CS101 PROJECT 2015

SUDOKU AUTOSOLVER

KUNAL TELGOTE	14D070030
NITESH KAUSHAL	14D070050
JEETKUMAR NAMHA	140070021
ANIL PAWAR	14D070051

INTRODUCTION

- Sudoku(normal) is a puzzle game in which a 9x9 grid with a few numbers given by the user and our program is expected to solve it by filling in all numbers from 1 to 9 in every row, column and certain 3x3 squares without repeatation . Because of the dimensions of the grid, no number is repeated along a row, Column or a 3x3 square.

- Different types of sudoku:

1. Normal,
2. Diagonal,
3. Windows,etc.

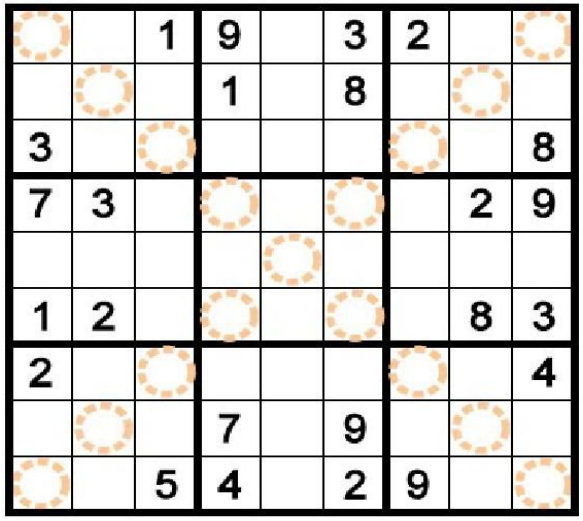
1.Normal Sudoku : Usual general sudoku.

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

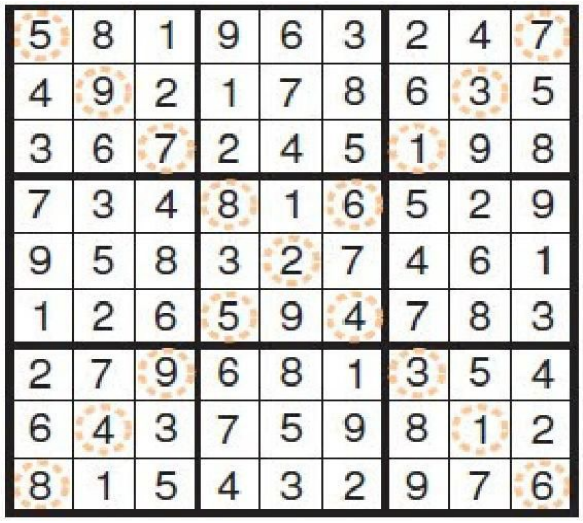
1	6	4	3	2	9	7	8	5
5	2	3	8	7	6	1	4	9
9	7	8	4	5	1	6	3	2
8	9	5	6	4	3	2	1	7
6	4	7	2	1	5	8	9	3
3	1	2	9	8	7	4	5	6
2	3	1	5	6	8	9	7	4
7	5	6	1	9	4	3	2	8
4	8	9	7	3	2	5	6	1

2.Diagonal Sudoku :

Diagonal Sudoku is also played over a 9x9 grid divided to 3x3 sub grids or boxes. The objective is to fill a grid with digits so that each column, each row, and each of the nine boxes that compose the grid contains all of the digits from 1 to 9 and each digit appears once. Also the main diagonals of the grid contains all of the digits from 1 to 9 and each digit appears once.



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



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

3.Windows Sudoku :

Window Sudoku is also played over a 9x9 grid divided to 3x3 sub grids or boxes. The objective is to fill a grid with digits so that each column, each row, and each of the nine boxes that compose the grid contains all of the digits from 1 to 9 and each digit appears once. Also there are four additional boxes in the grid that contain all of the digits from 1 to 9 and each digit appears once

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

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

PROBLEM STATEMENT

- GOAL 1:

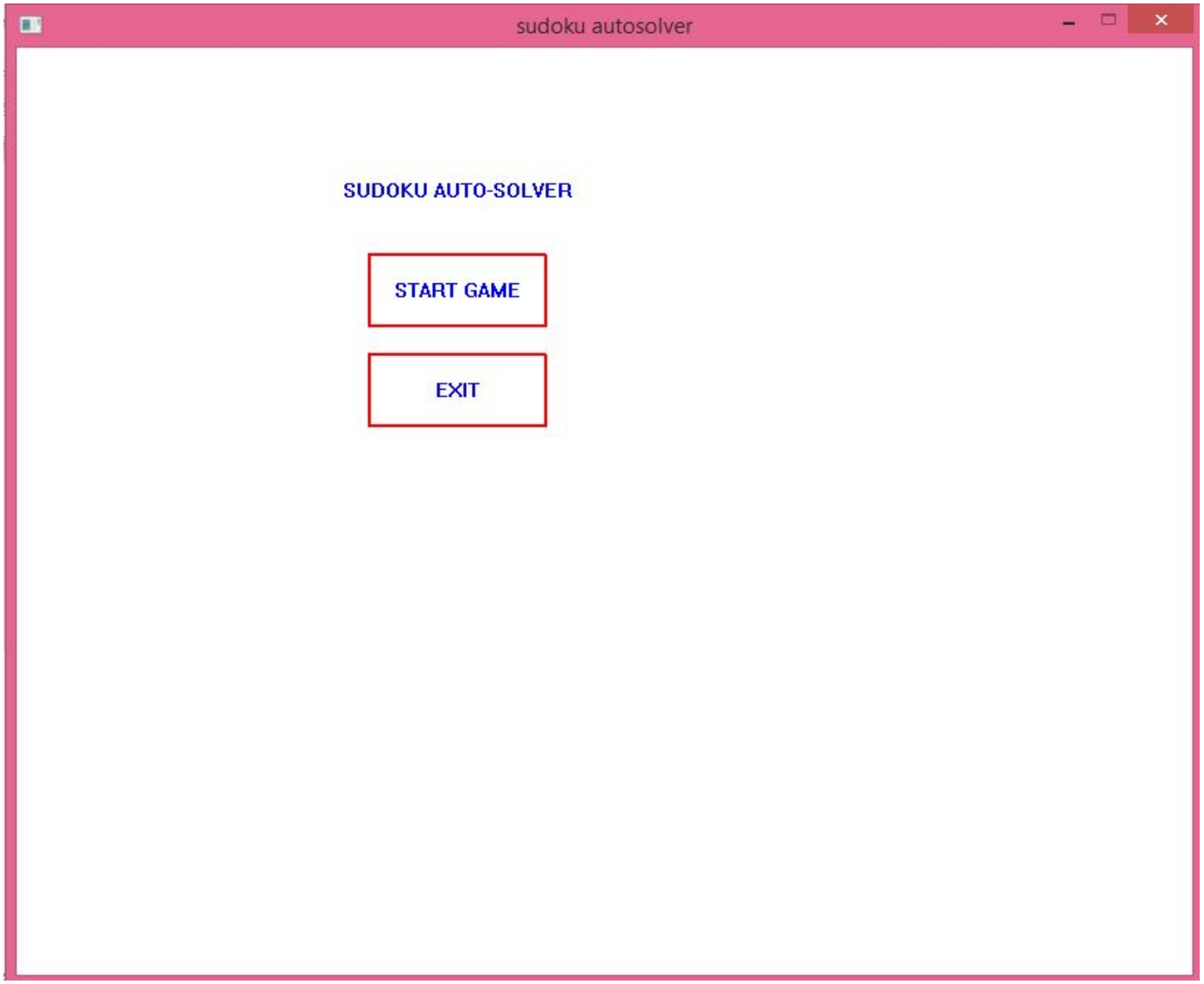
  USER WILL GIVE INPUTS IN A 9X9 GRID ON CANVAS

  WHEREVER HE WANT AND OUR PROGRAM WILL CHECK WHETHER THE GIVEN INPUTS ARE VALID ACCORDING TO RULES OF SUDOKU PUZZLE.

