I am Speed!

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 mebibytes

There are n roads (numbered from 1 to n) in the city of Radiator Springs and m available street race plans. The i'th race uses the roads from l_i to r_i (inclusive). Each road i has a toll c_i associated with it. If we want to arrange a race, we have to pay toll for all the roads it uses. We will arrange two races, one in the morning and one in the evening. Let's define s_{ij} as the total toll we need to pay if we arrange the race i in the morning and race j in the evening. Note that, if some road is used in both races, we have to pay toll for it **only once**. Also, we can arrange the same race both in the morning and evening. You have to calculate

$$\sum_{i=1}^{m}\sum_{j=1}^{m} s_{ij}$$

Input

The first line contains one integer t $(1 \leq t \leq 5)$ - the number of test cases.

Each case starts with two integers n and m in a line $(1 \leq n, m \leq 10^5)$ - the number of roads and races respectively. The next line contains n integers c_1, c_2, ..., c_n $(1 \leq c_i \leq 10^5)$. Following m lines contains the description of the races, the i'th line contains two integers l_i and r_i $(1 \leq l_i \leq r_i \leq n)$.

Output

For each case, print the value of the given function. If it is greater than 10^{18}, print "INF" (without the quotes) instead.

Scoring

- Subtask 1 (15 points): $1 \leq n, m \leq 100$.

- Subtask 2 (30 points): $1 \leq m \leq 1000$.

- Subtask 3 (55 points): No additional constraints.

Example

standard input	standard output
2	155
7 3	12
1 2 3 4 5 6 7	
1 3	
2 5	
6 7	
3 2	
1 1 1	
1 3	
1 3	

Explanation

In the second test case of the example, there can be 4 (morning, evening) race combinations, $(1, 1)$, $(1, 2)$, $(2, 1)$ and $(2, 2)$. Each combination uses all the roads 1, 2 and 3 and needs toll $1 + 1 + 1 = 3$. So total summation $= 3 + 3 + 3 + 3 = 12$.

Note

Dataset is huge, use fast **I/O**.