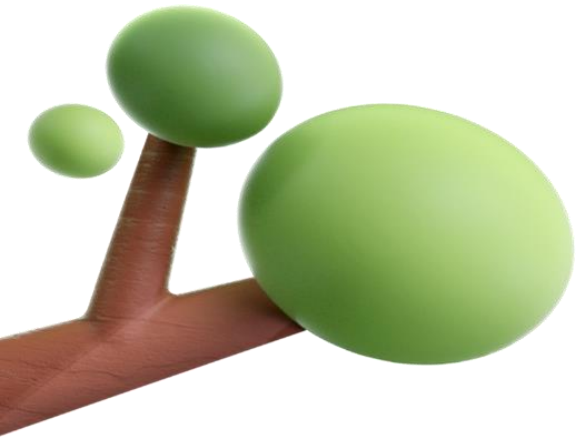

LEVEL 1 ASSIGNMENT

STEP PROGRAM

ARRAYS

SUBMITTED BY:

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CLASS: AJ1

SOURCE CODE

LEVEL 1 QUESTION: 1

Q. Write a program to take user input for the age of all 10 students in a class and check whether the student can vote depending on his/her age is greater or equal to 18.

```
import java.util.Scanner;
public class VotingCheck {
    public static void main(String[] args) {
        final int numStudents = 10;
        int[] ages = new int[numStudents];
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter the ages of 10 students:");
        for (int i = 0; i < numStudents; i++) {
            System.out.print("Student " + (i + 1) + " age: ");
            ages[i] = scanner.nextInt();
        }
        System.out.println("\nVoting Eligibility:");
        for (int i = 0; i < numStudents; i++) {
            if (ages[i] >= 18) {
                System.out.println("Student " + (i + 1) + " (Age: " + ages[i] + ") can
vote.");
```

```
            } else {
                System.out.println("Student " + (i + 1) + " (Age: " + ages[i] + ") cannot vote.");
            }
        }
        scanner.close();
    }
}
```

OUTPUT:

```
Enter the ages of 10 students:
Student 1 age: 19
Student 2 age: 12
Student 3 age: 20
Student 4 age: 30
Student 5 age: 10
Student 6 age: 7
Student 7 age: 12
Student 8 age: 37
Student 9 age: 20
Student 10 age: 10

Voting Eligibility:
Student 1 (Age: 19) can vote.
Student 2 (Age: 12) cannot vote.
Student 3 (Age: 20) can vote.
Student 4 (Age: 30) can vote.
Student 5 (Age: 10) cannot vote.
Student 6 (Age: 7) cannot vote.
Student 7 (Age: 12) cannot vote.
Student 8 (Age: 37) can vote.
Student 9 (Age: 20) can vote.
Student 10 (Age: 10) cannot vote.
```

LEVEL 1 QUESTION: 2

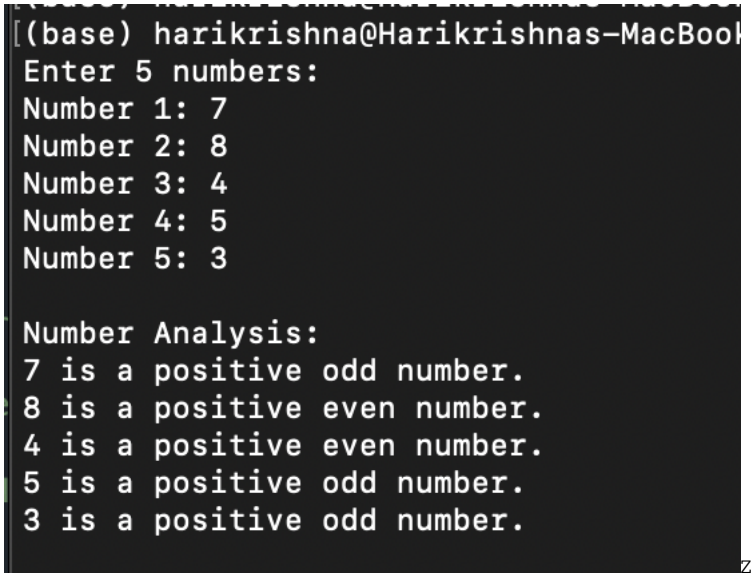
Q. Write a program to take user input for 5 numbers and check whether a number is positive, negative, or zero. Further for positive numbers check if the number is even or odd. Finally compare the first and last elements of the array and display if they equal, greater or less

```
import java.util.Scanner;

public class NumberCheck {

   public static void main(String[] args) {

      final int numElements = 5;

       int[] numbers = new int[numElements];

       Scanner scanner = new Scanner(System.in);

       System.out.println("Enter 5 numbers:");

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

           System.out.print("Number " + (i + 1) + ": ");

           numbers[i] = scanner.nextInt();

       }

       System.out.println("\nNumber Analysis:");

       for (int num : numbers) {

           if (num > 0) {
```

```
            if (num % 2 == 0) {
                System.out.println(num + " is a positive even number.");
            } else {
                System.out.println(num + " is a positive odd number.");
            }
        } else if (num < 0) {
            System.out.println(num + " is a negative number.");
        } else {
            System.out.println(num + " is zero.");
        }
    }
    System.out.println("\nComparing first and last elements:");
    if (numbers[0] > numbers[numElements - 1]) {
        System.out.println("First element (" + numbers[0] + ") is greater than last element (" + numbers[numElements - 1] + ").");
    } else if (numbers[0] < numbers[numElements - 1]) {
        System.out.println("First element (" + numbers[0] + ") is less than last element (" + numbers[numElements - 1] + ").");
    } else {
        System.out.println("First element (" + numbers[0] + ") is equal to last element (" + numbers[numElements - 1] + ").");
    }
```

```
        scanner.close();
    }
}
```

