

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? **Answer: ex: `myArray[myArray.length -1]` will access the last element of myArray.**
4. How do you access the first element of any array? **Answer: all arrays begin with index 0, so accessing `myArray[0]` will always be the first element.**
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:

eclipse-workspace - Week3/src/Week3CodeAssignment1L.java - Eclipse IDE

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Package Explorer

- leetCodeChallenges
- MyFirstProject
- test.java project 1
- Test project 01
- Week1ClassExample
- week1VariablesAndOperations
- Week3
 - JRE System Library [JavaSE-11]
 - src
 - (default package)
 - Week3CodeAssignment1L.java

```
1 public class Week3CodeAssignment1L {
2
3
4
5 //Step 7 method: (step 7 method call is in "main" below):
6 public static String combinesStrings(String word, int n) {
7     String newWord = "";
8     for(int i = 0; i < n; i++) {
9         newWord += word;
10    }
11    return newWord;
12 }
13
14 //Step 8 method: (step 8 method call is in "main" below):
15 public static String fullNameMaker(String firstName, String lastName) {
16     String newName = firstName + " " + lastName;
17     return newName;
18 }
19
20 //Step 9 method:
21 public static boolean isLargerThan100(int[] array) {
22     int sum = 0;
23     for(int i = 0; i < array.length; i++) {
24         sum += array[i];
25     }
26     if(sum > 100)
27         return true;
28     else
29         return false;
30 }
31
32 //Step 10 method:
33 public static double findAverage(double[] array) {
34     double sum = 0;
35     for(int i = 0; i < array.length; i++) {
36         sum += array[i];
37     }
38     return sum / array.length;
39 }
40
41
42 //Step 11 method:
43 public static boolean greaterThanSecond (double[] array1, double[] array2) {
44
```

Problems Javadoc Declaration Console

Week3CodeAssignment1L (Java Application) C:\Program Files\Eclipse IDE\workspace\Week3\src\Week3CodeAssignment1L.java File Edit Run Window Help 2022 3-5-10 PM 3-5-21 PM 6881

