Problem A
Apricot Seeds
Time Limit: 3.0 Seconds

Sam has some apricot seeds, and he wants to sort them in non-decreasing order based on size. He uses a unique method to sort the apricot seeds, described as follows:

Given n apricot seeds, Sam performs a total of $n-1$ steps to sort them. For each step k from 1 to $n-1$:

- He compares the first seed with the second seed. If the second seed is smaller, he swaps their positions.
- He then compares the second seed with the third seed. If the third seed is smaller, he swaps their positions.
- He continues this process until he compares the $(n-k)$-th seed with the $(n-k+1)$-th seed and swaps their positions if the $(n-k+1)$-th seed is smaller.

Sam's friend Tom quickly realizes that this is the famous bubble sorting algorithm. To illustrate the inefficiency of this algorithm to Sam, Tom decides to ask Sam q questions. A question is represented as a tuple $[s,e,m,l,r]$. For given a sequence of n seeds, each question $[s,e,m,l,r]$ asks for the sum of the sizes of seeds from position l to r of the (partially) sorted subsequence after applying the first m steps of Sam's method to the subsequence of seeds from position s to e of the initial sequence.

For instance, consider four $(n=4)$ seeds with sizes of $(1,3,4,2)$ and two $(q=2)$ questions $[2,4,1,2,2]$ and $[1,4,2,3,4]$. For the first question, the subsequence of the sizes from the second $(s=2)$ seed to the fourth $(e=4)$ seed is $(3,4,2)$. After applying one step $(m=1)$ of Sam's method, it becomes $(3,2,4)$. The sum of the sizes of seeds from the second position $(l=2)$ to the second position $(r=2)$ in this (partially) sorted subsequence is 2. For the second question, the subsequence is $(1,3,4,2)$. After applying two steps, it becomes $(1,2,3,4)$. The sum of the sizes of seeds from position 3 to 4 in this (partially) sorted sequence is $3+4=7$.

Given a sequence of n seeds and q questions, write a program that computes the answer for each question.

Input
Your program is to read from standard input. The input starts with a line containing two integers, n and q $(2 \le n \le 1{,}000{,}000,\ 1 \le q \le 500{,}000)$, where n represents the number of seeds and q represents the number of questions. The second line contains n integers, separated by spaces, representing the sizes of the apricot seeds in their initial order. Each size is between 1 and 10^9, both inclusive. Each of the next q lines contains five positive integers s,e,m,l,r of query $[s,e,m,l,r]$, separated by spaces, representing a question, where $1 \le s < e \le n$, $1 \le m \le e-s$, and $1 \le l \le r \le e-s+1$.

Output
Your program is to write to standard output. For each of the q questions, output one line with the answer. The answer for a question $[s,e,m,l,r]$ is the sum of the sizes of seeds from position l to r of the partially sorted subsequence after applying the first m steps of Sam's method to the subsequence of seeds from position s to e of the input sequence.

The following shows sample input and output for three test cases.

Sample Input 1

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

Output for the Sample Input 1

```
2
7
```

Sample Input 2

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

Output for the Sample Input 2

```
1
5
3
```

Sample Input 3

```
6 2
5 4 5 1 1 4
3 6 1 1 3
1 6 1 1 4
```

Output for the Sample Input 3

```
6
11
```