

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:

```
Package Ex... x Type Hierar... Week3Array.java x Week1Assignment.java Test.java
1 package java18project;
2
3 public class Week3Array {
4
5     public static void main(String[] args) {
6
7
8         //2.Create an array of String called names that contains the following
9         //values: "Sam", "Tommy", "Tim", "Sally", "Buck", "Bob".
10        // a: Use a loop to iterate through the array and calculate the average
11        //number of letters per name. Print the result to the console.
12
13        String[] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
14
15        int sumOfLetters = 0;
16
17        for(String name : names) {
18            sumOfLetters += name.length();
19        }
20        System.out.println("Average numbers of letters/name="+ " "+sumOfLetters/names.length);
21
22        //b. Use a loop to iterate through the array again and concatenate all the names
23        // together, separated by spaces, and print the result to the console.
24
25        String nameTogether=" ";
26        for (String name : names) {
27            nameTogether += name+" ";
28        }
29
30        System.out.println(nameTogether);
31
32        // Access the last element of any array
33        System.out.println("This is for Question 3: " + names [names.length-1]);
34        // Access the first element of any array
35        System.out.println("This is for Question 4: " + names [0]);
36
37        //Question : 5
38        int[] nameLengths = new int[names.length];
39        for(int i = 0; i < names.length; i++) {
40            nameLengths[i] += names[i].length();
41        }
42    }
43
44    for (int length : nameLengths) {
45        System.out.println("This is for Question 5: " + length);
46    }
47
48    // Question : 6
49
50    int sum = 0;
51    for(int namelength :nameLengths ) {
52
53        sum += namelength;
54    }
55
56    System.out.println("The Sum of all the elements in nameLengths = "+ ""+sum);
57
58    // Question 7
59
60    System.out.println("This is for Question 7: " + stringInteger("Hello", 3));
61
62    //Question 8
63
64    System.out.println(creatingFullName("Sohail", "Khan"));
65
66
67    //Question 9
68
69    int [] ArrayOfnumbers = {12, 23, 30, 40, 50};
70
71    int sum1 = 0;
72
73    for(int arrayofnumber:ArrayOfnumbers ) {
74
75        sum1 += arrayofnumber;
76    }
77    System.out.println("This is for question 9 :"+ sumOfnumbers(sum1, 100));
78
79    //Question 10
80
81    double [] doubleNumberArrav = {20.5, 5.6, 10.5, 22.3, 15.0};
82
83    }
```

```
File Edit Source Refactor Navigate Search Project Run Window Help
Package Ex... x Type Hierar... Week3Array.java x Week1Assignment.java Test.java
1 package java18project;
2
3 public class Week3Array {
4
5     public static void main(String[] args) {
6
7
8         //2.Create an array of String called names that contains the following
9         //values: "Sam", "Tommy", "Tim", "Sally", "Buck", "Bob".
10        // a: Use a loop to iterate through the array and calculate the average
11        //number of letters per name. Print the result to the console.
12
13        String[] names = {"Sam", "Tommy", "Tim", "Sally", "Buck", "Bob"};
14
15        int sumOfLetters = 0;
16
17        for(String name : names) {
18            sumOfLetters += name.length();
19        }
20        System.out.println("Average numbers of letters/name="+ " "+sumOfLetters/names.length);
21
22        //b. Use a loop to iterate through the array again and concatenate all the names
23        // together, separated by spaces, and print the result to the console.
24
25        String nameTogether=" ";
26        for (String name : names) {
27            nameTogether += name+" ";
28        }
29
30        System.out.println(nameTogether);
31
32        // Access the last element of any array
33        System.out.println("This is for Question 3: " + names [names.length-1]);
