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?

You the last element of an array by entering the following code:
arrayName[arrayName.length -1]; This calls the array and notes the length of the array as the position you desire for the code to call.

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

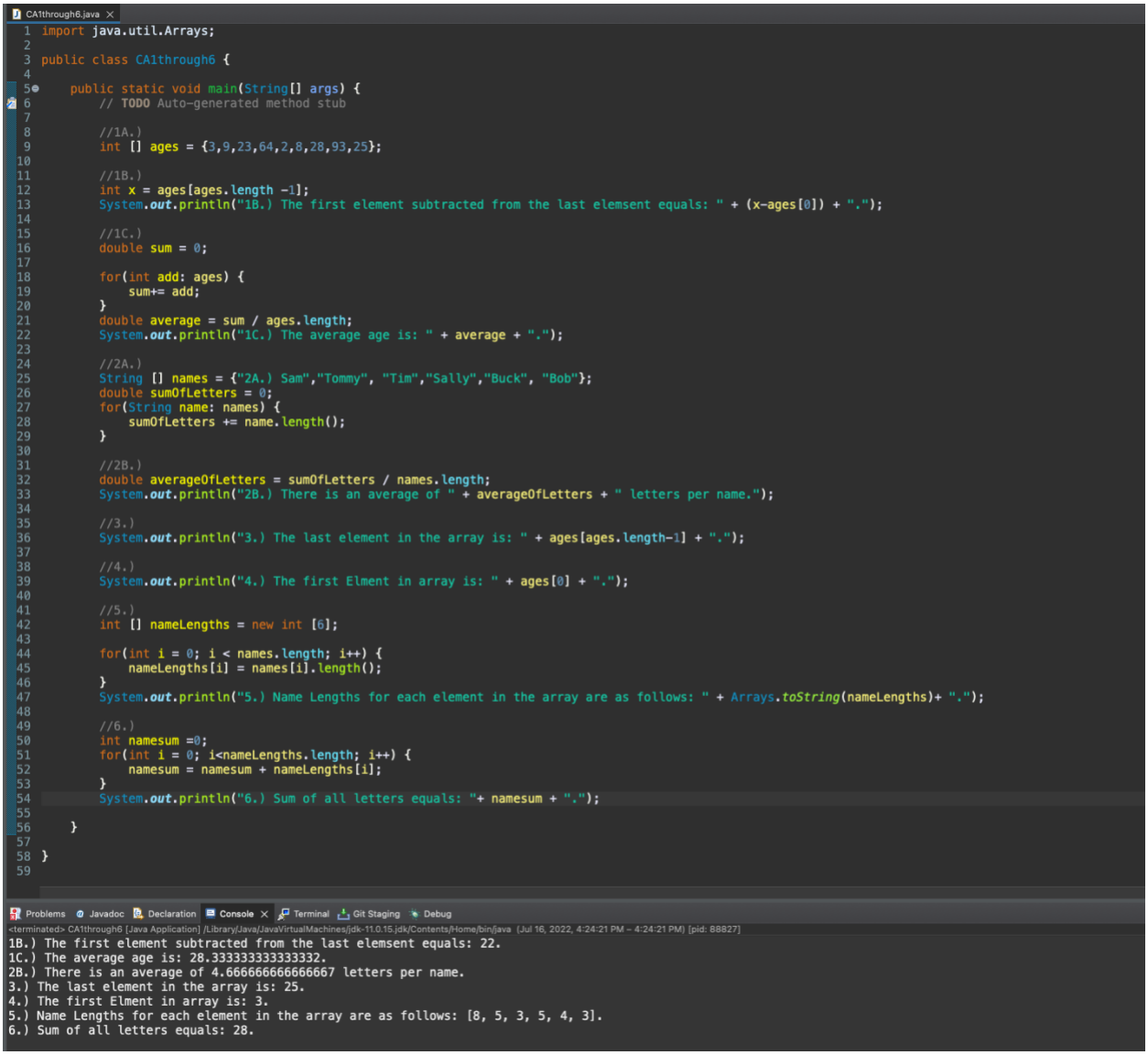
You can access the first element in an array by entering the following code:

arrayName[0]; . This calls the array and notes the first position of the array which is always 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 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 & Screenshots of Running Application:

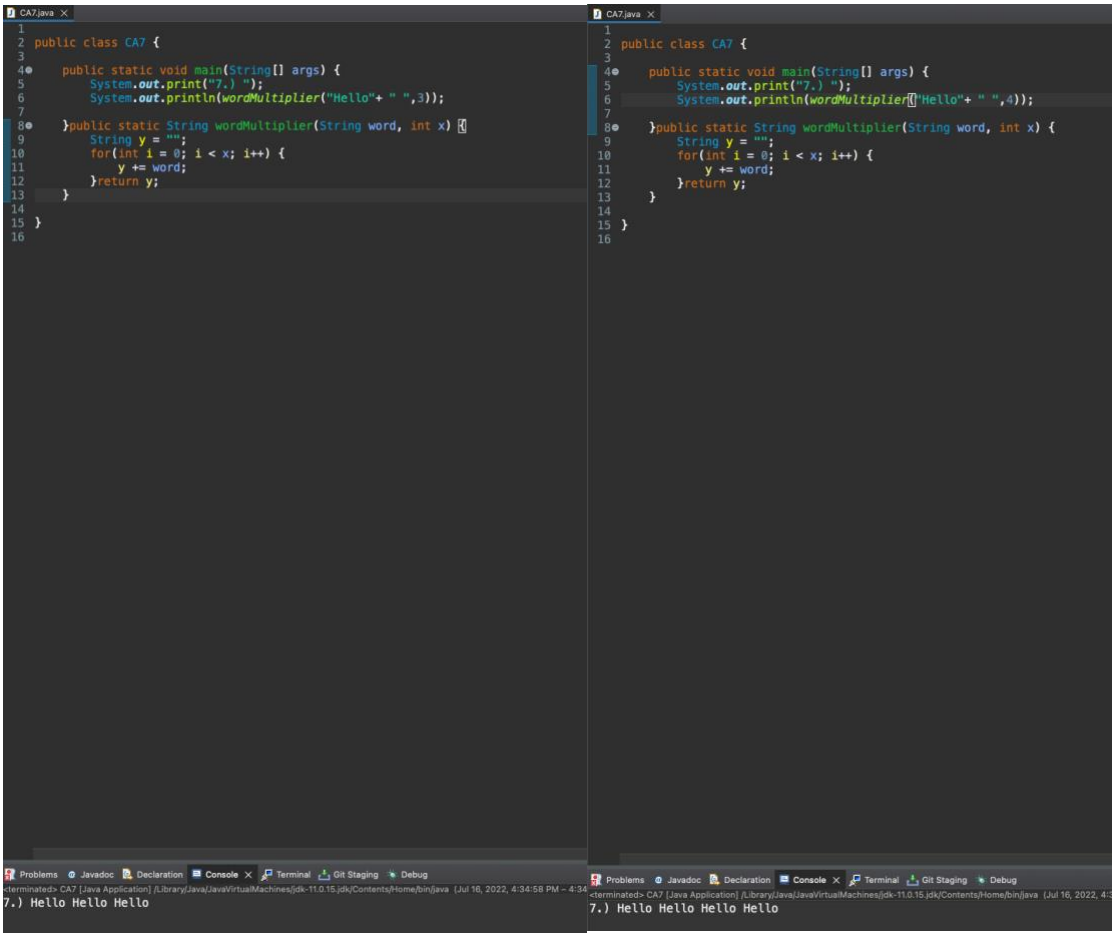
Questions 1 – 6.)



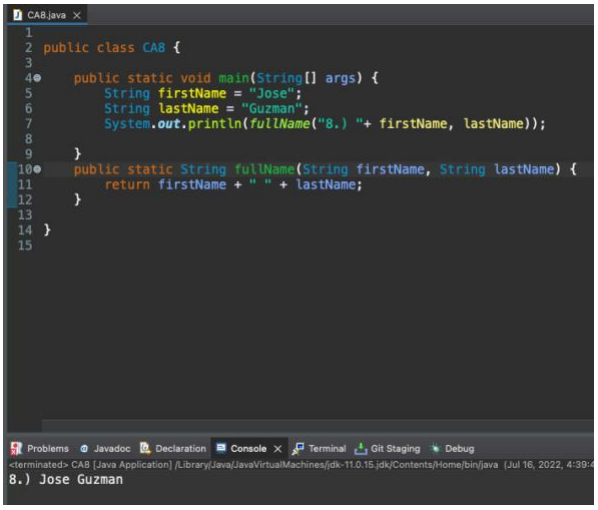
```java
import java.util.Arrays;

public class CA1through6 {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        //1A.)
        int [] ages = {3,9,23,64,2,8,28,93,25};

        //1B.)
        int x = ages[ages.length -1];
        System.out.println("1B.) The first element subtracted from the last elemsent equals: " + (x-ages[0]) + ".");

        //1C.)
        double sum = 0;

        for(int add: ages) {
            sum+= add;
        }
        double average = sum / ages.length;
        System.out.println("1C.) The average age is: " + average + ".");

        //2A.)
        String [] names = {"2A.) Sam","Tommy", "Tim","Sally","Buck", "Bob"};
        double sumOfLetters = 0;
        for(String name: names) {
            sumOfLetters += name.length();
        }

        //2B.)
        double averageOfLetters = sumOfLetters / names.length;
        System.out.println("2B.) There is an average of " + averageOfLetters + " letters per name.");

        //3.)
        System.out.println("3.) The last element in the array is: " + ages[ages.length-1] + ".");

        //4.)
        System.out.println("4.) The first Elment in array is: " + ages[0] + ".");

        //5.)
        int [] nameLengths = new int [6];

        for(int i = 0; i < names.length; i++) {
            nameLengths[i] = names[i].length();
        }
        System.out.println("5.) Name Lengths for each element in the array are as follows: " + Arrays.toString(nameLengths)+ ".");

        //6.)
        int namesum =0;
        for(int i = 0; i<nameLengths.length; i++) {
            namesum = namesum + nameLengths[i];
        }
        System.out.println("6.) Sum of all letters equals: "+ namesum + ".");

    }

}
```

```
Problems  Javadoc  Declaration  Console  Terminal  Git Staging  Debug
<terminated> CA1through6 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java  (Jul 16, 2022, 4:24:21 PM – 4:24:21 PM) [pid: 88827]
1B.) The first element subtracted from the last elemsent equals: 22.
1C.) The average age is: 28.333333333333332.
2B.) There is an average of 4.666666666666667 letters per name.
3.) The last element in the array is: 25.
4.) The first Elment in array is: 3.
5.) Name Lengths for each element in the array are as follows: [8, 5, 3, 5, 4, 3].
6.) Sum of all letters equals: 28.
```

Question 7.)



