HATFD1025

Find the Second Largest Element in an Array

Write a program to find the second-largest element in an array of integers without using any sorting algorithms or built-in array functions.

Instructions: Traverse the array manually to find both the largest and second-largest elements

Solution:

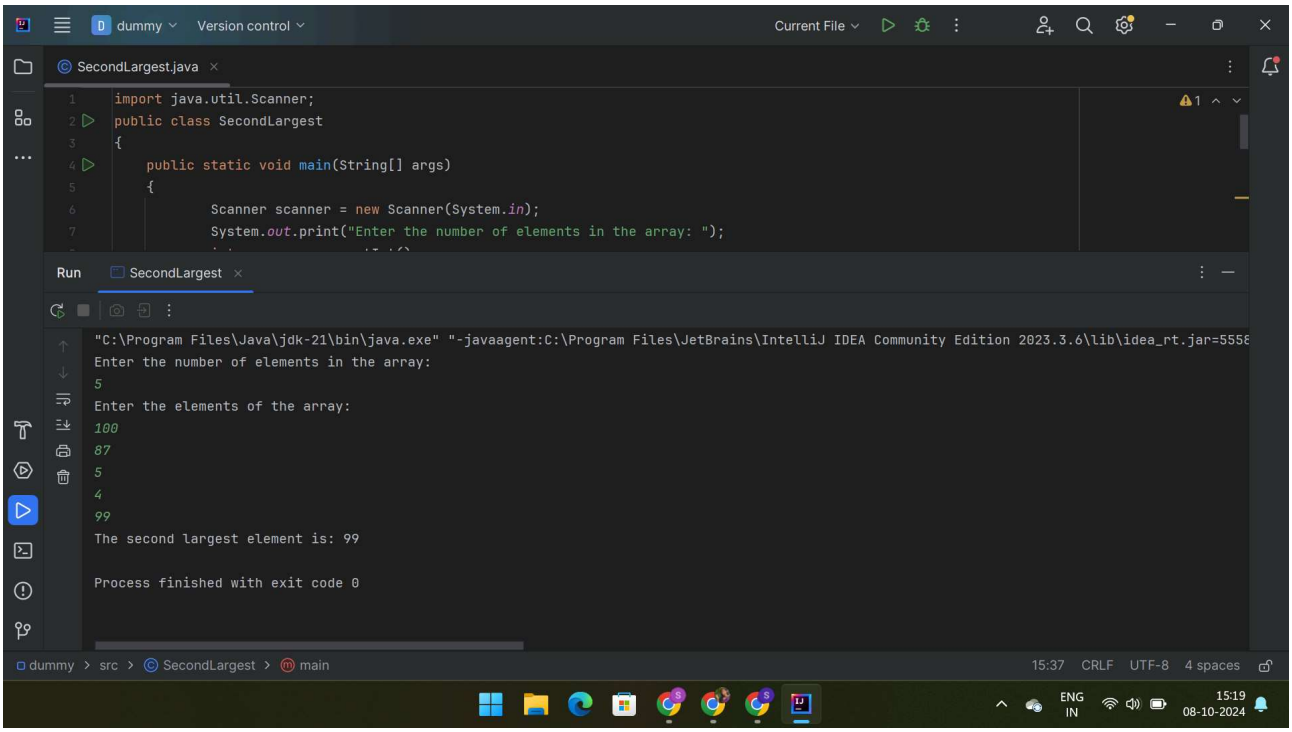
```
import java.util.Scanner;
public class SecondLargest
{
   public static void main(String[] args)
   {
            Scanner scanner = new Scanner(System.in);
            System.out.print("Enter the number of elements in the array: ");
            int n = scanner.nextInt();
            if (n < 2)
            {
                System.out.println("The array should have at least 2 elements.");
                return;
            }
            int[] arr = new int[n];
            System.out.println("Enter the elements of the array:");
            for (int i = 0; i < n; i++) {
                arr[i] = scanner.nextInt();
            }
            int secondLargest = findSecondLargest(arr);
            if (secondLargest != Integer.MIN_VALUE) {
                System.out.println("The second largest element is: " +
secondLargest);
            } else {
                System.out.println("There is no second largest element.");
            }
```

```
        scanner.close();
    }

    public static int findSecondLargest(int[] arr)
    {
        int largest = Integer.MIN_VALUE;
        int secondLargest = Integer.MIN_VALUE;
        for (int i = 0; i < arr.length; i++) {
            if (arr[i] > largest) {
                secondLargest = largest;
                largest = arr[i];
            }
            else if (arr[i] > secondLargest && arr[i] != largest)
            {
                secondLargest = arr[i];
            }
        }

        return secondLargest;
    }
}
```

