1003 Copy

Time Limit: 4000/2000 MS (Java/Others)

Memory Limit: 262144/262144 K (Java/Others)

Problem Description

Kayzin has a list of integers, initially the list is $a_1, a_2, \ldots, a_n$. He will execute q operations.

For an operation of first type, he will select an interval $[l_i, r_i]$, copy and insert it to the end of the interval.

For an operation of second type, he wonder the x_i-th integer of the list.

You need to print the xor sum of all the answers of second type operations.

ps: What is xor? The xor value of two integers is equal to addition in binary without carry.

Input

First line is an integer T, indicating the number of test cases. For each test case:

First line is 2 integers n, q, indicating the length of initial list and the number of operations.

Next line is n integers $a_1, a_2, \ldots, a_n$, indicating the initial list.

Next q line, one operation per line. The i-th line could be 3 integers $(1, l_i, r_i)$, indicating the first type operation, or 2 integers $(2, x_i)$, indicating the second type operation.

$1 \leq T \leq 10, 1 \leq n, q \leq 10^5, 1 \leq a_i \leq 10^9, \sum n \leq 10^5, \sum q \leq 10^5, 1 \leq x_i, l_i, r_i \leq n$, the number of first type operations not exceeds 20000.

Output

For each test case, print one line, indicating the xor sum of the answers.

Sample Input

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

Sample Output

```
6
```

Hint

For first operation, the 4-th integer is 4.

For second operation, $2, 3, 4$ is copied, the list becomes $1, 2, 3, 4, 2, 3, 4, 5$.

For third operation, the 5-th integer is 2.

So the result is 2 xor 4 = 6