Shikamaru and combinations

Shikamaru is a legendary strategist, although quite lazy. After nine tailed beast destroyed the hidden leaf village, all the ninjas are trying to rebuild the village. He needs to build N pillars of length A[1], A[2]….A[N]. Each pillar can be constructed by keeping one or more blocks of same height on top of each other. Remember all blocks of one pillar should be of same height. Although some other pillar can be constructed using one or more same blocks of some other height.

e.g. A pillar of height 12 can be constructed in 6 ways by using :

12 blocks of height 1 or

6 blocks of height 2 or

4 blocks of height 3 or

3 blocks of height 4 or

2 blocks of height 6 or

1 block of height 12.

Asuma sensei asks Shikamaru a number of queries of two types:

Type 1: Update the height of pillar x to y.

Type 2: Answer the number of ways to construct a sub-array of pillars A[x],A[x+1]…..A[y-1],A[y] mod 1e9 +7.

As Shikamaru is quite lazy, he wants you to do the job.

**Input:**

First line contains N the number of pillars and Q the number of queries.

Second line contains N integers the initial heights A[1],A[2]…..A[N] of pillars.

Next Q lines contains 3 integers each corresponding to queries:

Type 1: 1 x y, Update the height of pillar x to height y.

Type 2: 2 x y, Answer the number of ways to construct the pillars A[x],A[x+1] … A[y-1],A[y].

**Output:**

Print a single integer for each query of type 2, denoting the number of ways to construct the pillars mod 1e9 +7.

**Constraints:**

1<=N<=10^5

1<=A[i]<=10^6

1<=Q<=10^5

1<=x<=y<=N

**Sample Input 1:**

3 1

2 1 4

2 1 3

**Sample Output 1:**

6

**Explanation:**

The number of possible ways are:

Blocks size of -> Pillar1 Pillar2 Pillar3

1 1 1

1 1 2

1 1 4

2 1 1

2 1 2

2 1 4

**Sample Input 2:**

7 6

4 5 24 28 9 90 305

2 1 7

2 3 6

1 3 6

2 3 6

1 5 60

2 4 7

**Sample Output 2:**

41472

1728

864

3456