PROGRAM1

```
import java.util.Arrays;
import java.util.Scanner;
public class RotateArrayByOne {
   static void rotateArrayByN(int[] arr, int rotations) {
      int n = arr.length;
      rotations = rotations % n;
      for (int r = 0; r < rotations; r++) {
         int lastElement = arr[n - 1];
         for (int i = n - 1; i > 0; i--) {
            arr[i] = arr[i - 1];
         }
         arr[0] = lastElement;
      }
   }
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter the size of the array: ");
      int size = scanner.nextInt();
      int[] arrayToRotate = new int[size];
      System.out.println("Enter the elements of the array:");
      for (int i = 0; i < size; i++) {
         System.out.print("Element " + (i + 1) + ": ");
         arrayToRotate[i] = scanner.nextInt();
      }
      System.out.println("Original Array: " + Arrays.toString(arrayToRotate));
      System.out.print("Enter the number of rotations: ");
      int rotations = scanner.nextInt();
      rotateArrayByN(arrayToRotate, rotations);
      System.out.println("Array after " + rotations + " rotations: " + Arrays.toString(arrayToRotate));
      scanner.close();
   }
}
```

PROGRAM 2

```
import java.util.Arrays;
import java.util.Scanner;
public class CommonElementsInSortedArrays {
   static void findCommonElements(int[] arr1, int[] arr2, int[] arr3) {
      int i = 0, j = 0, k = 0;
      System.out.print("Common Elements: ");
      while (i < arr1.length && j < arr2.length && k < arr3.length) {
         if (arr1[i] == arr2[j] && arr2[j] == arr3[k]) {
            System.out.print(arr1[i] + " ");
            i++;
            j++;
            k++;
         } else if (arr1[i] < arr2[j]) {
            i++;
         } else if (arr2[j] < arr3[k]) {
            j++;
         } else {
            k++;
         }
      }
      System.out.println();
   }
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter the size of array 1: ");
      int size1 = scanner.nextInt();
      int[] array1 = new int[size1];
      System.out.println("Enter the sorted elements of array 1:");
      for (int i = 0; i < size1; i++) {
         System.out.print("Element " + (i + 1) + ": ");
         array1[i] = scanner.nextInt();
      }
```

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        System.out.print("Enter the size of array 2: ");
        int size2 = scanner.nextInt();
        int[] array2 = new int[size2];
        System.out.println("Enter the sorted elements of array 2:");
        for (int i = 0; i < size2; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            array2[i] = scanner.nextInt();
        }
        System.out.print("Enter the size of array 3: ");
        int size3 = scanner.nextInt();
        int[] array3 = new int[size3];
        System.out.println("Enter the sorted elements of array 3:");
        for (int i = 0; i < size3; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            array3[i] = scanner.nextInt();
        }
        System.out.println("Array 1: " + Arrays.toString(array1));
        System.out.println("Array 2: " + Arrays.toString(array2));
        findCommonElements(array1, array2, array3);
        scanner.close();
    }
}
```

PROGRAM 3

```
import java.util.Arrays;
import java.util.Scanner;
public class TripletSumInArray {
   static void findTriplets(int[] arr, int targetSum) {
      Arrays.sort(arr);
      int n = arr.length;
      for (int i = 0; i < n - 2; i++) {
         int left = i + 1;
         int right = n - 1;
         int currentSum = targetSum - arr[i];

         while (left < right) {
            int pairSum = arr[left] + arr[right];

            if (pairSum == currentSum) {
               System.out.println("Triplet: " + arr[i] + ", " + arr[left] + ", " + arr[right]);
               left++;
               right--;
            } else if (pairSum < currentSum) {
               left++;
            } else {
               right--;
            }
         }
      }
   }
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter the size of the array: ");
      int size = scanner.nextInt();
      int[] array = new int[size];
      System.out.println("Enter the elements of the array:");
```

```
        for (int i = 0; i < size; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            array[i] = scanner.nextInt();
        }
        System.out.print("Enter the target sum: ");
        int targetSum = scanner.nextInt();
        System.out.println("Array: " + Arrays.toString(array));
        System.out.println("Target Sum: " + targetSum);
        findTriplets(array, targetSum);
        scanner.close();
    }
}
```