# 37. Sudoku Solver

## SOLUTION IN JAVA

class Solution {

public void solveSudoku(char[][] board) {

dfs(board, 0);

}

private boolean dfs(char[][] board, int s) {

if (s == 81)

return true;

final int i = s / 9;

final int j = s % 9;

if (board[i][j] != '.')

return dfs(board, s + 1);

for (char c = '1'; c <= '9'; ++c)

if (isValid(board, i, j, c)) {

board[i][j] = c;

if (dfs(board, s + 1))

return true;

board[i][j] = '.';

}

return false;

}

private boolean isValid(char[][] board, int row, int col, char c) {

for (int i = 0; i < 9; ++i)

if (board[i][col] == c || board[row][i] == c ||

board[3 \* (row / 3) + i / 3][3 \* (col / 3) + i % 3] == c)

return false;

return true;

}

}