Question 8.)



Question 9.)

CA9.java

```
1
2  public class CA9 {
3
4      public static void main(String[] args) {
5          int number []= {10,12, 13, 25, 33, 55};
6          System.out.println(greaterThan(number));
7      }
8
9      public static boolean greaterThan(int [] number  ) {
10         int numberTotal=0;
11         for(int total: number) {
12             numberTotal += total;
13         }
14         if (numberTotal < 100) {
15             System.out.print("9.) The total of the numbers in this array is, " + numberTotal  +" ,which makes this statment " );
16          return false;
17         }else {
18             System.out.print("9.) The total of the numbers in this array is, " + numberTotal  +" ,which makes this statment " );
19
20         }return true;
21
22     }
23
24
25 }
26
```

Problems Javadoc Declaration Console Terminal Git Staging Debug

<terminated> CA9 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java (Jul 16, 2022, 5:08:10 PM – 5:08:10 PM) [pid: 89095]

```
9.) The total of the numbers in this array is, 148 ,which makes this statment true
```

*CA9.java

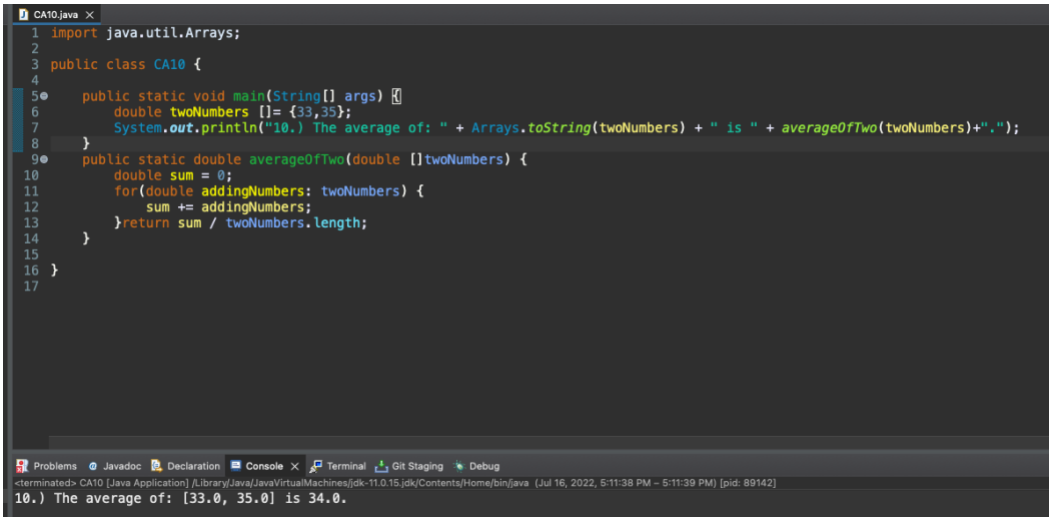
```
1
2  public class CA9 {
3
4      public static void main(String[] args) {
5          int number []= {10,12, 13, 1, 3, 6};
6          System.out.println(greaterThan(number));
7      }
8
9      public static boolean greaterThan(int [] number  ) {
10         int numberTotal=0;
11         for(int total: number) {
12             numberTotal += total;
13         }
14         if (numberTotal < 100) {
15             System.out.print("9.) The total of the numbers in this array is, " + numberTotal  +" ,which makes this statment " );
16          return false;
17         }else {
18             System.out.print("9.) The total of the numbers in this array is, " + numberTotal  +" ,which makes this statment " );
19
20         }return true;
21
22     }
23
24
25 }
26
```

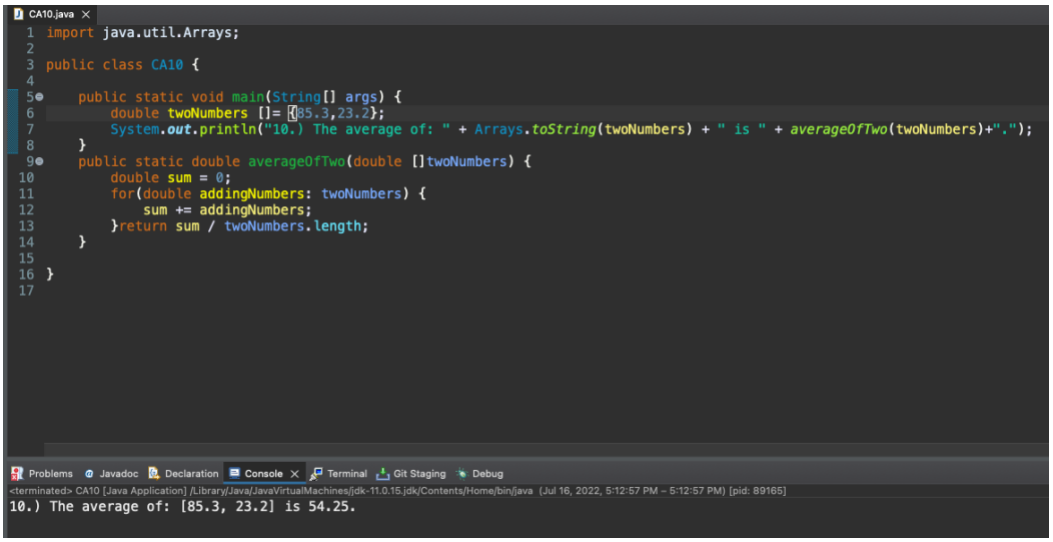
Problems Javadoc Declaration Console Terminal Git Staging Debug

