

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:

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

1a: `// the value in the last element of the array
System.out.println(ages[ages.length - 1] - ages[0]);
// Add a new age to your array and repeat the step above`

1b: `int newAge = 45;
int[] newArray = new int[ages.length + 1];
for (int i = 0; i < ages.length; i++) {
 newArray[i] = ages[i];
}
newArray[newArray.length - 1] = newAge;
ages = newArray;
System.out.println(ages[ages.length - 1] - ages[0]);`

1c: `int averageAge = 0;
for (int age : ages) {
 averageAge += age;
}
System.out.println(averageAge / ages.length);`

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

2a: `int nameAverageLetters = 0;
for (int i = 0; i < names.length; i++) {
 for (int count = App.main(String[]) in++) {
 int count = 0;
 if (Character.isLetter(names[i].charAt(in))) {
 count++;
 }
 nameAverageLetters += count;
 }
}
System.out.println("Average number of letters per name: " + (nameAverageLetters / (names.length - 1)));`

2b: `String concatenatedNames = "";
for (int i = 0; i < names.length; i++) {
 concatenatedNames += names[i];
 concatenatedNames += " ";
}
System.out.println(concatenatedNames);`

3: `names[names.length - 1]`

4: `names[0]`

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

5:

```
int nameLengthsSum = 0;
for (int x : nameLengths) {
    nameLengthsSum += x;
}
System.out.println(nameLengthsSum);
```

6:

```
public static String concatenateWord(String word, int n) {
    String result = "";
    for (int i = 0; i < n; i++) {
        result += word;
    }
    return result;
}
```

7:

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

8:

```
public static boolean isGreaterThan100(int[] array) {
    int result = 0;
    for (int x : array) {
        result += x;
    }
    if (result > 100) {
        return true;
    } else {
        return false;
    }
}
```

9:

```
public static double averageOfDoubleArray(double[] array) {
    double result = 0;
    for (int i = 0; i < array.length; i++) {
        result += array[i];
    }
    return (result / array.length);
}
```

10:

```
public static boolean isDoubleArray1Greater(double[] array1, double[] array2) {  
    if (averageOfDoubleArray(array1) > averageOfDoubleArray(array2)) {  
        return true;  
    } else {  
        return false;  
    }  
}
```

11: }

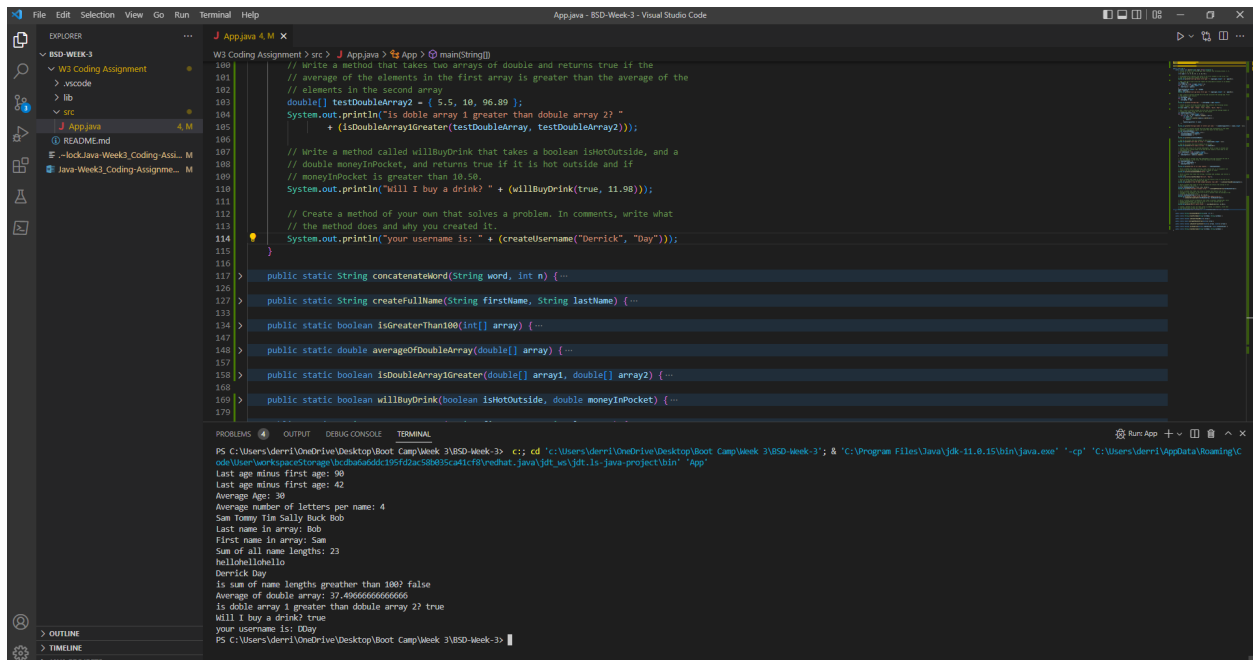
```
public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {  
    if (isHotOutside == true && moneyInPocket > 10.50) {  
        return true;  
    } else {  
        return false;  
    }  
}
```

