Problem A. Ali Baba 3

Input file:	`standard input`
Output file:	`standard output`
Time limit:	10 seconds
Memory limit:	256 megabytes

Ali Baba returned back to cave, and took his knapsack with carrying capacity $1 \leqslant W \leqslant 5000$ to take treasures out of the cave. When he came into cave he found a room with $0 \leqslant N \leqslant 1000$ gold bars in it. For each bar he knows weight $1 \leqslant w_i \leqslant 100000$ and cost $1 \leqslant c_i \leqslant 100000$. As usual, he wants to maximize total cost of treasures taken out. The bars are undividable.

Help Ali Baba and write a program which will calculate maximum obtainable profit and gives indices of items (items are enumerated from 1) he should place into knapsack to maximize total cost.

Input

First line contains two integer numbers: $1 \leqslant W \leqslant 5000$ and $0 \leqslant N \leqslant 1000$ — carrying capacity of knapsack and number of items in the cave.

Second line contains N positive integer numbers $w_1, w_2, ..., w_N$, divided by space character — weights of items.

Third line contains N positive integer numbers $c_1, c_2, ..., c_N$, divided by space character — costs of elements.

Output

On the first line print maximum total cost of bars Ali Baba can place into knapsack.

On the second line print number of items K which allow to maximize total cost.

On the third line print K positive integer numbers separated by space character — indices of items which maximize total cost. Items are enumerated from 1!

Examples

standard input	standard output
8 4 3 3 5 6 3 5 10 14	15 2 2 3
100 2 1 2 10 20	30 2 1 2
1 1 10 10	0 0

Problem B. Ali Baba 4

Input file:	`standard input`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	256 megabytes

Ali Baba decided to share golden bars he brought home in previous problem with you. Because you helped him a lot! He used your fantastic programs to choose items in the cave!

Also, he wants to be honest, so, he wants to divide these $0 \leqslant N \leqslant 500$ golden bars into two parts such that costs of these parts are exactly equal.

Help him one more time. Write a program which will check if it's possible to divide bars with given costs c_i into two parts with identical total costs?

Input

First line contains single integer number: $1 \leqslant N \leqslant 500$ — number of golden bars.

Second line contains N integer numbers divided by space character $0 \leqslant c_i \leqslant 5000$ — costs of these items. It is guaranteed that sum of costs of all items $\sum c_i$ is $\leqslant 5000$.

Output

Print "YES" if itś possible to divide items into two parts with identical total costs. Print "NO" otherwise.

Examples

standard input	standard output
3 3 2 5	YES
4 5 4 1 0	YES
4 7 1 5 2	NO