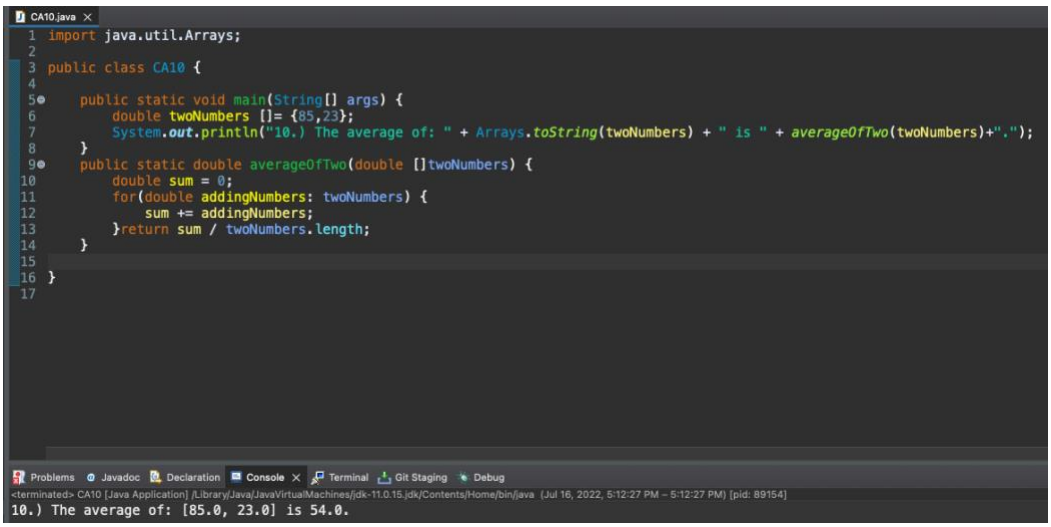
<terminated> CA9 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java (Jul 16, 2022, 5:06:56 PM – 5:06:56 PM) [pid: 89084]

```
9.) The total of the numbers in this array is, 45 ,which makes this statment false
```

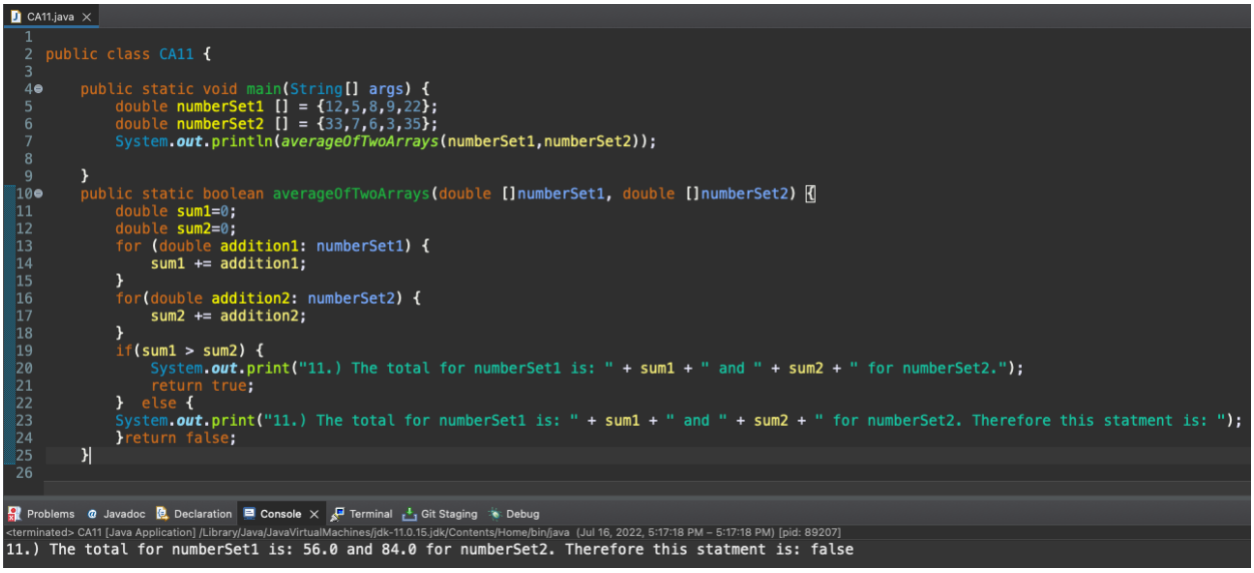
Question 10.)


CA10.java
1 import java.util.Arrays;
2
3 public class CA10 {
4
5 public static void main(String[] args) {
6 double twoNumbers []= {33,35};
7 System.out.println("10.) The average of: " + Arrays.toString(twoNumbers) + " is " + averageOfTwo(twoNumbers)+".");
8 }
9 public static double averageOfTwo(double []twoNumbers) {
10 double sum = 0;
11 for(double addingNumbers: twoNumbers) {
12 sum += addingNumbers;
13 }return sum / twoNumbers.length;
14 }
15
16 }
17
Problems Javadoc Declaration Console Terminal Git Staging Debug
<terminated> CA10 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java (Jul 16, 2022, 5:11:38 PM – 5:11:39 PM) [pid: 89142]
10.) The average of: [33.0, 35.0] is 34.0.

