Invacho and his crew are sitting around a **round** table at the local pub. Each of them is either a saint, who always says true statements, or a liar, who always says untrue statements. At the same time each one of them says a single statement - “The person to my left is a liar and the person to my right is a saint”. Your task is, given a certain configuration of people, to check if it is valid, i.e. does it lead to a logical contradiction with the rules.

**Input**

The first row of the file liars.in contains an integer **N** – the number of people sitting round the table.

The next row contains a string, denoting the order, in which the people are sitting. Saints are denoted by an **“S”**, and liars by an **“L”**.

**Output**

In the output file liars.out print either **“INVALID”** or **“OK”** if the given configuration leads or doesn’t lead to a logical contradiction.

**Constraints**

2 ≤ *N* ≤ 10000

**Time limit: 0.5 sec**

**Memory limit: 256 MB**

**Example test**

|  |  |
| --- | --- |
| **Input (liars.in)** | **Output (liars.out)** |
| 12  SSLLSLSLLLSS | /Output intentionally omitted/ |