**Question 4: Light Board**

| Total Scored out of 9 |  |
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**Part (a) LightBoard 4 points**

Intent: Define implementation of a constructor that initializes a 2D array of lights

+1 Creates a new boolean[numRows][numCols] and assigns to instance variable lights

+1 Accesses all elements in the created 2D array (no bounds errors)

+1 Computes the 40% probability

+1 Sets all values of 2D array based on computed probability

**Part (b) evaluateLight 5 points**

Intent: Evaluate the status of a light in a 2D array of lights

+1 Accesses an element of lights as a boolean value in an expression

+1 Traverses specified col of a 2D array (no bounds errors)

+1 Counts the number of true values in the traversal

+1 Performs an even calculation and a multiple of three calculation

+1 Returns true or false according to all three rules

Question-Specific Penalties

-1 (z) Constructor returns a value

-1 (y) Destruction of persistent data