Problem K
k-restricted Induced Subgraphs

Time limit: 1 second
Memory limit: 2048 megabytes

Problem Description

You are given an undirected graph G of n vertices and m edges. The vertices in G are numbered from 1 to n. For each vertex i in G, a weight a_i is associated with it.

Given an integer k, define a k-restricted induced subgraph of G are induced subgraphs satisfying all the following conditions:

- The induced subgraph is connected.
- For every pair of vertices u, v in the induced subgraph, $|a_u - a_v| \leq k$ should hold. Note that an edge does not necessarily connect u and v.

What is the maximum possible number of vertices in a k-restricted induced subgraph of G?

Input Format

The first line of the input contains three integers n, m, k. The next line of the input contains n integers $a_1, a_2, \ldots, a_n$. The i-th of the next m lines contains two integers u_i and v_i denoting an edge (u_i, v_i).

Output Format

Print the maximum number of vertices in a k-restricted induced subgraph of G.

Technical Specification

- $1 \leq n, m, k \leq 10^5$
- $1 \leq a_i \leq 10^5$ for $i = 1, 2, \ldots, n$
- $1 \leq u_i, v_i \leq n$ for $i = 1, 2, \ldots, n$

Sample Input 1

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

Sample Output 1

```
4
```

Sample Input 2

```
7 8 2
3 4 6 5 6 5 7
1 3
1 6
2 6
2 3
6 7
2 7
2 4
2 5
```

Sample Output 2

```
5
```

Sample Input 3

```
4 4 1
100 100 100 100
1 2
2 3
3 4
4 1
```

Sample Output 3

```
4
```

Note

An induced subgraph of G is formed by some non-empty subset of vertices S of G, and all edges in G such that both endpoints are in S. In this problem, we view G also as an induced subgraph of G itself.

For example, the following are all induced subgraphs of G in Sample Input 2:

- Vertices $1, 2, 6$ with edges $(1, 6), (2, 6)$
- Vertices $1, 3, 4$ with edge $(1, 3)$
- Vertex 5
- Vertices $1, 2, 3, 5, 6, 7$ with edges $(1, 3), (1, 6), (2, 6), (2, 3), (6, 7), (2, 7), (2, 5)$