Sudoku Solver was my first attempt towards working on a project in the field of machine Learning. The application is written in Python 3 using OpenCV and Scikit-learn libraries. The basic idea of the application is to take an image of the Sudoku Puzzle as input, and process it and give the desired output, which is the solution to the puzzle.

The first step was to isolate the square box containing the puzzle, after that I isolated each individual cell in the puzzle. Once this was done, iterated through each cell, and if a number existed in that cell, using the model which I had created to classify numbers from 1-9, extracted the numeric value and stored it onto a 2D array. The empty cell were represented by a 0 in the array. Then using Backtrack algorithm on the 2D array, the solution to the Sudoku puzzle was found and printed in the console.

The Model – I used Linear SVM classifier as my Machine learning model to detect the numbers in the Sudoku. The dataset for the model was created by taking many samples images of Sudoku and extracting the images of each cell containing a number in it. Using the dataset, I trained my model to detect the digits.

The code can be found in the following github link - [https://github.com/ameyaditya/SudokuSolver](https://github.com/ameyaditya/SudokuSolver/blob/master/SudokuSolver.py)