Problem D. Traversal

Time limit 1000 ms
Memory limit 256MB

Problem Description

There are N cities connected by M one-way roads. Each city $i(1 \leq i \leq N)$ offers a reward a_i.

A traveler may start their journey from any vertex and follow directed edges. Whenever the traveler visits a vertex for the first time, they collect its reward. If the traveler later visits the same vertex again, they will not receive its reward again.

The traveler can visit vertices and edges in any order allowed by the directed edges and may revisit previously visited vertices. Your task is to determine the maximum total reward the traveler can obtain.

Input format

The first line contains two integers N and M - the number of cities and the number of roads. ($3 \leq N \leq 2 \times 10^5$, $N - 1 \leq M \leq 2 \times 10^5$)

The second line contains N integers $a_1, a_2, \ldots, a_N$, where a_i is the reward in city i. ($1 \leq a_i \leq 10^9$)

Each of the next M lines contains two integers $u, v(1 \leq u, v \leq N)$, representing a one-way road from city u to city v.

Note that the graph is not necessarily connected.

Output format

Print a single integer — the maximum total reward the traveler can collect.

Subtask score

Subtask	Score	Additional Constraints
1	7	$N, M \leq 100$
2	7	For any two vertices u and v, there exists a path from u to v and from v to u.
3	13	The graph forms one or several directed chains.
4	27	The graph is a directed acyclic graph.
5	46	No additional constraints.

Sample

Sample Input 1

```
5 4
1 2 3 4 5
1 2
3 2
2 4
4 5
```

Sample Output 1

```
14
```

Sample Input 2

```
5 5
1 2 3 4 5
1 2
3 1
2 3
2 4
4 5
```

Sample Output 2

```
15
```