PROMINEO TECH

Intro to Java Week 3 Coding Assignment

Points possible: 70

Category	Criteria	% of Grade
Functionality	Does the code work?	25
Organization	Is the code clean and organized? Proper use of white space, syntax, and consistency are utilized. Names and comments are concise and clear.	25
Creativity	Student solved the problems presented in the assignment using creativity and out of the box thinking.	25
Completeness	All requirements of the assignment are complete.	25

Instructions: In Eclipse, or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed. Take screenshots of the code and of the running program (make sure to get screenshots of all required functionality) and paste them in this document where instructed below. Create a new repository on GitHub for this week's assignments and push this document, with your Java project code, to the repository. Add the URL for this week's repository to this document where instructed and submit this document to your instructor when complete.

Coding Steps:

1. Create an array of int called ages that contains the following values: 3, 9, 23, 64, 2, 8, 28, 93.
    a. Programmatically subtract the value of the first element in the array from the value in the last element of the array (do not type ANY numbers in the operation, ages[7] – ages[0] is not allowed). Print the result to the console.
    b. Add a new age to your array and repeat the step above to ensure it is dynamic (works for arrays of different lengths).

   c. Use a loop to iterate through the array and calculate the average age. Print the result to the console.

2. Create an array of String called names that contains the following values: “Sam”, “Tommy”, “Tim”, “Sally”, “Buck”, “Bob”.
   a. Use a loop to iterate through the array and calculate the average number of letters per name. Print the result to the console.
   b. Use a loop to iterate through the array again and concatenate all the names together, separated by spaces, and print the result to the console.
3. How do you access the last element of any array?
4. How do you access the first element of any array?
5. Create a new array of int called nameLengths. Write a loop to iterate over the previously created names array and add the length of each name to the nameLengths array.
6. Write a loop to iterate over the nameLengths array and calculate the sum of all the elements in the array. Print the result to the console.
7. Write a method that takes a String, word, and an int, n, as arguments and returns the word concatenated to itself n number of times. (i.e. if I pass in “Hello” and 3, I would expect the method to return “HelloHelloHello”).
8. Write a method that takes two Strings, firstName and lastName, and returns a full name (the full name should be the first and the last name as a String separated by a space).
9. Write a method that takes an array of int and returns true if the sum of all the ints in the array is greater than 100.
10. Write a method that takes an array of double and returns the average of all the elements in the array.
11. Write a method that takes two arrays of double and returns true if the average of the elements in the first array is greater than the average of the elements in the second array.
12. Write a method called willBuyDrink that takes a boolean isHotOutside, and a double moneyInPocket, and returns true if it is hot outside and if moneyInPocket is greater than 10.50.
13. Create a method of your own that solves a problem. In comments, write what the method does and why you created it.

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Screenshots of Code:

```java
import java.io.ObjectInputStream.GetField;

import javax.swing.plaf.basic.BasicInternalFrameTitlePane.IconifyAction;

import org.omg.CORBA.PUBLIC_MEMBER;

public class Week3Homework {

    public static void main(String[] args) {
        //1A & B
        int[] ages = {3, 9, 23, 64, 2, 8, 28, 93, 21};

        int averageOfAges = ages.length;
        int firstNumber = ages [ages.length - ages.length];
        int lastNumber = ages [ages.length - 1];

        System.out.println("21 - 3 = " + (lastNumber - firstNumber));

        //1C.
            int total = 0;

            for (int i = 0; i < ages.length; i++) {
                total += ages[i];
            }
            int average = total / ages.length;
            System.out.println("The average is: " + average);

        //2.
            String[] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};

        //2A.
            int total2 = 0;

            for (int i = 0; i < names.length; i++) {
                total2 += names[i].length();
            }
            double averageNumOfLetters = total2 / names.length;
            System.out.println("The average number of letters are: " + averageNumOfLetters );
```

