

Contest Duration: 2025-09-20(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250920T2100&p1=248>) - 2025-09-20(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250920T2240&p1=248>) (local time) (100 minutes)

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F - Adding Chords

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Time Limit: 3 sec / Memory Limit: 1024 MiB

Score : 525 points

Problem Statement

There are N points equally spaced on a circle, numbered $1, 2, \dots, N$ clockwise.

You are given Q queries of the following form; process them in order.

- Draw the line segment connecting points A_i and B_i . However, if this segment intersects a segment that has already been drawn, do not draw it.

Here, it is guaranteed that the $2Q$ integers $A_1, \dots, A_Q, B_1, \dots, B_Q$ are all distinct.

For each query, answer whether the segment was drawn.

Constraints

- $2 \leq N \leq 10^6$
- $1 \leq Q \leq 3 \times 10^5$
- $1 \leq A_i < B_i \leq N$
- The $2Q$ integers $A_1, \dots, A_Q, B_1, \dots, B_Q$ are pairwise distinct.
- All input values are integers.

Input

The input is given from Standard Input in the following format:

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N	Q
A_1	B_1
A_2	B_2
\vdots	
A_Q	B_Q

Output

Output Q lines. On the i -th line, output Yes if, in the i -th query, the segment was drawn, and No if it was not drawn.

Sample Input 1

Copy

8 3
1 5
2 7
3 4

Copy

Sample Output 1

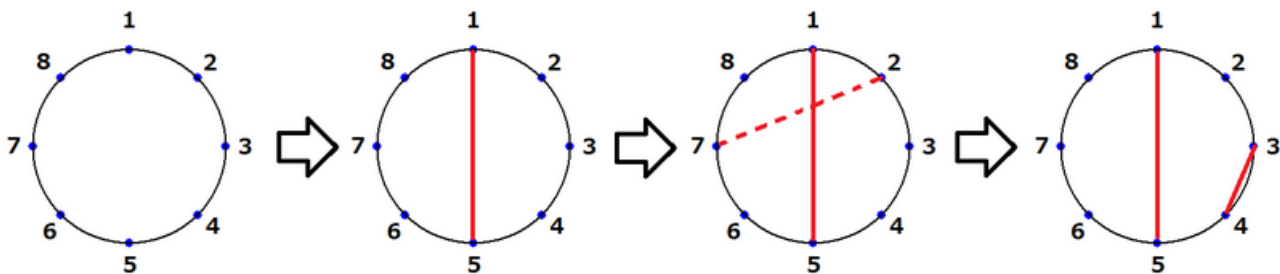
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Yes
No
Yes

Copy

By the queries, the segments are drawn as in the figure.

- In the 1-st query, the segment connecting points 1 and 5 is drawn.
- In the 2-nd query, the segment connecting points 2 and 7 is not drawn because it intersects the segment drawn in the 1-st query.
- In the 3-rd query, the segment connecting points 3 and 4 is drawn.



Sample Input 2

Copy

```
999999 4
123456 987654
888888 999999
1 3
2 777777
```

Sample Output 2

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```
Yes
No
Yes
No
```

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