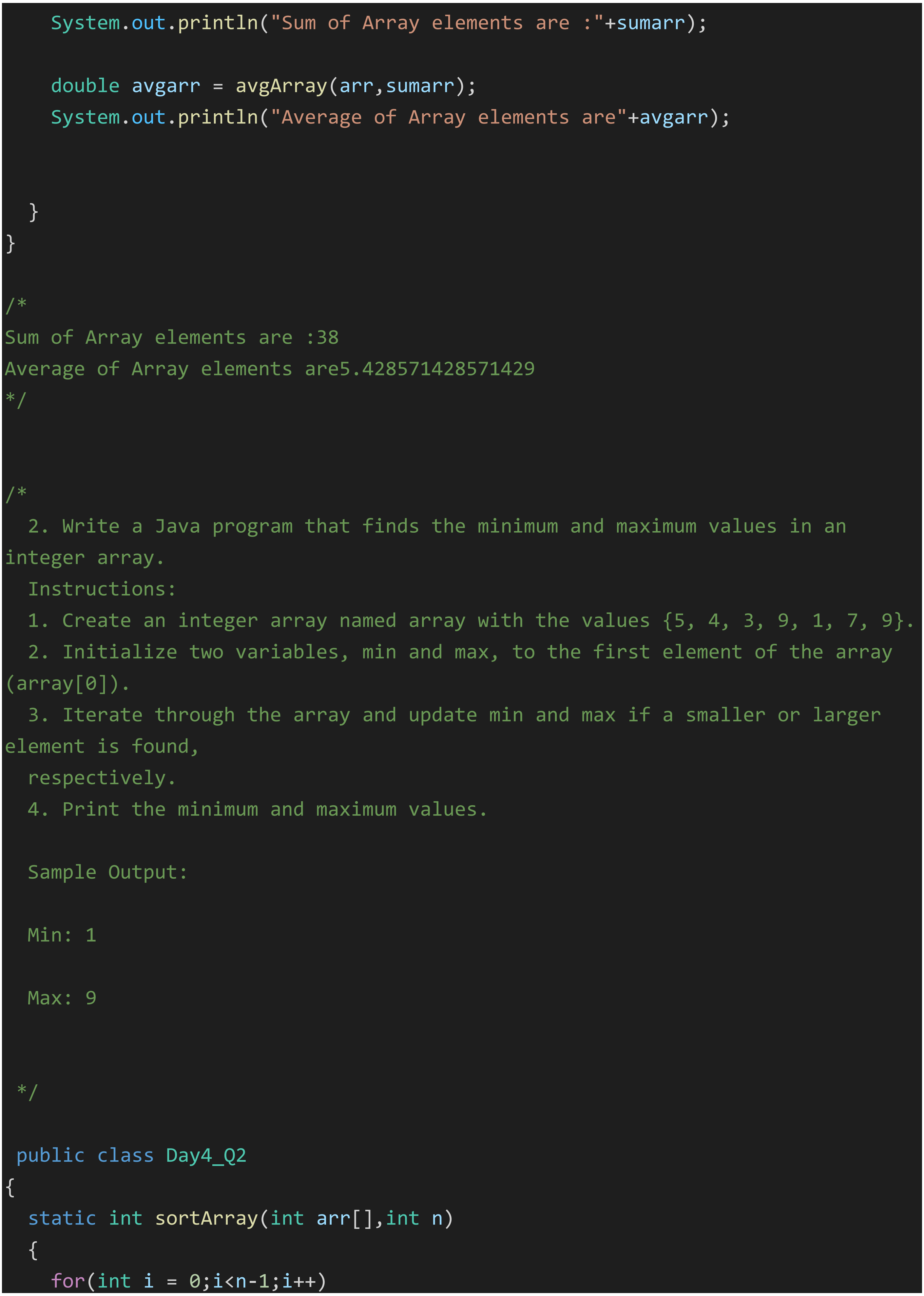
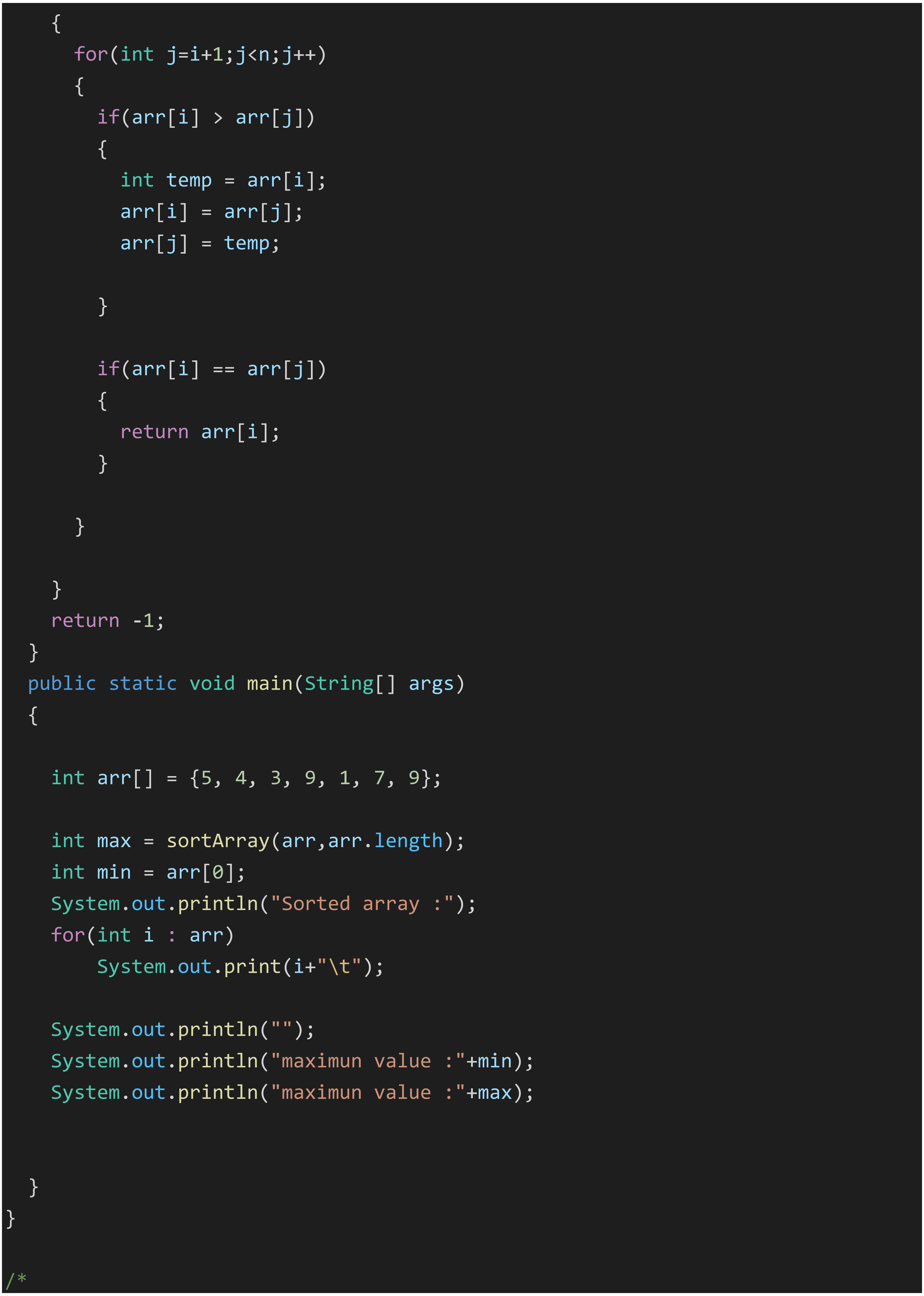
ASSIGNMENT_04_Solution

```java
/*
  1. Write a Java program that calculates the average of elements in an integer
array.

