How many courses should I take?

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Assume that you have a very long semester and you have to maximize the number of courses that you can take during it. There are 2 rules:

- each course has a duration (the period in days to finish the course) and must be finished before or on a specific day in the semester.
- you can take only one course at a time i.e, you can't work on more than one in parallel.

You will be given n available courses and each one has duration, d, and the day that it should be finished before or on, i, and your mission is to maximize the number of courses taken in the semester.

You MUST solve it using a priority queue.

Input Format

The first line contains one integers n (the number of available courses)

The next n lines each containing two integers d (the duration) and i (the last day)

Constraints

- 1 <= n, d, i <= 10000

Output Format

Print the maximum nuber of courses that you can take during the semester.

Sample Input 0

```
4
30 90
100 700
1000 1050
400 1150
```

Sample Output 0

```
3
```

Explanation 0

You have only 4 available courses:

- The first one should be finished in 30 days before or on the 90th day.
- The second one should be finished in 100 days before or on the 700th day.
- The third one should be finished in 1000 days before or on the 1050th day.
- The fourth one should be finished in 400 days before or on the 1150th day.

If you take the first one, you will finish it on the 30th day and then you will be able to take the second and finish it in the 130th day. The third can't be taken because you will finish it in 1130th day which exceeds the required day. Finally, take the fourth course and finish it on 530th day.

Sample Input 1

```
2
50 60
100 150
```

Sample Output 1

```
2
```

Binary Expression Tree

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Given the infix of an arithmetic expression, build and print the binary expression tree that represents this expression. The operands are single digit integers and the allowed operators are *, /, %, +, -. You are given a string, S, an infix expression that has operands, operators and parentheses '(' and ')'. The task is to print the postfix traversal of the expression tree.

Input Format

The first line contains a string, S, representing infix expression.

Constraints

- 1 <= S.length < 10000

Output Format

Print the postfix order of the expression tree.

Sample Input 0

```
8+4*(3+4+5)/2+1
```

Sample Output 0

```
8434+5+*2/+1+
```

Sample Input 1

```
(3+4)*(4-2)+1
```

Sample Output 1

```
34+42-*1+
```