Problem 65: Valid Number

Problem Information

Difficulty: Hard
Acceptance Rate: 22.24%
Paid Only: No
Tags: String

Problem Description

Given a string `s`, return whether `s` is a **valid number**. For example, all the following are valid numbers: `"2", "0089", "-0.1", "+3.14", "4.", "-.9", "2e10", "-90E3", "3e+7", "+6e-1", "53.5e93", "-123.456e789"`, while the following are not valid numbers: `"abc", "1a", "1e", "e3", "99e2.5", "--6", "-+3", "95a54e53"`.

Formally, a **valid number** is defined using one of the following definitions:

1. An **integer number** followed by an **optional exponent**. 2. A **decimal number** followed by an **optional exponent**.

An **integer number** is defined with an **optional sign** `'-'` or `'+'` followed by **digits**.

A **decimal number** is defined with an **optional sign** `'-'` or `'+'` followed by one of the following definitions:

1. **Digits** followed by a **dot** `'.'`. 2. **Digits** followed by a **dot** `'.'` followed by **digits**. 3. A **dot** `'.'` followed by **digits**.

An **exponent** is defined with an **exponent notation** `'e'` or `'E'` followed by an **integer number**.

The **digits** are defined as one or more digits.

Example 1:

Input: s = "0"

Output: true

Example 2:

Input: s = "e"

Output: false

Example 3:

Input: s = "."

Output: false

Constraints:

* `1 <= s.length <= 20` * `s` consists of only English letters (both uppercase and lowercase), digits (`0-9`), plus `'+'`, minus `'-'`, or dot `'.'`.

Code Snippets

C++:

```
class Solution {
public:
bool isNumber(string s) {

}
};
```

Java:

```
class Solution {
public boolean isNumber(String s) {

}
}
```

Python3:

```
class Solution:
def isNumber(self, s: str) -> bool:
```