OUTPUT:



LEVEL 1 QUESTION: 3

Q. Create a program to print a multiplication table of a number.

```
import java.util.Scanner;

public class MultiTable {

    public static void main(String[] args) {

 Scanner sc=new Scanner(System.in);
```

```
int[] mul=new int[10];

System.out.println("Enter the number");

int num=sc.nextInt();

for(int i=0;i<10;i++){

   mul[i]=num*(i+1);

}

for(int j=1;j<11;j++){

System.out.println(num +" * "+j+" = "+mul[j-1]);

}

input.close();

}

}
```

OUTPUT:

```
Enter the number
5
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
(base) harikrishna
```

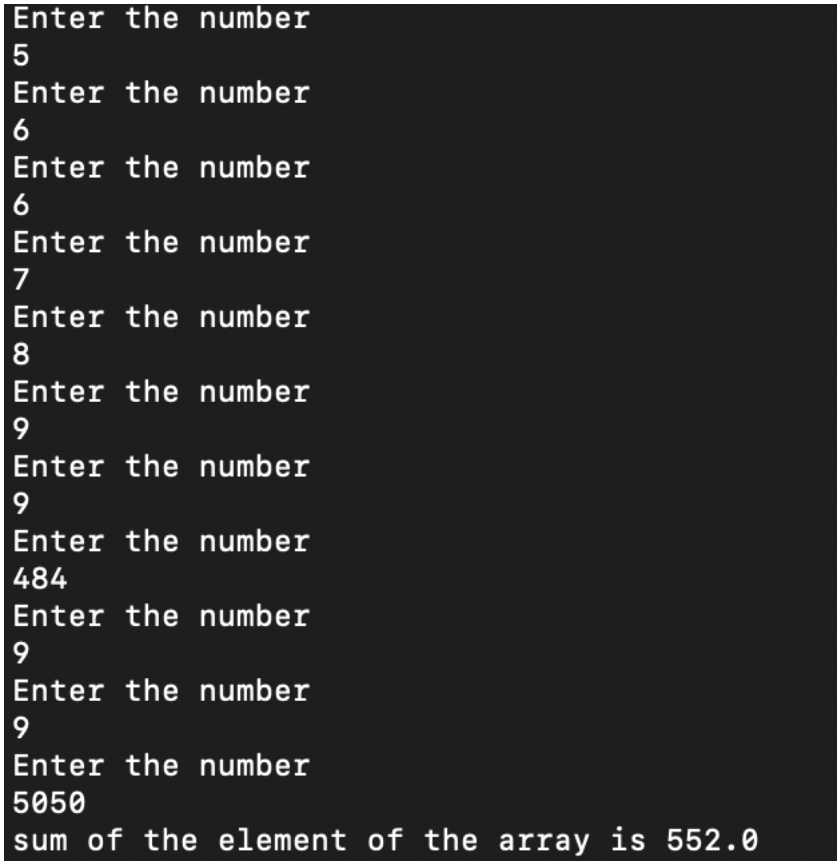
LEVEL 1 QUESTION: 4

Q. Write a program to store multiple values in an array up to a maximum of 10 or until the user enters a 0 or a negative number. Show all the numbers as well as the sum of all numbers

```
import java.util.Scanner;
public class Array{
    public static void main(String[] args) {
 Scanner input=new Scanner(System.in);
 double[] number=new double[10];
 double num=0.0;
 int n=0;
  while(true){
  System.out.println("Enter the number");
  num=input.nextDouble();
  if(num<0.00){
   break;
  }
  else if(n>9){
  break;
  }
  else {
```

```
number[n]=num;
}
n++;
}
double sum=0;
for(int i=0;i<10;i++){
sum+=number[i];
}
System.out.println("sum of the element of the array is "+sum);
input.close();
}
}
```

OUTPUT:



LEVEL 1 QUESTION: 5

Q. Create a program to find the multiplication table of a number entered by the user from 6 to 9 and display the result

```
i import java.util.Scanner;

public class Tablere {

    public static void main(String[] args) {

 Scanner input=new Scanner(System.in);

 int[] mul=new int[4];

 System.out.println("Enter the number");

 int num=input.nextInt();
```

```
for(int i=0;i<4;i++){
   mul[i]=num*(i+6);
}
for(int j=1;j<5;j++){
System.out.println(num +" * "+(j+5)+" = "+mul[j-1]);
}
input.close();
}
}
```

OUTPUT:

```
Enter the number
8
8 * 6 = 48
8 * 7 = 56
8 * 8 = 64
8 * 9 = 72
```

LEVEL 1 QUESTION: 6

Q. Create a program to find the mean height of players present in a football team.

```
import java.util.Scanner;
```

```
public class MeanHeight{

   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      double[] heights = new double[11];

      double totalHeight = 0;

      for (int i = 0; i < 11; i++) {

         System.out.print("Enter the height of player " + (i + 1) + ": ");

         heights[i] = scanner.nextDouble();

         totalHeight += heights[i];

      }

      double meanHeight = totalHeight / 11;

      System.out.println("The mean height of the football team is: " + meanHeight);

   }

}
```

OUTPUT:

```
Enter the height of player 1: 170