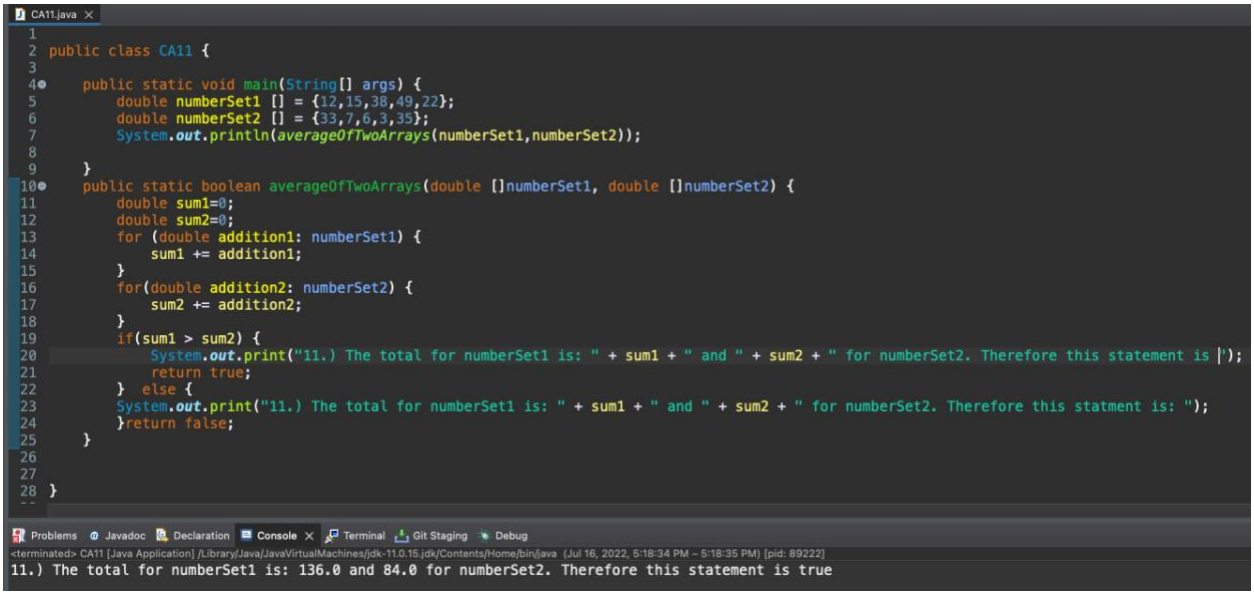

CA10.java
1 import java.util.Arrays;
2
3 public class CA10 {
4
5 public static void main(String[] args) {
6 double twoNumbers []= {85.3,23.2};
7 System.out.println("10.) The average of: " + Arrays.toString(twoNumbers) + " is " + averageOfTwo(twoNumbers)+".");
8 }
9 public static double averageOfTwo(double []twoNumbers) {
10 double sum = 0;
11 for(double addingNumbers: twoNumbers) {
12 sum += addingNumbers;
13 }return sum / twoNumbers.length;
14 }
15
16 }
17
Problems Javadoc Declaration Console Terminal Git Staging Debug
<terminated> CA10 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java (Jul 16, 2022, 5:12:57 PM – 5:12:57 PM) [pid: 89165]
10.) The average of: [85.3, 23.2] is 54.25.


CA10.java
1 import java.util.Arrays;
2
3 public class CA10 {
4
5 public static void main(String[] args) {
6 double twoNumbers []= {85,23};
7 System.out.println("10.) The average of: " + Arrays.toString(twoNumbers) + " is " + averageOfTwo(twoNumbers)+".");
8 }
9 public static double averageOfTwo(double []twoNumbers) {
10 double sum = 0;
11 for(double addingNumbers: twoNumbers) {
12 sum += addingNumbers;
13 }return sum / twoNumbers.length;
14 }
15
16 }
17
Problems Javadoc Declaration Console Terminal Git Staging Debug
<terminated> CA10 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java (Jul 16, 2022, 5:12:27 PM – 5:12:27 PM) [pid: 89154]
10.) The average of: [85.0, 23.0] is 54.0.

Question 11.)