eclipse-workspace - Week3/src/Week3CodeAssignment1L.java - Eclipse IDE

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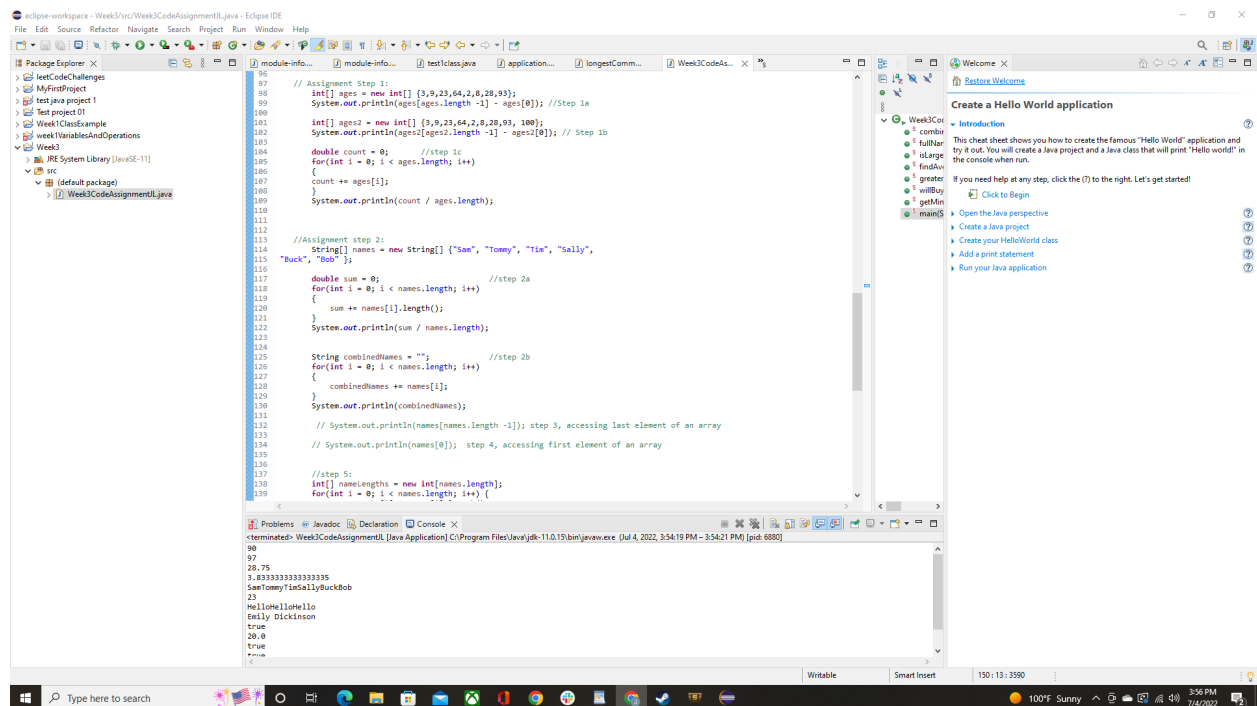
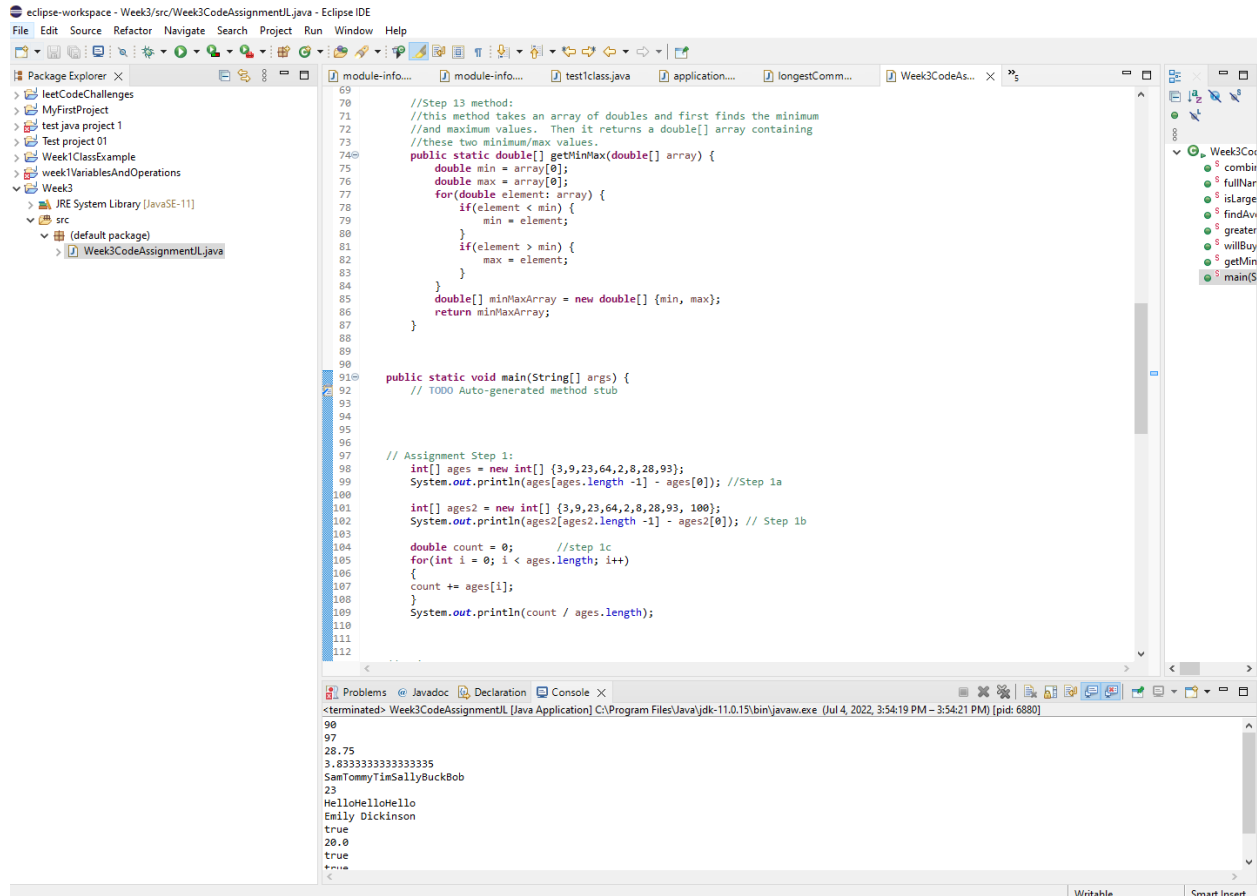
Package Explorer

