Begin: 2018-03-09 10:40 BST

selection contest 3

End: 2018-03-09 13:10 BST

Ended

Overview | Problem | Status | Rank (02:30:00) | 0 Comments

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Time limit

2000 ms

Memory limit

262144 kB

Source

Codeforces Round #169 (Div. 2)

Tags

data structures implementation sortings

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A - Segment tree CodeForces - 276C

The little girl loves the problems on array queries very much.

One day she came across a rather well-known problem: you've got an array of n ele
(the elements of the array are indexed starting from 1); also, there are q queries, each one

is defined by a pair of integers l_i, r_i ($1 \le l_i \le r_i \le n$). You need to find for each query the sum of elements of the array with indexes from l_i to r_i, inclusive.

The little girl found the problem rather boring. She decided to reorder the array elements before replying to the queries in a way that makes the sum of query replies maximum possible. Your task is to find the value of this maximum sum.

Input

The first line contains two space-separated integers n ($1 \le n \le 2 \cdot 10^5$) and q ($1 \le q \le 2 \cdot 10^5$) — the number of elements in the array and the number of queries, correspondingly.

The next line contains n space-separated integers a_i ($1 \le a_i \le 2 \cdot 10^5$) — the array elements.

Each of the following q lines contains two space-separated integers l_i and r_i ($1 \le l_i \le r_i \le n$) — the i-th query.

Output

In a single line print a single integer — the maximum sum of query replies after the array elements are reordered.

Please, do not use the %lld specifier to read or write 64-bit integers in C++. It is preferred to use the cin, cout streams or the %I64d specifier.

Example

Input
3 3 5 3 2 1 2 2 3 1 3

Output
25

Input

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

Output

```
33
```


Server Time: 2018-03-09 13:20:14 BST