Problem C
Wireless Service in Fifth Avenue

Nowadays, there are base stations everywhere, so that people can use high-speed networks by connecting their devices to the base stations.

Fifth Avenue is a good place for shopping. It is a long, straight street, along which there are n stores (coffee shops, restaurants, and so on) that provide base stations B_1, B_2, ..., B_n. Each base station B_i has a radius r_i. A tourist's device can connect to a base station B_i (for free) if and only if their distance is at most r_i. The collection of portions of Fifth Avenue at which tourists can get wireless service is the coverage of B_1, B_2, ..., B_n.

Consider the example in Figure 1. The length of Fifth Avenue is $L = 12$. For convenience, Fifth Avenue is regarded as an interval $[0, L]$ on the real line. There are $n = 4$ base stations B_1, B_2, B_3, B_4 located, respectively, at positions 1, 3, 6, and 9; and their radii are $r_1 = 2$, $r_2 = 1$, $r_3 = 1$, and $r_4 = 2$. In this example, tourists can get wireless service if and only if their positions are contained in $[0, 4] \cup [5, 11]$. Therefore, $[0, 4] \cup [5, 11]$ is the coverage of B_1, B_2, B_3, B_4, whose size is 10.

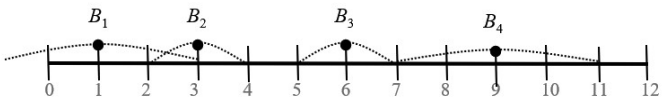


Figure 1: Four base stations at 1, 3, 6, 9

Given the length of Fifth Avenue and the locations and radii of the base stations, please write a program to compute the size of the coverage of the base stations.

Technical Specification

1. The length of Fifth Avenue is a positive integer $L \leq 10^7$.
2. The number of base stations is a positive integer $n \leq 10^5$.
3. The location of each base station is a non-negative integer $\leq L$.
4. The radius of each base station is a positive integer $\leq 10^7$.

Input Format

The first line is an integer t, $1 \leq t \leq 10$, indicating the number of test cases. The first line of each test case contains two integers L and n, $1 \leq L \leq 10^7$ and $1 \leq n \leq 10^5$, indicating the length of Fifth Avenue and the number of base stations. There are n pairs of integers in the following n lines, where the pair of integers b_i and r_i in ith line represents the location and radius of the ith base station. The given b_i and r_i satisfy the following: $0 \leq b_1 < b_2 < ... < b_n \leq L$ and $1 \leq r_i \leq 10^7$.

Output Format

For each test case, output in a line the size of the coverage of $B_1, B_2, \ldots, B_n$.

Sample Input

```
2
12 4
1 2
3 1
6 1
9 2
12 1
9 2
```

Sample Output for the Sample Input

```
10
4
```