Minimize Operations

Consider a weighted tree with N nodes and N-1 edges. You have the option to select an edge and adjust its weight by either increasing or decreasing it by 1 in a single operation. There are Q queries given. each consisting of two nodes U and V. Your task Is
to determine the minimum number of operations reguired to make the weight of every edge on the path from node U to node V equal.

Please note that if U and V are identical, no operations need to be performed.

Task

You need to calculate the minimum number of operations neeeded to equalize the weight of each edge on the path from the node U to node V for equal

Example
Assumptions

- N =3
- Edges = [[1,2,3],[1,3,2]]
- Q =1
- Queries =[[2,3]]

Approach
• For the first query increase the weight of the edge from1 to 3 by 1, therefore the weight of all the digest on the path from 2 to 3 would become the same in for 1 operation

Input Format

The first line contains a single integer N.
• Next N-1 lines contain 3 space-separated integers U, V, and
W denoting an edge between the nodes Uand V with weight W
•The next line contains a single integer denoting Q.
•The next Q lines contain 2 space-separated integers U, V
denoting the queried path

Output Format

Print a list of Q space-separated integers where the " integer
denotes the answer to the ith query.

Constraints

- $1 \leq N \leq 10^5$
- $1 \leq Edges[i][0] \leq N$
- $1 \leq Edges[i][1] \leq N$
- $1 \leq Edges[i][2] \leq 26$
- $1 \leq Q \leq 10^5$
- $1 \leq Queries[i][0] \leq N$
- $1 \leq Queries[i][1] \leq N$

Sample Input	Sample Output
7 1 2 3 1 3 4 2 4 4 2 5 6 3 6 6 3 7 8 3	5 3 5

Sneakers Shopping

Jordan goes to a shop to buy N shoes. After his purchase, the shopkeeper offers him a crazy refund on his bill. The shopkeeper tells Jordan that he can select any of the 4| shoes and the shopkeeper will refund
the sum of the square of the prices of those shoes. Now, before buying the shoes, Jordan can perform an infinite number of the following operations:

- Select any pair of two shoes
- Let's say their cost is A and B respectively.
- Update the cost of the first shoe as (A OR B)
- Update the cost of the second shoe to (A AND B)

Now, Jordan wonders what is the maximum refund he can get if the number and cost of the shoes are already decided. Help Jordan get the maximum benefit of this craziness.
Since the answer can be too great, output the answer modulo $10^9 + 7$

Task

Print the maximum refund Jordan can get modulo $10^9 + 7$.

Assumptions

N= 4
shoePrice =[1, 2, 3, 4]

Approach

Jordan can perform the following operations to get the maximum refund.

- Perform the operation on the cost of Shoe 3 and Shoe 4.

- The cost of Shoe 3 becomes (3 OR 4)=7 and the cost of Shoe 4 becomes (3 AND 4) = 0.
- Then, Operate on the cost of Shoe 1 and Shoe 2.
- The cost of Shoe / becomes (1 OR 2)= 3, and the cost of Shoe 2 becomes (1 AND 2) = 0.
- Then select Shoe 1 and Shoe 3 and ask for the sum pf squares of their prices as a refund.
- Now, the total refund that Jordan will get equals:
- (cost of Shoe 1)^2 + (cost of Shoe 2)^2
- = (3^2 + 7^2) = (9 + 49) = 58

Input format

- The first line contains an integer representing N, the number of shoes.
- The second line contains N integers denoting the cost of those N shoes.

Output format
In a single line, print the maximum refund Jordan can get.

Constraints

- 1 ≤ N ≤ 105
- 1 ≤ shoe [Pricelil] ≤ 10^9

Sample Input	Sample Output
5 3 6 7 5 3	98

Special Subarrays

You are given an array Arr of size N consisting of non negative integers. Find the number of subartays of Arr, which are Special
A subarray is called Special if it satisfies the following condition:

- The product of the maximum element and the minimum element of the subarray is divisible by the length of the subarray

Find the number of Special subarrays of the array Arr.

Input format :

• The first line contains 7, which represents the number of test cases.
• For each test case:
• The first line consists of a single integer N, denoting the size of the array Arr.
• The next line contains N space-separated integers, denoting the elements of Arr.

Output format: For each test case, print the answer in a new line

Constraints

- **1≤ T < 10**
- **1≤ N ≤5*10^4**
- **0 ≤ Arr[i] ≤ 30**

Sample Input	Sample Output
2 2 1 5 3 0 1 3	2 5

Explanation

The first line denotes T = 2

The first test case

Give

- N = 2
- Arr = [1,5]

Approach

There are two subarrays which are special [1] and [5]

Thus answer = 2

The second Test case

Given

- N = 3
- Arr = [0,1,3]

pproach
The valid subarrays ore
• [0). [1], [3],
[0, 1]
[0 ,1 ,3]
Thus, the answer 5

Your code must be able to print the sample output from the provided sample input. However, your code is run against muitiple hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement

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