9/21/24, 11:07 PM Problem - G - Codeforces





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Please read the new rule regarding the restriction on the use of AI tools.

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PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

G. Milky Days

time limit per test: 2 seconds memory limit per test: 256 megabytes

What is done is done, and the spoilt milk cannot be helped.

Little John is as little as night is day — he was known to be a giant, at possibly 2.1 metres tall. It has everything to do with his love for milk.

His dairy diary has n entries, showing that he acquired a_i pints of fresh milk on day d_i . Milk declines in freshness with time and stays drinkable for a maximum of k days. In other words, fresh milk acquired on day d_i will be drinkable between days d_i and $d_i + k - 1$ inclusive.

Every day, Little John drinks drinkable milk, up to a maximum of m pints. In other words, if there are less than m pints of milk, he will drink them all and not be satisfied; if there are at least m pints of milk, he will drink exactly m pints and be satisfied, and it's a *milk satisfaction day*.

Little John always drinks the freshest drinkable milk first.

Determine the number of milk satisfaction days for Little John.

Input

The first line of the input contains a single integer t ($1 \le t \le 10^4$), the number of test cases.

The first line of each test case consists of three integers n, m, k ($1 \le n, m, k \le 10^5$), the number of diary entries, the maximum pints needed for a milk satisfaction day, and the duration of milk's freshness.

Then follow n lines of each test case, each with two integers d_i and a_i ($1 \le d_i$, $a_i \le 10^6$), the day on which the milk was acquired and the number of pints acquired. They are sorted in increasing values of d_i , and all values of d_i are distinct.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

For each test case, output a single integer, the number of milk satisfaction days.

Example

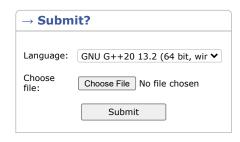


Codeforces Round 974 (Div. 3) Finished Practice

→ Virtual participation

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Start virtual contest



→ Problem tags	
implementation	
	No tag edit access

```
12 1
4 1 3
5 10
9 4
14 8
15 3
5 5 5
8 9
10 7
16 10
21 5
28 9
                                                                                  Сору
output
3
4
5
10
6
```

Note

In the first test case, 5 pints of milk are good for 3 days before spoiling.

In the second test case, the following will happen:

- On day 1, he will receive 5 pints of milk and drink 3 of them (leaving 2 pints from day 1);
- On day 2, he will receive 7 pints of milk and drink 3 of them (leaving 2 pints from day 1 and 4 pints from day 2);
- On day 3, he will drink 3 pints from day 2 (leaving 2 pints from day 1 and 1 pint from day 2);
- On day 4, the milk acquired on day 1 will spoil, and he will drink 1 pint from day 2 (no more milk is left).

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