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.

```
14
15        int[] ages = new int[8];
16
17        ages[0]= 3;
18        ages[1]= 9;
19        ages[3]= 23;
20        ages[4]= 64;
21        ages[5]= 2;
22        ages[6]= 8;
23        ages[7]= 28;
24
25        int firstElement = ages[0];
26        int lastElement = ages[ages.length-1];
27        int answer = firstElement - lastElement;
28
29        System.out.println("The first element: " + firstElement + ", minus the last element, " + lastElement + " = " + answer );
30
```

Problems Javadoc Console

```
<terminated> wk3codeassignment [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-0932\jre\bin\javaw.exe (D
The first element: 3, minus the last element, 28 = -25
The average age = 17
```

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

```
15        int[] ages = new int[9];
16
17        ages[0]= 3;
18        ages[1]= 9;
19        ages[3]= 23;
20        ages[4]= 64;
21        ages[5]= 2;
22        ages[6]= 8;
23        ages[7]= 28;
24        ages[8]= 93;
25
26        int firstElement = ages[0];
27        int lastElement = ages[ages.length-1];
28        int answer = firstElement - lastElement;
29
30        System.out.println("The first element: " + firstElement + ", minus the last element, " + lastElement + " = " + answer );
```

Problems Javadoc Console

```
<terminated> wk3codeassignment [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-0932\jre\bin\javaw.exe (Dec
The first element: 3, minus the last element, 93 = -90
The average age = 25
```

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

```
10
11          int[] ages = new int[8];
12
13          ages[0]= 3;
14          ages[1]= 9;
15          ages[3]= 23;
16          ages[4]= 64;
17          ages[5]= 2;
18          ages[6]= 8;
19          ages[7]= 28;
20
21          //Use a loop to iterate through the array and calculate the average age.
22          int sum = 0;
23          for(int i = 0; i < ages.length; i++) {
24              sum += ages[i];
25          }
26          System.out.println("The average age = " + (sum / ages.length));
27
28
29      }
30
31  }
```

Problems Javadoc Console

<terminated> wk3codeassignment [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspo

```
The average age = 17
```

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.

```
16
17            System.out.println("The total number of names in namesArray = " + namesArray.length);
18          int[] namesLength = new int [6]; // for a later question?
19
20  //        for (int y = 0; y <= 5; y++) { // amount of chars per name
21  //               namesLength[y] =  namesArray[y].length();
22  //              System.out.println("The amount of characters for name " + y + " is " + namesLengt
23  //               }
24            for (int i = 0; i <= 5; i++) { // sum of chars per name in array AND average characters
25               charSum = charSum + namesArray[i].length();
26            }
27            averageChar = (double)charSum / (double)namesArray.length;
28            System.out.println("The sum of characters in the array = " + charSum);
29            System.out.println("The average number of characters per word = " + averageChar);
30      }
31  }
32
33
```

Problems Javadoc Console

```
<terminated> hw2 [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v202008
The total number of names in namesArray = 6
The sum of characters in the array = 23
The average number of characters per word = 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.

```
27          for (int r = 0; r < namesArray.length; r++) { //loop to print all names concat w/ spaces
28              System.out.print(namesArray[r] + " ");
29              }
30
31            averageChar = (double)charSum / (double)namesArray.length;
32            System.out.println(); //to add a break after the names array concat
33            System.out.println("The sum of characters in the array = " + charSum);
34            System.out.println("The average number of characters per word = " + averageChar);
```

Problems Javadoc Console

```
<terminated> hw2 [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-
The total number of names in namesArray = 6
Sam Tommy Tim Sally Buck Bob
The sum of characters in the array = 23
The average number of characters per word = 3.8333333333333335
```

3. How do you access the last element of any array?
   - You have to call the array at -1 index point from its total specified length.
4. How do you access the first element of any array?
   -You have to call the array at index point [0], where all indexes start no matter the length.
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.

Loops.java | test.java | wk3codeassignment.java | hw2.java | TeamMenuApp.java | *kensnoteswk2.java

