

Problem 37: Sudoku Solver

Problem Information

Difficulty: Hard

Acceptance Rate: 65.30%

Paid Only: No

Tags: Array, Hash Table, Backtracking, Matrix

Problem Description

Write a program to solve a Sudoku puzzle by filling the empty cells.

A sudoku solution must satisfy ****all of the following rules**** :

1. Each of the digits `1-9` must occur exactly once in each row.
2. Each of the digits `1-9` must occur exactly once in each column.
3. Each of the digits `1-9` must occur exactly once in each of the 9 `3x3` sub-boxes of the grid.

The `.` character indicates empty cells.

****Example 1:****

****Input:**** board = `[[5,"3",".",".","7",".",".","."],[6,".",".","1","9","5",".","."],[.,"9","8",".",
".",".",6,"."],[8,".",".",6,".",."3"],[4,"..","8",".",3,"..","1"],[7,"..",".",2,"..",
".","6"],[.,"6","..",".",2,"8","."],[..,"..","4","1","9","","..",5],[..,"..",".",8,"..",7,"9"]`
****Output:**** `[[5,"3","4","6","7","8","9","1","2"],[6,"7","2","1","9","5","3","4","8"],[1,"9","8","3",
"4","2","5","6","7"],[8,"5","9","7","6","1","4","2","3],[4,"2","6","8","5","3","7","9","1"],[7,"1","3",
"9","2","4","8","5","6"],[9,"6","1","5","3","7","2","8","4],[2,"8","7","4","1","9","6","3","5],[3,"
4","5","2","8","6","1","7","9]]`
****Explanation:**** The input board is shown above and the only valid solution is shown below:

****Constraints:****

* `board.length == 9` * `board[i].length == 9` * `board[i][j]` is a digit or `'.'`. * It is **guaranteed** that the input board has only one solution.

Code Snippets

C++:

```
class Solution {  
public:  
void solveSudoku(vector<vector<char>>& board) {  
  
}  
};
```

Java:

```
class Solution {  
public void solveSudoku(char[][] board) {  
  
}  
}
```

Python3:

```
class Solution:  
def solveSudoku(self, board: List[List[str]]) -> None:  
    """  
    Do not return anything, modify board in-place instead.  
    """
```