

Problem 37: Sudoku Solver

Problem Information

Difficulty: Hard

Acceptance Rate: 65.30%

Paid Only: No

Tags: Array, Hash Table, Backtracking, Matrix

Problem Description

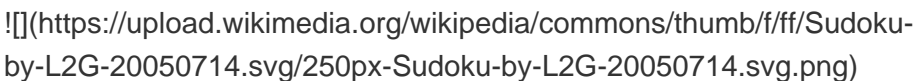
Write a program to solve a Sudoku puzzle by filling the empty cells.

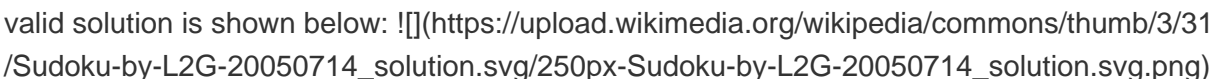
A sudoku solution must satisfy **all** of the following rules :

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",".",".",".",["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"]]` **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.
        """
```