



Week 4 Coding Assignment

URL to GitHub Repository: <https://github.com/Etewolde2023/Week-04-Collections>

URL to Public Link of your Video: <https://youtu.be/4GQsQO-aQ4A>

Instructions:

1. Follow the **Coding Steps** below to complete this assignment.

- 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.
- Create a new repository on GitHub for this week's assignment and push your completed code to this dedicated repo.
- Create a video showcasing your work:
 - In this video: record and present your project verbally while showing the results of the working project.
 - Easy way to Create a video: Start a meeting in Zoom, share your screen, open Eclipse with the code and your Console window, start recording & record yourself describing and running the program showing the results.
 - Your video should be a maximum of 5 minutes.
 - Upload your video with a public link.
 - Easy way to Create a Public Video Link: Upload your video recording to YouTube with a public link.

2. In addition, please include the following in your Coding Assignment Document:

- The URL for this week's GitHub repository.
- The URL of the public link of your video.

3. Save the Coding Assignment Document as a .pdf and do the following:

- Push the .pdf to the GitHub repo for this week.
 - Upload the .pdf to the LMS in your Coding Assignment Submission.
-



Week 4 Coding Assignment

Coding Steps — Arrays and Methods

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: `array[array.length - 1];`

4. How do you access the first element of any array?

Answer: `array[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 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.



Week 4 Coding Assignment

```
eclipse-workspace - project/src/com/ermias/Labs.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer X
> project
Labs.java Practice.java Labs.java Console
1 package com.ermias;
2
3 public class Labs {
4
5     public static void main(String[] args) {
6         // 1. Create an array of int called ages that contains
7         // the following values: 3, 9, 23, 64, 2, 8, 28, 93.
8
9         int[] ages = {3, 9, 23, 64, 2, 8, 28, 93};
10        System.out.println(ages[ages.length - 1] - ages[0]);
11
12        int sum = 0;
13        for(int age : ages) {
14            sum += age;
15            System.out.println(sum);
16
17        int averageAge = sum / ages.length;
18        System.out.println(averageAge);
19    }
20
21
22
23
24    // 2. Create an array of String called names that contains the following values:
25    // "Sam", "Tommy", "Tim", "Sally", "Buck", "Bob".
26    String[] names = {"Tommy", "Tim", "Sally", "Buck", "Bob"};
27
28    // a. Use a loop to iterate through the array and calculate the average number
29    // of letters per name. Print the result to the console.
30
31    int sumOfLetters = 0;
32    for(String name : names) {
33        sumOfLetters += name.length();
34    }
35    System.out.println(sumOfLetters);
36
37    // b. Use a loop to iterate through the array again and concatenate all the names together,
38    // separated by spaces, and print the result to the console.
39    String result = "";
40    for(int i = 0; i < names.length; i++) {
41        System.out.println(result + names[i]);
42    }
43
18°C Sunny
Search
Writable Smart Insert 162:24:4753
ENG US 3:00 PM 2023-06-04
```

```
eclipse-workspace - project/src/com/ermias/Labs.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer X
> project
Labs.java Practice.java Labs.java Console
46
47 // 5. Create a new array of int called nameLengths. Write a loop to iterate over the
48 // length of each name to the nameLengths array.
49
50 for (String name : names) {
51     System.out.println(name.length());
52 }
53
54 int[] nameLengths = new int[5];
55 nameLengths[0] = 5;
56 nameLengths[1] = 3;
57 nameLengths[1] = 5;
58 nameLengths[1] = 4;
59 nameLengths[1] = 3;
60
61
62
63
64 // 6. Write a loop to iterate over the nameLengths array and calculate
65 // the sum of all the elements in the array. Print the result to the console.
66
67 int sum = 0;
68 for(int number : nameLengths) {
69     sum += number;
70     System.out.println(sum);
71 }
72
73
74
75
76
77 // 7. Write a method that takes a String, word, and an int, n, as arguments
78 // and returns the word concatenated to itself n number
79 // of times. (i.e. if I pass in "Hello" and 3, I expect the method
80 // to return "HelloHelloHello").
81
82 public static String repeatWords(String word, int n) {
83     String result = "";
84     for(int i = 0; i < n; i++) {
85         return result += word;
86     }
87 }
88
18°C Sunny
Search
Writable Smart Insert 162:24:4753
ENG US 3:02 PM 2023-06-04
```