12: }

```
public static String createUsername(String firstName, String lastName) {  
    // create a username in the format of first initial of first name, last name  
    // with a max length of 8 characters. if last name is longer than 7 characters  
    // cut off last name at 7 characters.  
  
    // in my current role at my company this is something that we have to do all the  
    // time is create usernames for new users coming into the company.  
    if (lastName.length() >= 7) {  
        return (firstName.charAt(0) + lastName.substring(0, 7));  
    } else {  
        return (firstName.charAt(0) + lastName);  
    }  
}
```

13: }

Screenshots of Running Application:



```
W3 Coding Assignment > src > J Appjava > App > main(String[])
108 // Write a method that takes two arrays of double and returns true if the
109 // average of the elements in the first array is greater than the average of the
110 // elements in the second array
111 double[] testDoubleArray2 = { 5.5, 10, 96.89 };
112 System.out.println("Is double array 1 greater than double array 2? "
113     + (isDoubleArray1Greater(testDoubleArray, testDoubleArray2)));
114
115 // Write a method called willBuyDrink that takes a boolean isHotOutside, and a
116 // double moneyInPocket, and returns true if it is hot outside and if
117 // moneyInPocket is greater than 10.50.
118 System.out.println("Will I buy a drink? " + (willBuyDrink(true, 11.98)));
119
120 // Create a method of your own that solves a problem. In comments, write what
121 // the method does and why you created it.
122 System.out.println("your username is: " + (createUsername("Derrick", "Day")));
123
124 }
125
126 > public static String concatenateWord(String word, int n) {
127 > public static String createFullName(String firstName, String lastName) {
128 > public static boolean isGreaterThan100(int[] array) {
129 > public static double averageOfDoubleArray(double[] array) {
130 > public static boolean isDoubleArray1Greater(double[] array1, double[] array2) {
131 > public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
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PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS C:\Users\derri\OneDrive\Desktop\Boot_Camp\Week 3\W3D-Week-3> cd 'c:\Users\derri\OneDrive\Desktop\Boot_Camp\Week 3\W3D-Week-3'; & 'C:\Program Files\Java\jdk-11.0.15\bin\java.exe' '-cp' 'C:\Users\derri\AppData\Roaming\C
cd C:\Users\derri\OneDrive\Desktop\Boot_Camp\Week 3\W3D-Week-3> cd 'c:\Users\derri\OneDrive\Desktop\Boot_Camp\Week 3\W3D-Week-3'; & 'C:\Program Files\Java\jdk-11.0.15\bin\java.exe' '-cp' 'C:\Users\derri\AppData\Roaming\C
Last age minus first age: 90
Last age minus first age: 42
Average Age: 30
Average number of letters per name: 4
Sam Tommy Tim Sally Buck Bob
Last name in array: Bob
First name in array: Sam
Sum of all name lengths: 23
hellohellohello
Derrick Day
Is sum of name lengths greater than 100? false
Average of double array: 37.496666666666666
Is double array 1 greater than double array 2? true
Will I buy a drink? true
your username is: DDay
PS C:\Users\derri\OneDrive\Desktop\Boot_Camp\Week 3\W3D-Week-3>
```

URL to GitHub Repository:

<https://github.com/dsquirrelmonkeydrock/BSD-Week-3>