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.

```
int[] ages = {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.

```
int[] ages = {3, 9, 23, 64, 2, 8, 28, 93};

System.out.println((ages[ages.length-1])- ages[0]);
```

   b. Add a new age to your array and repeat the step above to ensure it is dynamic (works for arrays of different lengths).

```
        int[] ages = {3, 100, 9, 23, 64, 2, 8, 28, 93};

        System.out.println((ages[ages.length-1])- ages[0]);
```

Problems @ Javadoc Declaration Console

```
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90
```

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

```
        int[] ages = {3, 100, 9, 23, 64, 2, 8, 28, 93};

        System.out.println((ages[ages.length-1])- ages[0]);

        double sum = 0.0;
        for (int age : ages) {
            sum += age;
        }
        System.out.println(sum/ages.length);
```

Problems @ Javadoc Declaration Console

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90
36.666666666666664
```

2. Create an array of String called names that contains the following values: “Sam”, “Tommy”, “Tim”, “Sally”, “Buck”, “Bob”.

```
String [] names = {"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.

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

    double sumOfLetters = 0;
    for (String name : names) {
        sumOfLetters += name.length();
    }System.out.println(sumOfLetters/names.length);
```

Problems @ Javadoc Declaration Console

```
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90
36.666666666666664
3.8333333333333335
```

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.

```
29
30  String [] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
31
32  double sumOfLetters = 0;
33  for (String name : names) {
34      sumOfLetters += name.length();
35  }System.out.println(sumOfLetters/names.length);
36
37  for (int i = 0; i < names.length; i++) {
38      System.out.print(names[i] + " ");
39  }
40
```

Problems @ Javadoc Declaration Console

```
<terminated> Week3CodingAssignment [Java Application] C:\Users\sbotc\.p2\pool\plugins\org.eclipse.justj.openj
90
36.666666666666664
3.8333333333333335
Sam Tommy Tim Sally Buck Bob
```

3. How do you access the last element of any array?

   You access it by calling the .length or .length() -1. You minus 1 because the position is one less because arrays start at 0.

4. How do you access the first element of any array?

   You call the array name and position 0. For example names[0]

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.

```
int[] nameLengths = new int[names.length];

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

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.

```
49
50      int sumOfNameLengths = 0;
51      for (int number : nameLengths) {
52          sumOfNameLengths += number;
53      }System.out.println(sumOfNameLengths);
54
```

Problems @ Javadoc Declaration Console

```
<terminated> Week3CodingAssignment [Java Application] C:\Users\sbotc\
90
36.666666666666664
3.8333333333333335
Sam Tommy Tim Sally Buck Bob
23
```

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”).

   I tested the method in with the string practice and int h, and the method I wrote is on lines 60-67

```
55          String practice  = "Hello";
56          int h = 3;
57          System.out.println(wordRepeating(practice, h));
58      }
59
60      public static String wordRepeating(String word, int n)
61      String result = "";
62          while (n > 0){
63          result += word ;
64          n--;
65      }
66      return result;
67      }
68  }
```

Problems @ Javadoc Declaration Console

```
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90
36.666666666666664
3.8333333333333335
Sam Tommy Tim Sally Buck Bob
23
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).

The method I wrote:

```
public static String fullName(String firstName, String lastName) {
    String fullName = firstName + " " + lastName;
    return fullName;
}
```

Here I tested it:

```
61
62          System.out.println(fullName(firstName, lastName));
63      }
```

Problems @ Javadoc Declaration Console

```
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HelloHelloHello
Billy Smith
```

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.

Here is the method I wrote:

```
public static boolean isGreaterThanOneHundred(int[] numberList) {
    int total = 0;
for (int number : numberList) {
    total += number;
    if (total > 100) {
 return true;
    }
}
return false;
}
```

Here is my test:

```
63
64          System.out.println(isGreaterThanOneHundred(ages));
65      }
```

Problems @ Javadoc Declaration Console

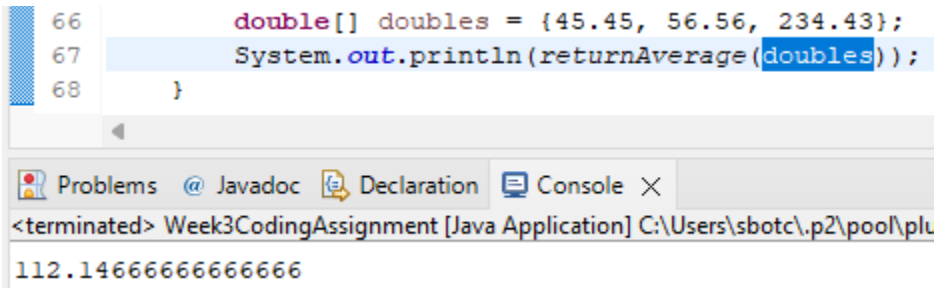
```
<terminated> Week3CodingAssignment [Java Application] C:\Users\sbotc\.p2\pool\plugins\org.e
Billy Smith
true
```

