## Sum of subsequences

Given an positive integer $n$ and a sequence $a_{1} \ldots a_{n}$. There are q queries. Each query has one of two formats:

- Format 0 I rk: you need to output the k-th smallest positive integer that can't be partition into a sum of any subsequence of $a_{\mid} \ldots a_{r}$.
- Format 1 Ir x : you need to output the numbers of ways to partition x into a sum of a subseqence of $a_{l} \ldots a_{r}$ (or the numbers of subsequence that sum of all its elements equal to $x)\left(\right.$ modulo $\left.2^{32}\right)$.


## Input

- First line: two positive n and $\mathrm{q}(1 \leq \mathrm{n} \leq 100,1 \leq \mathrm{q} \leq 10000)$
- Second line: $n$ positive $a_{1} \ldots a_{n}\left(0 \leq a_{i} \leq 100\right)$
- Next q lines: each line denotes a query with one of two format listed above ( $1 \leq 1 \leq r \leq n, 1 \leq$ $k \leq 10^{9}, 0 \leq x \leq 10^{9}$ )


## Output

- q lines: the $i$-th line is the answer of $i$-th query.


## Sample

Input:
53
10241
0232
1140
1253
Output:
3
1
2