  Instructions:
  1. Create an integer array named array with the values {5, 4, 3, 9, 1, 7, 9}.
  2. Calculate the sum of all elements in the array.
  3. Calculate the average of the elements by dividing the sum by the number of
elements in
  the array.
  4. Print the average value.

  Sample Output:

  Average: 5.428571428571429

 */

public class Day4_Q1
{
  static int sumArray(int arr[])
  {
    int sum = 0;

    for(int i : arr)
        sum += i;

    return sum;
  }

  static double avgArray(int arr[],int sum)
  {
    return (double)sum / arr.length;
  }
  public static void main(String[] args)
  {

    int arr[] = {5, 4, 3, 9, 1, 7, 9};

    int sumarr = sumArray(arr);
```

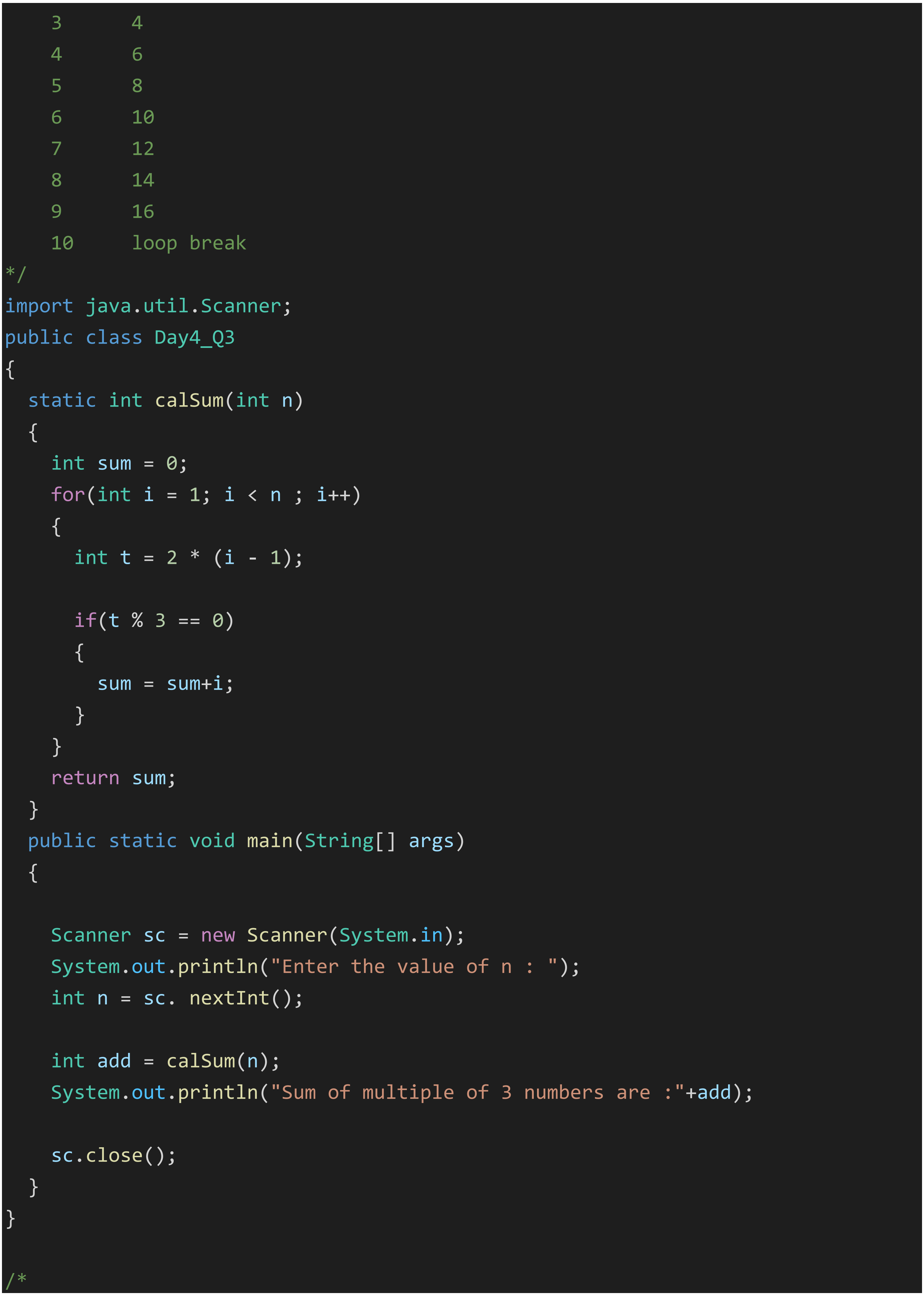


```
    System.out.println("Sum of Array elements are :"+sumarr);

    double avgarr = avgArray(arr,sumarr);
    System.out.println("Average of Array elements are"+avgarr);


  }
}

/*
Sum of Array elements are :38
Average of Array elements are5.428571428571429
*/


/*
  2. Write a Java program that finds the minimum and maximum values in an
integer array.
