One piece

One of DB and TN common interests is traveling. One day, they went to Grand Line and found One Piece !

The One Piece treasure has n gold coins (n is even). Both them like gold coins, but they evaluate them as different values. So they decided to divide those coins by following method :

DB and TN do n / 2 steps, at each step, DB choose 2 coins, TN takes the coin that she evaluates it greater, and DB take the rest coin.

Let's help DB find how to take the maximum value at possible.

Input

First line : a single integer n (n is even) – the number of coins

Second line : n integers $a_1, a_2, …, a_n$. a_i is the value of ith coin that TN evaluates.

Third line : n integers $b_1, b_2, …, b_n$. b_i is the value of ith coin that DB evaluates.

Output

First line : an integer S – the maximum value DB can take.

Last n / 2 lines : i^{th} line contains two number x and y ($1 \le x, y \le n$), are the indexes of two coins that DB choose on i^{th} step. Each coin must be chose exact one time.

If there are multiple ways, just print any of them.

Constraints

$2 \le n \le 500\ 000$

$1 \le a_i \le 10^9$

$1 \le b_i \le 10^9$

Note that $a_1, a_2, …, a_n$ are n distinct integers.

Example

Input:
```
6
6 10 11 18 5 14
1 7 6 12 15 1
```

Output:
```
28
5 1
```

2 6
3 4

Warning: large Input/Output data, be careful with certain languages