

Su-Do-Kode

Filename: sudokode

Dave has become addicted to Sudoku, the latest puzzle craze in all the newspapers and bookstands. In case you don't know, a Sudoku is a simple number puzzle played on a 3x3 grid of 3x3 subgrids. Below is an example:

	5	7		4	8	9		
			5		9			
	4	8				5	3	6
	2				6			7
	6		1	9	7		8	
7			3				6	
6	3	2				8	5	
			8		3			
		5	2	6		4	7	

Initial Puzzle

3	5	7	6	4	8	9	1	2
2	1	6	5	3	9	7	4	8
9	4	8	7	1	2	5	3	6
5	2	1	4	8	6	3	9	7
4	6	3	1	9	7	2	8	5
7	8	9	3	2	5	1	6	4
6	3	2	9	7	4	8	5	1
1	7	4	8	5	3	6	2	9
8	9	5	2	6	1	4	7	3

Solution

The object of Sudoku is to place numbers 1 through 9 in the empty spaces such that no row, column, or 3x3 subgrid has any number more than once. An interesting property of Sudoku puzzles is that there is always only one possible solution, and it can always be determined using logic, without the need for guessing. Although Dave is wild about Sudoku, he still comes up with incorrect solutions. Dave is tired of being made fun of by his more Sudoku-savvy friends, so he's asked you to write a program to check his solutions for him.

The Problem:

Given a set of Dave's Sudoku puzzle solutions, determine which ones are correct, and which are invalid. For a Sudoku solution to be correct, every row, column, and 3x3 subgrid of the puzzle must have each digit (1 through 9) exactly once.

The Input:

Dave will give you multiple solutions to check. Input will begin with a single integer, n , on a line by itself. Following this will be n sets of 9 lines, each containing 9 digits. Each digit will be in the range 1 through 9, inclusive. Each set of 9 lines of 9 digits represents one of Dave's potential Sudoku puzzle solutions.

The Output:

For each Sudoku solution, print "Sudoku # d :", where d represents the number of the puzzle (beginning at 1). Follow this with two spaces and either "Dave's the man!", if the solution is correct, or "Try again, Dave!", if it is invalid. Leave a blank line after the output for each solution.

Sample Input:

2
357648912
216539748
948712536
521486397
463197285
789325164
632974851
174853629
895261473
263847159
514936278
987125364
645382917
139574826
872619543
658791632
791263485
326458791

Sample Output:

Sudoku #1: Dave's the man!

Sudoku #2: Try again, Dave!