Midterm Practice

Midterm exam info

- Monday, April 20
- 20% of the total grade
- material from Chapters 1 – 7
- in-class (90 minutes), open book
- 6 problems

Midterm exam format

- **Prob. 1 – short answers**
- **Prob. 2 – simple declarations and code segments**
- **Prob. 3, 4, 5 – implement methods**
- **Prob. 6 – implement a class**

Problem 1: Short answers

a) What is the difference between an object and a class?

b) True / False: An array is a fixed-size data structure.

Problem 2: Simple declarations and code

(a) Declare and initialize a public array object **`inUse`** that can hold 6 Boolean values.

(b) Declare and initialize a private string array object named **`lines`** with enough space to hold 1000 strings.

Problem 3: sparsity method

Write a static method called `sparsity`, which returns the number of zero entries in an input integer matrix (two-dimensional array).

Use the following method prototype:

```
public static int sparsity( int[][] matrix )
```

Problem 4: rotateLeft method

Implement a static method `rotateLeft`, which shifts the elements of an array of integers to the left one place and wraps the first element into the last place.

Use the following method prototype:

```
static void rotateLeft( int[] array )
```

Problem 5: Dessert class

Create a class `Dessert` with getters and setters for `name` (String) and `calories` (integer).

Define instance methods `isHealthy`, which returns true if a dessert has less than 200 calories, and `isDelicious`, which returns true for all desserts.

Good luck!