# Minimize the cost

## Description

Bob is a student of HIT, but his home is so far from school that he has to take bus to school every weekday morning. To make the problem simple, we assume that the way between Bob’s home and the school is a straight line and Bob’s home is located on 0 and the school is located on S. There are n buses running back and forth between the interval [li, ri] (including li and ri) and for every bus the tickets cost one dollar.

Give the school’s position S and n buses’s interval [li, ri], you should calculate the minimum tickets fee Bob should pay to get to school from home. If Bob can’t get to school by bus, the answer should be -1.

Note we don’t care about the departure time of the buses.

## Input

The first line contains a integer T( T <= 50), then T cases follows.

In each case, there are 2 parts of input.

The first part contains 2 integers S, n in a single line

The second part contains n lines, each line contains two integers li and ri.

1 <= T <= 50

0 < S <= 10000

0 < n <= 1000

0 <= li <= ri <= S

## Output

For each case, you should output the minimum tickets fee Bob should pay to get to school from home. If Bob can’t get to school by bus, output -1.

## Sample

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2  10 3  0 5  5 10  0 10  10 2  0 5  6 10 | 1  -1 |

## Hint