Problem 468: Validate IP Address

Problem Information

Difficulty: Medium
Acceptance Rate: 28.07%
Paid Only: No
Tags: String

Problem Description

Given a string `queryIP`, return `"IPv4"` if IP is a valid IPv4 address, `"IPv6"` if IP is a valid IPv6 address or `"Neither"` if IP is not a correct IP of any type.

A valid IPv4 address is an IP in the form `"x1.x2.x3.x4"` where `0 <= xi <= 255` and `xi` **cannot contain** leading zeros. For example, `"192.168.1.1"` and `"192.168.1.0"` are valid IPv4 addresses while `"192.168.01.1"`, `"192.168.1.00"`, and `"192.168@1.1"` are invalid IPv4 addresses.

A valid IPv6 address is an IP in the form `"x1:x2:x3:x4:x5:x6:x7:x8"` where:

* `1 <= xi.length <= 4` * `xi` is a **hexadecimal string** which may contain digits, lowercase English letter (`'a'` to `'f'`) and upper-case English letters (`'A'` to `'F'`). * Leading zeros are allowed in `xi`.

For example, "`2001:0db8:85a3:0000:0000:8a2e:0370:7334"` and "`2001:db8:85a3:0:0:8A2E:0370:7334"` are valid IPv6 addresses, while "`2001:0db8:85a3::8A2E:037j:7334"` and "`02001:0db8:85a3:0000:0000:8a2e:0370:7334"` are invalid IPv6 addresses.

Example 1:

Input: queryIP = "172.16.254.1" **Output:** "IPv4" **Explanation:** This is a valid IPv4 address, return "IPv4".

Example 2:

Input: queryIP = "2001:0db8:85a3:0:0:8A2E:0370:7334" **Output:** "IPv6"
Explanation: This is a valid IPv6 address, return "IPv6".

Example 3:

Input: queryIP = "256.256.256.256" **Output:** "Neither" **Explanation:** This is neither a IPv4 address nor a IPv6 address.

Constraints:

* `queryIP` consists only of English letters, digits and the characters `'.'` and `':'`.

Code Snippets

C++:

```
class Solution {
public:
string validIPAddress(string queryIP) {

}
};
```

Java:

```
class Solution {
public String validIPAddress(String queryIP) {

}
}
```

Python3:

```
class Solution:
def validIPAddress(self, queryIP: str) -> str:
```