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Marathon Race 2

JOI Avenue is a road of length L in an east-west direction. The place of l meters ($0 \leq l \leq L$) from the west end on the road is called "position l".

The first marathon race in JOI Avenue is going to be held this year. The race has a different regulation from normal one, which is described in the following:

- Before the race, N balls are located on the road. The i-th ball ($1 \leq i \leq N$) is located at position X_i. Multiple balls may be located at the same position.
- The participant starts at the designated position.
- The participant collects all N balls and finishes at the designated position. When this is achieved within the designated time limit, one **completes the race**. However, once the participant collect a ball, they must not put the ball on the road, otherwise they will be disqualified from the race.

The starting and finishing position, and the time limit, are not yet announced, but it is known that they are chosen from Q scenarios. The j-th scenario ($1 \leq j \leq Q$) is that, the participant starts at position S_j, finishes at position G_j, and the time limit is T_j seconds.

Rie is participating in the marathon race. She spends 1 second to collect 1 ball. She spends $x + 1$ seconds to move 1 meter, where x is the number of balls she is carrying.

Write a program which, given the information of JOI Avenue, the positions of balls, and the scenarios, determines whether there exists a way for Rie to complete the race, for each scenario.

Input

Read the following data from the standard input.

$$
\begin{array}{l}
N\ L \\
X_1\ X_2\ \cdots\ X_N \\
Q \\
S_1\ G_1\ T_1 \\
S_2\ G_2\ T_2 \\
\vdots \\
S_Q\ G_Q\ T_Q
\end{array}
$$

Output

Write Q lines to the standard output. On the j-th line ($1 \leq j \leq Q$), output `Yes` if there exists a way for Rie to complete the race for scenario j, and `No` otherwise.

Constraints

- $1 \leq N \leq 500\,000$.
- $1 \leq L \leq 500\,000$.
- $0 \leq X_i \leq L$ ($1 \leq i \leq N$).
- $1 \leq Q \leq 500\,000$.
- $0 \leq S_j \leq L$ ($1 \leq j \leq Q$).
- $0 \leq G_j \leq L$ ($1 \leq j \leq Q$).
- $1 \leq T_j \leq 500\,000$ ($1 \leq j \leq Q$).
- Given values are all integers.

Subtasks

1. (7 points) $N \leq 7$, $Q \leq 10$, $S_j = 0$, $G_j = 0$ ($1 \leq j \leq Q$).
2. (7 points) $N \leq 7$, $Q \leq 10$.
3. (10 points) $N \leq 14$, $Q \leq 10$.
4. (28 points) $N \leq 100$, $Q \leq 10$.
5. (10 points) $N \leq 2\,000$, $Q \leq 10$.
6. (19 points) $N \leq 2\,000$.
7. (19 points) No additional constraints.

Sample Input and Output

Sample Input 1	Sample Output 1

`3 100`
`30 80 30`
`3`
`0 100 403`
`0 100 300`
`0 100 262`
	`Yes`
	`Yes`
	`No`

In the 1st scenario, the participant starts at position 0, finishes at position 100, and the time limit is 403 seconds. Rie can complete the race in 263 seconds, which is within the time limit, in the following way. Therefore, output `Yes` in the 1st line.

Order	Action	Time (sec.)	Total Time (sec.)
1	Start at position 0 and move to position 30.	30	30
2	Collect the 1st ball.	1	31
3	Collect the 3rd ball.	1	32
4	Move from position 30 to position 80.	150	182
5	Collect the 2nd ball.	1	183
6	Move from position 80 to position 100, and complete the race.	80	263

In the 2nd scenario, the starting and finishing position is the same as the 1st scenario, but the time limit is 300 seconds. Rie can complete the race in 263 seconds, which is within the time limit, in the same way as above. Therefore, output `Yes` in the 2nd line.

In the 3rd scenario, the starting and finishing position is the same as the 1st and the 2nd scenarios, but the time limit is 262 seconds. There does not exist a way for Rie to complete the race within the time limit. Therefore, output `No` in the 3rd line.

This sample input satisfies the constraints of Subtasks 2, 3, 4, 5, 6, 7.

Sample Input 2	Sample Output 2

`3 100`
`30 80 30`
`3`
`0 0 403`
`0 0 300`
`0 0 262`
	`Yes`
	`No`
	`No`

In the 1st scenario, the participant starts at position 0, finishes at position 0, and the time limit is 403 seconds. Rie can complete the race in 403 seconds, which is within the time limit, in the following way. Therefore, output `Yes` in the 1st line.

Order	Action	Time (sec.)	Total Time (sec.)
1	Start at position 0 and move to position 30.	30	30
2	Collect the 1st ball.	1	31
3	Move from position 30 to position 80.	100	131
4	Collect the 2nd ball.	1	132
5	Move from position 80 to position 30.	150	282
6	Collect the 3rd ball.	1	283
7	Move from position 30 to position 0, and complete the race.	120	403

In the 2nd and the 3rd scenarios, the starting and finishing position is the same as the 1st scenario, but the time limit is 300 seconds and 262 seconds, respectively. There does not exist a way for Rie to complete the race within the time limit, for both scenarios. Therefore, output `No` in the 2nd and the 3rd line.

This sample input satisfies the constraints of Subtasks $1, 2, 3, 4, 5, 6, 7$.

Sample Input 3	Sample Output 3

`6 100`
`0 50 100 0 50 100`
`4`
`20 70 600`
`70 20 600`
`10 40 600`
`40 10 600`
	`No`
	`Yes`
	`No`
	`Yes`

This sample input satisfies the constraints of Subtasks $2, 3, 4, 5, 6, 7$.