Statement Submissions Questions

Doctor's Appointments

Time limit: *12000 ms*
Memory limit: *256 MB*

The global pandemic has caused the Doctor Xtreme's office to become ultra busy. There are N patients numbered 1 to N that need to see Doctor Xtreme in the following N days. On each day Doctor Xtreme will have a single appointment to see one of the N patients. Each patient i has provided his/her available time window as two integers L_i, R_i, which means that he/she can come to see Doctor Xtreme on any day between the L_ith day and the R_ith day (inclusive on both ends).

Can Doctor Xtreme successfully schedule N appointments to see all the N patients?

Standard input

The first line of input contains a single integer T, the number of test cases.

Each test case begins with an integer N on the first line, the number of patients. The next N lines each have two integers, describing the available time window of one patient. The ith line has L_i and R_i.

Standard output

For each test case output a single line.

If it is possible for Doctor Xtreme to see all the N patients, output N space-separated integers on a single line. The ith of these integers is the patient that Doctor Xtreme will see on the ith day. If there are multiple ways to schedule the N appointments, you may output any of them.

If Doctor Xtreme cannot see all the N patients, output `impossible`.

Constraints and notes

- $1 \leq T \leq 30$
- $2 \leq N \leq 10^5$
- $1 \leq L_i \leq R_i \leq N$
- For 60% of the test files, $N \leq 10$.
- For 80% of the test files, $N \leq 1\,000$.

Input	Output	Explanation
3 3 1 1 1 2 2 3 2 1 2 1 2 2 1 1 1 1	1 2 3 1 2 impossible	There are 3 test cases. • Case 1: Patient 1 can see the doctor on day 1. Patient 2 may see the doctor on either day 1 or day 2. Patient 3 may see the doctor on either day 2 or day 3. Therefore the doctor has only one way to schedule the appointments: see patient 1 on day 1, patient 2 on day 2, and patient 3 on day 3. • Case 2: Both patients can see the doctor on both days. Both `1 2` and `2 1` will be accepted. • Case 3: Neither patient can come on day 2, and it is thus impossible to see both patients.