Course Project Documentation

CS101 Project

SUDOKU SOLVER

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1. Introduction:

The typical Sudoku grid has three main elements. There are 9 columns, 9 rows and 9 blocks. Using the numbers from 1 to 9, the 81 cells in the Sudoku grid must be filled so that every column, row and block contains the numbers 1 through 9. No number can repeat within any column, row or block.

Our project is "Sudoku solver". which gives you solution to your Sudoku.

2. Problem Statement:

Our goal is first to provide an interface to the user where they give input and get there solution if the solution exists for that or to show them no solution if the given input is invalid.

3. Requirements:

3.1 Hardware Requirements:

Computer with windows as operating system installed in it.

3.2 Software Requirements:

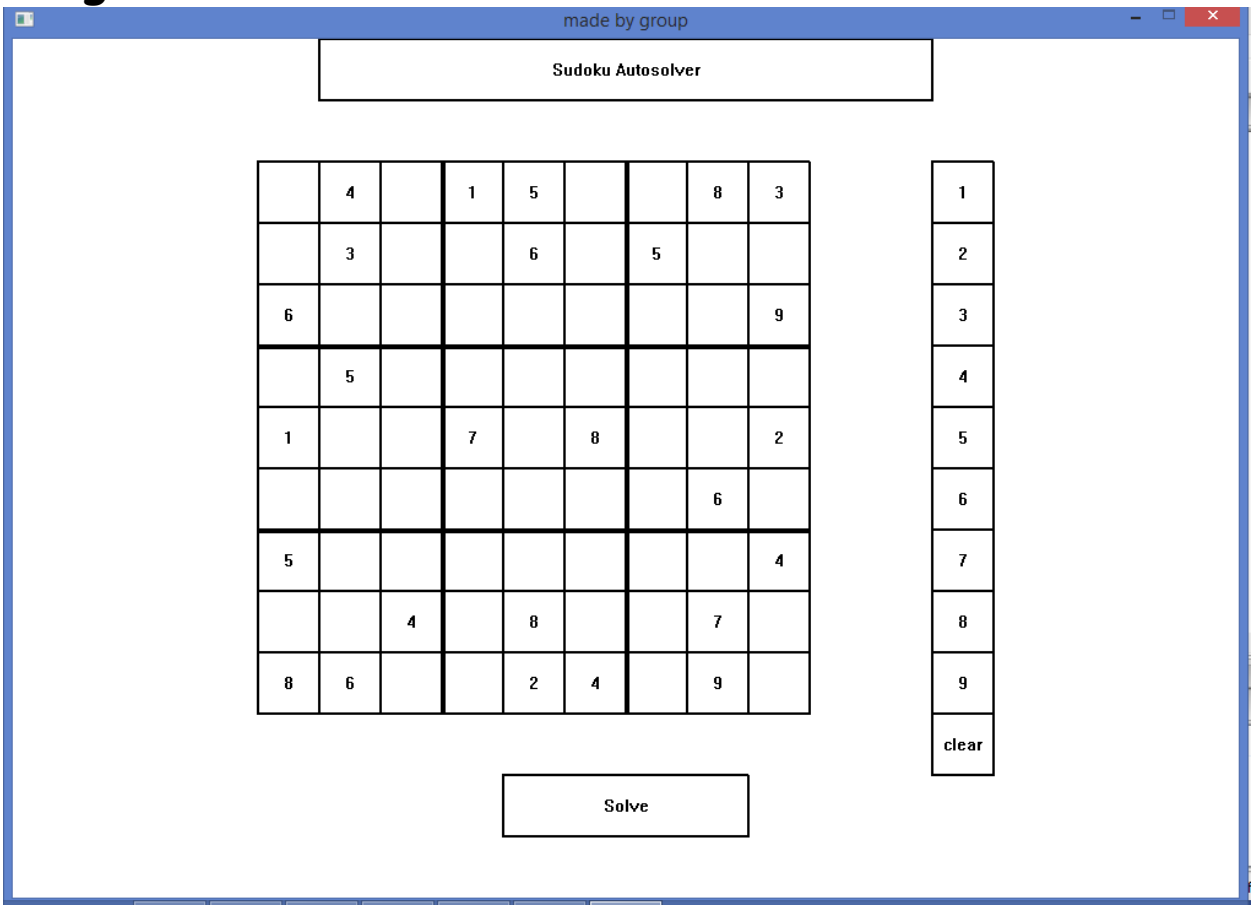
Simple code blocks software.

