AAA Project

Solving Sudoku using the backtracking algorithm

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1 Introduction

Sudoku is a numerical based logic puzzle game. The idea is to solve an $n \times n$ grid filled with numbers, this grid usually consists of square blocks with 3 rows and 3 columns. These individual blocks are then arranged in a similar manner again, with 3 blocks along rows and 3 along columns, producing a 9×9 matrix. We need to fill the blocks with one of these numbers $1, 2, 3, 4, 5, 6, 7, 8, 9$. The rules for filling these blocks are as follows:

- Within each 3×3 block we can only have single occurrence of a number.
- Along each 9 block row we can only have a single occurrence of a number.
- Along each 9 block column we can only have a single occurrence of a number.

#Fill in facts#

2 Aims

We are going to use the backtracking algorithm to solve 9×9 sudoku puzzles. This will allow us to attempt to solve these sudoku puzzles in as little time as possible. We aim to find the best, average and worst case complexities of the algorithm through empirical analysis.

3 Summary of Theory

4 Experimental Methodology

5 Presentation of results

6 Interpretation of results

7 Conclusion

8 References

9 Acknowledgments