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 (i.e. do not use ages[7] in your code). 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.

Screenshots of Code:

module-info.java Work.java

```
1  package week3Assignment;
2
3  import java.util.Arrays;
4
5  public class Work {
6
7      public static void main(String[] args) {
8          // TODO Auto-generated method stub
9
10         System.out.println(parrotString("hello", 3));
11         System.out.println("Answer to question 7 above");
12         System.out.println(getFullName("Gerri", "Ciancanelli"));
13         System.out.println("Answer to question 8 above");
14 ////////////////////////////////////////////////////////////////////////////
15 // #1       Create an array of int called ages that contains the
16 //       following values: 3, 9, 23, 64, 2, 8, 28, 93.
17         int [] ages = { 3, 9 , 23, 64, 2, 8, 28, 93 };
18 ////////////////////////////////////////////////////////////////////////////
19         double [] height = { 3, 9 , 23, 64, 2, 8, 28, 93 };
20         double [] height2 = { 3, 9 , 23, 64, 55,42, 2};
21         boolean hot = true;
22         double temp = 99.9;
23         System.out.println(trueAverage(height,height2));
24         System.out.println("Answer to question 11 above");
25         System.out.println(findAverage(height));
26         System.out.println("Answer to question 10 above");
27
28         System.out.println(hundredPlus(ages));
29         System.out.println("Answer to question 9 above");
30         System.out.println(willBuyDrink(hot, temp));
31         System.out.println("Answer to question 12 above");
32         int answer = 43;
33         System.out.println(memberStatus(answer));
34         System.out.println("Answer to question 13 above");
35 ////////////////////////////////////////////////////////////////////////////
36
37 // a.    a.  Programmatically subtract the value of the first element
38 //       in the array from the value in the last element of the array
39
40         System.out.println("Last age minus first age: " + (ages[ages.length-1] - ages[0]));
41         System.out.println("Answer to question 1a above");
42 ////////////////////////////////////////////////////////////////////////////
43
```

```
module-info.java  Work.java
42 ////////////////////////////////////////////////////////////////////////////////
43
44 //b.    Add a new age to your array and repeat the step above
45 //      to ensure it is dynamic
46 //
47         int [] newAges = { 3, 9 , 23, 64, 2, 8, 28, 93, 43 };
48         System.out.println("Last age minus first age: " + (newAges[newAges.length-1] - newAges[0]));
49         System.out.println("Answer to question 1b above");
50 ////////////////////////////////////////////////////////////////////////////////
51
52 //c.    Use a loop to iterate through the array and calculate the average age.
53         int averageAge = 0;
54         for (int age : ages) {
55             averageAge += age;
56         }
57         System.out.println(averageAge/ages.length);
58         System.out.println("Answer to question 1c above");
59 ////////////////////////////////////////////////////////////////////////////////
60
61 //#2
62         String[] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
63     String concatNames = "";
64     for (String name: names) {
65         concatNames = concatNames + name + " ";
66
67
68     }
69     System.out.println(concatNames);
70     System.out.println("Answer to question 2 above");
71 ////////////////////////////////////////////////////////////////////////////////
72
73 //#3 - Mentor helped and said to keep them in notes due to errors showing
74     //System.out.println(element[element.length-1]);
75 ////////////////////////////////////////////////////////////////////////////////
76
77 //#4 - Mentor helped and said to keep them in notes due to errors showing
78     //System.out.println(element[0]);
79 ////////////////////////////////////////////////////////////////////////////////
80
```

```
module-info.java  Work.java
79 ////////////////////////////////////////////////////////////////////////////////
80
81 //#5
82     int [] nameLengths = new int [6];
83         for(int i = 0; i<names.length;i++) {
84             nameLengths[i] = names[i].length();
85         }
86         System.out.println(Arrays.toString(nameLengths));
87         System.out.println("Answer to question 5 above");
88 ////////////////////////////////////////////////////////////////////////////////
89
90 //#6   6.   Write a loop to iterate over the nameLengths array
91 //      and calculate the sum of all the elements in the array.
92
93         int nameAverageLetters = 0;
94         for (int i = 0; i < nameLengths.length; i++) {
95             nameAverageLetters = nameAverageLetters + nameLengths[i];
96             }
97         System.out.println(nameAverageLetters);
98         System.out.println("Answer to question 6 above");
99     }
100 ////////////////////////////////////////////////////////////////////////////////
101
102 //#7
103
104
105•        public static String parrotString(String word, int r) {
106             String answer = "";
107             for (int i = 0; i < r; i++) {
108                 answer += word;
109             }
110         return answer;
111         }
112 ////////////////////////////////////////////////////////////////////////////////
113
```

