

數獨 Sudoku

Sudoku is a number filling game. The objective is to enter numbers into the blank spaces so that each row, column and 3x3 box contains the numbers 1 to 9 without repeats.

Example:

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

Stage 1 :

Select some spaces, by considering corresponding row, column and 3X3 box, fill in the suitable numbers. For example, 'A', 'B', 'C', 'D' and 'E' are '8', '8', '8', '6' and '7' respectively.

Consider the 3X3 box on the top right corner, '4' cannot be placed in the spaces except position 'X'.

	7			1	2	X		
1	5					6	7	
3	4	A	6	7		5	2	1
2	1	3	8			E	4	
7	B	4		D		9	5	
6	9			2				
C			9	5			3	4
4	3			8				5
5		9		3			6	7

Stage 2:

There is only one possibility in position 'F', 'G', 'H' and 'I', which are '9', '5', '6', '9' respectively.

F	7			1	2	4		
1	5					6	7	
3	4	8	6	7	I	5	2	1
2	1	3	8			7	4	
7	8	4		6		9	5	
6	9	G		2				
8	H		9	5			3	4
4	3			8				5
5		9		3			6	7

Stage 3:

There is only one possibility in position 'J' and 'K', which are '2' and '2' respectively.

Consider the 3X3 box on the top right corner, '9' cannot be placed in the spaces except position 'Y'.

Consider the bottom middle 3X3 box, '6' cannot be placed in the spaces except position 'W'.

9	7			1	2	4		
1	5	J				6	7	Y
3	4	8	6	7	9	5	2	1
2	1	3	8			7	4	
7	8	4		6		9	5	
6	9	5		2				
8	6		9	5			3	4
4	3			8	W			5
5	K	9		3			6	7

Stage 4:

There is only one possibility in position 'J' and 'K', which are '2' and '2' respectively.

Hence, position 'N' must be '3'.

Consider the right middle 3X3 box, '6' cannot be placed in the spaces except position 'P' and '2' cannot be placed in the spaces except position 'R'.

Consider the central 3X3 box, '9' cannot be placed in the spaces except position 'Q'

9	7	L		1	2	4	M	N
1	5	2				6	7	9
3	4	8	6	7	9	5	2	1
2	1	3	8	Q		7	4	P
7	8	4		6		9	5	R
6	9	5		2				
8	6		9	5			3	4
4	3			8	6			5
5	2	9		3			6	7

Stage 5:

Fill in the rest of the lattices.

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