C. Curious Array

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You've got an array consisting of n integers: $a[1], a[2], ..., a[n]$. Moreover, there are m queries, each query can be described by three integers l_i, r_i, k_i. Query l_i, r_i, k_i means that we should add $\binom{j-l_i+k_i}{k_i}$ to each element $a[j]$, where $l_i \le j \le r_i$.

Record $\binom{y}{x}$ means the binomial coefficient, or the number of combinations from y elements into groups of x elements.

You need to fulfil consecutively all queries and then print the final array.

Input

The first line contains integers n, m ($1 \le n, m \le 10^5$).

The second line contains n integers $a[1], a[2], ..., a[n]$ ($0 \le a_i \le 10^9$) — the initial array.

Next m lines contain queries in the format l_i, r_i, k_i — to all elements of the segment $l_i ... r_i$ add number $\binom{j-l_i+k_i}{k_i}$ ($1 \le l_i \le r_i \le n; 0 \le k \le 100$).

Output

Print n integers: the i-th number is the value of element $a[i]$ after all the queries. As the values can be rather large, print them modulo 1000000007 ($10^9 + 7$).

Examples

input Copy

```
5 1
0 0 0 0 0
1 5 0
```

output Copy

```
1 1 1 1 1
```

input Copy

```
10 2
1 2 3 4 5 0 0 0 0 0
1 6 1
6 10 2
```

output Copy

```
2 4 6 8 10 7 3 6 10 15
```