Problem K
Empty Intersection

Time Limit: 6.0 seconds

You are given two integer sequences $A = (A_1, \ldots, A_N)$ and $B = (B_1, \ldots, B_N)$, and two sequences of positive integers $V = (V_1, \ldots, V_N)$ and $W = (W_1, \ldots, W_N)$. All four sequences have length N.

Choose two (possibly empty) intervals of indices, $[L, R)$ for A and $[U, D)$ for B. Here, L, R, U, D are integers satisfying $1 \leq L \leq R \leq N + 1$ and $1 \leq U \leq D \leq N + 1$.

Let X and Y be the sets of values occurring in these intervals, respectively:

$$X = \{A_i \mid L \leq i < R\},$$
$$Y = \{B_j \mid U \leq j < D\}.$$

The chosen intervals must satisfy $X \cap Y = \emptyset$. In other words, no value may occur in both intervals.

If $L = R$, the interval of A is empty and $X = \emptyset$. Likewise, if $U = D$, the interval of B is empty and $Y = \emptyset$.

The score of the two chosen intervals is

$$\sum_{i=L}^{R-1} V_i + \sum_{j=U}^{D-1} W_j.$$

Find the maximum possible score among all valid choices.

Input

The input contains one or more test cases. The first line of the input contains an integer T ($1 \leq T \leq 10^4$), which is the number of test cases. The descriptions of the T test cases follow, each in the format below.

N
$A_1\ A_2\ \ldots\ A_N$
$B_1\ B_2\ \ldots\ B_N$
$V_1\ V_2\ \ldots\ V_N$
$W_1\ W_2\ \ldots\ W_N$

The first line contains a single integer N, the common length of the four sequences ($1 \leq N \leq 2 \times 10^5$).

The following four lines contain N integers each and describe the sequences A, B, V, and W, respectively.

The integers A_i and B_i satisfy $1 \leq A_i, B_i \leq N$ for every i ($1 \leq i \leq N$).

The integers V_i and W_i satisfy $1 \leq V_i, W_i \leq 10^9$ for every i ($1 \leq i \leq N$).

The sum of N over all test cases does not exceed 6×10^5.

Output

Output T lines. The i-th line should contain the maximum possible score for the i-th test case.

Sample Input	Sample Output
4 3 1 2 3 3 2 1 3 4 5 6 2 1 3 1 1 1 1 1 1 2 3 4 5 5 5 4 1 2 1 3 4 2 4 3 5 6 5 1 4 10 4 10 5 3 1 2 4 3 1 1 2 2 4 1 3 3 2 1 2 2 3 1 1	13 15 33 11

In the first test case, we can choose the interval $[1, 3)$ of A and the interval $[1, 2)$ of B. More precisely, we can set $L = 1$, $R = 3$, $U = 1$, and $D = 2$. Their sets of values are $\{1, 2\}$ and $\{3\}$, respectively, and they are disjoint. The score is

$$V_1 + V_2 + W_1 = 3 + 4 + 6 = 13,$$

which is the maximum possible score.

In the second test case, we can choose an empty interval of A and the entire interval $[1, 4)$ of B. More precisely, $L = 2$, $R = 2$, $U = 1$, and $D = 4$.