $a_1, a_2, ..., a_n$ not exceeding m. This is the array constructed by Nomem.

The third line contains m space separated positive integers $b_1, b_2, ..., b_m$ not exceeding n. This is the array constructed by Roxeh.

Output

On the first line, print the difference between the sum of the two subsets chosen by them, when the choices are made optimally so as to minimize the difference.

On the second line, print a single positive integer k_a, the size of the subset chosen by Nomem, followed by k_a distinct space separated positive integers not exceeding n which represent the array indices chosen by Nomem in the subset.

On the third line, print a single positive integer k_b, the size of the subset chosen by Roxeh, followed by k_b distinct space separated positive integers not exceeding m which represent the array indices chosen by Roxeh in the subset.

If there are multiple possible solutions, you may print any of them.

Scoring

- Subtask 1 (7 points): $1 \leq n, m \leq 10$.
- Subtask 2 (13 points): $1 \leq n, m \leq 20$.
- Subtask 3 (17 points): $1 \leq n, m \leq 300$.
- Subtask 4 (9 points): $1 \leq n, m \leq 1000$.
- Subtask 5 (54 points): $1 \leq n, m \leq 10^6$.

Example

standard input	standard output
5 7 3 6 6 1 6 5 5 4 5 4 4 5	0 3 2 5 3 4 4 5 2 6

Explanation

Nomem chooses the indices $\{2, 5, 3\}$ resulting in the sum $a_2 + a_5 + a_3 = 6 + 6 + 6 = 18$, whereas Roxeh chooses the indices $\{4, 5, 2, 6\}$ resulting in the sum $b_4 + b_5 + b_2 + b_6 = 5 + 4 + 5 + 4 = 18$. So the difference is 0 which is the minimum possible in this case.