Project

On

Sudoku Solver

What is Sudoku Solver?

Sudoku is a 9*9 number grid, and the whole grid are also divided in to 3*3 boxes. There are some rules to solve the Sudoku.

- We have to use digit 1 to 9 for solving this problem.
- One digit cannot be repeated in one row or in one column.

backtracking algorithm is used in Sudoku Solver. This is an algorithmic technique that solves recursive problems. Simply put, the backtracking algorithm work like this: for every step of problem, try one step at a time.

If a step cannot be solved, delete (or backtrack) that step, move to the previous step and try again with a new solution to the previous step.

If the previous step cannot be solved either, backtrack again until we find a correct solution to continue. Repeat this until the whole problem Set is solved.

In this user have to input an incomplete Sudoku and in output user will get a complete Sudoku. If the input is an Invalid Sudoku then in output will print an error message. The empty places in the Sudoku will be indicated by using 0.

Technology used in this project

The language which is used in making this project is c language. So the IDE and the compilers which are use are those in which c language can be accept and run easily. The software or the compiler which are used in the making of this project are Dev C++ or CodeBlocks.

Dev C++ is very easy to handle and use and the working process like compiling and running a program is very compatible and easy in comparison of other software and IDEs. So, Dev C++ is very helpful in the completion of this project.

Methodology and function

exist_row()

This function is used to indicate whether an assigned entry in the specified row matches the given number.

exist_col()

This function is used to indicate whether an assigned entry in the specified column matches the given number.

exist_box()

This function is used to indicate whether an assigned entry with in the specified 3*3 box matches the given number or not.

safe_num()

This function is used to indicate whether it will be legal to assign num To the given row, column location or not.

find_unassigned()

This function is used to find the empty and the unassigned value in

the Sudoku.

solve()

This function is used to take a partially filled-in Sudoku and attempts to assign values to all unassigned locations in such a way to meet the requirements for sudoku solution.

print_sudoku()

This function is used to print the completed Sudoku on console.

Output process

To run this project first we have to give the input which is an incomplete Sudoku after that we have to compile and run the program in the compile like Dev C++ and we will get a complete filled Sudoku or if the input is Invalid then an error message will be displayed on the screen.