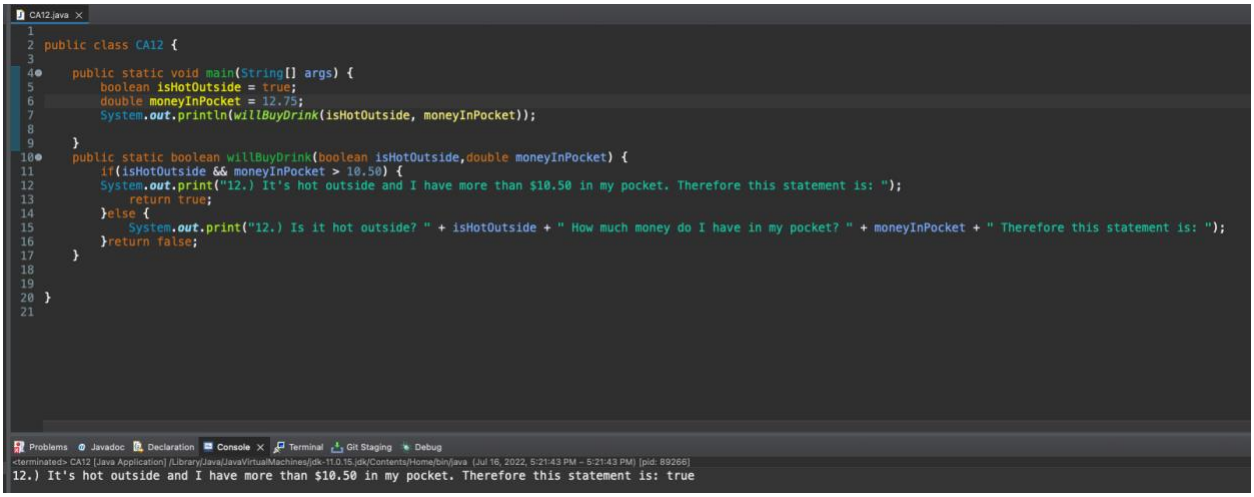


```
CA11.java

public class CA11 {

    public static void main(String[] args) {
        double numberSet1 [] = {12,5,8,9,22};
        double numberSet2 [] = {33,7,6,3,35};
        System.out.println(averageOfTwoArrays(numberSet1,numberSet2));

    }
    public static boolean averageOfTwoArrays(double []numberSet1, double []numberSet2) {
        double sum1=0;
        double sum2=0;
        for (double addition1: numberSet1) {
            sum1 += addition1;
        }
        for(double addition2: numberSet2) {
            sum2 += addition2;
        }
        if(sum1 > sum2) {
            System.out.print("11.) The total for numberSet1 is: " + sum1 + " and " + sum2 + " for numberSet2.");
            return true;
        }  else {
        System.out.print("11.) The total for numberSet1 is: " + sum1 + " and " + sum2 + " for numberSet2. Therefore this statment is: ");
        }return false;
    }

Problems  Javadoc  Declaration  Console  Terminal  Git Staging  Debug
<terminated> CA11 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java  (Jul 16, 2022, 5:17:18 PM – 5:17:18 PM) [pid: 89207]
11.) The total for numberSet1 is: 56.0 and 84.0 for numberSet2. Therefore this statment is: false
```



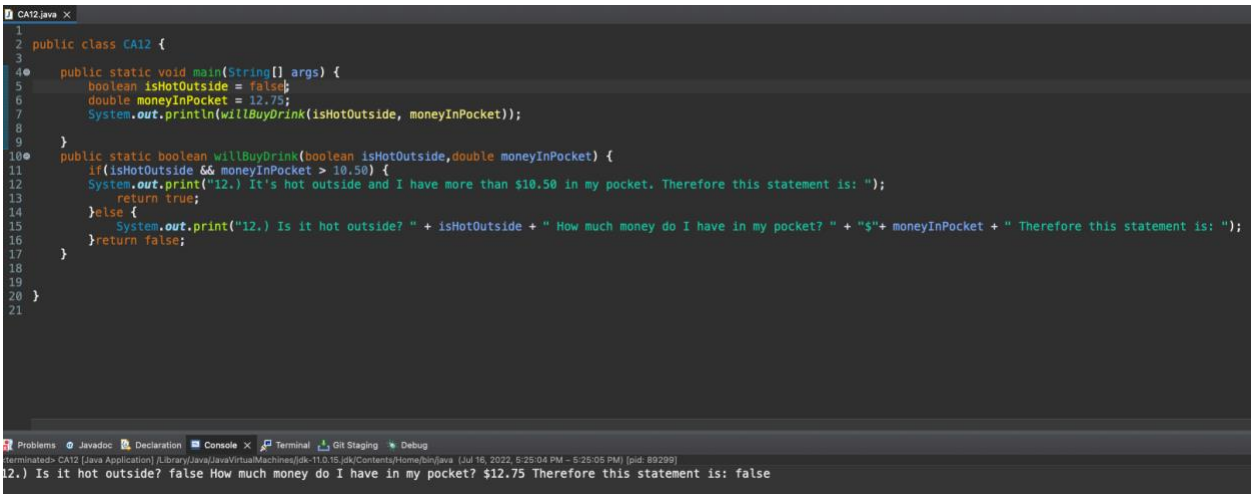
```
CA11.java

public class CA11 {

    public static void main(String[] args) {
        double numberSet1 [] = {12,15,38,49,22};
        double numberSet2 [] = {33,7,6,3,35};
        System.out.println(averageOfTwoArrays(numberSet1,numberSet2));

    }
    public static boolean averageOfTwoArrays(double []numberSet1, double []numberSet2) {
        double sum1=0;
        double sum2=0;
        for (double addition1: numberSet1) {
            sum1 += addition1;
        }
        for(double addition2: numberSet2) {
            sum2 += addition2;
        }
        if(sum1 > sum2) {
            System.out.print("11.) The total for numberSet1 is: " + sum1 + " and " + sum2 + " for numberSet2. Therefore this statement is ");
            return true;
        }  else {
        System.out.print("11.) The total for numberSet1 is: " + sum1 + " and " + sum2 + " for numberSet2. Therefore this statment is: ");
        }return false;
    }


}

Problems  Javadoc  Declaration  Console  Terminal  Git Staging  Debug
<terminated> CA11 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java  (Jul 16, 2022, 5:18:34 PM – 5:18:35 PM) [pid: 89222]
11.) The total for numberSet1 is: 136.0 and 84.0 for numberSet2. Therefore this statement is true
```

Question 12.)



