Project Title: Sudoku Solver

Project Overview

The Sudoku Solver is a Python script designed to solve Sudoku puzzles using a backtracking algorithm. Sudoku is a popular number-placement puzzle game where players must fill a 9x9 grid with digits from 1 to 9, ensuring that each row, column, and 3x3 subgrid contains all digits without repetition. This script provides a solution to any solvable Sudoku puzzle.

Script Components

find_next_empty(puzzle)
Purpose: Find the next empty cell in the Sudoku grid.
Input: Sudoku grid (puzzle).
Output: Coordinates the next empty cell (row, col) or (None, None) if the puzzle is complete.

is_valid(puzzle, guess, row, col)
Purpose: Check if placing a guess at the given (row, col) is valid according to Sudoku rules.

Inputs:
Sudoku grid (puzzle).
Number to be placed (guess).
Row index (row) and column index (col) of the cell.

Output: True if the guess is valid, False otherwise.
solve_sudoku(puzzle)

Purpose: Recursively solves the Sudoku puzzle using backtracking.
Input: Sudoku grid (puzzle).

Output: True if a solution is found, False if the puzzle is unsolvable.
Usage Instructions

Initialize Sudoku Puzzle:

Create a 9x9 grid where empty cells are represented by -1.

Call solve_sudoku(puzzle):

Execute the solver by calling solve_sudoku with your puzzle as an argument.

Check Result:
The solver modifies the puzzle in place. The solved puzzle will be available in your script if a solution is found.