module-info.java Work.java

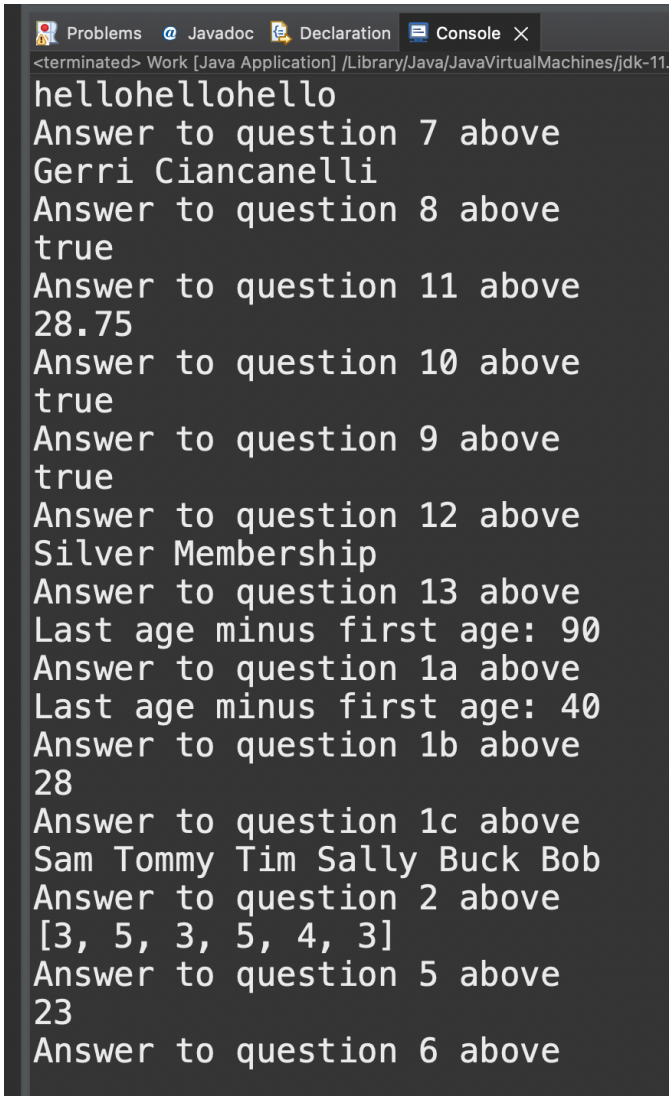
```java
////////////////////////////////////////////////////////////////////////////////

    // #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).


        public static String getFullName (String firstName, String lastName) {
            return firstName + " " + lastName;

        }
////////////////////////////////////////////////////////////////////////////////

//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.
    public static boolean hundredPlus(int[] test) {
        int answer = 0;
        for (int i = 0; i < test.length; i++) {
            answer =  answer + test[i];
        }
        if (answer >100) {
        return true;
        } else {
            return false;
        }
    }
////////////////////////////////////////////////////////////////////////////////

//  10. Write a method that takes an array of double and returns the
//  average of all the elements in the array.
    public static double findAverage(double[] numbers) {
        return findSum(numbers)/numbers.length;
    }
    public static double findSum(double[] numArray) {
    double sum = 0;
    for (double num : numArray) {
        sum += num;
    }
        return sum;
    }
////////////////////////////////////////////////////////////////////////////////
```

module-info.java Work.java

```java
    }
////////////////////////////////////////////////////////////////////////////////

    //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.
    public static boolean trueAverage (double [] array1, double [] array2) {
        double sum = 0;
        double sum2 = 0;
        double avg = 0;
        double avg2 = 0;
        for (double num : array1) {
            sum += num;
            avg = sum / array1.length;
        }
        for (double num : array2) {
            sum2 +=num;
            avg = sum / array2.length;
        }
        if (avg > avg2) {
            return true;
        }
        else {
            return false;
        }
    }
////////////////////////////////////////////////////////////////////////////////

//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.
    public static boolean willBuyDrink (boolean isHotOutside, double moneyInPocket) {
        if (isHotOutside && moneyInPocket > 10.50) {
            return true;
        }else {
            return false;
        }

    }
////////////////////////////////////////////////////////////////////////////////
```

```java
190 ////////////////////////////////////////////////////////////////////////////////
191
192     //13. 13.   Create a method of your own that solves a problem. In comments,
193     //write what the method does and why you created it.
194     public static String memberStatus (int status1) {
195         if (status1 > 50) {
196             return "Gold Membership";
197         }else {
198             return "Silver Membership";
199         }
200     }
201
202
203 }
204
```

Screenshots of Running Application:



URL to GitHub Repository:

GitHub Link

https://github.com/geraldinedepaul17/BackEndClass/blob/main/Work.java