Marriage problem

Cost: 16 | Solved: 11

Memory limit: 256 MBs

Time limit: 1 s

Input: standard input

Output: standard output

Task:

There are sets of n men and n women. Each man evaluates the women with numbers from 1 to n, giving them different grades, and each woman estimates similarly to the men from 1 to n. This all leads to formation of pairs according to the principle of maximum attractiveness for both partners and calculation of the happiness coefficient. The coefficient of happiness is the sum of the man's evaluation and the evaluation of the woman.

You have to maximize the sum of the happiness coefficients of the pairs and to output these pairs.

Input:

The first line contains a natural n (1 ≤ n ≤ 1000) – the quantity of people of the same sex.

The next n lines contain men's evaluations for each of the women.

The final n lines for women are input analogically.

Output:

The first line should contain the maximal sum of the happiness coefficients of the pairs.

The second line should contain men's partners successively (firstly, the partner for the first man, then the partner for the second man, and so on).

Example:

Input	Output

3 1 2 3 2 3 1 1 2 3 1 2 3 2 3 1 3 1 2	16 3 2 1