Using **Regex**, we can easily match or search for patterns in a text. Before searching for a pattern, we have to specify one using some well-defined syntax.

In this problem, you are given a pattern. You have to check whether the syntax of the given pattern is valid.

Note: In this problem, a regex is only valid if you can compile it using the [Pattern.compile](#) method.

Input Format

The first line of input contains an integer N, denoting the number of test cases. The next N lines contain a string of any printable characters representing the pattern of a regex.

Output Format

For each test case, print `Valid` if the syntax of the given pattern is correct. Otherwise, print `Invalid`. Do not print the quotes.

Sample Input

```
3
([A-Z])(.+)
[AZ[a-z](a-z)
batcatpat(nat
```

Sample Output

```
Valid
Invalid
Invalid
```