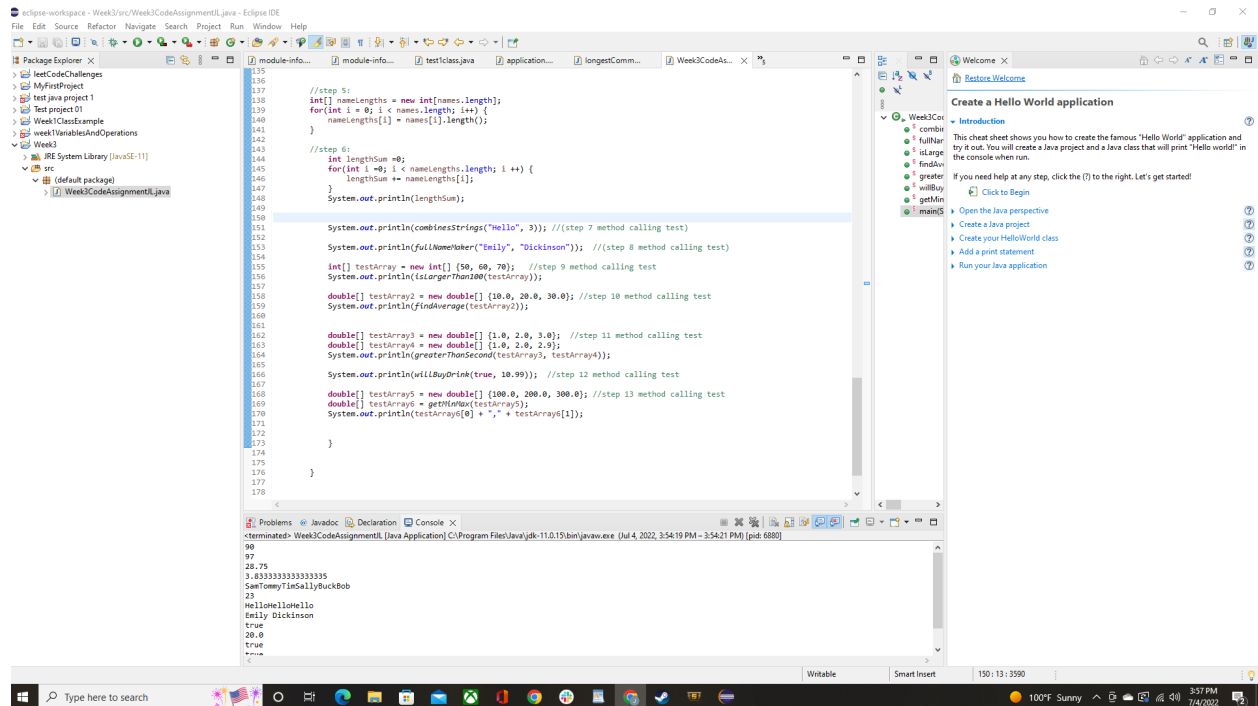
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```
43 //Step 11 method:
44 public static boolean greaterThanSecond (double[] array1, double[] array2) {
45     int sum1 = 0;
46     int sum2 = 0;
47
48     for(int i = 0; i < array1.length; i++) {
49         sum1 += array1[i];
50     }
51     for(int i = 0; i < array2.length; i++) {
52         sum2 += array2[i];
53     }
54
55     if(sum1 > sum2)
56         return true;
57     else
58         return false;
59 }
60
61 //Step 12 method:
62 public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
63     if(isHotOutside == true && moneyInPocket > 10.50)
64         return true;
65     else
66         return false;
67 }
68
69 //Step 13 method:
