TV Time

Gordon loves watching TV, and there are N different cartoon channels numbered from 1 to N. He only gets 1 hour of TV time, so he needs your help maximizing time spent watching cartoons and *not* commercials.

Gordon has a list of the *start* (S_i) and *end* (E_i) times for each commercial occurring during his 1 hour of TV time. His TV is also very old and only has 2 buttons: channel up ($\uparrow$) and channel down ($\downarrow$); this means that from any channel j, he can only switch to channel $j \pm 1$. Each time he changes the channel, it wastes 1 minute of his TV hour.

The 1 hour of TV time starts as soon as the TV is powered on. The TV always starts on channel 1, and he can either press $\downarrow$ to change to channel N or $\uparrow$ to change to channel 2 (similarly, pressing $\uparrow$ from channel N will switch to channel 1).

Given the starting and ending times for each commercial on all N channels, find and print the maximum amount of time Gordon can spend watching cartoons.

Input Format

The first line contains a single integer, N (the number of channels). The N subsequent lines each describe the commercial lineup for channel j (where $1 \leq j \leq N$).
Each line N_j starts with M_j (the number of commercials on the channel), followed by $2M$ space-separated integers describing each respective commercial start time, S_i, and commercial end time, E_i, for channel N_j.

Constraints

- $1 \le N \le 1000$
- $1 \le M \le 50$
- $0 \le S_i \lt 60$
- $1 \le E_i \le 60$

Output Format

Print a single integer denoting the maximum number of minutes Gordon can spend watching cartoons.

Sample Input

```
3
1 2 5
2 1 2 3 7
1 58 59
```

Sample Output

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58
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Explanation

There are 3 cartoon channels ($N=3$).
Channel N_1: There is 1 commercial ($M=1$), and it takes place during minutes 2 through 5.

Channel N_2: There are 2 commercials ($M=2$), and they take place during minutes 1 to 2 and 3 to 7.
Channel N_3: There is 1 commercial ($M=1$), and it takes place during minutes 58 and 59.

Gordon first watches channel N_1 for 2 minutes (from time $t=0$ to $t=2$). Knowing there is a commercial at $t=3$ on channel N_2, he then presses the $\downarrow$ button, which takes 1 minute to change channels, and begins watching channel N_3.

He watches cartoons on N_3 from $t=3$ to $t=58$, at which time there is a commercial. At this point, he can either watch the commercial or switch $\downarrow$ to N_2 or $\uparrow$ to N_1; either way, he loses the minute between $t=58$ and $t=59$ and continues watching cartoons from $t=59$ to $t=60$.