Write a program to given an array nums containing n distinct numbers in the range [0, n], return the only number in the range that is missing from the array.

CODE:

import java.util.Scanner;

public class MissingNumber {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the length of the array: ");

int length = scanner.nextInt();

int[] nums = new int[length];

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

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

nums[i] = scanner.nextInt();

}

scanner.close();

int missingNumber = findMissingNumber(nums);

System.out.println("The missing number in the array is: " + missingNumber);

}

public static int findMissingNumber(int[] nums) {

int n = nums.length;

int totalSum = (n \* (n + 1)) / 2;

int arraySum = 0;

// Calculate the sum of all elements in the array

for (int num : nums) {

arraySum += num;

}

// The missing number is the difference between the sum of all natural numbers up to n

// and the sum of elements in the array

return totalSum - arraySum;

}

}

OUTPUT:

C:\javap>javac MissingNumber.java

C:\javap>java MissingNumber

Enter the length of the array: 5

Enter the elements of the array:

1 2 3 4 5

The missing number in the array is: 0

