

# Sudoku Solver

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## Overview

The Sudoku Solver Application is a desktop-based program designed to solve Sudoku puzzles efficiently. The application provides a user-friendly interface for inputting Sudoku puzzles, and upon user request, it employs a backtracking algorithm to find and display the solution.

## Project Objectives

### 1.User Interface:

Develop a graphical user interface (GUI) using the Qt framework to allow users to input Sudoku puzzles. Design an intuitive layout with a 9x9 grid for entering puzzle numbers and a "Solve" button to initiate the solving process.

### 2.Solver Algorithm:

Implement a backtracking algorithm to efficiently solve Sudoku puzzles. Ensure the algorithm adheres to Sudoku rules (no repeated numbers in rows, columns, and 3x3 subgrids).

### 3.Real-Time Feedback:

Provide real-time feedback to users as they enter numbers, indicating whether the current state of the puzzle is valid.

#### 4.Solution Display:

Display the solved Sudoku puzzle in the GUI, allowing users to verify the solution. In case of an unsolvable puzzle, notify the user appropriately.

#### 5.Error Handling:

Implement robust error handling to gracefully handle unexpected user inputs or system issues.

### Technology & tools

- C++ programming language for the application logic.
- Qt framework for the graphical user interface.
- Version control system (e.g., Git) for collaborative development.
- Integrated Development Environment (IDE) for C++ development (e.g., Qt Creator).