

## 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:

- Create an array of int called ages that contains the following values: 3, 9, 23, 64, 2, 8, 28, 93.
  - 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.
  - Add a new age to your array and repeat the step above to ensure it is dynamic (works for arrays of different lengths).
  - Use a loop to iterate through the array and calculate the average age. Print the result to the console.
- Create an array of String called names that contains the following values: "Sam", "Tommy", "Tim", "Sally", "Buck", "Bob".
  - Use a loop to iterate through the array and calculate the average number of letters per name. Print the result to the console.
  - 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.
- How do you access the last element of any array?
- How do you access the first element of any array?
- 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.
- 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.

- 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”).
- 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).
- 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.
- Write a method that takes an array of double and returns the average of all the elements in the array.
- 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.
- 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.
- 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 and Screenshots of Running Application:

The screenshot displays a Java IDE with a code editor and a console window. The code editor shows a `main` method that performs several operations on arrays. The console window shows the output of these operations, including the last element of an array, the sum of elements, and the average of elements.

```

7 public static void main(String[] args) {
8     // TODO Auto-generated method stub
9
10    // Create an array of int called ages that contains the following values: 3, 9, 23, 64, 2, 8, 28, 93
11    int[] ages = {3, 9, 23, 64, 2, 8, 28, 93};
12    System.out.println(ages[ages.length - 1] - ages[0]);
13
14    // Programmatically subtract the value of the first element in the array from the value in the last element of the array
15    int[] age2 = {3, 9, 23, 64, 2, 8, 28, 93, 105};
16    System.out.println(age2[age2.length - 1] - age2[0]);
17
18    // Add a new age to your array and repeat the step above to ensure it is dynamic (works for arrays of different lengths)
19    for(int i = 0; i < ages.length; i++) {
20        System.out.println(ages[i]);
21    }
22
23    // Use a loop to iterate through the array and calculate the average age
24    double sum = 0;
25    for (int x : ages) {
26        sum += x;
27        System.out.println(sum);
28    }
29    double average = sum / ages.length;
30    System.out.println(average);
31
32 }

```

The console output shows the following values:

```

90
102
3
9
23
64
2
8
28
93
3.0
0.375
12.0
1.5
35.0
4.375
99.0
12.375
101.0
12.625
109.0
13.625
137.0
17.125
230.0
28.75

```

```

7 public static void main(String[] args) {
8     // TODO Auto-generated method stub
9
10    // Create an array of String called names that contains the following values: "Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"
11    String[] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
12
13    //Use a loop to iterate through the array and calculate the average number of letters per name
14    int letterAverage = 0; {
15        for (String name : names) {
16            letterAverage += name.length();
17            System.out.println(letterAverage);
18        }
19        System.out.println(letterAverage / names.length);
20    }
21
22    //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
23    String concatenateNames = " "; {
24        for (String name : names) {
25            concatenateNames += name + " ";
26        }
27        System.out.println(concatenateNames);
28    }
29
30    }
31 }
32 }

```

Problems Javadoc Declaration Console X

<terminated> Week3CodingAssignment [Java Application] /Users/xenilyn/p2/pool/plugins/org.eclipse.justi.openjdk.hotspot.jre.full.macosx.x86\_64\_17.0.3.v20220515-1416/jre/bin/java (Jul 17, 2022, 11:35:57 PM - 11:35:58

```

3
8
11
16
20
23
3
Sam Tommy Tim Sally Buck Bob

```

```

26
27 // How do you access the last element of any array? How do you access the first element of any array?
28 int[] array = {5, 2, 1};
29 System.out.println(array[array.length - 1]); // to access the last element of an array
30
31 System.out.println(array[0]); // to access the first element of an array
32
33 // 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
34 int[] nameLengths = new int[names.length];
35
36 for (int i = 0; i < nameLengths.length; i++) {
37     nameLengths[i] = names[i].length();
38     nameLengths[i] = names[i].length();
39     System.out.println(nameLengths[i] + " ");
40 }
41
42 // Write a loop to iterate over the nameLengths array and calculate the sum of all the elements in the array
43 int sumOfLetters = 0;
44 for (String name : names) {
45     sumOfLetters += name.length();
46     System.out.println(sumOfLetters);
47 }
48
49 }
50 }
51 ...

