Introduction to Comp. Sci., Homework 6

Due at 12pm on Friday, March 29

Readings from Liang

Read chapter 10, “Thinking in Objects,” and section 15.5, “Interfaces.”

Optional readings and exercises from HFJ

Read chapter 7 of Head First Java, “Better living in Objectville.” Do the exercises, and check your answers against those provided at the ends of the chapter.

To be turned in

Create a Java class, TicTacToeBoard in the hw6 package, that implements a tic-tac-toe gameboard of arbitrary size. The rules of the game are described on Wikipedia. It should have the following methods:

• TicTacToeBoard(int edgeSize);
  A constructor that initializes a $edgeSize \times edgeSize$ board.

• int getEdgeSize();
  Returns the length of the edges of the board passed to the constructor.

• void makeMove(int row, int column, Mark mark);
  Puts the specified mark at the specified row and column, where valid rows and columns range from 0 to getEdgeSize()-1.

• Mark getSquareContents(int row, int column);
  Returns the mark placed on the specified square by makeMove. If no such move has been made, returns Mark.NONE.

• Mark getVictorIfAny();
  Returns Mark.NONE if no one has won, Mark.X if X has won, and Mark.O if O has won. A victory occurs when a row of Xs or Os occupies a full row, column, or diagonal.

Your class should implement testing.hw6.BoardInterface, which will force a compiler error if you fail to define one of these methods. Check out the source in testing/hw6/BoardInterface.java.

In the same directory, I also provide testing.hw6.Mark, an enum that defines constants representing the marks you can place on a tic-tac-toe board: Mark.NONE, Mark.X, and Mark.O (that’s a capital letter O, not a zero).
A skeleton of an implementation would be:

```java
package hw6;

import testing.hw6.BoardInterface;
import testing.hw6.Mark;

public class TicTacToeBoard implements BoardInterface {
    ...
}
```

Finally, as usual, I am providing some tests for you, which you can run with (Mac):

```
testing/test.sh Hw6Test
```

or (Windows):

```
testing\test.ps1 Hw6Test
```