C. Little Girl and Maximum Sum

time limit per test: 1 second
memory limit per test: 256 megabytes

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 elements (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.

Examples

input Copy

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

output Copy

```
25
```

input Copy

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

output Copy

```
33
```

Codeforces Round 169 (Div. 2)

Finished

Practice

→ **Virtual participation**

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ **Clone Contest to Mashup**

You can clone this contest to a mashup.

Clone Contest

→ **Submit?**

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ **Last submissions**

Submission	Time	Verdict
179381225	Nov/05/2022 10:26	Accepted

→ **Problem tags**

data structures greedy implementation sortings *1500

No tag edit access

→ **Contest materials**

- Announcement
- Tutorial #1
- Tutorial #2 (en)