  Instructions:
  1. Create an integer array named array with the values {5, 4, 3, 9, 1, 7, 9}.
  2. Initialize two variables, min and max, to the first element of the array
(array[0]).
  3. Iterate through the array and update min and max if a smaller or larger
element is found,
  respectively.
  4. Print the minimum and maximum values.

  Sample Output:

  Min: 1

  Max: 9


 */

 public class Day4_Q2
{
  static int sortArray(int arr[],int n)
  {
    for(int i = 0;i<n-1;i++)
```



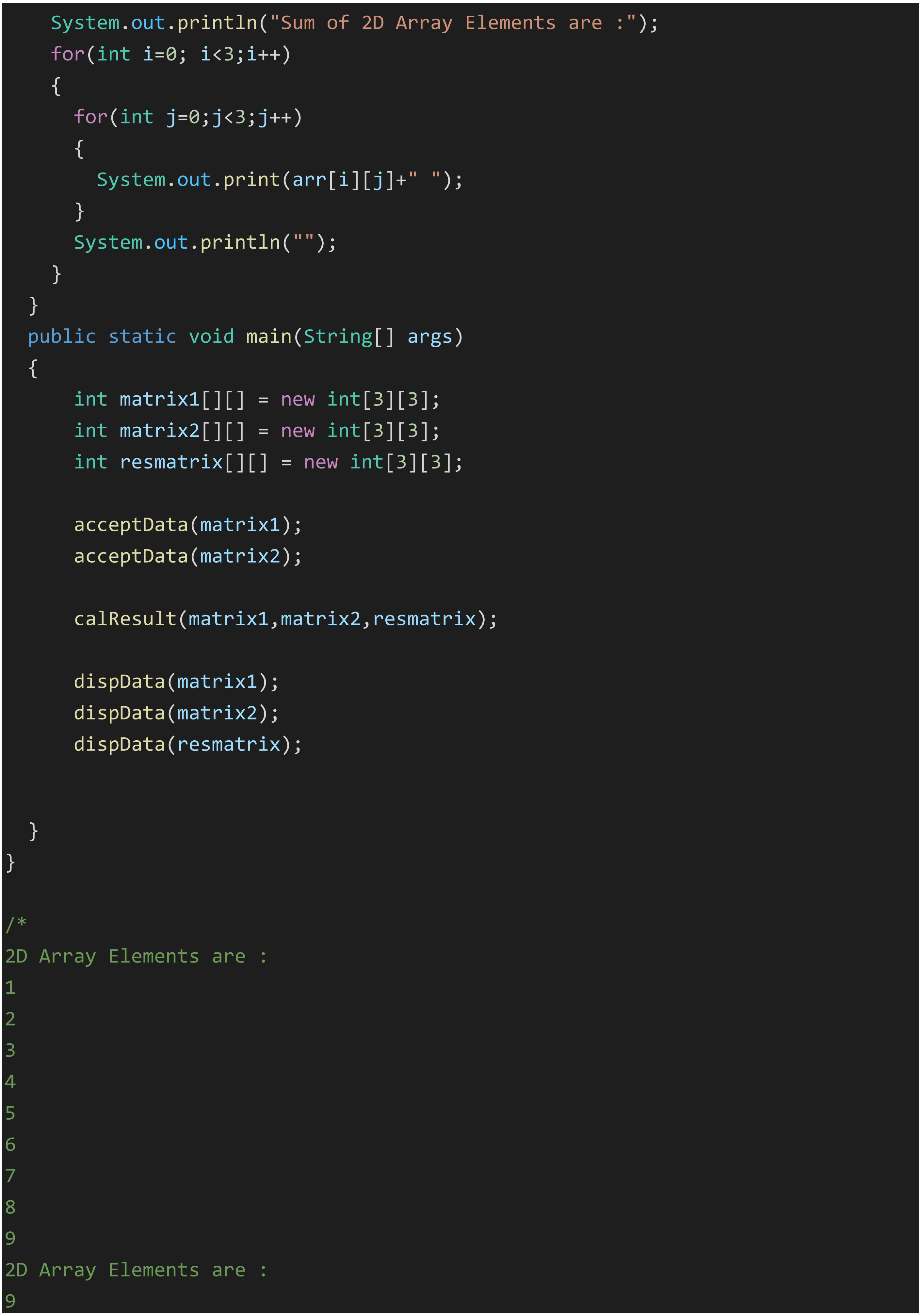
```
    {
      for(int j=i+1;j<n;j++)
      {
        if(arr[i] > arr[j])
        {
          int temp = arr[i];
          arr[i] = arr[j];
          arr[j] = temp;

        }

        if(arr[i] == arr[j])
        {
          return arr[i];
        }

      }

    }
    return -1;
  }
  public static void main(String[] args)
  {

    int arr[] = {5, 4, 3, 9, 1, 7, 9};

    int max = sortArray(arr,arr.length);
    int min = arr[0];
    System.out.println("Sorted array :");
    for(int i : arr)
        System.out.print(i+"\t");

    System.out.println("");
    System.out.println("maximun value :"+min);
    System.out.println("maximun value :"+max);


  }
}

/*
```

```
Sorted array :
1       3       4       5       7       9       9
maximun value :1
maximun value :9

*/
/*
  3. Write a Java program that calculates the sum of multiples of 3 in a
sequence of numbers.

  Instructions:
  1. Read an integer n from the user using the Scanner class.
  2. Initialize a variable sum to store the sum of multiples of 3.
  3. Use a loop (for or while) to iterate through numbers from 0 to n.
  4. For each number i, calculate t = 2 * (i - 1) and check if t is a multiple
of 3
      (i.e., t % 3 == 0)
  5. If t is a multiple of 3, add it to the sum.

  6. After the loop, print the value of sum.

  Sample Input/Output:

  Input: 10

  Output: 12

  Explanation: The multiples of 3 in the sequence (0, 2, 4, 6, 8) are 0 and 6.
Their sum is 0 + 6 = 6.
  However, the loop includes the value of i' as well, so the correct sum is
0+6+6 = 12.

  Constraints:
  · The input n should be a non-negative integer.


