Sculpture III

As the newly appointed curator of your local art museum, you are tasked with exhibiting the wonderful sculptures of Madame Tsill. The exhibition space has a line of N empty pedestals, numbered 1 to N from left to right. The ith pedestal has a positive *aesthetic score* of a_i.

Your job is to decide which pedestals to use. The *beauty* of the exhibition is the sum of aesthetic scores of the pedestals used. Although you can use as many or as few pedestals as you like, Madame Tsill has M special *restrictions*. The ith restriction states that among pedestals from l_i to r_i inclusive, **at most one can be used**. What is the maximum beauty you can achieve?

Subtasks and Constraints

For all subtasks:

- $1 \leq N, M \leq 100\,000$.
- $1 \leq l_i \leq r_i \leq N$.
- $1 \leq a_i \leq 10\,000$, for all i.

Additional constraints for each subtask are given below.

Subtask	Points	Additional constraints
1	15	$N, M \leq 1000$ and $a_i = 1$ for all i.
2	15	$a_i = 1$ for all i.
3	30	$M = N - 1$. Furthermore, $l_i = i$ and $r_i = i + 1$ for all i.
4	20	$N, M \leq 1000$.
5	20	No additional constraints.

Input

- The first line of input contains the two integers N and M.
- The next line of input contains the integers $a_1, a_2, \ldots, a_N$.
- The following M lines describe the restrictions. The ith line contains l_i and r_i.

Output

Output a single integer, the maximum beauty you can achieve.

Sample Input 1

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

Sample Output 1

```
22
```

Sample Input 2

```
12 6
1 1 1 1 1 1 1 1 1 1 1 1
10 12
10 12
4 5
5 8
6 10
3 5
```

Sample Output 2

```
5
```

Sample Input 3

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

Sample Output 3

```
19
```

Explanation

In Sample Input 1, you can use pedestals 2, 3, 6 and 9 for $5 + 6 + 5 + 6 = 22$ beauty.

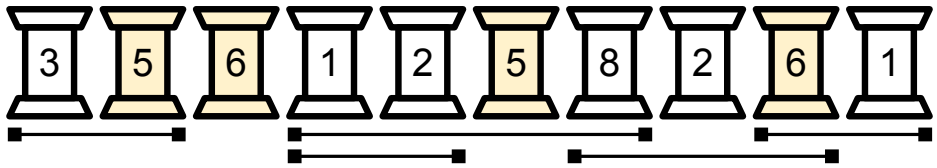

Figure 1: Sample Input 1. The shaded pedestals are used.

In Sample Input 2, you can use pedestals 1, 2, 5, 9 and 12 for $1 + 1 + 1 + 1 + 1 = 5$ beauty.

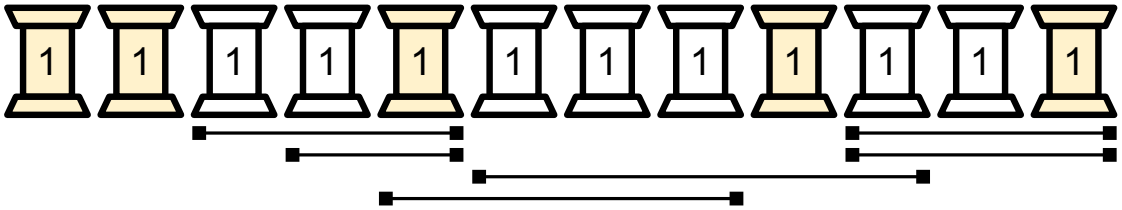

Figure 2: Sample Input 2. The shaded pedestals are used.

In Sample Input 3, you can use pedestals 2, 4 and 7 for $8 + 5 + 6 = 19$ beauty.

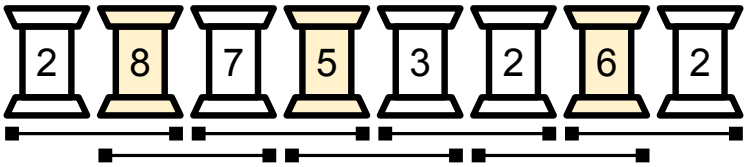

Figure 3: Sample Input 3. The shaded pedestals are used.