

Name: \_\_\_\_\_

## APCS Problem Set 12: Arrays and ArrayLists

### 4 FortuneTeller Lab

#### 4.3 Running the Applet

4. Using a web browser, open up the HTML file. If the applet doesn't appear to function properly, go back to the source for `FortuneTeller`, make changes, recompile, and update the class file that the HTML file refers to.

*Teacher's Initials:* \_\_\_\_\_ (10pts)

### 6 SCRABBLE<sup>®</sup>

You are to write a class containing a method called `computeScore()`, as described in Litvin Ch. 12, #9.

*Teacher's Initials:* \_\_\_\_\_ (10pts)

### 10 Array Removals and Insertions

#### 10.4 Element Insertion

1. *Easier Problem:* Import `EasyInsert.java` from <http://feromax.com/apcs/problemsets/PS12/downloads/ArrayOps/> into project PS12-ArrayOps. Modify the code to insert the value "8" so that the provided array's elements remain in increasing order. You may take advantage of the fact you know the value and index of each element.

*Teacher's Initials:* \_\_\_\_\_ (6pts)

2. *Harder Problem:* You have an array of `ints` for which you do not know the contained values. Assume that the array is at full capacity (just as in the last problem) and insert the value "8" in a location so as to maintain the array's ascending order. Import `TrickyInsert.java` from the same URL as the last problem. *Note: Since random values are used to initialize the array each time, you might be required to run the class a few times when demonstrating it to make sure you don't have any subtle bugs!*

*Teacher's Initials:* \_\_\_\_\_ (10pts)

## 11 Book Questions #3

2. Litvin Ch. 12, #18:

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- You must demonstrate the method running for these values:
  - \* { 1.0, 2.0, 3.0, 4.0, 5.0 }; is 3.0 the median?
  - \* { 3.4, -2.9, 0.1, 9.3, 5.8 }; is 4.8 the median?
  - \* { 3.4, -2.9, 0.1, 9.3, 5.8 }; is 3.4 the median?

*Teacher's Initials:* \_\_\_\_\_ (8pts)

## 12 2D Arrays

### 12.2 Darkening an Image by Altering a 2D Array

#### 12.2.3 Your job: Implement `darkenImageRight()`

Read carefully through the Processing sketch to figure out how it appears to work. You will implement the `darkenImageRight()` method, which traverses a large 2D array to replace some `int` values with smaller ones that represent darker colors. The method will darken only the right half of the image each time it is called.

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*Teacher's Initials:* \_\_\_\_\_ (10pts)

## 13 Chomp Lab

### 13.4 Complete `CharMatrix.java`

Your job is to finish implementing `CharMatrix.java`. You might notice that the code you need to write for certain pairs of methods will be almost identical; see if there's a way to take advantage of this fact!

*Teacher's Initials:* \_\_\_\_\_ (12pts)

## 15 Book Questions #4

2. Litvin Ch. 12, #26: Download `Checkerboard.java` from <http://feromax.com/apcs/problemsets/PS12/downloads/> and import into a new project, `PS12-Checkerboard`. Next, implement the `fillCheckerboard()` method. Here are a few important notes to help you:

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*Teacher's Initials:* \_\_\_\_\_ (10pts)