1000. Order Crossover

Total: 48 Accepted: 16

Time Limit: 1sec Memory Limit:256MB

Description

The procedure of Order Crossover (OX) applied in the Genetic Algorithm is as follows.

1. Select a substring from a parent at random.

2. Produce a proto-child by copying the substring into the corresponding position of it.

3. Delete the cities which are already in the substring from the 2nd parent. The resulted sequence of citires contains the cities that the proto-child needs.

4. Place the cities into the unfixed positions of the proto-child from left to right according to the order of the sequence to produce an offspring.

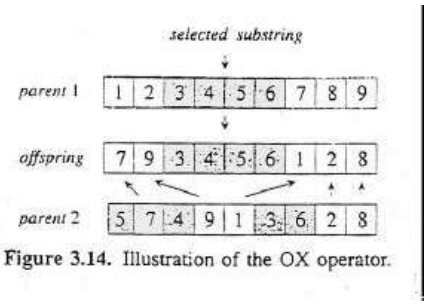

Figure 3.14. Illustration of the OX operator.

Input

There may be multiple cases. For each case, the first line is an integer n (1<=n<=100). The second line and the third line give two parents(each line has n **integer**). The fourth line gives the starting and ending position (x and y with 0<=x<=y<n) of the substring.

Output

For each case, output two resultant offsprings.

Sample Input

Copy

```
9
1 2 3 4 5 6 7 8 9
5 7 4 9 1 3 6 2 8
2 5
```

Sample Output

Copy

```
7 9 3 4 5 6 1 2 8
2 5 4 9 1 3 6 7 8
```

Submit