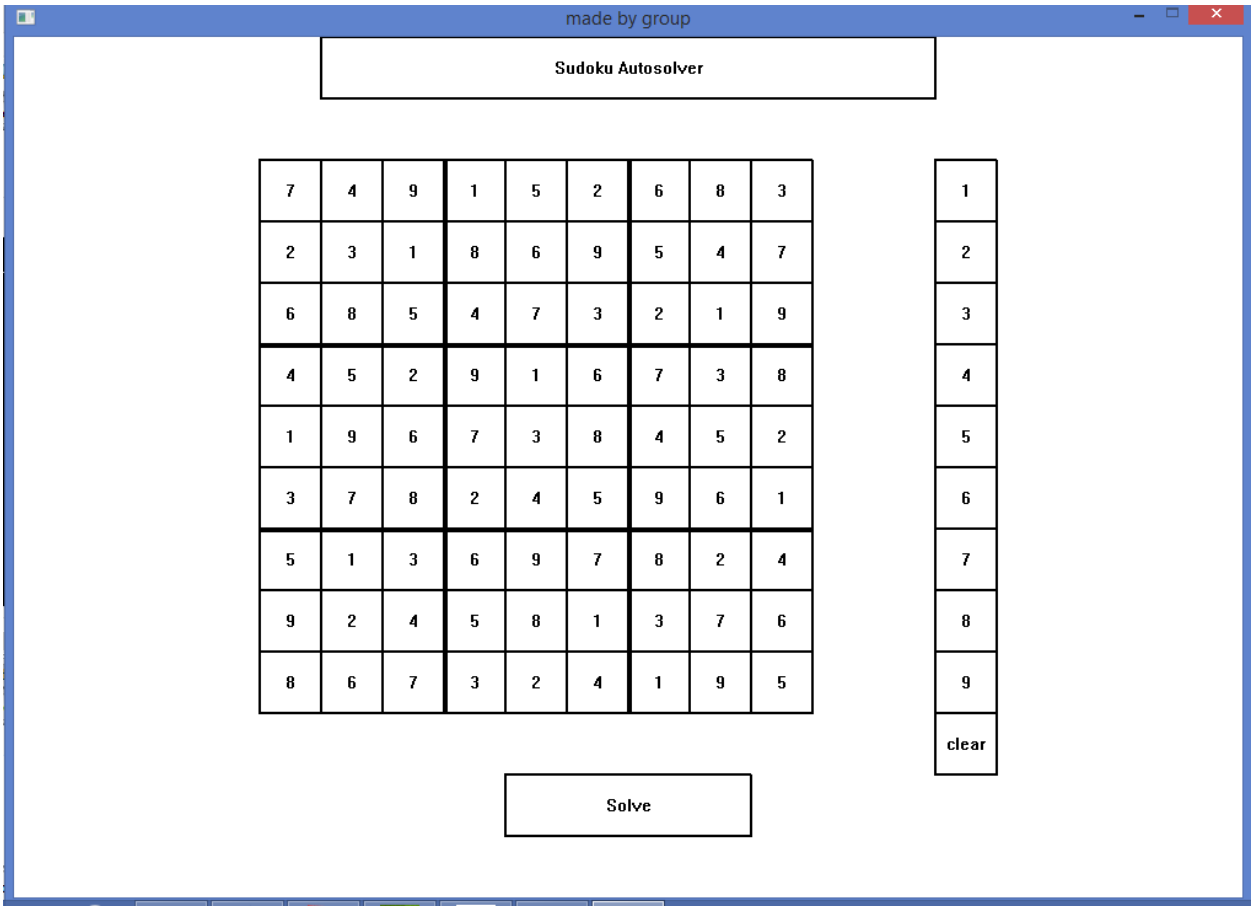
4. Implementation:

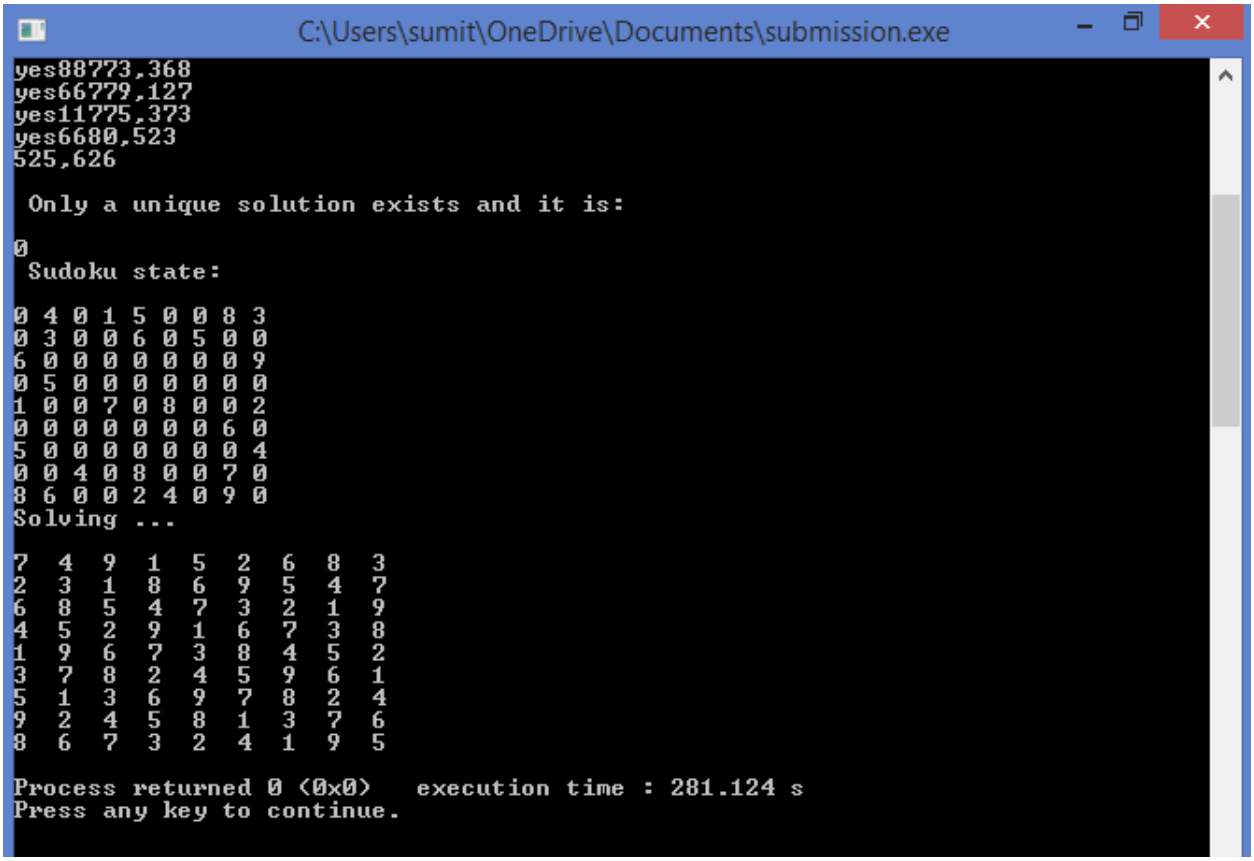
1. Getting input from the user : First we made an interface where user gives the input and then click on the solve to get the solution.
2. Storing the input received from the user.
3. Then we considered the value 0 in the vacant grid.
4. Then we wrote the code for the solver part.
5. Then printing the solution in the interface.

5. Testing Strategy and Data:

As we know that for solving Sudoku any column or any row or any 3*3 box should not contain same number more than once…. so for testing that our project works properly we give inputs such that any number (assume 5) put in a row or column twice then we check solution. It gives "no solution exist". Then we give proper inputs and check solution then we get exact solution.




made by group
Sudoku Autosolver
7 4 9 1 5 2 6 8 3
2 3 1 8 6 9 5 4 7
6 8 5 4 7 3 2 1 9
4 5 2 9 1 6 7 3 8
1 9 6 7 3 8 4 5 2
3 7 8 2 4 5 9 6 1
5 1 3 6 9 7 8 2 4
9 2 4 5 8 1 3 7 6
8 6 7 3 2 4 1 9 5
1
2
3
4
5
6
7
8
9
clear
Solve



6.1 What are worked as per plan?

Giving solution for the Sudoku which has unique solution.

Using graphics and mouse click for receiving input.

6.2 What we added more than discussed in SRS?

- Giving atleast one solution to the user for the Sudoku which have more than one solution.
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6.3 Changes made in plan:

Everything went as per the plan, except getting solution for the Sudoku which have more than unique solution.

7. Future Work

- We can add diagonal condition to it.
- We can make Sudoku of 6*6 and 12*12 grids.
- We can give solution to window Sudoku, Sudoku with grids of different shape.
- We can highlight the grid when mouse hovers over it.

8. Conclusions:

Our project can be used to get solution to any valid 9*9 grid Sudoku. If the given Sudoku is invalid, user will get to know by an output message saying "Sudoku is invalid". If the Sudoku have infinite solution you will get one solution as an output. It is helpful to all Sudoku lovers in getting answers if they are unable to solve by themselves. And the main advantage is it gives solution very fast, in few seconds. It easy to access and everyone can take best use of it.

9. References:
Previous year projects.