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?
   By printing out the last index in the specified array. Ex. System.out.println(ages.length[-1]); This example will print out the last value in any array.
4. How do you access the first element of any array?
   By printing out the first index in the specified array. Ex. System.out.println(ages[0]); This example will print out the first value in 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:

```java
import java.util.Arrays;
import java.util.Scanner;


public class WK3CodingAssignment {
    public static void main(String[] args) {
    //1)
        int ages[] = {3,9,23,64,2,8,28,93};
        System.out.println(Arrays.toString(ages));

        ages = Arrays.copyOf(ages, ages.length + 1); {
        ages[ages.length - 1] = 22;

        System.out.println(Arrays.toString(ages));

        }
        double total =0;

        for (int i=0; i<ages.length; i++) {
            total = total + ages[i];
        }
        double aa = total / ages.length;

        System.out.println("The average age :" + aa);

    //2)
        String names[] = {"Sam","Tommy","Tim","Sally","Buck","Bob"};
        int total1 = 0;

        for(int i = 0; i < names.length; i++) {
            total1 += names[i].length();

        }
        System.out.println("Average name length: " + total1/names.length);
```

```java
        String result = String.join(" ",names);

        System.out.println(result);

    //5) and 6
        int nameLengths[] = new int [6]; {

        for(int i = 0; i < names.length; i++) {
            nameLengths[i] = names[i].length();
        }

        System.out.println("Length of each name: " + Arrays.toString(nameLengths)+ ".");

        int sum = 0;
        for(int i = 0; i < nameLengths.length; i++) {
            sum += nameLengths[i];
        }

        System.out.println("The sum of all the names: " + sum);

    //7)

        Scanner scan = new Scanner(System.in);


        System.out.println("Enter a word: ");
        String word = scan.nextLine();

        System.out.println("Enter a number: ");
        int n = scan.nextInt();

        System.out.println("String: " + word.repeat(n));

    //8)
```

```java
71
72          String firstName = "Che";
73          String lastName = "Versalles";
74
75          String fullName = (firstName +" "+ lastName);
76
77          System.out.println(fullName);
78
79      //9)
80
81          int age[] = {3,9,23,64,2,8,28,93};
82          int s = 0;
83
84          System.out.println(Arrays.toString(age));
85
86          for(int i = 0; i < age.length; i++) {
87              s = s + age[i];
88          }
89          System.out.println("Sum of ages:" + s);
90
91          if(s > 100) {
92              System.out.println("True");
93          }
94          else {
95              System.out.println("False");
96          }
97      //10)
98
99          double weight[] = {56.8, 32.5, 100.8, 187.6, 12.3,97.3};
100         double t = 0;
101
102             System.out.println(Arrays.toString(weight));
103
104         for(int i = 0; i < weight.length; i++) {
105             t = t + weight[i];
106         }
```

```java
106         }
107         double avg = t / weight.length;
108
109         System.out.println("The average: " + avg);
110
111     //11)
112
113         double drinkPrice[] = {0.99, 2.50, 3.69, 4.99, 1.97};
114         double snackPrice[] = {5.65, 3.28, 2.29, 7.50, 4.80};
115         double tdp = 0;
116         double sp = 0;
117
118             System.out.println("Drink Prices");
119             System.out.println(Arrays.toString(drinkPrice));
120             System.out.println("Snack Prices");
121             System.out.println(Arrays.toString(snackPrice));
122
123         for(int i = 0; i < drinkPrice.length; i++) {
124             tdp = tdp + drinkPrice[i];
125         }
126         for(int i = 0; i < snackPrice.length; i++) {
127             sp = sp + snackPrice[i];
128         }
129         double avgg = tdp / drinkPrice.length;
130         double avgg2 = sp / snackPrice.length;
131
132         if( avgg > avgg2){
133             System.out.println("Is the average of Drink Prices greater than Snack Prices: True");
134         }
135         else {
136             System.out.println("Is the average of Drink Prices greater than Snack Prices: False");
137         }
138     }
139
140
```

```
1 import java.util.Random;
2
3 public class WK3CodingProb13 {
4●     public static void main(String[] args) {
5             Random diceRoll = new Random();
6             int d = diceRoll.nextInt(6) + 1;
7             System.out.println("You rolled a " + d +".");
8       }
9 }
10
```

Screenshots of Running Application:

```
[3, 9, 23, 64, 2, 8, 28, 93]
[3, 9, 23, 64, 2, 8, 28, 93, 22]
The average age :28.0
Average name length: 3
Sam Tommy Tim Sally Buck Bob
Length of each name: [3, 5, 3, 5, 4, 3].
The sum of all the names: 23
Enter a word:
Hope
Enter a number:
8
String: HopeHopeHopeHopeHopeHopeHopeHope
Che Versalles
[3, 9, 23, 64, 2, 8, 28, 93]
Sum of ages:230
True
[56.8, 32.5, 100.8, 187.6, 12.3, 97.3]
The average: 81.21666666666667
Drink Prices
[0.99, 2.5, 3.69, 4.99, 1.97]
Snack Prices
[5.65, 3.28, 2.29, 7.5, 4.8]
Is the average of Drink Prices greater than Snack Prices: False
```

```
true
```

```
You rolled a 4.
```

URL to GitHub Repository:

https://github.com/MThunder2/Week-3.git