Project Lights Out

Collaboration: Solo. Complete this project by yourself with optional help from section leaders. Do not work with anyone else, do not copy any code directly, do not copy code indirectly through reading another's code, do not give your code to anyone.

Lights Out is an electronic game released by Tiger Toys in 1995. The game consists of a 5 by 5 grid of lights. When the game starts, a random number or a stored pattern of these lights is switched on. Pressing any of the lights will toggle it and the four adjacent lights. The goal of the puzzle is to switch all the lights off. (from Wikipedia). Play the game at http://www.whitman.edu/mathematics/lights_out/

- Create a new Eclipse java project name LightsOut
- Get these two files into the project http://www.cs.arizona.edu/~mercer/Projects/LightsOutTest.java (all the tests you need) and http://www.cs.arizona.edu/~mercer/Projects/LightsOut.java (the entire class with no instance variables and all methods written as stubs (so everything compiles).
- Implement class GameOfLights with the methods summarized below (comments are longer in LightsOut.java) and make sure all of Rick's test pass before submitting your work to WebCat, which uses the same tests.

Make sure you test all methods. Try making moves on the borders to ensure you are not getting any array subscripts out of bounds.

```java
public class LightsOut {

    // Construct a 5 x 5 Board with all lights off
    public LightsOut() {
        // TODO: Implement this constructor
    }

    // Add needed instance variables here. Hint a boolean[][] will help a lot!

    // Set the specific location to be lit.
    // Precondition: Both row and column are in the range of 0..4 inclusive
    public void light(int row, int column) {
        // TODO: Implement this method
    }

    // Return true if the light at the given row and column.
    // Precondition: Both row and column are in the range of 0..4 inclusive
    public boolean isLit(int row, int column) {
        // TODO: Implement this method
        return false;
    }

    // Return true if all lights are out. This would be true immediately
    // after construction or until a player turns all lights off.
    public boolean hasWon() {
        // TODO: Implement this method
        return false;
    }

    // Return a textual version of this LightsOut game.
    @Override
    public String toString() {

        // Tells the game that the user has selected the light at the row and column.
        // Precondition: Both row and column are in the range of 0..4 inclusive
        public void makeMove(int row, int column) {
            // TODO: Implement this method
            return false;
        }
    }
}
```
// Let us know how many makeMoves have been issued since construction
public int clickTotal() {
    // TODO: Implement this method
    return -1;
}

// Turn on locationsToLight random lights.
// Precondition: locationsToLight <= 25
public void setRandomLights(int locationsToLight) {
    // TODO: Implement this method
}

When you complete the model (the logic of the game), you too will be able to let friends and family play your exciting game with http://www.cs.arizona.edu/~mercer/Projects/LightsOutGUI.java

Grading Criteria

___ / +100 pts WebCat Problem and Code Coverage