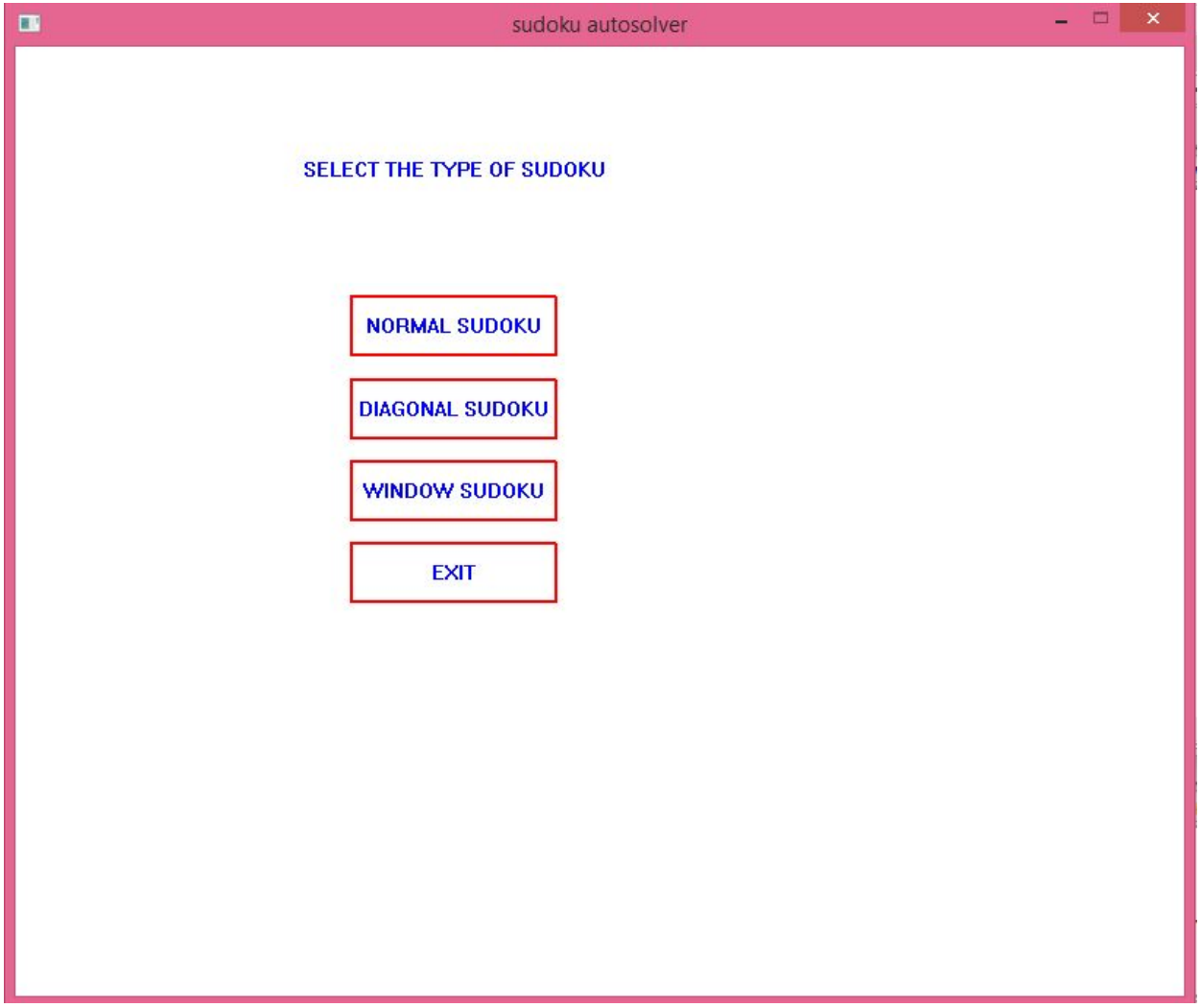
- GOAL 2:

  TO SOLVE A 9 X 9 SUDOKU PUZZLE WHOSE INPUTS ARE GIVEN BY THE USER AND TO SHOW THE SOLVED OUTPUT ON THE CANVAS.

