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? **myarray[array.length – 1]**
4. How do you access the first element of any array? **myarray[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.
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:

1a.

```java
1  import java.lang.reflect.Array;
2
3  public class week3codingassign {
4
5      public static void main(String[] args) {
6          //1a.   Programmatically subtract the value of the first element in the array from the value
7          //      in the last element of the array (i.e. do not use ages[7] in your code). Print the result to t
8          // Add a new age and repeat step above
9          int[] ages = {3, 9, 23, 64, 2, 8, 28, 93, 50};
10             System.out.println( (ages[ages.length - 1]) - ages[0]  );
11
12
13     }
14 }
15
16
```

1c

```java
1  import java.lang.reflect.Array;
2
3  public class week3codingassign {
4
5      public static void main(String[] args) {
6          //1a.   Programmatically subtract the value of the first element in the array from the value
7          //      in the last element of the array (i.e. do not use ages[7] in your code). Print the result to
8          // Add a new age and repeat step above
9      int[] ages = {3, 9, 23, 64, 2, 8, 28, 93, 50};
10             //System.out.println( (ages[ages.length - 1]) - ages[0]  );
11
12         // Use a loop to iterate through the array and calculate the average age. Print the result to the console
13          double sum = 0;
14          double averageAge = 0;
15         for (int x : ages) {
16             sum += x;
17
18         averageAge = sum / ages.length;
19
20      }
21
22      System.out.println(averageAge);
23
24      }
25
26  }
```

2a

```java
27      String[] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
28      // a. use a loop to iterate through the array and calculate the average number of letters per name. Print
29
30      int sumofLetters = 0;
31      double averageLetter = 0;
32      for (String name : names) {
33          sumofLetters += name.length();
34          averageLetter = sumofLetters / names.length;
35
36      }   System.out.println(averageLetter);
37      }
38
```

2b

```java
25      //2. Create an array of STring called names that contains the following values: "Sam", "Tommy", "Tim", "Sal
26      // "Buck", and "Bob".
27      String[] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
28      // a. use a loop to iterate through the array and calculate the average number of letters per name. Print
29
30      String listNames = "";
31      for (int i = 0; i < names.length; i++) {
32          listNames = names[i] + " " + listNames;
33
34      }       System.out.println(listNames);
```

5-6.

```java
49
50        int[] nameLengths = new int[6];
51        for (int i = 0; i < names.length; i++) {
52            nameLengths[i] = names[i].length();
53            System.out.println(nameLengths[i]);
54
55
56        } int sumofnameLengths = 0;
57        for (int number : nameLengths) {
58            sumofnameLengths += number;
59        } System.out.println(sumofnameLengths);
60
61
62    }
63
64
65
66
67 }
```

```
Problems  @ Javadoc  @ Declaration  ■ Console ×
<terminated> week3codingassign [Java Application] C:\Program Files\Java\jdk-11.0.15\bin\javaw.exe (Jul 16, 2022, 7:43:27 PM – 7:43:27 PM) [pid: 31596]
Bob Buck Sally Tim Tommy Sam
3
5
3
5
4
3
23
```

```
asdfsadf.java - MyFirstProject/src
```

7.

```java
65
66    public static String words(String word, int n) {
67        String result = "";
68        for (int i = 0; i < n; i++) {
69            result += word;
70        }
71        return result;
72
```

8.

```java
76
77    //8. Write a method that takes two STrings, firstName and lastName, and returns a full name
78 public static String greet(String firstName, String lastName) {
79        String fullName = firstName + " " + lastName;
80        return fullName;
81
82
```

9.

```java
85
86 public static boolean isSumgreaterthan100(int[] array) {
87        int sum = 0;
88        for (int number : array) {
89            sum += number;
90
91        } if (sum < 100) {
92        return false;
93    } else {
94        return true;
95
```

10.

```java
97  public static double calculateAverage (double[] array) {
98      double sum = 0;
99      for (double number : array) {
100         sum += number;
101
102     } return sum / array.length;
```

11.

```java
108  public static boolean isFirstArrayGreaterThanSecond (double[] a, double[] b) {
109      double firstArray = 0;
110      double secondArray = 0;
111
112      for (double sum : a) {
113          firstArray += sum;
114      }
115      for (double sum : b) {
116          secondArray += sum;
117      } if (firstArray > secondArray) {
118          return true;
119      } else {
120          return false;
121      }
122  }
123 }
```

12.

```java
128  public static boolean willBuyDrink (boolean IsHotOutside, double moneyInPocket) {
129      if (IsHotOutside == true && moneyInPocket > 10.50) {
130          return true;
131      } else {
132          return false;
```