Enter the height of player 2: 165
Enter the height of player 3: 168
Enter the height of player 4: 173
Enter the height of player 5: 175
Enter the height of player 6: 163
Enter the height of player 7: 158
Enter the height of player 8: 178
Enter the height of player 9: 180
Enter the height of player 10: 171
Enter the height of player 11: 169
The mean height of the football team is: 170.0
```

LEVEL 1 QUESTION: 7

Q. Create a program to save odd and even numbers into odd and even arrays between 1 to the number entered by the user. Finally, print the odd and even numbers array

```
import java.util.Scanner;

public class OddEvenArrays {

   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      System.out.print("Enter a number: ");

      int number = scanner.nextInt();

      if (number <= 0) {

         System.out.println("Error: Please enter a natural number greater than zero.");

         return;

      }

      int[] oddNumbers = new int[number / 2 + 1];

      int[] evenNumbers = new int[number / 2 + 1];

      int oddIndex = 0;

      int evenIndex = 0;

      for (int i = 1; i <= number; i++) {

         if (i % 2 == 0) {

            evenNumbers[evenIndex++] = i;
```

```
        } else {
            oddNumbers[oddIndex++] = i;
        }
    }

    System.out.print("Odd numbers: ");
    for (int i = 0; i < oddIndex; i++) {
        System.out.print(oddNumbers[i] + " ");
    }
    System.out.println();
    System.out.print("Even numbers: ");
    for (int i = 0; i < evenIndex; i++) {
        System.out.print(evenNumbers[i] + " ");
    }
  }
}
```

OUTPUT:

```
Enter a number: 7
Odd numbers: 1 3 5 7
Even numbers: 2 4 6 %
```

LEVEL 1 QUESTION: 8

Q. Create a program to find the factors of a number taken as user input, store the factors in an array, and display the factors

```
import java.util.Scanner;

public class FactorsArray {

   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      System.out.print("Enter a number: ");

      int number = scanner.nextInt();

      int maxFactor = 10;

      int[] factors = new int[maxFactor];

      int index = 0;

      for (int i = 1; i <= number; i++) {

         if (number % i == 0) {

            if (index == maxFactor) {

               maxFactor *= 2;
```

```
            int[] temp = new int[maxFactor];
            for (int j = 0; j < factors.length; j++) {
               temp[j] = factors[j];
            }
            factors = temp;
          }
          factors[index++] = i;
        }
      }
      System.out.print("Factors of " + number + ": ");
      for (int i = 0; i < index; i++) {
        System.out.print(factors[i] + " ");
      }
    }
}
```