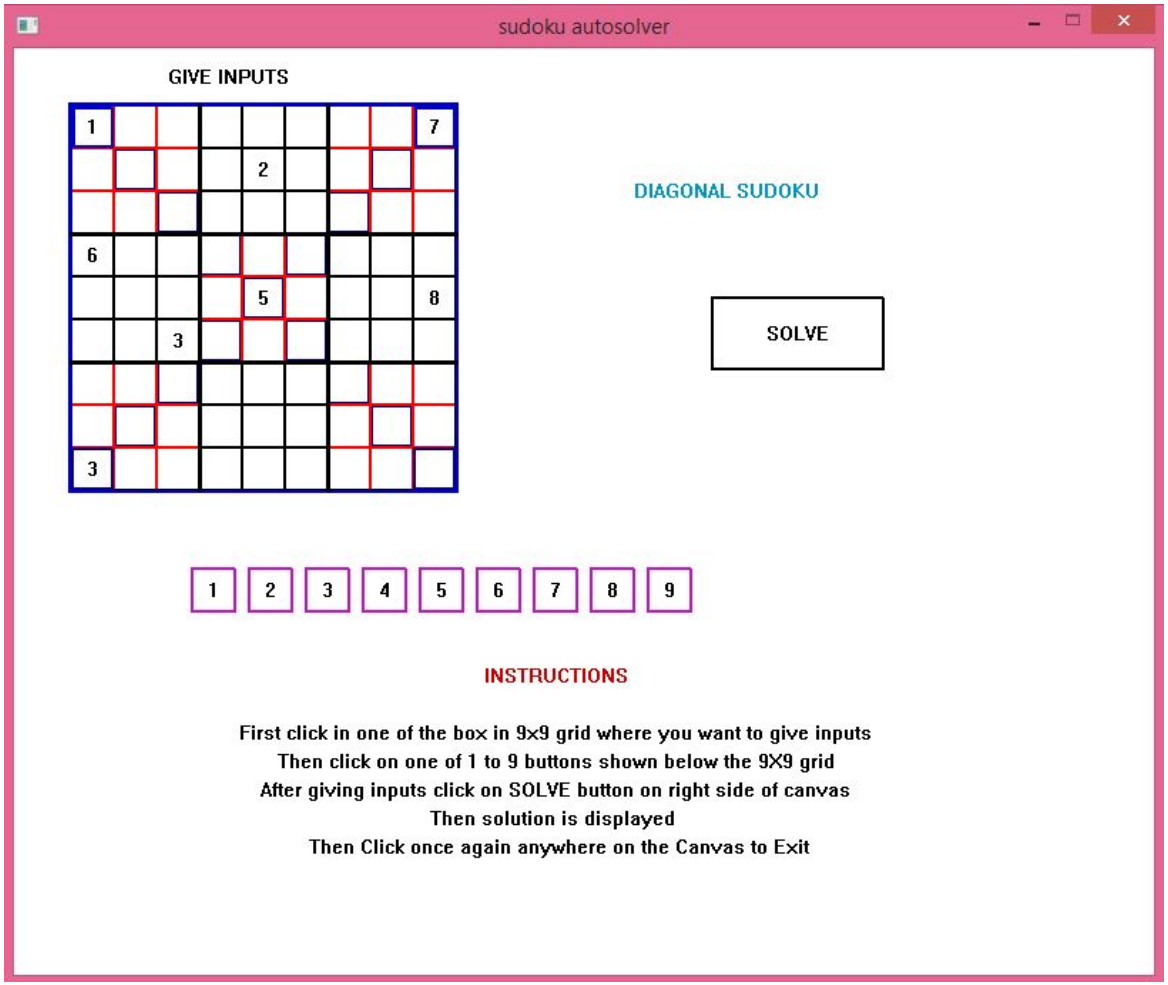
PROJECT SCREENSHOT



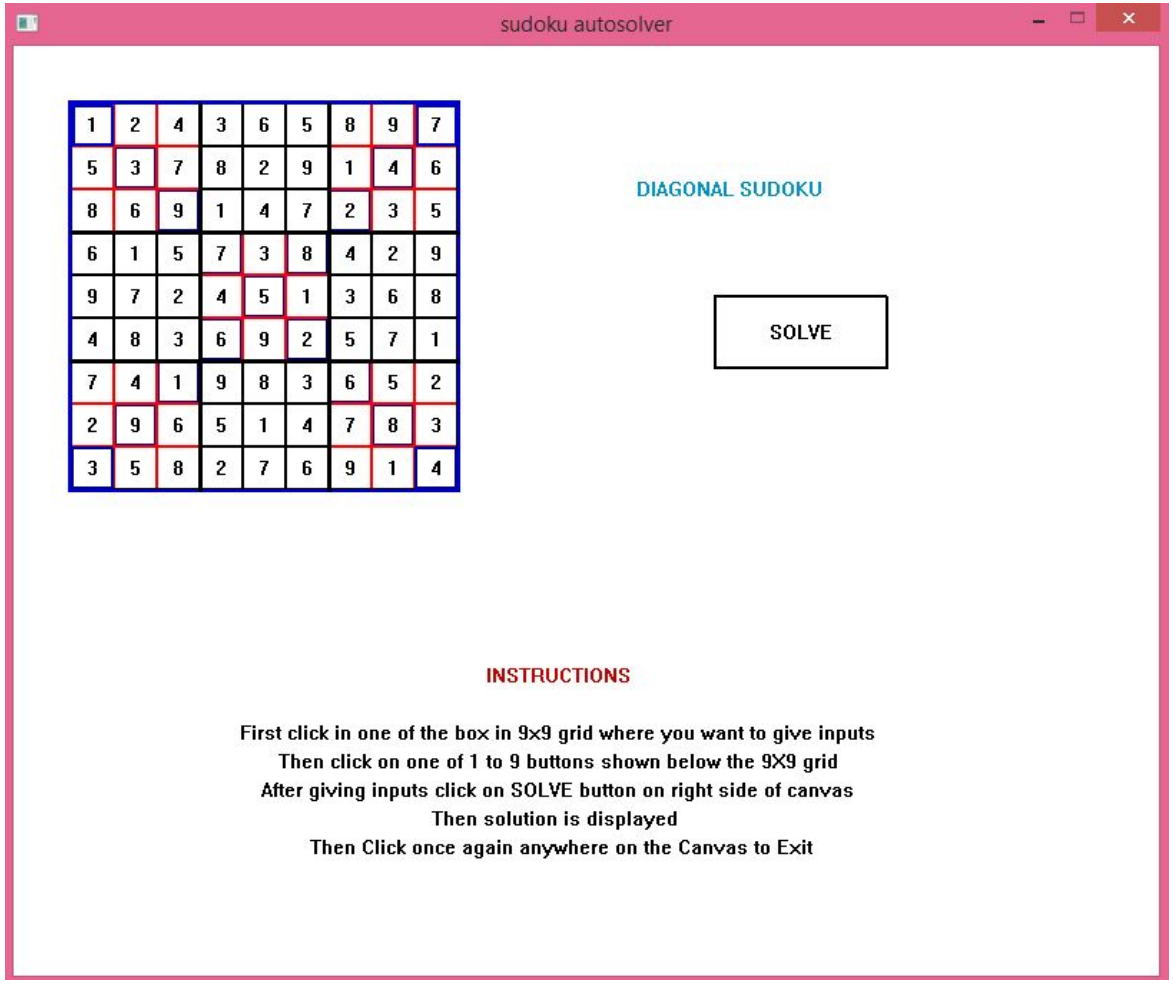
PROJECT SCREENSHOT



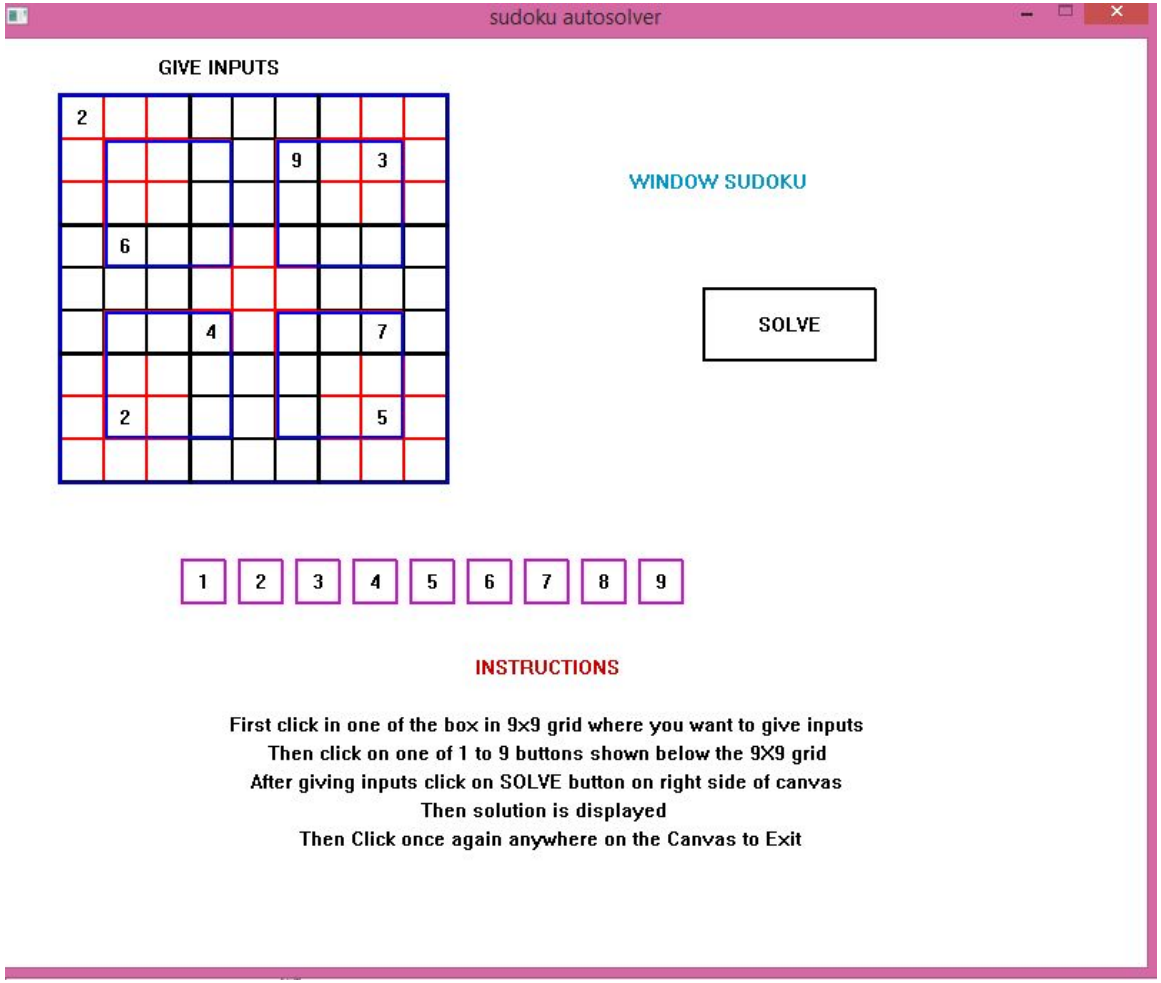
Input Window For Diagonal Sudoku



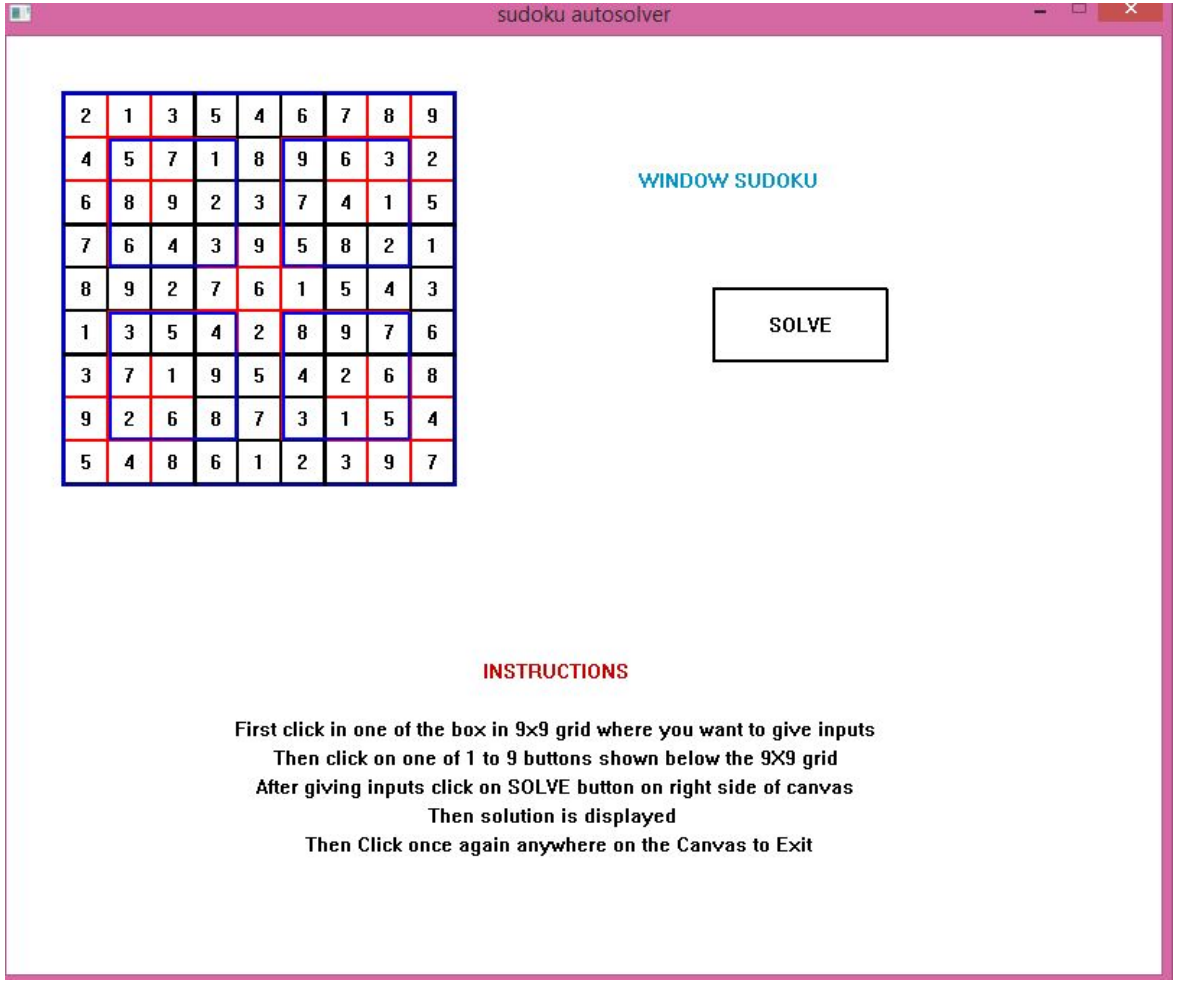
Output Window For Diagonal Sudoku



Input Screen For Window Sudoku



Output Screen For Window Sudoku



INSTRUCTION FOR USE