```
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        String[] namesArray = new String[6];
        namesArray[0]= "Sam";
        namesArray[1]= "Tommy";
        namesArray[2]= "Tim";
        namesArray[3]= "Sally";
        namesArray[4]= "Buck";
        namesArray[5]= "Bob";

           System.out.println("The total number of names in namesArray = " + namesArray.length);
        int[] namesLength = new int [6];

          for (int y = 0; y <= 5; y++) {
                namesLength[y] =  namesArray[y].length();
               System.out.println("The amount of characters for name " + y + " is " + namesLength[y]);
                }
    }
}
//      for(String name : names) { //enhanced for loop
```

Problems | Javadoc | Declaration | Console

```
<terminated> hw2 [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-0932\jre\b
The total number of names in namesArray = 6
The amount of characters for name 0 is 3
The amount of characters for name 1 is 5
The amount of characters for name 2 is 3
The amount of characters for name 3 is 5
The amount of characters for name 4 is 4
The amount of characters for name 5 is 3
```

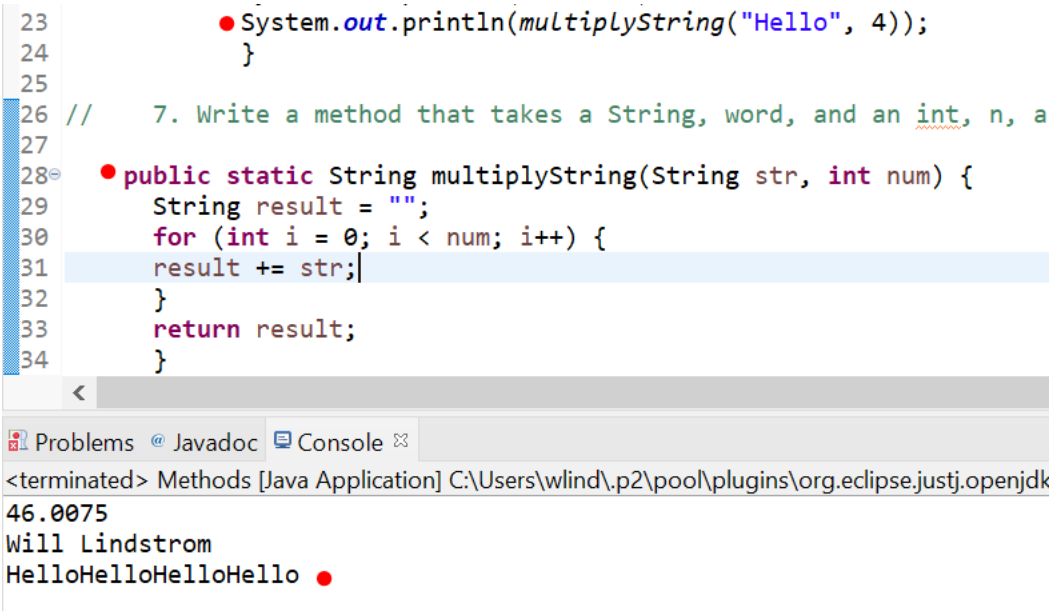
6. Write a loop to iterate over the nameLengths array and calculate the sum of all the elements in the array. Print the result to the console.