10. Write a method that takes an array of double and returns the average of all the elements in the array.

The method I wrote:

```
public static double returnAverage(double [] doubleList) {
    double sum = 0.0;
    for (double number : doubleList) {
        sum += number;
    }
    return (sum/doubleList.length);
}
```

My code test:

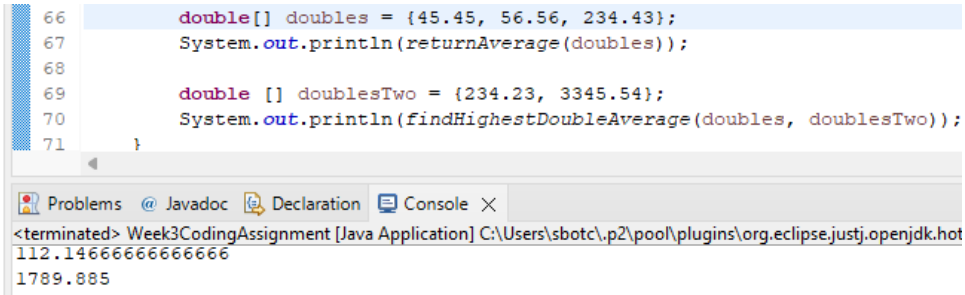


11. Write a method that takes two arrays of double and returns true if the average of the elements in the first array is greater than the average of the elements in the second array.

My method:

```
public static double findHighestDoubleAverage(double[] listOne, double [] listTwo) {
    double sumOne = 0.0;
    double sumTwo = 0.0;
    double totalOne = 0.0;
    double totalTwo = 0.0;
    for (double number : listOne) {
        sumOne += number;
        totalOne = sumOne/listOne.length;
    }
    for (double number : listTwo) {
        sumTwo += number;
        totalTwo = sumTwo/listTwo.length;
    }if (totalOne > totalTwo) {
        return totalOne;
    }else return totalTwo;
}
```

My code test:



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.

The method I wrote:

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

Testing the code:

```
72          boolean isHotOutside = true;
73          double moneyInPocket = 13.13;
74
75          System.out.println(willBuyDrink(isHotOutside, moneyInPocket));
76      }
```

Problems @ Javadoc Declaration Console

```
<terminated> Week3CodingAssignment [Java Application] C:\Users\sbotc\.p2\pool\plugins\org.eclipse.justj.openjdk.h
true
```

13. Create a method of your own that solves a problem. In comments, write what the method does and why you created it.

The method I wrote lets me know if I should wear sandals or sneakers depending on the temperature, and if I am exercising or not.

```
public static String wearSandalsOrSneakers(boolean iAmExcercising, int temp ) {
    String result = "";
    if(iAmExcercising ==false && temp > 65) {
        return result = "This is a great time to wear sandals!";
    }
    else if (iAmExcercising == true) {
        return result = "You are excercising, please wear Sneakers";
    }
    return result = "The temp is too cold for sandals, sneakers would be more comfortable";

}
```

A test of my method:

```
77          int temp = 18;
78          boolean iAmExercising = false;
79          System.out.println(wearSandalsOrSneakers(iAmExercising, temp));
80      }
```

Problems @ Javadoc Declaration Console

```
<terminated> Week3CodingAssignment [Java Application] C:\Users\sbotc\.p2\pool\plugins\org.eclipse.justj.openjdk.
The temp is too cold for sandals, sneakers would be more comfortable
```

Screenshots of Code:

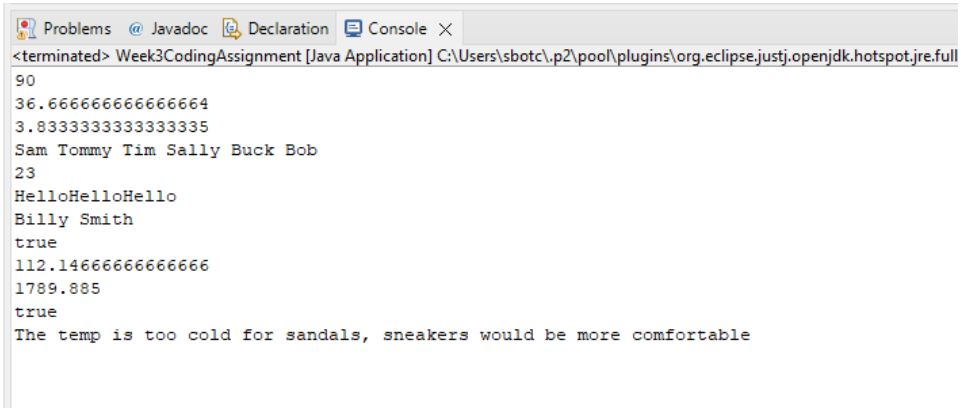
```java

public class Week3CodingAssignment {

    public static void main(String[] args) {
        //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.

        int[] ages = {3, 100, 9, 23, 64, 2, 8, 28, 93};

        System.out.println((ages[ages.length-1])- ages[0]);

        double sum = 0.0;
        for (int age : ages) {
            sum += age;
        }
        System.out.println(sum/ages.length);

        //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.


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

        double sumOfLetters = 0;
        for (String name : names) {
            sumOfLetters += name.length();
        }System.out.println(sumOfLetters/names.length);

        for (int i = 0; i < names.length; i++) {
            System.out.print(names[i] + " ");
        }

        System.out.println();

        int[] nameLengths = new int[names.length];

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


        int sumOfNameLengths = 0;
        for (int number : nameLengths) {
            sumOfNameLengths += number;
        }System.out.println(sumOfNameLengths);

        String practiceRepeatingMethod   = "Hello";
        int h = 3;

        System.out.println(wordRepeating(practiceRepeatingMethod, h));

        String firstName = "Billy";
        String lastName = "Smith";

        System.out.println(fullName(firstName, lastName));

        System.out.println(isGreaterThanOneHundred(ages));

        double[] doubles = {45.45, 56.56, 234.43};
        System.out.println(returnAverage(doubles));

        double [] doublesTwo = {234.23, 3345.54};
        System.out.println(findHighestDoubleAverage(doubles, doublesTwo));

        boolean isHotOutside = true;
        double moneyInPocket = 13.13;

        System.out.println(willBuyDrink(isHotOutside, moneyInPocket));

        int temp = 18;
        boolean iAmExercising = false;
        System.out.println(wearSandalsOrSneakers(iAmExercising, temp));
    }

    public static String wordRepeating(String word, int n) {
    String result = "";
        while (n > 0){
```

```
        result += word ;
        n--;
    }
    return result;
    }
    public static String fullName(String firstName, String lastName) {
        String fullName = firstName + " " + lastName;
        return fullName;
    }


    public static boolean isGreaterThanOneHundred(int[] numberList) {
        int total = 0;
    for (int number : numberList) {
        total += number;
        if (total > 100) {
     return true;
        }
    }
    return false;
    }

    public static double returnAverage(double [] doubleList) {
        double sum = 0.0;
        for (double number : doubleList) {
            sum += number;
        }
        return (sum/doubleList.length);
```

```
    }

    public static double findHighestDoubleAverage(double[] listOne, double [] listTwo) {
        double sumOne = 0.0;
        double sumTwo = 0.0;
        double totalOne = 0.0;
        double totalTwo = 0.0;
        for (double number : listOne) {
            sumOne += number;
            totalOne = sumOne/listOne.length;
        }
        for (double number : listTwo) {
            sumTwo += number;
            totalTwo = sumTwo/listTwo.length;
        }if (totalOne > totalTwo) {
            return totalOne;
        }else return totalTwo;
    }

    public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
        if(moneyInPocket > 10.50 && isHotOutside ==true) {
            return true;
        }
        return false;
    }
    public static String wearSandalsOrSneakers(boolean iAmExcercising, int temp ) {
        String result = "";
        if(iAmExcercising ==false && temp > 65) {
```

```
            return result = "This is a great time to wear sandals!";
        }
       else if (iAmExcercising == true) {
            return result = "You are excercising, please wear Sneakers";
        }
        return result = "The temp is too cold for sandals, sneakers would be more comfortable";

    }
}
```

Screenshots of Running Application:



URL to GitHub Repository:

https://github.com/DGolf1313/Week3CodingAssignment