5. POKLON

Mirko got a set of intervals for his birthday. There are many games he can play with them. In one of them, Mirko must find the **longest** sequence of **distinct** intervals such that each interval in the sequence is in the set and that each interval **contains** the one that **follows** in the sequence.

Write a program which finds one such longest sequence.

Input

The first line of input contains the integer N ($1 \leq N \leq 100000$), the number of intervals in the set.

Each of the following N lines contains two integers A and B describing one interval ($1 \leq A < B \leq 1000000$).

Output

Output the length K of the longest sequence on the first line.

Each of the following K lines should contain one element of the sequence, an interval in the same format it was given in the input.

Sample test data

input

```
3
3 4
2 5
1 6
```

output

```
3
1 6
2 5
3 4
```

input

```
5
10 30
20 40
30 50
10 60
30 40
```

output

```
3
10 60
30 50
30 40
```

input

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

output

```
5
1 7
1 6
1 5
2 5
3 5
```