

Assignment 4

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Board	7
ActiveBoard	7
Game	9
JFrame	
GUI	9
KeyListener	
GUI	9

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

ActiveBoard	7
Board	7
Game	9
GUI	9

Chapter 3

File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

src/ ActiveBoard.java	
Board operations class	13
src/ Board.java	
4x4 Board abstract object	13
src/ Game.java	
Game controller class	14
src/ GUI.java	
Class for implementing 2048 GUI grid	14

Chapter 4

Class Documentation

4.1 ActiveBoard Class Reference

Inheritance diagram for ActiveBoard:

4.2 Board Class Reference

Inheritance diagram for Board:

Public Member Functions

- **Board** (int[][] arr)
- int [][] [getArray](#) ()
grid return method
- void [setArray](#) (int[][] arr)
grid mutator method
- int [getScore](#) ()
score return method
- void [setScore](#) (int s)
score mutator method
- String [toString](#) ()

Protected Attributes

- int [][] **grid** = new int[4][4]
- int **score**

4.2.1 Member Function Documentation

4.2.1.1 `getArray()`

```
int [][] Board.getArray ( )
```

grid return method

Returns

2D array grid

4.2.1.2 `getScore()`

```
int Board.getScore ( )
```

score return method

Returns

int score

4.2.1.3 `setArray()`

```
void Board.setArray (
    int arr[][] )
```

grid mutator method

Parameters

<i>arr</i>	array to be changed to
------------	------------------------

4.2.1.4 `setScore()`

```
void Board.setScore (
    int s )
```

score mutator method

This method updates the score state variable

Parameters

<i>s</i>	int score to be set to
----------	------------------------

4.2.1.5 toString()

```
String Board.toString ( )
```

this method is for quick visual display, not necessary for operation. It is not listed in the specification for this reason, as it is just for testing and marking.

The documentation for this class was generated from the following file:

- src/[Board.java](#)

4.3 Game Class Reference

Collaboration diagram for Game:

Static Public Member Functions

- static void **main** (String[] args)

The documentation for this class was generated from the following file:

- src/[Game.java](#)

4.4 GUI Class Reference

Inheritance diagram for GUI:

Collaboration diagram for GUI:

Public Member Functions

- **GUI** ([Board](#) board)
- void **updateTiles** ([Board](#) board)
- void **paint** (Graphics g)
Painting method.
- char **getDirection** ()
lastDirection return method
- void **setDirection** (char ld)
lastDirection set method
- void **setFlag** (boolean tf)
flag set method
- boolean **getFlag** ()
flag return method
- void **keyTyped** (KeyEvent e)
- void **keyReleased** (KeyEvent e)
- void **keyPressed** (KeyEvent kp)
Key detection method.

4.4.1 Member Function Documentation

4.4.1.1 `getDirection()`

```
char GUI.getDirection ( )
```

lastDirection return method

Returns

lastDirection the last direction inputted by user

4.4.1.2 `getFlag()`

```
boolean GUI.getFlag ( )
```

flag return method

Returns

boolean value of the flag

4.4.1.3 `keyPressed()`

```
void GUI.keyPressed (
    KeyEvent kp )
```

Key detection method.

This method detects when a key has been pressed. If the key is one of [up,down,left,right,escape], it sets the key pressed to the last pressed key and sets the flag.

4.4.1.4 `paint()`

```
void GUI.paint (
    Graphics g )
```

Painting method.

Parameters

<i>g</i>	Graphics class and settings of the JFrame Graphics display method
----------	-------------------------------------------------------------------

This methods procedurally paints the graphics window with a 4x4 grid and fills in the values of the numbers according to the [Board](#) object.

4.4.1.5 `setDirection()`

```
void GUI.setDirection (
    char ld )
```

lastDirection set method

Parameters

<i>ld</i>	char lastDirection is to be set to
-----------	------------------------------------

4.4.1.6 `setFlag()`

```
void GUI.setFlag (
    boolean tf )
```

flag set method

Parameters

<i>tf</i>	Boolean value to set flag to
-----------	------------------------------

The documentation for this class was generated from the following file:

- [src/GUI.java](#)

Chapter 5

File Documentation

5.1 src/ActiveBoard.java File Reference

[Board](#) operations class.

Classes

- class [ActiveBoard](#)

5.1.1 Detailed Description

[Board](#) operations class.

Author

Alan Scott, scotta30, 400263658

This class is a child class of [Board](#). It specializes the [Board](#) class to work for 2048, and contains operations specific to the game.

Parameters

<i>arr</i>	2D array representing the 4x4 board
------------	-------------------------------------

5.2 src/Board.java File Reference

4x4 [Board](#) abstract object

Classes

- class [Board](#)

5.2.1 Detailed Description

4x4 [Board](#) abstract object

Author

Alan Scott, scotta30, 400263658

This class represents a board comprised of a 4x4 grid, with numbers in each spot.

Parameters

<i>arr</i>	4x4 array representing positions on the board.
------------	------------------------------------------------

5.3 [src/Game.java](#) File Reference

[Game](#) controller class.

Classes

- class [Game](#)

5.3.1 Detailed Description

[Game](#) controller class.

Author

Alan Scott, scotta30, 400263658

This class handles both the [GUI](#) class and the [ActiveBoard](#) class to create a game of 2048. The controller takes input from the user through the [GUI](#) JFrame. [Game](#) processes it, and performs the necessary operations on [ActiveBoard](#) using methods within [ActiveBoard](#). The [Game](#) class then passes on the [ActiveBoard](#) to the [GUI](#) class where it is displayed on the JFrame.

5.4 [src/GUI.java](#) File Reference

Class for implementing 2048 [GUI](#) grid.

Classes

- class [GUI](#)

5.4.1 Detailed Description

Class for implementing 2048 [GUI](#) grid.

Author

Alan Scott, scotta30, 400263658

This class is a JFrame which handles graphics output, as well as user key input. It extends the JFrame class, and implements the [KeyListener](#) interface.

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