


# Sudoku Solver

Implemented a complete solver capable of handling any valid Sudoku puzzle using backtracking

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

Project steps:

1. Reader – Image Processing & Digit Extraction
  1. Load the Sudoku board image
  2. Detect and extract the grid and individual cells
  3. Identify and extract digits from the cells (cell to digit image)


  4. Classify the extracted digits (image to text using NN)
2. Solver – Constraint Propagation & Backtracking
  1. Iteratively update possible candidates for each empty cell
  2. If the board is not yet solved, apply backtracking by making informed guesses
3. Visualization – Output Display
  1. Overlay the solved digits onto the original input image