Lab Assignment – 4

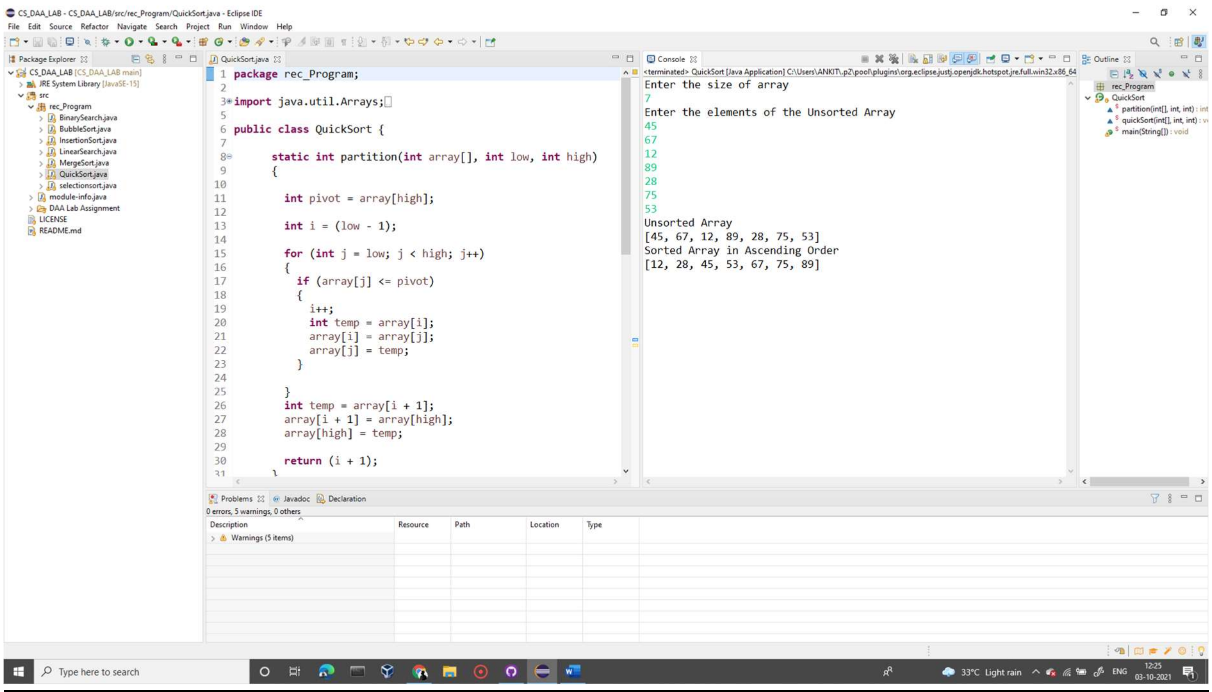
WAP to implement the Quick Sort Algorithm.

Quick Sort Code:

```
package rec_Program;


import java.util.Arrays;
import java.util.Scanner;


public class QuickSort {


      static int partition(int array[], int low, int high)
      {
        int pivot = array[high];
        int i = (low - 1);
        for (int j = low; j < high; j++)
        {
          if (array[j] <= pivot)
          {
            i++;
            int temp = array[i];
            array[i] = array[j];
            array[j] = temp;
          }
        }
        int temp = array[i + 1];
        array[i + 1] = array[high];
        array[high] = temp;

        return (i + 1);

       static void quickSort(int array[], int low, int high) {
            if (low < high)
            {
              int p = partition(array, low, high);
              quickSort(array, low, p - 1);
              quickSort(array, p + 1, high);
            }
           }
      public static void main(String[] args) {
          // TODO Auto-generated method stub
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter the size of array");
                int n = sc.nextInt();
                 int[] array = new int[n];
                   System.out.println("Enter the elements of the Unsorted
Array");
                   for(int i = 0 ; i < n ; i++)
                   {
                      array[i] = sc.nextInt();
                   }
                   System.out.println("Unsorted Array");
                   System.out.println(Arrays.toString(array));
```

```java
                quickSort(array, 0, n - 1);


                System.out.println("Sorted Array in Ascending Order ");
                System.out.println(Arrays.toString(array));
        }
}
```

<u>QUICK SORT CODE OUTPUT:</u>



```java
package rec_Program;

import java.util.Arrays;

public class QuickSort {

	static int partition(int array[], int low, int high)
	{

	  int pivot = array[high];

	  int i = (low - 1);

	  for (int j = low; j < high; j++)
	  {
	    if (array[j] <= pivot)
	    {
	      i++;
	      int temp = array[i];
	      array[i] = array[j];
	      array[j] = temp;
	    }

	  }
	  int temp = array[i + 1];
	  array[i + 1] = array[high];
	  array[high] = temp;

	  return (i + 1);
```

<terminated> QuickSort [Java Application] C:\Users\ANKIT\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64

```
Enter the size of array
7
Enter the elements of the Unsorted Array
45
67
12
89
28
75
53
Unsorted Array
[45, 67, 12, 89, 28, 75, 53]
Sorted Array in Ascending Order
[12, 28, 45, 53, 67, 75, 89]
```

0 errors, 5 warnings, 0 others

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