CSCI 3901 Assignment 2(Problem 1)

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Test Cases

Public Sudoku(int size)

Input validations:

- size is zero
- size is negative
- size is other than “int” type

Boundary cases:

- size is zero
- size is one
- size is max value possible

Control flow:

- size is between 1 to n2

Data flow:

- Call Sudoku at the beginning
- Call Sudoku again but with different inputs

Public boolean setPossibleValues(String values)

Input validations:

- Values is null, returns false
- Values is empty string, returns false
- Values not in the range of 1 to n2, returns false
- Passing same values again, returns true

Boundary cases:

- Values is 1
- Values is n2
- Values is 0
- Values is n2+1

Control flow:

- passing range in 1 to n2

Data flow:

- Invoke the method before Sudoku
- Invoke the method multiple times

Public Boolean setCellValue(int x, int y, char letter)

Input validations:

- x and y are negative, returns false
- x and y are zero, returns false
- x and y are not in the range of 1 to n2, returns false
- letter is null, returns false
- letter is empty string, returns false
- letter not in the range of 1 to n2, returns false

Boundary cases:

- x and y are 1
- x and y are n2
- letter is 1
- letter is n2

Control flow:

- x and y are in the range of 1 to n2, returns true
- Passing existing letter values in the row, column or in the grid, returns false
- Input insufficient,
- Invalid input

Data flow:

- Invoke the method before sudoku
- Invoke the method before setPossibleValues
- Invoke the method with same inputs for x and y but different for letter

Public Boolean Solve()

Control flow:

- Grid with one multiple solutions
- Unsolvable grid

Data flow:

- Calling solve multiple times
- Calling Solve before setCellValue
- Calling Solve before setPossibleValues
- Calling Solve before Sudoku

Public String toPrintString(char emptyCellLetter)

Input validations:

- emptyCellLetter is null, returns false
- emptyCellLetter is empty, returns false
- emptyCellLetter is non-integer char, returns false
- emptyCellLetter is not char type, returns false

Boundary cases:

- emptyCellLetter is 1
- emptyCellLetter is 0
- emptyCellLetter is n2
- emptyCellLetter is n2+1

Control flow:

- emptyCellLetter is in the range of 1 to n2
- emptyCellLetter is not in the range of 1 to n2

Data flow:

- Call the method before solve
- Call the method before sudoku
- Call the method before setPossibleValues and setCellValue