PROMINEO TECH

Week 4 Coding Assignment

```
eclipse-workspace - project/src/com/ermias/Labs.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer x
> project
Labs.java Practice.java Labs.java x Console
88
89
90 //8. Write a method that takes two Strings, firstName and lastName, and returns
91 // a full name (the full name should be the first and the last name as a String separated
92 // by a space).
93
94 public static String returnsFullName(String firstName, String lastName) {
95     return firstName + " " + lastName;
96 }
97
98 // 9. Write a method that takes an array of int and returns true if the sum
99 // of all the ints in the array is greater than 100. //
100
101 public static boolean checkSum(int[] array) {
102     int sum = 0;
103     for(int i = 0; i < array.length; i++) {
104         if((sum += array[i]) > 100) {
105             return true;
106         }
107     }
108     return false;
109 }
110
111
112 //10. Write a method that takes an array of double and returns
113 // the average of all the elements in the array.
114 public static double returnsAverage(double[] array) {
115     double sum = 0;
116     for(double number : array) {
117         sum += number;
118     }
119     return sum / array.length;
120 }
121
122
123 // 11. Write a method that takes two arrays of double and returns true if the
124 // average of the elements in the first array is greater than the average of
125 // the elements in the second array.
126 public static boolean willMeasureAverage(double[] arr1, double[] arr2) {
127     double sum = 0;
128     for(int i = 0; i < arr1.length; i++) { for(int j = 0; j < arr2.length; j++) {
129         if((sum += arr1[i]) / arr1.length > (sum += arr2[j]) / arr2.length) {
130             return true;
131         }
132     }
133     return false;
134 }
135
136
137
138
139 // 12. Write a method called willBuyDrink that takes a boolean
140 // isHotOutside, and a double moneyInPocket, and returns true if it is hot
141 // outside and if moneyInPocket is greater than 10.50.
142 public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
143     if((isHotOutside == true && moneyInPocket > 10.50) {
144         return true;
145     }
146     return false;
147 }
148
149
150 //13. Create a method of your own that solves a problem. In comments, write
151 // what the method does and why you created it
152 // This method will take an array of int and will return the biggest number in the array.
153
154 public static int findTheBiggestNumber(int[] array) {
155     int biggest = array[array.length - 1];
156     for(int number : array) {
157         if(number > biggest) {
158             biggest = number;
159         }
160     }
161     return biggest;
162 }
163
164
165
```

```
eclipse-workspace - project/src/com/ermias/Labs.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer x
> project
Labs.java Practice.java Labs.java x Console
123
124 // 11. Write a method that takes two arrays of double and returns true if the
125 // average of the elements in the first array is greater than the average of
126 // the elements in the second array.
127 public static boolean willMeasureAverage(double[] arr1, double[] arr2) {
128     double sum = 0;
129     for(int i = 0; i < arr1.length; i++) { for(int j = 0; j < arr2.length; j++) {
130         if((sum += arr1[i]) / arr1.length > (sum += arr2[j]) / arr2.length) {
131             return true;
132         }
133     }
134     return false;
135 }
136
137
138
139 // 12. Write a method called willBuyDrink that takes a boolean
140 // isHotOutside, and a double moneyInPocket, and returns true if it is hot
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143     if((isHotOutside == true && moneyInPocket > 10.50) {
144         return true;
145     }
146     return false;
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148
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154 public static int findTheBiggestNumber(int[] array) {
155     int biggest = array[array.length - 1];
156     for(int number : array) {
157         if(number > biggest) {
158             biggest = number;
159         }
160     }
161     return biggest;
162 }
163
164
165
```



Week 4 Coding Assignment

The screenshot shows the Eclipse IDE interface with a Java project named 'Labs.java'. The code is as follows:

```
134 }
135 return false;
136 }
137
138 // 12. Write a method called willBuyDrink that takes a boolean
139 // isHotOutside, and a double moneyInPocket, and returns true if it is hot
140 // outside and if moneyInPocket is greater than 10.50.
141 //
142 public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
143     if(isHotOutside == true && moneyInPocket > 10.50) {
144         return true;
145     }
146     return false;
147 }
148
149 //13. Create a method of your own that solves a problem. In comments, write
150 // what the method does and why you created it
151
152 // This method will take an array of int and will return the biggest number in the array.
153
154 public static int findTheBiggestNumber(int[] array) {
155     int biggest = array[array.length - 1];
156     for(int number : array) {
157         if(number > biggest) {
158             biggest = number;
159         }
160     }
161     return biggest;
162 }
163
164 }
165
166 }
167
168 }
169
170
171
172
173
174
175
176
```

The IDE interface includes a Package Explorer on the left, a toolbar at the top, and a status bar at the bottom showing system information like temperature (18°C Sunny) and time (3:05 PM 2023-06-04).



Week 4 Coding Assignment

The screenshot shows the Eclipse IDE interface. The Package Explorer on the left shows a project named 'project'. The main editor area displays a Java file named 'Labs.java' with the following code:

```
<terminated> Labs (1) [Java Application] C:\Users\ermih\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64.17.0.7.x20230425-1502\jre\bin\jav  
94  
1  
0  
12  
1  
35  
3  
99  
11  
101  
11  
109  
12  
137  
15  
230  
25  
327  
36  
20  
Tommy  
TommyTim  
TommyTimSally  
TommyTimSallyBuck  
TommyTimSallyBuckBob  
5  
5  
4  
3  
3  
4
```

The Console window at the bottom shows the output of the Java application, which is a list of names: Tommy, TommyTim, TommyTimSally, TommyTimSallyBuck, and TommyTimSallyBuckBob. The Declaration window at the bottom shows the declaration of the variable 'java.lang.String'.

The screenshot shows the Eclipse IDE interface. The Package Explorer on the left shows a project named 'project'. The main editor area displays a Java file named 'Labs.java' with the following code:

```
<terminated> Labs (1) [Java Application] C:\Users\ermih\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64.17.0.7.x20230425-1502\jre\bin\jav  
3  
99  
11  
101  
11  
109  
12  
137  
15  
230  
25  
327  
36  
20  
Tommy  
TommyTim  
TommyTimSally  
TommyTimSallyBuck  
TommyTimSallyBuckBob  
5  
3  
5  
4  
3  
5  
8  
8  
8  
8  
4
```

The Console window at the bottom shows the output of the Java application, which is a list of names: Tommy, TommyTim, TommyTimSally, TommyTimSallyBuck, and TommyTimSallyBuckBob. The Declaration window at the bottom shows the declaration of the variable 'java.lang.String'.