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def solve(bo):
    find = find_empty(bo)
    if find:
        row, col = find
    else:
        return True

    for i in range(1,10):
        if valid(bo, (row, col), i):
            bo[row][col] = i

            if solve(bo):
                return True

            bo[row][col] = 0

    return False

def valid(bo, pos, num):
    for i in range(0, len(bo)):
        if bo[pos[0]][i] == num and pos[1] != i:
            return False

    for i in range(0, len(bo)):
        if bo[i][pos[1]] == num and pos[0] != i:
            return False

    box_x = pos[1]//3
    box_y = pos[0]//3

    for i in range(box_y*3, box_y*3 + 3):
        for j in range(box_x*3, box_x*3 + 3):
            if bo[i][j] == num and (i,j) != pos:
                return False

    return True

def find_empty(bo):
    for i in range(len(bo)):
        for j in range(len(bo[0])):
            if bo[i][j] == 0:
                return (i, j)

    return None

def print_board(bo):
    for i in range(len(bo)):
        if i % 3 == 0 and i != 0:
            print("- - - - -")
        for j in range(len(bo[0])):
            if j % 3 == 0:
                print(" | ",end="")

            if j == 8:
                print(bo[i][j], end="\n")
            else:

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print(str(bo[i][j]) + " ", end="")
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