```

Problems Javadoc Declaration Console X

<terminated> Week3CodingAssignment2 [Java Application] /Users/xenilyn/p2/pool/plugins/org.eclipse.justi.openjdk.hotspot.jre.full.macosx.x86\_64\_17.0.3.v20220515-1416/jre/bin/java (Jul 19, 2022, 11:24:59 PM - 11:25:01 PM) [pid: 11825]

```

3
8
11
16
20
23
3
Sam Tommy Tim Sally Buck Bob

```

```

1
3
3
5
3
5
4
3
3
8
11
15
20
23

```

```
40 public static void main(String[] args) {
41     // TODO Auto-generated method stub
42
43     // 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
44     System.out.println(multiplyString("Hello", 3));
45
46     // 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)
47     String firstName = "Xenilyn ";
48     String lastName = "Gafate";
49     System.out.println(fullName(firstName, lastName));
50
51     // 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
52     int[] myArray = {15, 45, 32, 70};
53     System.out.println(greaterThan100(myArray));
54
55     // Write a method that takes an array of double and returns the average of all the elements in the array
56     double[] doubleArray = {9.5, 22.9, 17, 188};
57     double[] doubleArray2 = {0.6, 18.5, 47, 90};
58     System.out.println(arrayOfDouble(doubleArray, doubleArray2));
59
60     // 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
61     boolean isHotOutside = true;
62     double moneyInPocket = 15.50;
63
64     System.out.println(willBuyDrink(isHotOutside, moneyInPocket) );
65
66     // Create a method of your own that solves a problem. In comments, write what the method does and why you created it
67     int x = returnValue(); // the method returns a value and takes in the number inputed
68     System.out.println(x);
69
70     int sum = square(8); // the method returns the value of 8
71     System.out.println(sum); // created to simplify multiplying
72
73 }
74
75 public static String multiplyString(String word, int n) {
76     String result = "";
77     for (int i = 0; i < n; i++) {
78         result += word;
79     }
80     return result;
81 }
82
83 public static String fullName(String firstName, String lastName) {
84     return firstName + " " + lastName;
85 }
86 }
```

Problems Javadoc Declaration Console X

<terminated> Week3CodingAssignment2 [Java Application] /Users/xenilyn/.p2/pool/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.macosx.x86\_64\_17.0.3.v20220515-1416/jre/bin/java (Jul 19, 2022, 11:26:30 PM - 11:26:31 PM) [pid: 11834]

HelloHelloHello  
Xenilyn Gafate  
true  
false  
true  
8  
64

Problems Javadoc Declaration Console X

<terminated> Week3CodingAssignment2 [Java Application] /Users/xenilyn/.p2/pool/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.macosx.x86\_64\_17.0.3.v20220515-1416/jre/bin/java

HelloHelloHello  
Xenilyn Gafate  
true  
false  
true  
8  
64

```

55 public static boolean greaterThan100(int[] numbers) {
56     int sum = 0;
57     for (int number : numbers) {
58         sum += number; }
59     if (sum > 100) {
60         return true;
61     } else {
62         return false; }
63
64 }
65
66 public static boolean arrayOfDouble(double[] doubleArray, double[] doubleArray2) {
67     return averageOfDouble(doubleArray) > averageOfDouble(doubleArray2);
68
69 }
70
71 public static double averageOfDouble(double[] numbers) {
72     double sum = 0;
73     for (int i = 0; i < numbers.length; i++) {
74         sum += numbers[i]; }
75     return sum / numbers.length;
76
77 }
78
79 public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
80     if(isHotOutside == true && moneyInPocket > 10.50) {
81         return true;
82     } else {

```

Problems Javadoc Declaration Console X

<terminated> Week3CodingAssignment2 [Java Application] /Users/xenilyn/.p2/pool/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.macosx

HelloHelloHello

Xenilyn Gafate

true

false

true

8

64

```
82         } else {
83             return false;
84         }}
85
86     public static int square(int x) {
87         return x * x;
88     }
89
90
91     public static int returnValue() {
92         return 8;
93     }
94 }
95
96
```

Problems Javadoc Declaration Console X

<terminated> Week3CodingAssignment2 [Java Application] /Users/xenily  
HelloHelloHello  
Xenilyn Gafate  
true  
false  
true  
8  
64

**URL to GitHub Repository:**

**<https://github.com/Nylinex/week-3-coding-assignment>**