65. Valid Number

题目描述：https://leetcode.com/problems/valid-number/

> 给定一个string判断是否是合法的数字。
> 各种坑爹情况

解题思路：

有限状态自动机

代码：

```
class Solution {
public:
    bool isNumber(string s) {
        int state = 0;
        bool f = true;
        for(int i = 0; i < s.size(); i++) {
            switch(state){
                case 0:
                    if(s[i] == ' ')  {
                        state = 0;
                    }
                    else if(s[i] == '+' || s[i] == '-') {
                        state = 1; f = (s[i] == '+');
                    }
                    else if(isdigit(s[i])) {
                        state = 2;
                    }
                    else if(s[i] == '.') {
                        state = 8;
                    }
                    else {
                        return false;
                    }
                    break;
                case 1:
                    if(isdigit(s[i])) {
                        state = 2;
                    }
                    else if (s[i] == '.') {
                        state = 8;
```

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                }
                else {
                    return false;
                }
                break;
            case 2:
                if(isdigit(s[i])) {
                    state = 2;
                }
                else if(s[i] == '.') {
                    state = 3;
                }
                else if(s[i] == 'e') {
                    state = 4;
                }
                else if(s[i] == ' ') {
                    state = 5;
                }
                else {
                    return false;
                }
                break;
            case 3:
                if(isdigit(s[i])) {
                    state = 6;
                }
                else if(s[i] == ' ') {
                    state = 5;
                }
                else if(s[i] == 'e') {
                    state = 4;
                }
                else {
                    return false;
                }
                break;
            case 4:
                if(isdigit(s[i])) {
                    state = 7;
                }
                else if(s[i] == '+' || s[i] == '-') {
                    state = 9;
                }
                else {
                    return false;
                }
                break;
            case 5:
```

```
                if(s[i] != ' ') {
                    return false;
                }
                break;
            case 6:
                if(isdigit(s[i])) {
                    state = 6;
                }
                else if(s[i] == 'e') {
                    state = 4;
                }
                else if(s[i] == ' ') {
                    state = 5;
                }
                else {
                    return false;
                }
                break;
            case 7:
                if(isdigit(s[i])) {
                    state = 7;
                }
                else if(s[i] == ' ') {
                    state = 5;
                }
                else {
                    return false;
                }
                break;
            case 8:
                if(isdigit(s[i])) {
                    state = 6;
                }
                else {
                    return false;
                }
                break;
            case 9:
                if(isdigit(s[i])) {
                    state = 7;
                }
                else {
                    return false;
                }
                break;
            default:
                return false;
        }
```

```
        }
        if(state == 1 || state == 4 || state == 8 || state == 0 || state == 9) ret
urn false;
        return true;
    }
};
```