Trip

Alice and Bob traveled to the desert, and they are now traveling along a straight road.

Because they may stop at different places to take pictures, leading to inconsistent speeds, so they each brought a walkie-talkie to contact each other.

In order to ensure safety, they will contact each other per unit of time. And the signal of the walkie-talkie has a range, and they can only be contacted within a range of no more than S meters.

In the beginning, both Alice and Bob set off at the same starting point. Now, given the respective distances of Alice and Bob per unit of time in Q unit time, ask them whether it is possible that they cannot be contacted during the progress.

Implementation Details

You need to implement the following function:

```
int Solve(int S, int Q, vector<int> V1, vector<int> V2)
```

- S: The signal range of the walkie-talkie.
- Q: The time of Alice and Bob's actions.
- $V1, V2$: Two arrays with a length of Q, $V1$ represent the distance traveled by Alice per unit time, and $V2$ represent the distance traveled by Bob per unit time.
- For each test case, the grader would only run this function once.
- Returns 1 if Alice and Bob are within range of the walkie-talkie each time they make contact, otherwise returns 0.

Examples

Example 1

Consider the following call:

```
solve(2, 4, [0, 4, 0, 3], [2, 0, 1, 0])
```

The distance traveled by Alice and Bob over time is shown below.

time/unit	distance traveled by Alice/m	distance traveled by Bob/m
1	0	2
2	4	2
3	4	3
4	7	3

It can be seen from the table that in the first three units of time, Alice and Bob communicate normally within the range of S meters, but when they want to contact in the fourth unit of time, they are beyond the range of the walkie-talkie.

Therefore, the procedure solve should return 0.

Example 2

Consider the following call:

```
solve(0, 4, [0, 4, 0, 3], [0, 4, 0, 3])
```

The distance traveled by Alice and Bob over time is shown below.

time/unit	distance traveled by Alice/m	distance traveled by Bob/m
1	0	0
2	4	4
3	4	4
4	7	7

It can be seen from the table that Alice and Bob are together every time they contact, so they can always be contacted.

Therefore, the procedure solve should return 1.

Constraints

- $0 \leq S \leq 10^5$
- $1 \leq Q \leq 10^5$
- $0 \leq V1[i], V2[i] \leq 10^5$ (for each i such that $0 \leq i \leq Q-1$)。

Subtasks

1. (20 points) $S = 0$
2. (30 points) $Q \leq 100$

3. (20 points) $0 \leq V1[i] \leq 10^3$ and $0 \leq V2[i] \leq 10^3$(for each i such that $0 \leq i \leq Q-1$)
4. (30 points) No additional constraints.

Sample grader

The sample grader reads the input in the following format:

- line 1: S Q
- line 2: $V1[0]$ $V1[1]$ ...$V1[Q-1]$
- line 3: $V2[0]$ $V2[1]$ ...$V2[Q-1]$

The sample grader prints your answers in the following format:

- line 1: the return value of solve