Problem F
Destroying Monsters

Time limit: 2 seconds
Memory limit: 1024 megabytes

Problem Description

You are playing a computer game, and your character is trying to destroy monsters. There are n monsters on the number line, and the i-th monster is at coordinate x_i. Note that monsters may coincide with each other.

You have n guns. The i-th gun is associated with two parameters l_i and r_i ($l_i \leq r_i$). When fired, the i-th gun will destroy all the monsters located at coordinate from l_i to r_i (inclusive). You can use each gun only once.

What is the minimum number of gunshots required to destroy all the monsters? If it is impossible to destroy all the monsters even after all n guns are fired, you have to report that also.

Input Format

The first line of the input contains an integer t, denoting the number of test cases. The description of the test cases follows.

The first line of each test case contains two integers n and m, denoting the number of monsters and the number of guns.

The second line of each test case contains n integers $x_1, x_2, \cdots, x_n$, denoting the coordinates of the monsters.

The i-th of the following m lines contains two integers l_i and r_i, denoting the parameters of the i-th gun.

Output Format

For each test case, print the minimum number of gunshots required to destroy all the monsters in one line. If it is impossible to destroy all the monsters even after all n guns are fired, print -1.

Technical Specification

- $1 \leq t \leq 3 \times 10^5$
- $1 \leq n, m \leq 3 \times 10^5$
- $1 \leq x_i \leq 10^9$ for $i = 1, 2, \cdots, n$
- $1 \leq l_i \leq r_i \leq 10^9$ for $i = 1, 2, \cdots, m$
- It is guaranteed that both the sum of n and the sum of m over all test cases does not exceed 3×10^5.

Sample Input 1	Sample Output 1
3	2

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3 3
1 2 4
1 3
2 3
2 5
6 7
2 3 6 7 10 13
1 1
3 8
4 6
12 1000000000
2 4
1 5
10 10
7 4
3 8 2 6 1 8 9
7 7
8 9
1 2
3 5
```

```
4
-1
```