Problem 1007. Climb Stairs

DLee came to a new level. What is waiting for him is a tall building with n floors, with a monster on each stair, the i-th of which has health point a_i.

DLee starts from the ground(which can be regarded as the 0-th floor), with a base attacking point a_0. He can choose to jump $1, 2, \ldots, k$ floors up or walk 1 floor down, but he cannot go to floors whose monster has a health point strictly greater than his attacking point, nor can he go to floors which had been visited. Once he comes and defeats a monster he can absorb his health point and add it to his attacking point.

Note that DLee should always be on floors $\{0, 1, 2, 3, \ldots, n\}$.

Now DLee asks you whether it is possible to defeat all the monsters and pass the level.

Input

There are T test cases.

In each test case, the first line contains three integers: $n, a_0, k (1 \leq n, k \leq 10^5, 1 \leq a_0 \leq 10^9)$, representing the number of floors, base attacking point, and the maximum number of floors that DLee can jump.

The second line contains n integers $a_1, \ldots, a_n (1 \leq a_i \leq 10^9)$, representing the health point of each monster.

The sum of n does not exceed 10^6.

Output

For each test case, output "YES" or "NO" to show whether it's possible to defeat all monsters.

Example Input

```
4
6 1 4
2 2 1 1 9 3
4 2 2
2 3 8 1
3 1 2
3 1 2
7 2 3
4 3 2 7 20 20 20
```

Example Output

```
YES
YES
NO
NO
```