Project Proposal

A Sudoku project which detect and solve 9 times 9 Sudoku problems using machine learning algorithms.

And I plan to use backtracking algorithm and separate the whole algorithm into 9 core if possible. The whole project read each line from the txt as an unsolved Sudoku, which can be printed as a 9 times 9 square. After import, the algorithm parallel the data into 9 core and combine after calculations. The backtracking search will use the minimum remaining value heuristic for each unsolved block, then, use the forward checking to reduce the domain of the values.

Afterwards, the program will output the collection of solutions(one for each input sudoku) to a new file and print out the conclusion of the progress, including minimum, maximum, and median time usage, the number of Sudoku solved, etc.

The complexity of this function will be O(n^m) where m is the number of space and n is the number of value in each square. For multiple core parallel section, divide works into chunks and apply each box, row and column of one empty space into database and check the availability of the values picked from [1..9], after iteration and finish up the whole solution, check out the times usage and speed up percentage to find out the proper one.