7268 Archipelago Tour

Recently, Yudachi has got a map of an archipelago. The archipelago consists of one big land and many small lands. There's a village on each small land and several villages on the big land. The government of the archipelago built some roads around the big land. Each road connects two different villages. These roads and villages on the big land form a "circle". That means you can start from a village and return to it by visiting each road and each of other villages exactly once. Some other roads were also built between two villages on different lands. All the lands, including big and small ones, together with the roads between different lands form a "tree"("tree" is a conception in graph theory). Due to the environmental condition of the roads, Yudachi find some roads safe and the others dangerous. Each road on the big land is safe, as well as some well-designed roads between different lands.

Yudachi is planning to take a tour of the archipelago now. After reading the introductions of each village on the Internet, she defined a "tour index" of each village, which is an integer evaluating the worth of a visit. She will choose a village as her departure point, travel along the roads without visiting a village twice, and finally end in an arbitrary village except the starting one. The end village can't be the starting village. The safety index of her tour will be the number of safe roads minus the number of dangerous roads, while the happiness index of her tour will be the median "tour index" of all the villages visited. E.g. If she visited villages V_1, V_2 ... V_k, and the "tour index" of them are T_1, T_2 ... T_k respectively, the median would be $T_{k/2+1}$ after T_1, T_2 ... T_k were sorted in ascending order. Help Yudachi to find a maximum happiness index tour route under the condition that the safety index of her tour is no less than L and no more than R.

Input

The input includes several test cases.

For each case, the 1st line includes 3 integers N ($1 \leq N \leq 20000$), L and R ($1 \leq L \leq R \leq N$), representing the number of the villages, and the L, R in the descriptions above.

The 2nd line includes N integers T_1, T_2 ... T_N ($1 \leq T_i \leq 32768$), representing the "tour index" of village 1, 2 ... N, respectively.

Each of the 3rd to $N+2$-th lines includes 3 integers X, Y ($1 \leq X, Y \leq N$, $X \neq Y$) and Z ($Z = 0$ or 1), representing a road between villages X and Y. If $Z = 0$, the road is safe. Otherwise it's dangerous. There is at most one road between two certain villages.

An integer $N = 0$ represents the end of the input.

The sum of all the Ns in the input is no more than 80000.

Output

For each test case in the input, output an integer representing the maximum happiness index of a tour Yudachi can take. If she cannot take a tour under given conditions, the happiness will be 0.

Sample Input

```
5 2 3
1 10 9 7 8
1 4 0
1 2 0
2 3 1
2 4 0
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```
3 5 0
10 2 5
5 3 3 6 3 2 7 5 3 9
4 10 0
1 2 0
2 3 1
3 4 1
2 5 0
2 6 1
4 7 0
6 8 1
7 9 1
7 10 0
0
```

Sample Output

```
8
7
```