DMOPC '18 Contest 6 P1 - DNA or RNA?

Time limit: 2.0s **Memory limit:** 64M

Deoxyribonucleic acid (**DNA**) and ribonucleic acid (**RNA**) are both molecules used for storing genetic code, and both consist of a number of **bases** connected in a line. A DNA or RNA molecule can be represented as a string of uppercase English letters, each letter representing a base.

Each base in a DNA or RNA molecule must be one of the following: **adenine** (`A`), **cytosine** (`C`), **guanine** (`G`), **thymine** (`T`), or **uracil** (`U`). Thymine is found **only in DNA**, while uracil is found **only in RNA**. Adenine, cytosine, and guanine can be present in both DNA and RNA.

Dr. Henri is studying a molecule consisting of N bases. He wants to know if it could be DNA, RNA, or something completely new!

Constraints

$1 \leq N \leq 1\,000\,000$

Input Specification

The first line contains N.
The second line contains N characters with no spaces, representing the bases of the molecule. All of the characters are uppercase English letters.

Output Specification

Output `DNA` if the molecule could be DNA only, `RNA` if it could be RNA only, `both` if it could be either, and `neither` if it could not be RNA or DNA.

Sample Input 1

```
6
ACTAGC
```

Sample Output 1

```
DNA
```

Sample Input 2

```
6
GCAAGG
```

Sample Output 2

```
both
```

Sample Input 3

```
6
NLOPEJ
```

Sample Output 3

```
neither
```