34        // Access the first element of any array
35        System.out.println("This is for Question 4: " + names [0]);
36
37        //Question : 5
38        int[] nameLengths = new int[names.length];
39        for(int i = 0; i < names.length; i++) {
40            nameLengths[i] += names[i].length();
41        }
42    }
43
44    for (int length : nameLengths) {
45        System.out.println("This is for Question 5: " + length);
46    }
47
48    // Question : 6
49
50    int sum = 0;
51    for(int namelength :nameLengths ) {
52
53        sum += namelength;
54    }
55
56    System.out.println("The Sum of all the elements in nameLengths = "+ ""+sum);
57
58    // Question 7
59
60    System.out.println("This is for Question 7: " + stringInteger("Hello", 3));
61
62    //Question 8
63
64    System.out.println(creatingFullName("Sohail", "Khan"));
65
66
67    //Question 9
68
69    int [] ArrayOfnumbers = {12, 23, 30, 40, 50};
70
71    int sum1 = 0;
72
73    for(int arrayofnumber:ArrayOfnumbers ) {
74
75        sum1 += arrayofnumber;
76    }
77    System.out.println("This is for question 9 :"+ sumOfnumbers(sum1, 100));
78
79    //Question 10
80
81    double [] doubleNumberArrav = {20.5, 5.6, 10.5, 22.3, 15.0};
82
83    }
```

```
Package Ex... x Type Hierar... Week3Array.java x Week1Assignment.java Test.java
java18project
  > JRE System Library [jdk-18.0.1.1]
  > src
    > java18project
      > MyClass.java
      > Test.java
      > VariableContinued.java
      > Week1Assignment.java
      > Week2Assignment.java
      > Week3Array.java

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System.out.println("The average for question 10 =" + " "+doubleAverage(doubleNumberArray));

//Question 11
double[] doubleArray1 = {12.1,20.3,10.4,15.0,13.9,50.0};
double[] doubleArray2= {9.2,13.9,10.0};

System.out.println("This is for question 11:"+ " "+avgOfTwoDoubleArrays(doubleArray1,doubleArray2));

//Question 12
boolean isHotOutside = true;
double moneyInPocket = 33;

System.out.println("This is for question 12:"+ " "+willBuyDrink(isHotOutside,moneyInPocket));

//the method I created will take an employee name His/her department and add them together.
//With the help of this method we can keep track of employee and their departments.

System.out.println(employeeNameDepartment("Name = Stacy", "Department = HR"));
}

// Method declaration for Question 7
public static String stringInteger(String word, int n) {

String print = "";

for(int i = 0; i < n; i++){

print += word;

}

return print;

}

// Method Declaration Question: 8
public static String creatingFullName(String firstName, String lastName) {
return firstName + " " + lastName;
}

// Method Declaration Question: 9
```

```
File Edit Source Refactor Navigate Search Project Run Window Help
Package Ex... x Type Hierar... Week3Array.java x Week1Assignment.java Test.java
java18project
  > JRE System Library [jdk-18.0.1.1]
  > src
    > java18project
      > MyClass.java
      > Test.java
      > VariableContinued.java
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      > Week2Assignment.java
      > Week3Array.java

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public static boolean sumOfNumbers(int sumofnumbers , int greaterthan100) {

return sumofnumbers > greaterthan100;

}

// Method Declaration Question: 10
public static double doubleAverage(double[] numbers){
double sum = 0;
for (double number : numbers) {
sum += number;
}
return sum / numbers.length;
}

//Method Declaration Question: 11
public static boolean avgOfTwoDoubleArrays(double[] array1, double[] array2) {

double sum = 0;
for(double i: array1) {

sum += i;
sum=sum/array1.length;

}

double sum1=0;

for(double j: array2) {

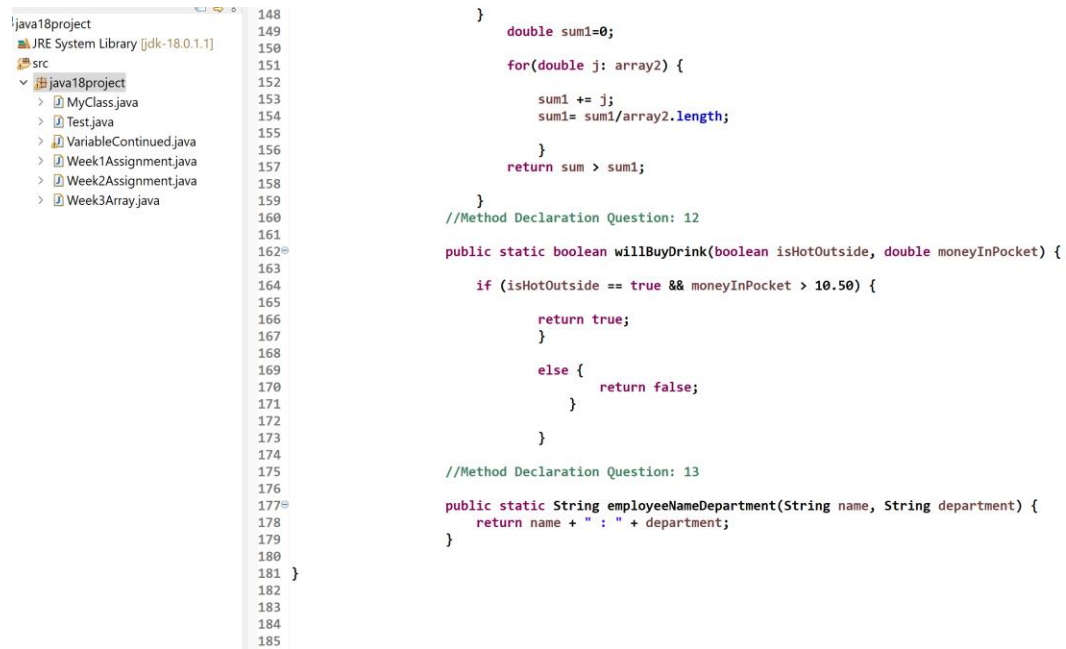
sum1 += j;
sum1= sum1/array2.length;

}

return sum > sum1;

}

//Method Declaration Question: 12
public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
```



