C. Number of Inversions on Segment

time limit per test: 4 seconds
memory limit per test: 1024 megabytes
input: standard input
output: standard output

Given an array a, consisting of small integers ($1 \le a_i \le 40$). You need to build a data structure that processes two types of queries:

1. find the number of inversions on a segment,
2. change the element of the array.

Input

The first line contains two integers n and q, the length of the array and the number of queries, respectively ($1 \le n, q \le 10^5$).

The second line contains n numbers a_1, ..., a_n, where a_i is the initial state of the array ($1 \le a_i \le 40$).

The following q lines describe the queries. Each of these lines has the format "$type_i\ x_i\ y_i$".

If $type_i = 1$, then in the i-th query you need to find the number of inversions on a segment from x_i to y_i, inclusive (in this case $1 \le x_i \le y_i \le n$).

If $type_i = 2$, then the element with the index x_i is set to y_i (in this case $1 \le x_i \le n$, $1 \le y_i \le 40$).

Output

For each request of type 1 print the answer to this request on a separate line.

Example

input Copy

```
7 6
1 2 3 6 5 4 19
1 1 3
1 2 5
1 2 4
2 2 8
1 1 6
1 1 3
```

output Copy

```
0
1
0
7
1
```