OUTPUT:

```
Enter a number: 8
Factors of 8: 1 2 4 8 %
```

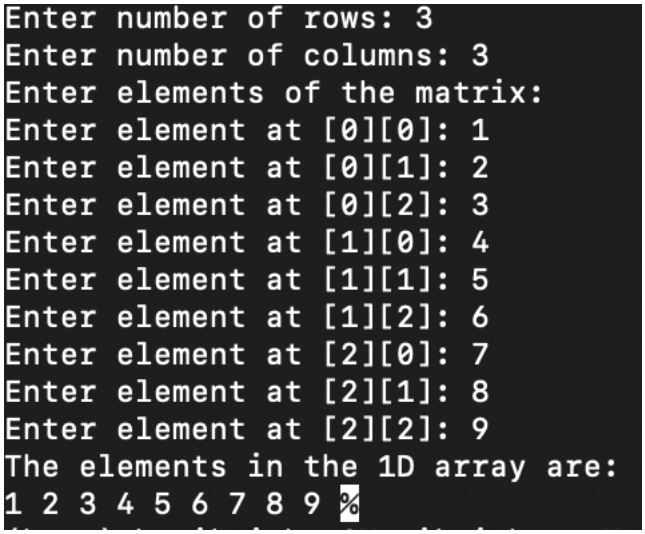
LEVEL 1 QUESTION: 9

Q. Working with Multi-Dimensional Arrays. Write a Java program to create a 2D Array and Copy the 2D Array into a single dimension array

```
import java.util.Scanner;

public class MatrixToArray {

   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      System.out.print("Enter number of rows: ");

      int rows = scanner.nextInt();

      System.out.print("Enter number of columns: ");

      int columns = scanner.nextInt();

      int[][] matrix = new int[rows][columns];

      System.out.println("Enter elements of the matrix:");

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

         for (int j = 0; j < columns; j++) {

            System.out.print("Enter element at [" + i + "][" + j + "]: ");

            matrix[i][j] = scanner.nextInt();

         }
```

```
        }
        int[] array = new int[rows * columns];
        int index = 0;
        for (int i = 0; i < rows; i++) {
          for (int j = 0; j < columns; j++) {
            array[index++] = matrix[i][j];
          }
        }
        System.out.println("The elements in the 1D array are:");
        for (int i = 0; i < array.length; i++) {
          System.out.print(array[i] + " ");
        }
    }
}
```

OUTPUT:



LEVEL 1 QUESTION: 10

Q. Write a program FizzBuzz, take a number as user input and if it is a positive integer loop from 0 to the number and save the number, but for multiples of 3 save "Fizz" instead of the number, for multiples of 5 save "Buzz", and for multiples of both save "FizzBuzz". Finally, print the array results for each index position in the format Position 1 = 1, ..., Position 3 = Fizz,....

```
import java.util.Scanner;

public class Fizz{

   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      System.out.print("Enter a positive integer: ");
```

```
int number = scanner.nextInt();
if (number > 0) {
   String[] results = new String[number + 1];
   for (int i = 0; i <= number; i++) {
      if (i % 3 == 0 && i % 5 == 0) {
         results[i] = "FizzBuzz";
      } else if (i % 3 == 0) {
         results[i] = "Fizz";
      } else if (i % 5 == 0) {
         results[i] = "Buzz";
      } else {
         results[i] = Integer.toString(i);
      }
   }
   for (int i = 0; i <= number; i++) {
      System.out.println("Position " + i + " = " + results[i]);
   }
} else {
```

```
            System.out.println("Please enter a positive integer.");
        }
    }
}
```

OUTPUT:

```
Enter a positive integer: 7
Position 0 = FizzBuzz
Position 1 = 1
Position 2 = 2
Position 3 = Fizz
Position 4 = 4
Position 5 = Buzz
Position 6 = Fizz
Position 7 = 7
```