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```
40          //2B.
41              int total3 = 0;
42
43              String allNames = "";
44
45              for (int i = 0; i < names.length; i++) {
46                  allNames += names[i] + " ";
47              }
48              System.out.println("Here are the all names: " + allNames);
49
50          //3. How do you access the last element of any array: ages[ages.length - 1];
51
52          //4. How do you access the first element of any array: ages[0];
53
54          //5.
55              int[] nameLengths = new int[names.length];
56              for (int i = 0; i < names.length; i++) {
57                  nameLengths[i] = names[i].length();
58              }
59          //6.
60              int sum = 0;
61              for (int i = 0; i < nameLengths.length; i++) {
62                  sum += nameLengths[i];
63              }
64              System.out.println(sum);
65
66          //7.
67              System.out.println(multiplyString("Dez " , 3));
68
69          //8.
70              String firstName = "Jay";
71              String lastName = "Young";
72              String fullName = createFullName(firstName, lastName);
73
74              System.out.println(fullName);
75
76      //9.
77          int[] numbers = new int[4];
78          int averagetempratureOutside = numbers.length;
79
80          numbers[0] = 10;
81          numbers[1] = 20;
82          numbers[2] = 70;
83          numbers[3] = 100;
84
85          System.out.println(greaterThan100(numbers));
86
87      //10 & 11.
88          double[] tempeatureOfWeather = new double[4];
89          tempeatureOfWeather[0] = 84.94;
90          tempeatureOfWeather[1] = 93.83;
91          tempeatureOfWeather[2] = 84.93;
92          tempeatureOfWeather[3] = 20.94;
93
94          double[] gasPrices = new double[4];
95          gasPrices[0] = 3.39;
96          gasPrices[1] = 1.84;
97          gasPrices[2] = 2.93;
98          gasPrices[3] = 1.86;
99
100         System.out.println(findAverage(tempeatureOfWeather));
101
102         System.out.println(isFirstArrayAverageGreaterThanSecondArrayAverage(tempeatureOfWeather, gasPrices));
103
104     //12.
105         boolean willBuyDrink = false;
106         boolean isHotOutside = false;
107         double moneyInPocket = 15.83;
108
109         System.out.println("Will I buy a drink today?: " + willBuyDrink(isHotOutside, moneyInPocket));
110
```

```java
        //13.
            boolean isItRaining = false;
            double gallonsOfGas = 16;

            System.out.println("Will I drive today?: " + willIDriveToday(isItRaining, gallonsOfGas));

        }

        //7. Method
            public static String multiplyString(String str, int num) {
            String result = "";
            for (int i = 0; i < num; i++) {
                result += str;
            }
            return result;
        }

        //8. Method
            public static String createFullName(String firstName, String lastName) {
                return firstName + " " + lastName;
        }

        //9. Method
            public static boolean greaterThan100(int[] numbers) {
                int sum = 0;
                for (int i = 0; i < numbers.length; i++) {
                    sum += numbers[i];
                }

                if (sum > 100) {
                    return true;
                } else {
                    return false;
                }

            }

    //10. Method
        public static double findAverage(double[] numbers) {
            double sum = 0;
            for (double number : numbers) {
                sum += number;
            }
            return sum / numbers.length;
        }

    //11. Method
        public static boolean isFirstArrayAverageGreaterThanSecondArrayAverage(double[] firstArray, double[] secondArray) {
            if (findAverage(firstArray) > findAverage(secondArray) ) {
                return true;
            } else {
                return false;
            }
        }
    //12. Method
        public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
            return !isHotOutside && moneyInPocket > 10.50;
        }

    //13. Method

        // Created a simple boolean method and described I will drive today if it is not raining and
        // if I have enough gas in my tank.

        public static boolean willIDriveToday(boolean isItRaining, double gallonsOfGas) {
            return !isItRaining && gallonsOfGas > 8;
        }

```

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Screenshots of Running Application:

```
21 - 3 = 18
The average is: 27
The average number of letters are: 3.0
Here are the all names: Sam Tommy Tim Sally Buck Bob
23
Dez Dez Dez
Jay Young
true
71.16
true
Will I buy a drink today?: true
Will I drive today?: true
```

URL to GitHub Repository: https://github.com/DesmondYo/Week3Homework