F. Range Update Point Query

time limit per test: 2 seconds
memory limit per test: 256 megabytes

Given an array $a_1, a_2, \ldots, a_n$, you need to handle a total of q updates and queries of two types:

- $1\ l\ r$ — for each index i with $l \leq i \leq r$, update the value of a_i to the sum of the digits of a_i.
- $2\ x$ — output a_x.

Input

The first line of the input contains an integer t ($1 \leq t \leq 1000$) — the number of testcases.

The first line of each test case contains two integers n and q ($1 \leq n, q \leq 2 \cdot 10^5$) — the size of the array and the number of queries, respectively.

The second line of each test case contains n integers $a_1, a_2, \ldots, a_n$ ($1 \leq a_i \leq 10^9$).

The next q lines of each test case are of two forms:

- $1\ l\ r$ ($1 \leq l \leq r \leq n$) — it means, for each index i with $l \leq i \leq r$, you should update the value of a_i to the sum of its digits.
- $2\ x$ ($1 \leq x \leq n$) — it means you should output a_x.

There is at least one query of the second type.

The sum of n over all test cases does not exceed $2 \cdot 10^5$.

The sum of q over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, output the answers of queries of the second type, in the order they are given.

Example

input Copy

```
3
5 8
1 420 69 1434 2023
1 2 3
2 2
2 3
2 4
1 2 5
2 1
2 3
2 5
2 3
9999 1000
1 1 2
2 1
2 2
1 1
1
2 1
```

output Copy

```
6
15
1434
1
6
7
36
1
1
```

Note

In the first test case, the following process occurs:

- Initially, $a = [1, 420, 69, 1434, 2023]$.
- The operation is performed for $l = 2$, $r = 3$, yielding $[1, 6, 15, 1434, 2023]$.
- We are queried for $x = 2$, $x = 3$, and $x = 4$, and output 6, 15, and 1434.
- The operation is performed for $l = 2$, $r = 5$, yielding $[1, 6, 6, 12, 7]$.
- We are queried for $x = 1$, $x = 3$, and $x = 5$, and output 1, 6, and 7.