1. Input:

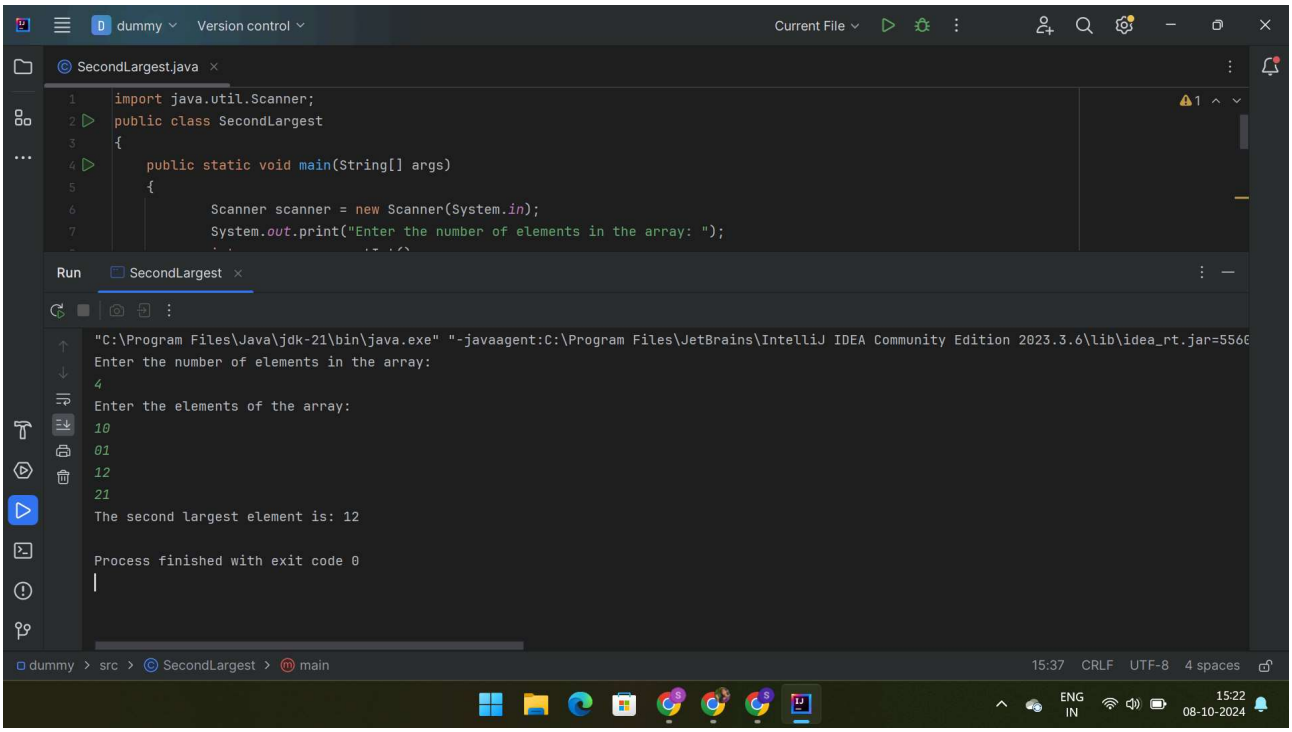
Enter the number of elements in the array:
5
Enter the elements of the array:
100
87
5
4
99

