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 Please read [the new rule regarding the restriction on the use of AI tools](#).

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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 ($1 \leq t \leq 10^4$), the number of test cases.

The first line of each test case consists of three integers n, m, k ($1 \leq n, m, k \leq 10^5$), 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 ($1 \leq d_i, a_i \leq 10^6$), 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

input

Copy

```
6
1 1 3
1 5
2 3 3
1 5
2 7
4 5 2
1 9
2 6
4 9
5 6
5 2 4
4 7
5 3
7 1
11 2
```

Codeforces Round 974 (Div. 3)

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, w...

Choose file: Choose File No file chosen

Submit

→ 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
```

output[Copy](#)

```
3
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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The only programming contests Web 2.0 platform

Server time: Sep/21/2024 23:07:04^{UTC+6} (13).

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