Lab 11

Array Practice

Objectives of this Lab

1. Introduce you to arrays,
2. reinforce the basics of arrays, and
3. practice reading instructions carefully.

Introduction

Your TA will introduce Java array basics:

- How to create arrays.
- How to find the length of an array.
- How to access elements in an array.
- How to modify elements in an array.
- How to print all the elements in an array using a loop.
- How to print all the elements in an array using Arrays.toString().

Array Practice, Practice, and more Practice

Complete the following (the instructions are not complete, and make sure that you break each problem down into smaller steps):

1. Create a new project in Eclipse and an associated class.
2. Put everything that follows into the main method except the method `arrayAverage`.
3. Create a 5 element array of doubles called *grades* that contains the following numbers in this order: 81.2, 92.5, 48.9, 78.8, and 45.5.
4. Create a 7 element array of ints called *numbers* that contains the following numbers in this order: 12, 42, 33, 67, 92, 58, and 33.
5. Create a 9 element array of Strings called *arguments* without using an array initializer.

6. Print (on one line) the length of each of the arrays
7. Print (on one line) the first element of each of the arrays
8. Set the second to last element of *grades* to be 90.5.
9. Set the third element of *numbers* to be 99.
10. Set the first six elements of *arguments* to be "Java", and the rest to be "C++". (HINT: use a loop or two)
11. Use a loop to print each element of each of the arrays, use a trailing character like a comma or underscore to identify where the array ends.
12. Print the contents of each of the arrays using toString (for example: `Arrays.toString(grades);`)
13. FINAL STEP: Write a method that takes an array of doubles as a parameter and returns the average as a double. Print the result of calling *arrayAverage* using the array *grades* with exactly 3 digits after the decimal point.
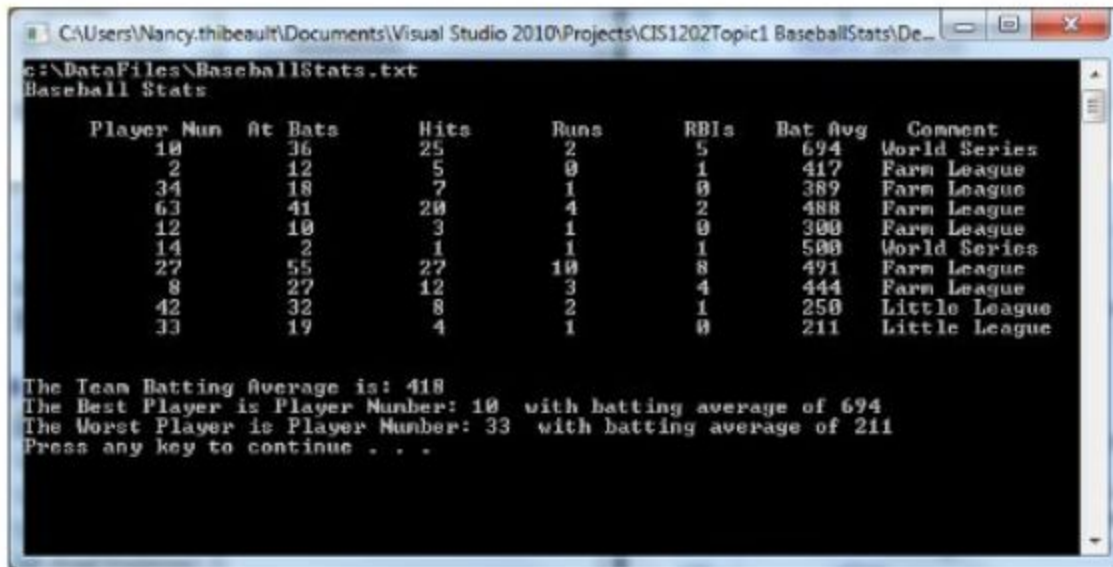

Your Turn

Complete the following (the instructions are not complete, and make sure that you break each problem down into smaller steps):

1. Using the mlb website: http://mlb.mlb.com. Take a look at the stats for the players and get familiar with the data that is collected for each player and team.

2. Using the following chart, you'll need to write a method that will find the Batting Average of each of the players. To find the batting average, you have to divide hits by at bats. The result is a percent, so multiply the result by 100 and round to the nearest integer.

Player Num	At Bats	Hits	Runs	RBIs
10	36	25	2	5
2	12	5	0	1
34	18	7	1	0
63	41	20	4	2
12	10	3	1	0
14	2	1	1	1
27	55	27	10	8
8	27	12	3	4
42	32	8	2	1
33	19	4	1	0

3. You will print out the stats formatted similar to the sample output below. You don't have all of the information, so using what you have, make sure that the format is the same.

Sample Output

4. Have your TA look over your work, and turn in to GitHub after you are finished:
https://classroom.github.com/a/i4sVFXN2

5. You are not given step-by-step instructions for this lab, so break down the problem into steps and ask for help if you need it. This lab is about problem solving and about learning to break problems down into manageable steps.