70 //this method takes an array of doubles and first finds the minimum
71 //and maximum values. Then it returns a double[] array containing
72 //these two minimum/max values.
73 public static double[] getMinMax(double[] array) {
74     double min = array[0];
75     double max = array[0];
76     for(double element: array) {
77         if(element < min) {
78             min = element;
79         }
80         if(element > max) {
81             max = element;
82         }
83     }
84     double[] minMaxArray = new double[] {min, max};
85     return minMaxArray;
86 }
```

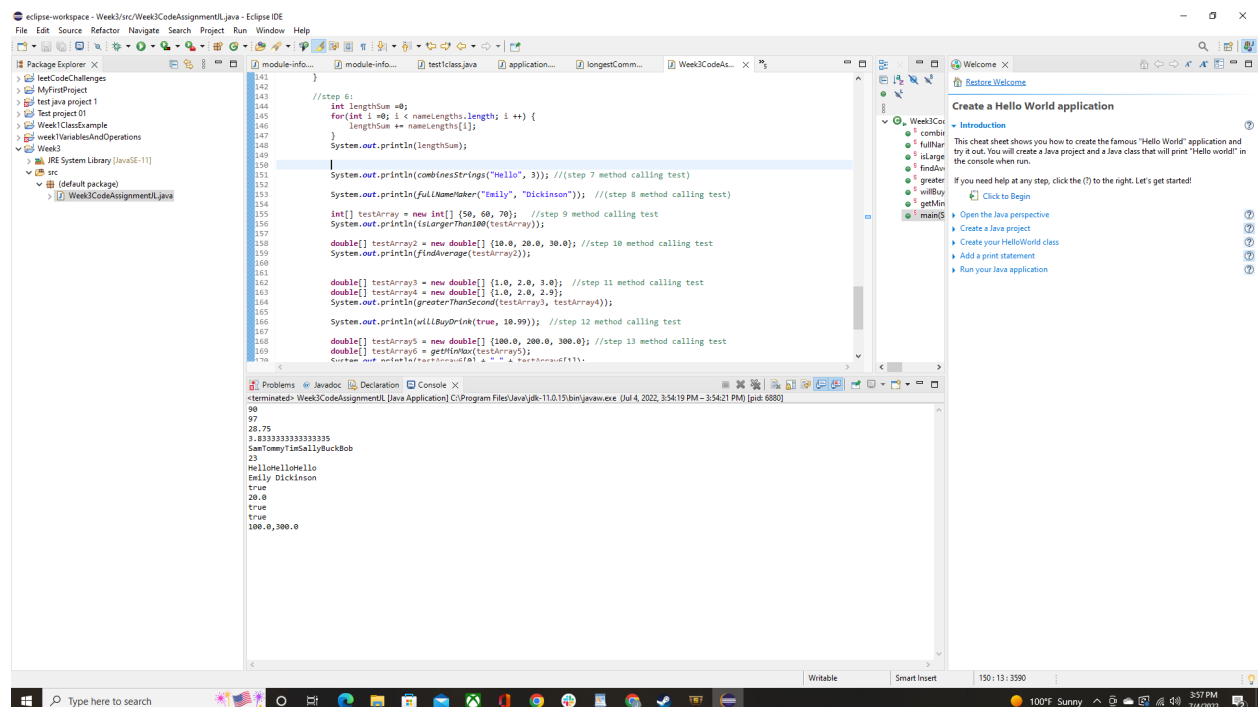
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Screenshots of Running Application:



URL to GitHub Repository: <https://github.com/JayLawrence/week3Repo.git>