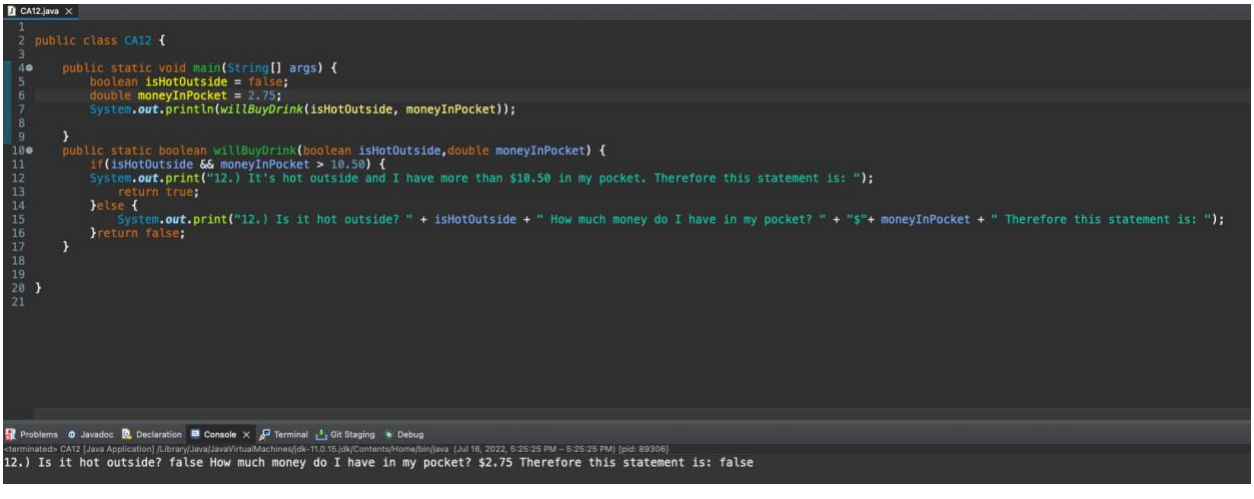
```java
public class CA12 {

    public static void main(String[] args) {
        boolean isHotOutside = true;
        double moneyInPocket = 12.75;
        System.out.println(willBuyDrink(isHotOutside, moneyInPocket));

    }
    public static boolean willBuyDrink(boolean isHotOutside,double moneyInPocket) {
        if(isHotOutside && moneyInPocket > 10.50) {
        System.out.print("12.) It's hot outside and I have more than $10.50 in my pocket. Therefore this statement is: ");
            return true;
        }else {
            System.out.print("12.) Is it hot outside? " + isHotOutside + " How much money do I have in my pocket? " + moneyInPocket + " Therefore this statement is: ");
        }return false;
    }


}
```

```
12.) It's hot outside and I have more than $10.50 in my pocket. Therefore this statement is: true
```



```java
public class CA12 {

    public static void main(String[] args) {
        boolean isHotOutside = false;
        double moneyInPocket = 12.75;
        System.out.println(willBuyDrink(isHotOutside, moneyInPocket));

    }
    public static boolean willBuyDrink(boolean isHotOutside,double moneyInPocket) {
        if(isHotOutside && moneyInPocket > 10.50) {
        System.out.print("12.) It's hot outside and I have more than $10.50 in my pocket. Therefore this statement is: ");
            return true;
        }else {
            System.out.print("12.) Is it hot outside? " + isHotOutside + " How much money do I have in my pocket? " + "$"+ moneyInPocket + " Therefore this statement is: ");
        }return false;
    }


}
```

```
12.) Is it hot outside? false How much money do I have in my pocket? $12.75 Therefore this statement is: false
```



```java
public class CA12 {

    public static void main(String[] args) {
        boolean isHotOutside = false;
        double moneyInPocket = 2.75;
        System.out.println(willBuyDrink(isHotOutside, moneyInPocket));

    }
    public static boolean willBuyDrink(boolean isHotOutside,double moneyInPocket) {
        if(isHotOutside && moneyInPocket > 10.50) {
        System.out.print("12.) It's hot outside and I have more than $10.50 in my pocket. Therefore this statement is: ");
            return true;
        }else {
            System.out.print("12.) Is it hot outside? " + isHotOutside + " How much money do I have in my pocket? " + "$"+ moneyInPocket + " Therefore this statement is: ");
        }return false;
    }


}
```

```
12.) Is it hot outside? false How much money do I have in my pocket? $2.75 Therefore this statement is: false
```

Question 13.)

CA13.java

```
1  import java.util.Scanner;
2
3  public class CA13 {
4
5      public static void main(String[] args) {
6          /*
7           * The problem I want to solve here is to gauge someone's stressLevel.  I will do this by asking how they respond on a scale from 0 to 10.
8           *
9           * 0 meaning no stress
10          * 5 meaning  mildly  stressed
11          * 10 meaning Extremely stressed
12          *
13          *
14          */
15         String[] stressLevel = new String[0];
16         stressed(stressLevel);
17
18
19     }
20     public static void stressed(String[] stressLevel) {
21         int stress =0;
22         Scanner s = new Scanner(System.in);
23         do {
24             System.out.println("On a scale from 0 to 10, How stressed do you feel? 0 meaning no stress at all and 10 meaning the most stressed you have ever felt.");
25             stress = s.nextInt();
26         if (stress >=0 && stress <5) {
27             System.out.println("Very little to no stress.");
28         }else if(stress >= 5 && stress <=7) {
29             System.out.println("Stressed");
30         }else if (stress >= 8 && stress <= 10){
31             System.out.println("Very Stressed");
32         }
33         }while (stress < 0 || stress > 10);
34
35     }
36
37 }
38
```

