Part (a)

public LightBoard(int numRows, int numCols)

{

lights = new boolean[numRows][numCols];

for(int r = 0; r < lights.length; r++)

{

for(int c = 0; c < lights[0].length; c++)

{

int num = (int)(5 \* Math.random()) + 1;

if(num > 2)

{

lights[r][c] = true;

}

else

{

lights[r][c] = false;

}

}

}

}

Part (b)

public boolean evaluateLight(int row, int col)

{

int columnCount = 0;

for(int r = 0; r < lights.length; r++)

{

if(lights[r][col] == true)

columnCount++;

}

if(lights[row][col] == true && columnCount % 2 == 0)

{

return false;

}

else if(lights[row][col] == false && columnCount % 3 == 0)

{

return true;

}

else

{

return lights[row][col];

}

}