

Problem A. Scissor Seven

Time limit 4000 ms

Memory limit 512MB

Problem Description

To defend against Stan's invasion, the villages on Chicken Island have decided to train themselves to protect their homeland.

After pushing themselves to the limit day in and day out for nearly a year, it is finally time for Seven and Dai_Bo to evaluate the results. There are n people participating in the test. At the start, Seven and Dai_Bo assign each person two attributes: a class and a score. Specifically, the class of the i -th person is c_i , and their score is s_i .

Before the test, Seven and Dai_Bo encountered a serious problem: how should they divide the people into groups? It is such a challenging question that they decided to simplify the task by calculating the Combat Effectiveness (CE) of groups instead. The CE for a group of people is computed as follows:

1. **Filter:** For each unique class that appears in the group, select the person with the highest score for that class.
2. **Weighted Sum:** Suppose there are k people selected after the **Filter** step, with attributes $(c_1, s_1), (c_2, s_2), \dots, (c_k, s_k)$. The CE of this group is computed as:

$$\text{CE} = \sum_{i=1}^k c_i \times s_i$$

The computation is quite complex, so Seven and Dai_Bo have asked for your help. They will give n queries, each represented as an interval $[l, r]$. Your task is to calculate the CE for the people in the range $[l, r]$.

Input format

The first line contains two integers n and Q ($1 \leq n, Q \leq 5 \times 10^5$), where n is the number of people and Q is the number of queries.

The second line contains n integers c_i ($1 \leq c_i \leq n$), where c_i represents the class of the i -th person.

The third line contains n integers s_i ($1 \leq s_i \leq 10^9$), where s_i represents the score of the i -th person.

The next Q lines each contain two integers l and r ($1 \leq l \leq r \leq n$), representing a query. Each query asks for the Combat Effectiveness (CE) of the people within the range $[l, r]$.

Output format

Output Q lines. Each line contains one integer which is the CE of the corresponding query.

Subtask score

Subtask	Score	Additional Constraints
1	8	$n, Q \leq 1000$
2	13	$c_i = 1 \ \forall i$
3	26	$s_i = 1 \ \forall i$
4	22	$n, Q \leq 50000 \ \forall i$
5	31	No constraint

Sample

Sample Input 1

```
6 7
2 2 3 1 1 2
9 2 10 6 2 8
3 5
1 2
1 3
2 5
5 6
3 4
2 3
```

Sample Output 1

```
36
18
48
40
18
36
34
```

Sample Input 2

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

Sample Output 2

```
5
9
6
2
6
6
9
```

Sample Input 3

```
6 7
1 1 3 1 2 1
1 1 1 1 1 1
5 6
2 3
2 3
2 6
3 3
1 6
2 3
```

Sample Output 3

```
3
4
4
6
3
6
4
```

Notes