```
        namesArray[2]= "Tim";
        namesArray[3]= "Sally";
        namesArray[4]= "Buck";
        namesArray[5]= "Bob";

        int charSum = 0;

           System.out.println("The total number of names in namesArray = " + namesArray.length);
        int[] namesLength = new int [6];

          for (int y = 0; y <= 5; y++) { // amount of chars per name
                namesLength[y] =  namesArray[y].length();
               System.out.println("The amount of characters for name " + y + " is " + namesLength[y]);
                }
          for (int i = 0; i <= 5; i++) { // sum of chars per name in array
             charSum = charSum + namesLength[i];
          }
          System.out.println("The sum of characters in the array = " + charSum);
    }
}
//      for(String name : names) { //enhanced for loop
```

Problems | Javadoc | Declaration | Console

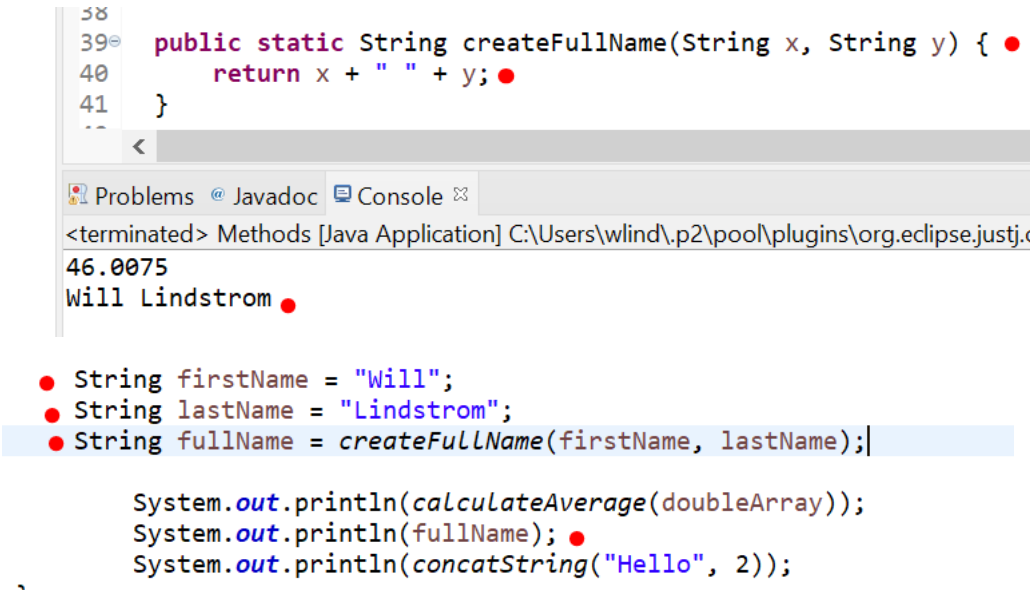
```
<terminated> hw2 [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-0932\jre\b
The total number of names in namesArray = 6
The amount of characters for name 0 is 3
The amount of characters for name 1 is 5
The amount of characters for name 2 is 3
The amount of characters for name 3 is 5
The amount of characters for name 4 is 4
The amount of characters for name 5 is 3
The sum of characters in the array = 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”)
(sorry, used “num” here instead of “n” as the int variable)

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.

```
50  public static boolean greaterThanHundred(int[] myArray) {
51      int sum = 0;
52      for (int number : myArray) {
53          sum += number;
54      }
55      if( sum > 100) {
56          return true;
57    }
58      else {
59          return false;
60      }
61      }
```

Problems Javadoc Console

<terminated> Methods [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre

```
46.0075
Will Lindstrom
HelloHelloHelloHello
false
```

```
int[] myArray = new int[3];
    myArray[0] = 32;
    myArray[1] = 44;
    myArray[2] = 23;

double[] doubleArray = new double[4];
    doubleArray[0] = 54.22;
    doubleArray[1] = 75.88;
    doubleArray[2] = 39.02;
    doubleArray[3] = 14.91;

double[] tripleArray = new double [3];
    tripleArray[0] = 55.55;
    tripleArray[1] = 66.66;
    tripleArray[2] = 44.44;

String firstName = "Will";
String lastName = "Lindstrom";
String fullName = createFullName(firstName, lastName);

    System.out.println(calculateAverage(doubleArray));
    System.out.println(fullName);
    System.out.println(multiplyString("Hello", 4));
    System.out.println(greaterThanHundred(myArray));
```