 */
/* logic :
    i   t =  2*(i-1)
    1      0
    2      2
```

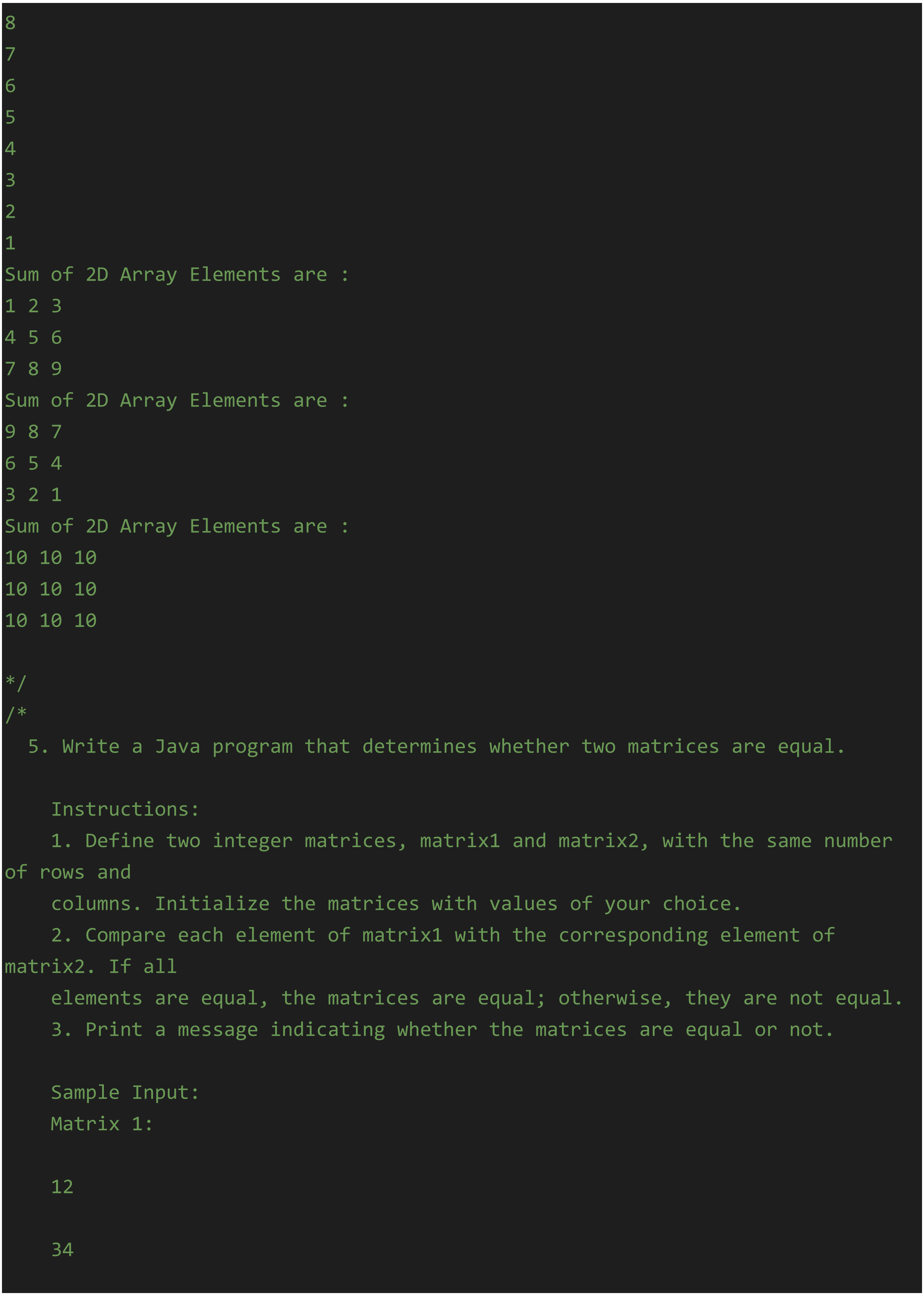


```
    3      4
    4      6
    5      8
    6      10
    7      12
    8      14
    9      16
    10     loop break
*/
import java.util.Scanner;
public class Day4_Q3
{
  static int calSum(int n)
  {
    int sum = 0;
    for(int i = 1; i < n ; i++)
    {
      int t = 2 * (i - 1);

      if(t % 3 == 0)
      {
        sum = sum+i;
      }
    }
    return sum;
  }
  public static void main(String[] args)
  {

    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the value of n : ");
    int n = sc. nextInt();

    int add = calSum(n);
    System.out.println("Sum of multiple of 3 numbers are :"+add);

    sc.close();
  }
}

/*
```

```
  Output:
  Enter the value of n :
  10
  Sum of multiple of 3 numbers are :12
*/

/*
  4. Write a Java program that adds two matrices of the same size.

    Instructions:
    1. Define two integer matrices, matrix1 and matrix2, with the same number
of rows and
    columns. Initialize the matrices with values of your choice.
