Problem BUSTICKETS: Bus Tickets

James Bond is currently on a secret mission in Absurdistan. As you might have heard, Absurdistan is a very strange country. For example, they only have one road in the country and all cities lie on this road and are numbered $1, \ldots, n$ from west to east.

There are several bus lines on this road, some go from west to east and some from east to west. In this problem, James is trying to get from city 1 to city n, so we only consider buses going from west to east.

Each bus line has a starting city s and an ending city e. The state-run bus company wants to make the life of the bus drivers easier, so they stop in all cities $s, s + 1, \ldots, e$ and thus don't have to remember where to stop the bus — they simply stop in each city. To make their lives even easier, a ticket for each bus line has a fixed price, no matter where you start or how many stops you go. You might think this is absurd, but in Absurdistan they prioritize absurdity over logic.

James is now in city 1 but needs to get to city n to fulfill his mission. How can he get there in the cheapest possible way?

Input

The first line contains the number of test cases t $(1 \le t \le 100)$. Then follows for each test case:

- a line containing an integer n $(1 \le n \le 2\,000)$, the number of cities in Absurdistan.

- $n - 1$ lines, i-th containing integers $p_{i,i+1}, p_{i,i+2}, \ldots, p_{i,n}$. Number $p_{i,j}$ is the price of a ticket for a bus line going from city i to city j. If $p_{i,j} = -1$, then there is no bus line starting in i and ending in j. You can assume that all prices are positive integers and at most $200\,000$.

Warning: The input is large, make sure you use a fast input routine.

Output

For each test case, print on a separate line the minimum cost of tickets that allow James to travel from the first city 1 to the last one n. If there are no such tickets, print "`IMPOSSIBLE`".

Sample Input 1

```
2
4
7 2 10
6 3
-1
4
-1 6 8
5 11
-1
```

Sample Output 1

```
5
8
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