Competitive Programming and Contests

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Array copy

You are given two integer arrays $A[0..n-1]$ and $B[0..n-1]$, both of size n. You have to execute m operations, each being of two possible types:

1. Copy$(x,\ y,\ k)$. Copy $A[x..x+k]$ into $B[y..y+k]$, $0 \leq x, y < n$ and $k > 0$.

2. Access(i). Return $B[i]$, $0 \leq i < n$.

The program has to output the result of each operation of the second type, i.e., Access(i), print $B[i]$.

A trivial solution performs a real copy after each Copy operation. Thus, each Copy operation requires $\Theta(k)$ time and each Access runs constant time. Your goal is to design a solution with faster Copy at the cost of slightly increasing Access time.

Input. The first line contains the values of n and m, separated by a space. Two lines follow, each consisting in n integers. The first line corresponds to array A, the second to array B. Finally, m lines follow, each describing an operation.

- Copy is described by four integers separated by a space. The first integer is the type of the query and it is 1. The other three integers are x, y and k.

- Access is described by two integers separated by a space. The first integer is the type of the query and it is 2. The other integer is i.

Output. A line for the result of each query of type Access.

Example

Input

```
5 10       // n and m
1 2 0 -1 3 // A
3 1 5 -2 0 // B
2 4
1 2 2 3
2 4
2 3
2 0
1 1 0 4
2 0
2 3
1 3 1 1
2 1
```

Output

```
0
3
-1
3
2
3
-1
```