

SUDOKU SOLVER

IMPLEMENTATION LOGIC:

We have implemented Sudoku solver using OOPs concepts like Class and object, Inheritance in CPP language.

We have created 4 methods to start the game.

- New game, Options, How to play, Main Menu.

NEW GAME:

In this method we have generated random sudoku puzzles using for loops and arrays. After generating random Sudoku puzzle we have created methods like

- **Add value:** In this we can add value into puzzle to complete it. In this 'X' represents rows and 'Y' represents columns, 'Value' represents the number that has to be inserted in the required box which is empty. If you try to insert values at fixed place which is generated in new game it will not change.
- **Tip:** With the help of tips we can solve Sudoku puzzle. We can take upto 2 tips. If we try to take more tips than the limit, it will show "You have reached maximum no of tip limit".

- **Check:** If you want to check your puzzle without completing It will show “You lost”. After completing your puzzle, if you check it will show “You lost” or “You win” based on Sudoku game rules.
- **Solution:** If we want to check the solution we can see the solution. It generates solution that suits the puzzle.
- **Main Menu:** This option helps us to go back to home page where we can play new game or set options and see the instructions to play the game.

OPTIONS:

In this method we have created 3 methods Set difficulty level , tips , Back.

- **Set Difficulty:** It has difficulty levels like easy, medium and hard. The user can choose the difficulty level. The main difference between these levels is that the no of empty boxes. As the difficulty level increase the no of empty boxes increases. We have generated puzzles randomly based on difficulty level with different no of empty boxes.

➤ **Tips:** We have two options like 'On' and 'Off'. If we want to use the tips in the game we have to turn on the tips.

➤ **Back:** It helps to go to back to home page.

HOW TO PLAY:

This method has the instructions to play the game. It also helps us to know how to use the methods that are present in new game like add value, tips, check, solution.

EXIT :

It helps to exit from the game completely.

CONTRIBUTION:

There are around 12 methods.

➤ **P Jasmitha Sai(S20210020314):** I have created methods of new game and how to play. I have used Inheritance oops concept. I have created required classes and methods.

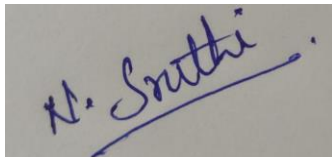
➤ **N Sruthi(S20210020299):** She has created methods of options and Exit and also created some of the methods in new game. She also created required methods and classes.

RESULT:

If you win the game, according to the Sudoku Solver rules it will show “You won” else “You Lost”.

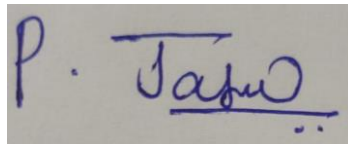
CONCLUSION:

We have implemented all the above shown methods to solve Sudoku puzzle.

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N Sruthi

S20210020299.

A handwritten signature in blue ink that reads "P. Jasmitha sai" with a horizontal line underneath.

P Jasmitha sai

S20210020314 .