Problems Javadoc Declaration Console Terminal Git Staging Debug

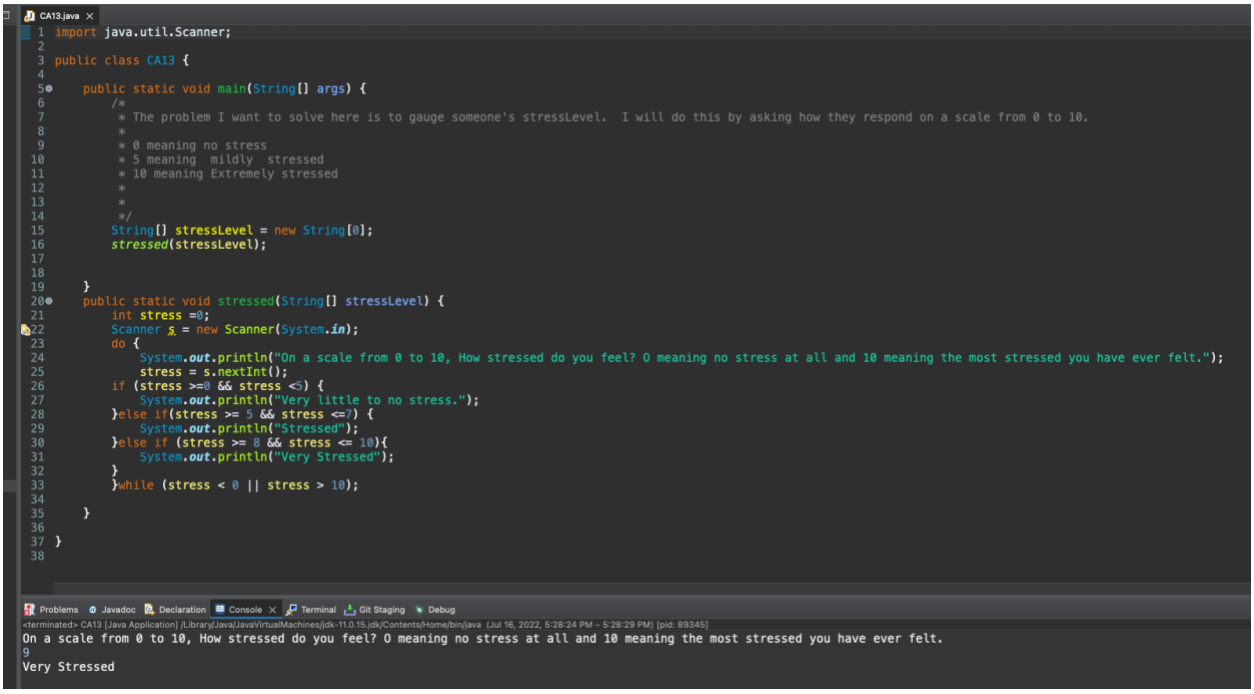
```
<terminated> CA13 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java  (Jul 16, 2022, 5:27:12 PM – 5:27:42 PM) [pid: 89333]
On a scale from 0 to 10, How stressed do you feel? 0 meaning no stress at all and 10 meaning the most stressed you have ever felt.
-1
On a scale from 0 to 10, How stressed do you feel? 0 meaning no stress at all and 10 meaning the most stressed you have ever felt.
13
On a scale from 0 to 10, How stressed do you feel? 0 meaning no stress at all and 10 meaning the most stressed you have ever felt.
0
Very little to no stress.
```

CA13.java

```
1  import java.util.Scanner;
2
3  public class CA13 {
4
5      public static void main(String[] args) {
6          /*
7           * The problem I want to solve here is to gauge someone's stressLevel.  I will do this by asking how they respond on a scale from 0 to 10.
8           *
9           * 0 meaning no stress
10          * 5 meaning  mildly  stressed
11          * 10 meaning Extremely stressed
12          *
13          *
14          */
15         String[] stressLevel = new String[0];
16         stressed(stressLevel);
17
18
19     }
20     public static void stressed(String[] stressLevel) {
21         int stress =0;
22         Scanner s = new Scanner(System.in);
23         do {
24             System.out.println("On a scale from 0 to 10, How stressed do you feel? 0 meaning no stress at all and 10 meaning the most stressed you have ever felt.");
25             stress = s.nextInt();
26         if (stress >=0 && stress <5) {
27             System.out.println("Very little to no stress.");
28         }else if(stress >= 5 && stress <=7) {
29             System.out.println("Stressed");
30         }else if (stress >= 8 && stress <= 10){
31             System.out.println("Very Stressed");
32         }
33         }while (stress < 0 || stress > 10);
34
35     }
36
37 }
38
```

Problems Javadoc Declaration Console Terminal Git Staging Debug

```
<terminated> CA13 [Java Application] /Library/Java/JavaVirtualMachines/jdk-11.0.15.jdk/Contents/Home/bin/java  (Jul 16, 2022, 5:27:58 PM – 5:28:08 PM) [pid: 89338]
On a scale from 0 to 10, How stressed do you feel? 0 meaning no stress at all and 10 meaning the most stressed you have ever felt.
6
Stressed
```



URL to GitHub Repository:

https://github.com/jg764609/Week-3---Coding-Assignment