13.
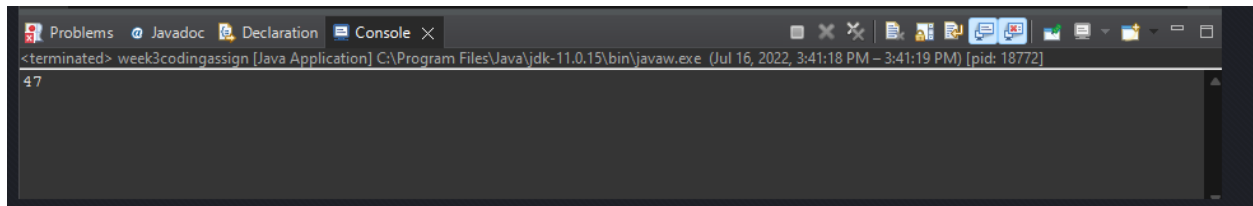
```java
137  public static double averageAgeOfSnrCitizen (double[] array) {
138      double sum = 0;
139      for (double SnrCitizenAge : array) {
140          sum += SnrCitizenAge;
141      } return sum / array.length;
142
143      // To calculate the age of average senior citizen in a nursing home for statistics.
```
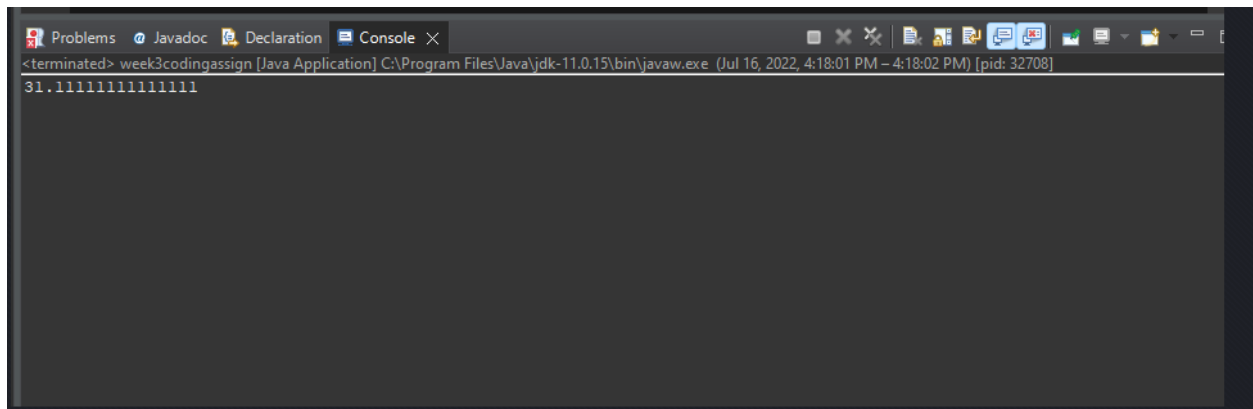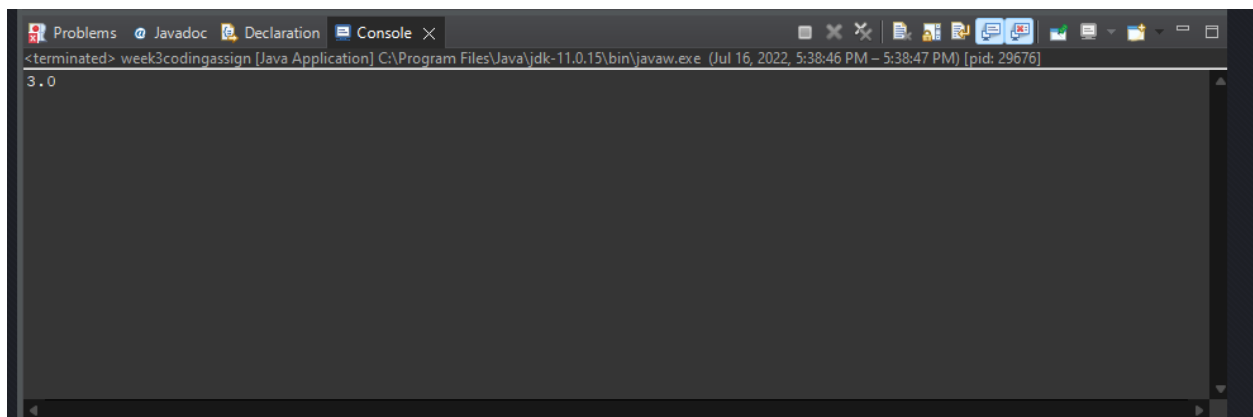
Screenshots of Running Application:

1a.

Problems @ Javadoc Declaration Console ✕

<terminated> week3codingassign [Java Application] C:\Program Files\Java\jdk-11.0.15\bin\javaw.exe (Jul 16, 2022, 6:05:09 PM – 6:05:10 PM) [pid: 30708]
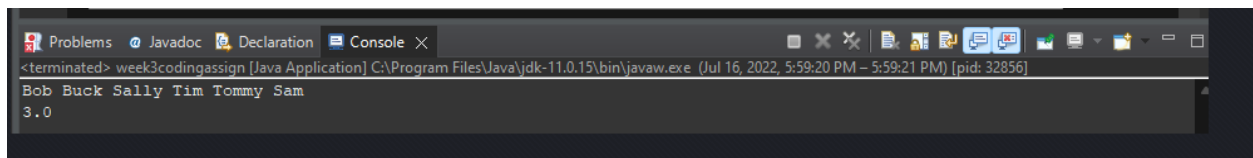
90

1b.

1c

2a

2b

URL to GitHub Repository:

RPador (Ranon Pador) (github.com)