    2. Create a new matrix, result, to store the sum of matrix1 and matrix2.
The size of result
    should be the same as the size of matrix1 and matrix2.
    3. Use nested loops (for loops) to iterate through each element of matrix1
and matrix2, and
    calculate the sum of the corresponding elements. Store the result in the
corresponding
    element of result.
    4. Print the sum matrix result.

    Sample Input:

    Matrix 1:

    123

    456

    789

    Matrix 2:

    987

    654

    321
    Sample Output:

    Sum Matrix:

    10 10 10

    10 10 10

    10 10 10


 */

import java.util.Scanner;
public class Day4_Q4
{
  static Scanner sc = new Scanner(System.in);

  static void acceptData(int arr[][])
  {
    System.out.println("2D Array Elements are :");
    for(int i=0; i<3;i++)
    {
      for(int j=0;j<3;j++)
      {
        arr[i][j] = sc.nextInt();
      }
    }
  }
  static void calResult(int arr1[][],int arr2[][],int arr3[][])
  {
    for(int i=0; i<3;i++)
    {
      for(int j=0;j<3;j++)
      {
        arr3[i][j] = arr1[i][j] + arr2[i][j];
      }
    }
  }
  static void dispData(int arr[][])
  {
```



```
  System.out.println("Sum of 2D Array Elements are :");
  for(int i=0; i<3;i++)
  {
   for(int j=0;j<3;j++)
   {
    System.out.print(arr[i][j]+" ");
   }
   System.out.println("");
  }
 }
 public static void main(String[] args)
 {
   int matrix1[][] = new int[3][3];
   int matrix2[][] = new int[3][3];
   int resmatrix[][] = new int[3][3];

   acceptData(matrix1);
   acceptData(matrix2);

   calResult(matrix1,matrix2,resmatrix);

   dispData(matrix1);
   dispData(matrix2);
   dispData(resmatrix);


 }
}

/*
2D Array Elements are :
1
2
3
4
5
6
7
8
9
2D Array Elements are :
9
```



```
8
7
6
5
4
3
2
1
Sum of 2D Array Elements are :
1 2 3
4 5 6
7 8 9
Sum of 2D Array Elements are :
9 8 7
6 5 4
3 2 1
Sum of 2D Array Elements are :
10 10 10
10 10 10
10 10 10

*/
/*
  5. Write a Java program that determines whether two matrices are equal.

    Instructions:
    1. Define two integer matrices, matrix1 and matrix2, with the same number
of rows and
    columns. Initialize the matrices with values of your choice.
    2. Compare each element of matrix1 with the corresponding element of
matrix2. If all
    elements are equal, the matrices are equal; otherwise, they are not equal.
    3. Print a message indicating whether the matrices are equal or not.

    Sample Input:
    Matrix 1:

    12

    34
    Matrix 2:

    12

    34

    sample output:
    Matrices are not equal

 */


import java.util.Scanner;

public class Day4_Q5
{
  static Scanner sc = new Scanner(System.in);

  static void acceptData(int arr[][])
  {
    System.out.println("2D Array Elements are :");
    for(int i=0; i<2;i++)
    {
      for(int j=0;j<2;j++)
      {
        arr[i][j] = sc.nextInt();
      }
    }
  }


  public static void main(String[] args)
  {
      int matrix1[][] = new int[2][2];
      int matrix2[][] = new int[2][2];

      acceptData(matrix1);
      acceptData(matrix2);

      if(matrix1 == matrix2)
      {
        System.out.println("Matrices are equal ");
      }
      else
      {
        System.out.println("Matrices are not equal");
      }

  }
}
```