General guidelines

- As soon as the user runs the application, the user is provide with two options which are:
  1. START GAME
  2. EXIT
- To continue,click the START GAME button.
  Then a number of options appear and the user is asked to select the desired
  variant of sudoku that he wishes to solve.
- These options are:
  1. NORMAL SUDOKU
  2. DIAGONAL SUDOKU
  3. WINDOW SUDOKU
  4. EXIT

- The user can then click on the corresponding button to select the desired variant or click EXIT to quit the application.
- On selecting any variant corresponding puzzle begins.
- Now follow the instruction given on the screen to give inputs and solve the sudoku puzzle.

CHALLENGES

- BACKTRACKING

- TO CONNECT THE INTERFACE PART WITH THE ALGORITHM PART.

FUTURE WORK

- IMPLEMENT IT TO SOLVE MORE DIFFERENT TYPES OF SUDOKU LIKE WINDOW SUDOKU, DIAGONAL SUDOKU, JIGSAW SUDOKU.

- IF ONE DOES NOT WANT TO PHYSICALLY SOLVE A SUDOKU PUZZLE HE/SHE CAN SCAN THE SUDOKU PUZZLE BY MAKING USE OF IMAGE PROCESSING FROM WHICH OUR PROGRAM WOULD TAKE INPUTS AND GIVE THE OUTPUT.

THANK YOU !