1. Output: The second largest element is: 99



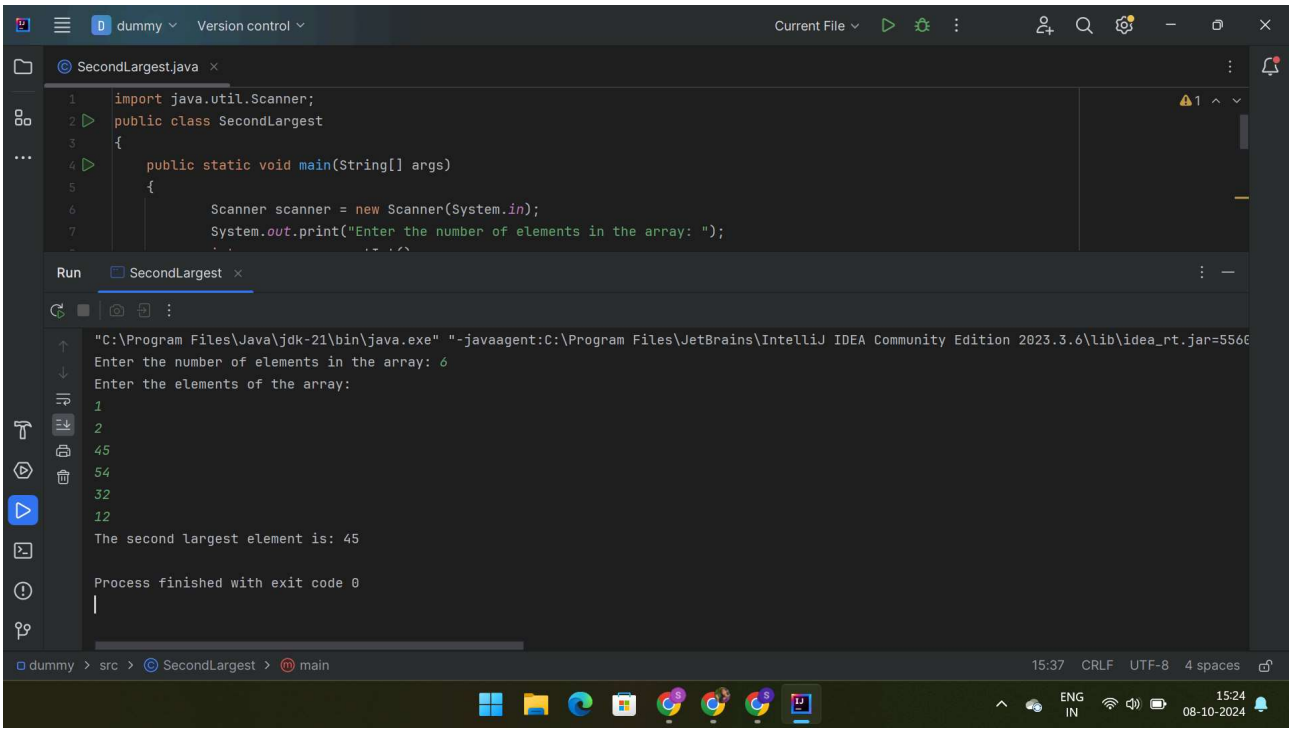
2. Input
   Enter the number of elements in the array:
   4
   Enter the elements of the array:
   10
   01
   12
   21

2. Output
   The second largest element is: 12



3. Input
   Enter the number of elements in the array: 6
   Enter the elements of the array:
   1
   2
   45
   54
   32
   12

3. Output
   The second largest element is: 45


dummy
Version control
Current File
SecondLargest.java
import java.util.Scanner;
public class SecondLargest
{
public static void main(String[] args)
{
Scanner scanner = new Scanner(System.in);
System.out.print("Enter the number of elements in the array: ");
Run
SecondLargest
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.3.6\lib\idea_rt.jar=5566
Enter the number of elements in the array: 6
Enter the elements of the array:
1
2
45
54
32
12
The second largest element is: 45
Process finished with exit code 0
dummy
src
SecondLargest
main
15:37
CRLF
UTF-8
4 spaces
ENG
IN
15:24
08-10-2024