

**Green University of Bangladesh**

**Department of Computer Science and Engineering (CSE)**

**Faculty of Sciences and Engineering**

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**Course Title: Algorithm Lab**

**Course Code: CSE 204**

**Section: DA**

**Lab Project Name:** Sudoku Solver and Checker.

**Student Details**

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**[For Teachers use only: Don’t Write Anything inside this box]**

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| **Lab Project Status**  **Marks: …………………………………                              Signature: .....................**  **Comments: ..............................................                             Date: ..............................** |

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**Chapter 1**

**Introduction**

1. **Introduction**

Sudoku game is the Japanese popular game. Now a days, Sudoku puzzles are becoming popular among all over the world. The game has become popular now in a large number of countries and many developers have tried to generate even more complicated and more interesting puzzles. Now a days, we can see this game appears in almost every newspaper, in books and in many websites. This means that the algorithm is implemented based on human perceptions. I implement this game that’s mean sudoku game solver and checker in C language using Backtreaking.

1. **Design Goals**

The goal of sudoku is simple: **fill in the numbers 1-9 exactly once in every row, column, and 3x3 region**. For example, look at the above puzzle and compare it to the solved version below. Notice that every row, column and 3x3 region contain every number from 1-9 exactly once.

**Chapter 2**

**Implementation of the project**

**2.1** **Problem Implementation:**

Given a 9 x 9 the rows and column of the Problem.

**2.1.1.**

{4,3,8,1,9,2,7,6,5},

{9,7,1,8,5,6,3,4,2},

{0,6,0,0,0,0,0,0,1},

{8,2,0,0,1,0,0,0,0},

{1,4,0,5,0,7,0,2,6},

{0,0,0,0,8,0,0,3,9},

{5,0,0,0,0,0,0,1,0},

{0,8,4,9,2,0,0,5,0},

{0,0,0,3,7,0,4,0,0}

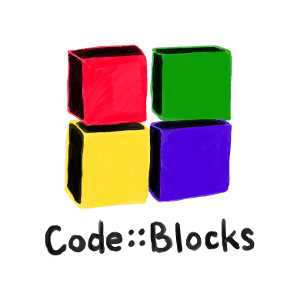
};

**Chapter 3**

**Performance Evaluation**

**3.1** **Simulation Environment:**

IDE: CodeBlocks



Programming Language: C



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**3.2** **Results and Discussions:**



**Sudoku – The Rules**

* Only use the numbers 1 to 9 in a game of Sudoku. ...
* Avoid trying to guess the solution to the Sudoku puzzle. ...
* Only use each number once – do not repeat any numbers. ...
* Use the process of elimination as a tactic. ...
* Use cross-hatching and penciling-in techniques to solve the puzzle.

**Chapter 4**

**Conclusion**

## Introduction

In this project I have used c programing language. I have successfully completed the code implementation using backtracking. The code run according to the loops and functions implemented inside the code.

## Practical Implications

## For Brain exercise. Backtracking is used in computer science and industrial applications, load balancing in a multiprocessor computer.

## Scope of Future Work

In future by adding more features it can be more attractive game.

**References:**

[1] <https://www.gamesver.com/sudoku-rules-for-beginners-all-you-need-to-know/>

[2] YouTube

[3] Geek For Geeks