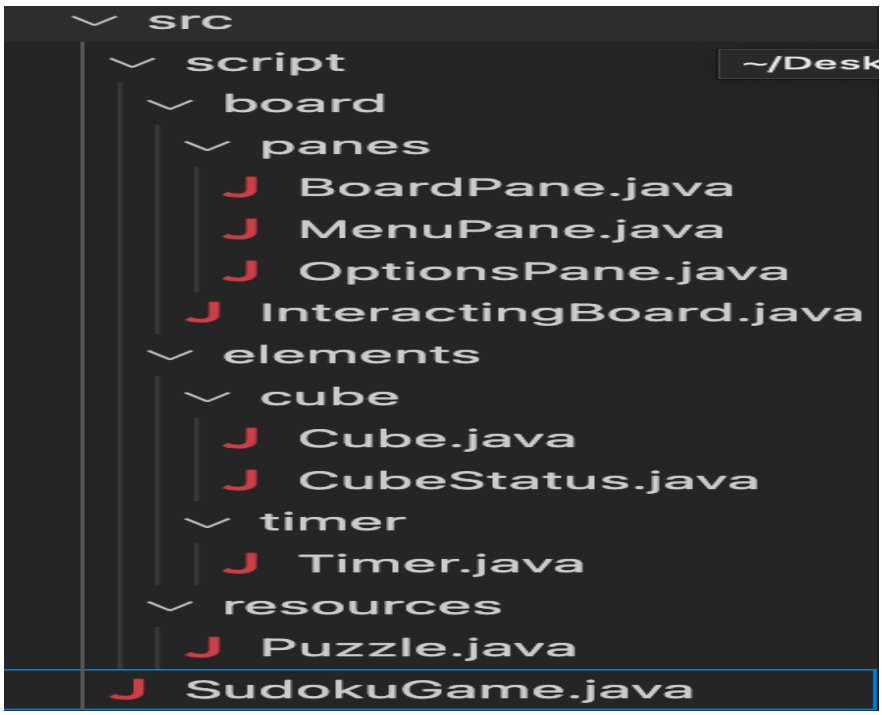
Sudoku Implementation Manual

File structure:



The structure of the project was based on an Object-Oriented Programming approach.

Starting file:
The SudokuGame.java (inherits Application) file; this file encapsulates the InteractingBoard.java file in the **Board Directory**.

Board Directory:
InteractingBoard.java class (inherits BorderPane) and encapsulates all the other sub panes as well as assigning and handling all the Event classes within the program.

> **Panes Directory:**
> The InteractingBoard.java file encapsulates BoardPane.java (inherits GridPane), MenuPane.java (inherits GridPane), and OptionPane.java (inherits Hbox).

Elements directory:

> **Cube directory:**
> The Cube.java (inherits Button) makes up the squares in the Sudoku grid, each of the Cube objects created will be encapsulated in the BoardPane and OptionsPane classes.

CubeStatus.java is an Enum class that is used in the Cube class to keep track of which squares are GIVEN, NEED_GUESS, CORRECT_GUESS, and WRONG_GUESS; this helps keep track of each object's status.

Timer directory:

The Timer.java class (inherits Label) is in the MenuPane.java class by ways of encapsulation. This class keeps track of the time that has gone since the user started a new game.

Resources directory:

The Puzzle.java class stores the specified set of given Sudoku numbers. This class is encapsulated in the BoardPane.java class to help initialize the board with predetermined values.

Below is the UML diagram approach for a more visual example of how the program interacts within its sub and super classes.


SudokuGame
+Start(Stage)
+Main()
BorderPane
Super Class
InteractingBoard
+interactingBoard()
+setBoardCubeToOptionCubeValue(MouseEvent)
+setNumberOnHold(MouseEvent)
+newGame()
+solve()
+isSolved()
GridPane
Super Class
Hbox
Super Class
BoardPane
-Cubes[][] cubes
-Puzzle puzzle
+BoardPane()
+valueIsInRow()
+getCubes()
+valueIsInColumn()
+valueIsInBox()
+newGame()
+solveBoard()
+isSolved()
MenuPane
Timer timer
Button newGame
Button solveBoard
Button checkBoard
+reset()
Label
Super Class
OptionsPane
+Cube[] optionsCubes
+OptionsPane()
+setOptionsCubes()
Button
Super Class
Cube
-int row
-int column
-int cubeValue
-String cubeName
-CubeStatus cubeStatus
+Cube(int row, int column)
+Cube(int cubeValue, int row, int column)
+Cube(String cubeName, int row, int column)
+newGame(boolean isGiven)
+getCubeValue()
+getRow()
+getColumn()
+setCubeValue(int cubeValue)
+paint()
Puzzle
-int[][] puzzle
+int[][] numbers
+setNumbers()
+getPuzzleNumbers()
Timer
-final Integer STARTTIME
-Timeline timeline
-Integer timeSeconds
+Timer()
+updateTime()
+resetTimer()
CubeStatus
enum:
GIVEN,
NEED_GUESS,
CORRECT_GUESS,
WRONG_GUESS