

Problem A

Bracket Matching

Given a bracket sequence s of length n , you are to determine if it is valid!

A valid bracket sequence is defined recursively as:

- `""`
- (x) where x is a valid bracket sequence
- $[x]$ where x is a valid bracket sequence
- $\{x\}$ where x is a valid bracket sequence
- xy , where x and y are valid bracket sequences

Input

The first line of each contains one integer n ($2 \leq n \leq 100\,000$) — the length of the bracket sequence.

The second line of each test case contains a string s — the bracket sequence in the question. It is guaranteed that s only contains `()[]{}` as characters.

Output

Output `Valid` if the sequence is a valid bracket sequence, otherwise output `Invalid`.

Sample Input 1

```
6
([[]{}])
```

Sample Output 1

```
Valid
```

Sample Input 2

```
8  
(( )) (( ))
```

Sample Output 2

```
Invalid
```

Sample Input 3

```
6  
([ ]{ })
```

Sample Output 3

```
Invalid
```