The screenshot displays an IDE interface. On the left, a project explorer shows a hierarchy: 'java18project' (JRE System Library [jdk-18.0.1.1]) containing a 'src' folder, which in turn contains 'java18project'. Under 'java18project', several files are listed: 'MyClass.java', 'Test.java', 'VariableContinued.java', 'Week1Assignment.java', 'Week2Assignment.java', and 'Week3Array.java'. The main editor area on the right shows Java code with line numbers 148 through 185. The code includes a loop for summing array elements, a method declaration for 'willBuyDrink' with a comment '//Method Declaration Question: 12', and another method declaration for 'employeeNameDepartment' with a comment '//Method Declaration Question: 13'.

```
148     }
149     double sum1=0;
150
151     for(double j: array2) {
152
153         sum1 += j;
154         sum1= sum1/array2.length;
155     }
156     return sum > sum1;
157 }
158
159 //Method Declaration Question: 12
160
161 public static boolean willBuyDrink(boolean isHotOutside, double moneyInPocket) {
162
163     if (isHotOutside == true && moneyInPocket > 10.50) {
164
165         return true;
166     }
167
168     else {
169         return false;
170     }
171 }
172
173 //Method Declaration Question: 13
174
175 public static String employeeNameDepartment(String name, String department) {
176     return name + " : " + department;
177 }
178
179 }
180
181 }
182
183
184
185
```

Screenshots of Running Application:

The screenshot shows an IDE with the following components:

- Package Explorer:** Shows a project named 'java18project' with a source folder 'src' containing files: 'MyClass.java', 'Test.java', 'VariableContinued.java', 'Week1Assignment.java', 'Week2Assignment.java', and 'Week3Array.java'.
- Editor:** Displays the code for 'Week3Array.java'. The code includes:

```
88 double[] doubleArray2= {9.2,13.9,10.0};
89
90 System.out.println("This is for question 11:"+ " +avgOfTwoDoubleArrays(doubleArray1,doubleArray2));
91
92 //Question 12
93
94 boolean isHotOutside = true;
95 double moneyInPocket = 33;
96
97 System.out.println("This is for question 12:"+ " +willBuyDrink(isHotOutside,moneyInPocket));
98
99
100 //the method I created will take an employee name His/her department and add them together.
101 //With the help of this method we can keep track of employee and their departments.
102
103 System.out.println(employeeNameDepartment("Name = Stacy", "Department = HR"));
```
- Console:** Shows the output of the program:

```
<terminated> Week3Array [Java Application] C:\Program Files\Java\jdk-18.0.1\bin\javaw.exe (Jul 16, 2022, 8:18:04 PM ~ 8:18:04 PM) [pid: 43040]
Sam Tommy Tim Sally Buck Bob
This is for Question 3: Bob
This is for Question 4: Sam
This is for Question 5: 3
This is for Question 5: 5
This is for Question 5: 3
This is for Question 5: 5
This is for Question 5: 4
This is for Question 5: 3
The Sum of all the elements in nameLengths = 23
This is for Question 7: HelloHelloHello
Sohail Khan
This is for question 9 :true
The average for question 10 = 14.780000000000001
This is for question 11: true
This is for question 12: true
Name = Stacy : Department = HR
```

URL to GitHub Repository:

<https://github.com/sohailjaan2002/Week3-Assignment/blob/main/Week3Array.java>