Week 3 Programming Assignment

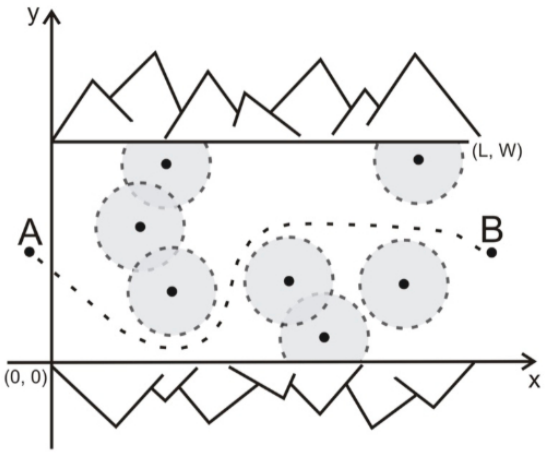
Due on 2019-02-23, 23:59 IST

- Select your language (C/C++/Java/Python2/Python3)
- Paste your code into the submission window.
- There are some public test cases and some (hidden) private test cases.
- "Compile and run" will evaluate your submission against the public test cases.
- "Submit" will evaluate your submission against the hidden private test cases and report a score on 100. There are 20 private testcases in all, each with equal weightage. You will only get a score on 100. You will not get feedback on which private testcases passed or failed.
- Ignore warnings about "Presentation errors".

Prisoner Escape

(Baltic Olympiad in Informatics, 2009)

A group of war prisoners are trying to escape from a prison. They have thoroughly planned the escape from the prison itself, and after that they hope to find shelter in a nearby village. However, the village (marked as B, see picture below) and the prison (marked as A) are separated by a canyon which is also guarded by soldiers. These soldiers sit in their pickets and rarely walk; the range of view of each soldier is limited to exactly 100 meters. Thus, depending on the locations of soldiers, it may be possible to pass the canyon safely, keeping the distance to the closest soldier strictly larger than 100 meters at any moment.



You are to write a program which, given the width and the length of the canyon and the coordinates of every soldier in the canyon, and assuming that soldiers do not change their locations, determines whether prisoners can pass the canyon unnoticed.

Solution Hint

Input format

The first line contains three integers L, W, and N – the length and the width of the canyon, and the number of soldiers, respectively. Each of the following N lines contains a pair of integers Xi and Yi – the coordinates of i-th soldier in the canyon (0 ≤ Xi ≤ L, 0 ≤ Yi ≤ W). The coordinates are given in meters, relative to the canyon: the southwestern corner of the canyon has coordinates (0, 0), and the northeastern corner of the canyon has coordinates (L,W), as seen in the picture above. Note that passing the canyon may start at coordinate (0,ys) for any 0 ≤ ys ≤ W and end at coordinate (L,ye) for any 0 &\le; ye ≤ W. Neither ys nor ye need to be integer.

Output format

Output a single integer: 0 if the prisoners can escape, 1 if they cannot.

Test data

1 ≤ W ≤ 50,000; 1 ≤ L ≤ 50,000; 1 ≤ N ≤ 250.

Example

Sample input 1

```
130 340 5
10 50
130 130
70 170
0 180
60 260
```

Sample output 1

Sample output 1

```
1
```

Sample input 2

```
500 300 4
250 0
250 300
100 150
400 150
```

Sample output 2

```
0
```

Select the Language for this assignment. Python3 ▾

```
1 import numpy as np
```

You may submit any number of times before the due date. The final submission will be considered for grading.
Assignment will be evaluated only after submitting using Submit button below. If you only save as or compile and run the Program, your assignment will not be graded and you will not see your score after the deadline.

Save as Draft | Compile & Run | Submit | Reset

Compilation : Passed
Public Tests: 0 / 6 Passed
Note: These tests may not be considered while scoring. Know more.

Test Case 1 **Runtime Error**

Input	Expected Output	Actual Output
130 340 5 10 50 130 130 70 170 0 180 60 260	1\n	Traceback (most recent call last):\n File "test.py", line 1, in <module>\n import numpy as np\n ImportError: No module named 'numpy'

Test Case 2 **Runtime Error**

Input	Expected Output	Actual Output
500 300 6 100 0 100 150 100 300 400 0 400 150 400 300	1\n	Traceback (most recent call last):\n File "test.py", line 1, in <module>\n import numpy as np\n ImportError: No module named 'numpy'

Test Case 3 **Runtime Error**

Input	Expected Output	Actual Output
500 300 5 250 0 250 150 250 300 100 150 400 150	1\n	Traceback (most recent call last):\n File "test.py", line 1, in <module>\n import numpy as np\n ImportError: No module named 'numpy'

Test Case 4 **Runtime Error**

Input	Expected Output	Actual Output
500 300 4 250 0 250 300 100 150 400 150	0\n	Traceback (most recent call last):\n File "test.py", line 1, in <module>\n import numpy as np\n ImportError: No module named 'numpy'

Test Case 5 **Runtime Error**

Input	Expected Output	Actual Output
500 300 5 50 25 450 25	0\n	Traceback (most recent call last):\n File "test.py", line 1, in <module>\n

100 275 250 120 400 275	0\n	import numpy as np\n ImportError: No module named 'numpy'

Test Case 6 **Runtime Error**

Input	Expected Output	Actual Output
500 300 6 250 0 100 300 200 150 300 150 400 300 250 300	1\n	Traceback (most recent call last):\n File "test.py", line 1, in <module>\n import numpy as np\n ImportError: No module named 'numpy'

End