

SOFTWARE
REQUIREMENTS
SPECIFICATION (SRS)

THE SUDOKU

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Introduction :

Sudoku is a puzzle game in which a 9x9 grid with a few numbers already filled in is given to the user and the user is expected to solve it by filling in all numbers from 1 to 9 in every row, column and certain 3x3 squares. Because of the dimensions of the grid, no number is repeated along a row, column or 3x3 square. A Sample Sudoku highlighting rows and the columns and the 3x3 box is

shown below:

5	3	4	6	7	8	9	1	2
6	7	2	1	9	5	3	4	8
1	9	8	3	4	2	5	6	7
8	5	9	7	6	1	4	2	3
4	2	6	8	5	3	7	9	1
7	1	3	9	2	4	8	5	6
9	6	1	5	3	7	2	8	4
2	8	7	4	1	9	6	3	5
3	4	5	2	8	6	1	7	9

Problem statement:

The main objective of this project is to create a software through which a user will be able to play a Sudoku puzzle. Giving the user a solvable Sudoku puzzle having a unique solution, checking his gameplay against the rules of conventional sudoku and finally checking the correctness of the solution.

Scope

Sudoku is a graphical game developed in C++. It allows the user to play Sudoku games. If the user is having trouble with it gives the solution to it. It offers various difficulty levels and is available for it.

Functional Specifications :

A window opens when the user starts the game. It has buttons for New Game, Quit. In New Game, one more frame appears which asks the user to choose a level. Depending on the level the user chooses, the program will display one of the Sudoku grids already generated for that difficulty. There will be a 9X9 Sudoku grid in the frame of the game.

There will also be tabs for HINT,VERIFY, ANSWER which will give answer to the game. The user will be able to click on each cell individually, choose a digit between 1 and 9 using buttons at the right of the screen and can also check its validity i.e., whether that digit repeats in its column, row or 3X3 box(if he clicks verify). Thus the game continues.

Description Of Data (Input/Output):

Input:

User input will be only in the form of mouse clicks(Key Board is not used).

Output:

The grid will be shown onscreen throughout the game, with numbers shown as they are filled in.

Modules

Checking Algorithm

This portion contains the algorithms used for checking the Sudoku i.e. the user wants to verify a number which he wants to give as input. The algorithm checks the conditions of the Sudoku

We start with a Sudoku with the rows and columns filled with numbers from 1-9.

The user inputs the first number available which does not conflict with the rules of Sudoku. If that number is found to be wrong according to rules of the Sudoku,

it shows red color, if it is correct then it gives the green color. Do these till all positions which are empty.

User Interface Requirements:

The basic aim is to display windows, buttons, the grid and to record mouse clicks for input and output.

Libraries :

The Libraries used for this project are

- 1) SIMPLECPP
- 2) IOSTREAM
- 3) CSTDIO
- 4) CSTRING

Graphics is done using SIMPLECPP.

System requirements:

The game requires code blocks integrated with simple cpp and libraries mentioned above.

Web References :

www.cplusplus.com

www.cse.iitb.ac.in/~randade/simplecpp

www.sourceforge.net