

C. Little Girl and Maximum Sum

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

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 ($1 \leq l_i \leq r_i \leq n$). 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 ($1 \leq n \leq 2 \cdot 10^5$) and q ($1 \leq q \leq 2 \cdot 10^5$) — the number of elements in the array and the number of queries, correspondingly.

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

Each of the following q lines contains two space-separated integers l_i and r_i ($1 \leq l_i \leq r_i \leq n$) — 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
<pre>3 3 5 3 2 1 2 2 3 1 3</pre>	
output	Copy
<pre>25</pre>	

input	Copy
<pre>5 3 5 2 4 1 3 1 5 2 3 2 3</pre>	
output	Copy
<pre>33</pre>	