TRAFFIC

The city of Free Contest has a **circular structure**, with n intersections numbered 1 to n clockwise. The city also has n roads placed on the perimeter of the city, with the i-th road connecting the i-th intersection to the (i mod n)+1-th intersection and taking w_i seconds to travel through.

Due to the inefficiency of the traffic system, m more roads are built. The j-th new road is built on a straight line, connects the intersection a_j with the intersection b_j, and takes c_j seconds to travel through. All the $n+m$ roads do not intersect with each other, except at the two endpoints of the road (which are among the n intersections).

Currently, the city is calculating **the efficiency of the new travelling system**. Let the function $d(x, y)$ be the shortest amount of time to travel between the x-th intersection and the y-th intersection. The efficiency of the traffic system is equal to $\sum_{x=1}^{n-1} \sum_{y=x+1}^{n} d(x, y)$.

Because **the efficiency of the new travelling system** may be large, you only need to output the answer **modulo** $10^9 + 7$.

Implementation Details

```
int traffic(int n, int m, int[] w, int[] a, int[] b, int[] c)
```

- n: the number of intersections.
- m: the number of new roads.
- w: an array of length n describing the time to travel on the n pre-existing roads.
- a, b, c: arrays of length m. With each j ($1 \leq j \leq m$) describing the j-th road.

Constraints

- $3 \leq n \leq 100000$
- $0 \leq m \leq 200000$
- $1 \leq w_i \leq 10^9$
- $1 \leq a_j < b_j \leq N$
- $1 \leq c_j \leq 10^9$

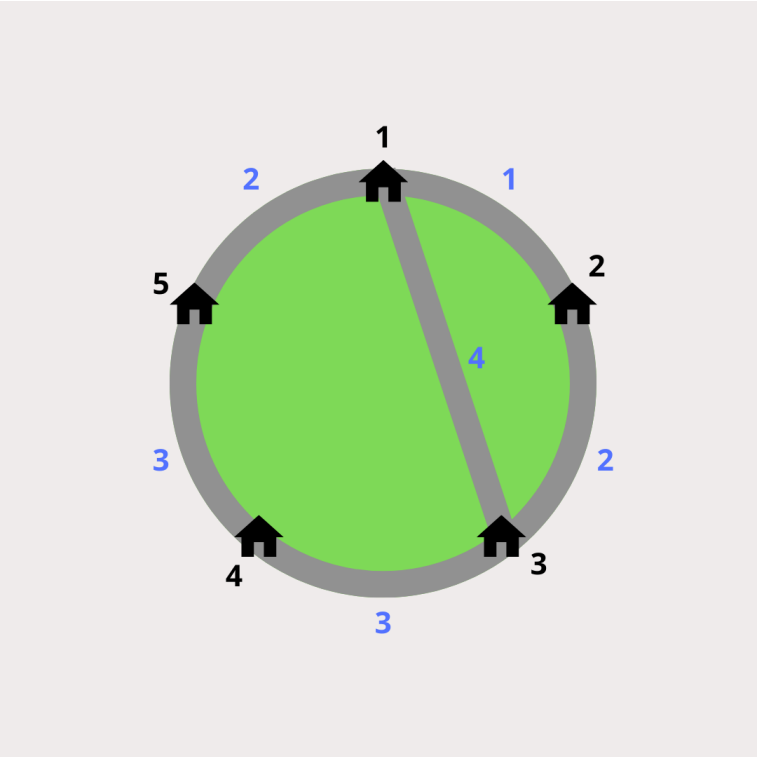
Examples

Example 1:

Analyze this function call:

```
int traffic(5, 1, [1, 2, 3, 3, 2], [1], [3], [4])
```

This is the visualization of the Free Contest city based on the test given above (The intersections (houses) were numbered to make it easier to read):



As such, we can see that the shortest time to travel between the intersections (houses) are:

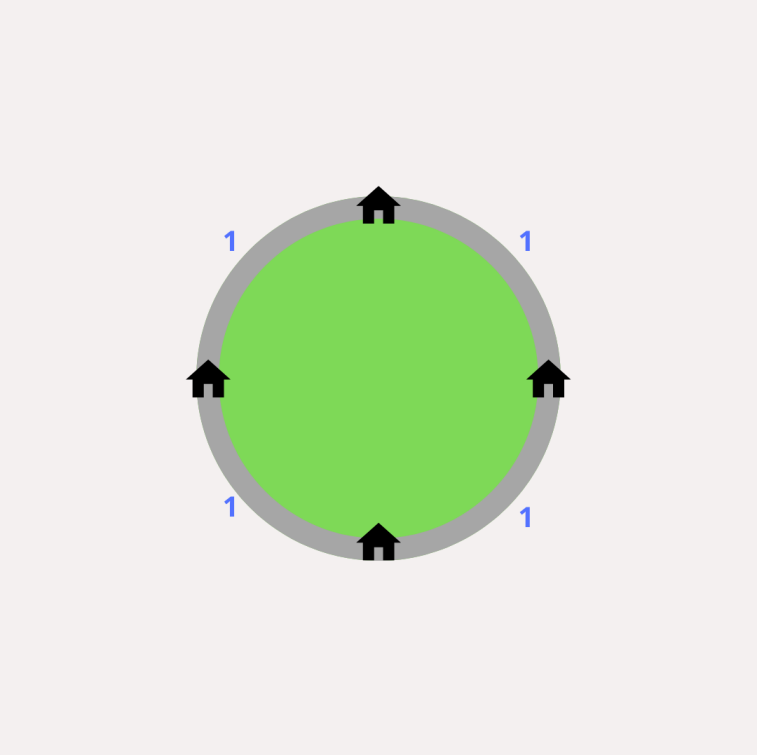
- $d(1,2) = 1;\ d(1,3) = 3;\ d(1,4) = 5;\ d(1,5) = 2;$
- $d(2,3) = 2;\ d(2,4) = 5;\ d(2,5) = 3;$
- $d(3,4) = 3;\ d(3,5) = 5;$
- $d(4,5) = 3;$

Example 2:

Analyze this function call:

```
int traffic(4, 0, [1, 1, 1, 1], [], [], [])
```

This is the visualization of the Free Contest city based on the test given above (The intersections (houses) were numbered to make it easier to read):



Subtasks

1. (10 points): $3 \leq n \leq 500$
2. (10 points): $3 \leq n \leq 2000$
3. (10 points): $m = 0$
4. (20 points): $m = 1$
5. (50 points): No extra restriction.

Sample Graders

The input will be formatted as such:

- line 1: $n\ m$
- line 2: $w_0\ w_1\ \ldots\ w_n$
- line $3 + j$ $(1 \leq j \leq m)$: $a_j\ b_j\ c_j$

The output will be formatted as such:

- line 1: The return value of the function `traffic`.