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

```
        double[] doubleArray = new double[4];
            doubleArray[0] = 54.22;
            doubleArray[1] = 75.88;
            doubleArray[2] = 39.02;
            doubleArray[3] = 14.91;

            System.out.println(calculateAverage(doubleArray));
```

```
36 //    10. Write a method that takes an array of double and returns the average of all the elements in the array.
37     public static double calculateAverage(double[] numbers) {
38         double sum = 0;
39         for (double number : numbers) {
40             sum += number;
41         }
42         return sum / numbers.length;
43     }
```

Problems Javadoc Console

<terminated> Methods [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-0932\jre\bin\ja

46.0075

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 averagingArrays(double[] doubleArray, double[] tripleArray) {
    double sum1 = 0;
    double sum2 = 0;
    for (double number : doubleArray) {
        sum1 += number;
    }
    for (double number : tripleArray) {
        sum2 += number;
    }
    if ( (sum1 / doubleArray.length) > (sum2 / tripleArray.length)) {
        return true;
    } else {
        return false;
}
}
```

```
11      double[] doubleArray = new double[4];
12           doubleArray[0] = 54.22;
13           doubleArray[1] = 75.88;
14           doubleArray[2] = 39.02;
15           doubleArray[3] = 14.91; // total is 184.03
16
17      double[] tripleArray = new double [3];
18           tripleArray[0] = 55.55;
19           tripleArray[1] = 66.66;
20           tripleArray[2] = 44.44; // total is 166.65
21
22        String firstName = "Will";
23        String lastName = "Lindstrom";
24        String fullName = createFullName(firstName, lastName);
25
26        boolean isHotOutside = false;
27        double moneyInPocket = 40.67;
28
29            System.out.println(calculateAverage(doubleArray));
30            System.out.println(fullName);
31            System.out.println(multiplyString("Hello", 4));
32            System.out.println(greaterThanHundred(myArray));
33            System.out.println(averagingArrays(doubleArray, tripleArray));
```

Problems Javadoc Console

<terminated> Methods [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.ful

```
46.0075
Will Lindstrom
HelloHelloHelloHello
false
false
Will I buy a drink?: 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 == true && moneyInPocket > 10.50) {
        return true;
    }
    else {
        return false;
    }
}
```

```
26      boolean isHotOutside = false;
27      double moneyInPocket = 40.67;
28
29          System.out.println(calculateAverage(doubleArray));
30          System.out.println(fullName);
31          System.out.println(multiplyString("Hello", 4));
32          System.out.println(greaterThanHundred(myArray));
33          System.out.println(averagingArrays(doubleArray, tripleArray));
34          System.out.println("Will I buy a drink?: " + willBuyDrink(isHotOutside, moneyInPocket));
35          }
```

Problems Javadoc Console

```
<terminated> Methods [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-09
46.0075
Will Lindstrom
HelloHelloHelloHello
false
true
Will I buy a drink?: false
```

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

```
110     public static double totalArraySum(double[] doubleArray, double[] tripleArray) {
111         double sum1 = 0;        // variable storage for sum amount for doubleArray
112         double sum2 = 0;        // variable storage for sum amount for tripleArray
113         for (double number : doubleArray) {     // for loop for modifying sum1
114             sum1 += number;
115         }
116         for (double number : tripleArray) {     //for loop for modifying sum2
117             sum2 += number;
118         }
119             return sum1 + sum2;  //returns the combined total of all values in both arrays as a double.
120         }                         // I made this method for better practice double methods
121
```

Problems Javadoc Console

```
<terminated> Methods [Java Application] C:\Users\wlind\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_14.0.2.v20200815-093
46.0075
Will Lindstrom
HelloHelloHelloHello
false
false
Will I buy a drink?: false
The sum of the combined values of both arrays = 350.67999999999995
```

URL to GitHub Repository:

https://github.com/wlindstrom55/week-3-assignments