Chemicals

Description

Rong is the daughter of the most famous chemist – Master Huang. One day, Master Huang gives Rong N chemicals, and wants her to put away them in a drawer. Every chemical has a value, which is its market price. The drawer also has a very limit space, which can contain at most K chemicals. Moreover, some of the chemicals may react with and destroy each other, if they are put in to the same drawer. Therefore, Rong has to carefully select the chemicals such that:

1. At most K out of the N chemicals are selected; and
2. The selected chemicals do not react with one another; and
3. The total value (market price) of the selected chemicals is maximal.

Rong hires you to write a program to tell her the maximum total value that can be achieved.

Input

The first line contains three integers: N, K, M. N is the number of chemicals; K is the space in the drawer, and M is the number of pairs of chemicals that would react with each other if they are put into the same drawer. 2<=K<=N<=20, M<=50.

The line followed contains N integers, where the i^{th} integer is the value of the i^{th} chemical. The chemicals are numbered from 1 to N.

Each of the M lines followed contains two integers, which are the indices of a pair of mutually reactive chemicals.

Output

Output a line containing the maximum total value that Rong can achieve.

Sample Input

5 3 2

3 3 2 2 1

1 2

4 5

Sample Output

7

Explanation: Selecting {1, 3, 4} gives total value of 3+2+2 = 7.