Name – Yash Daga Roll Number – 20BCE7323

Lab-11

1. Write a program to implement Quick sort by selecting last element as pivot in each partition.

Code:

```
import java.util.*;


class Quicksort{


static void swap(int[] a, int i, int j)

{

   int temp = a[i];

   a[i] = a[j];

   a[j] = temp;

}


static int partition(int[] a, int low, int high)

{

   int pivot = a[high];


   int i = (low - 1);


   for(int j = low; j <= high - 1; j++)

   {

      if (a[j] < pivot)

      {
```

```
            i++;
            swap(a, i, j);
        }
    }
    swap(a, i + 1, high);
    return (i + 1);
}
static void quickSort(int[] a, int low, int high)
{
    if (low < high)
    {

        int pi = partition(a, low, high);
        quickSort(a, low, pi - 1);
        quickSort(a, pi + 1, high);
    }
}

static void printaay(int[] a, int size)
{
    for(int i = 0; i < size; i++)
        System.out.print(a[i] + " ");

    System.out.println();
}
```

```
public static void main(String[] args)
{
   Scanner sc = new Scanner(System.in);
    System.out.println("Enter the Number of elements to be in Array: ");
    int n = sc.nextInt();
    int[] a= new int[10];
    System.out.println("Enter the array elements: ");
    for(int i=0; i<n;i++)
    {
            a[i] =sc.nextInt();
    }
    System.out.println("Original array: ");
    printaay(a, n);
    quickSort(a, 0, n - 1);
   System.out.println("Sorted array: ");
   printaay(a, n);
}
}
```

```
D:\20BCE7323>javac Quicksort.java

D:\20BCE7323>java Quicksort
Enter the Number of elements to be in Array:
5
Enter the array elements:
86 24 68 7 34
Original array:
86 24 68 7 34
Sorted array:
7 24 34 68 86

D:\20BCE7323>
```

```
    }
}

static void printaay(int[] a, int size)
{
    for(int i = 0; i < size; i++)
        System.out.print(a[i] + " ");

    System.out.println();
}

public static void main(String[] args)
{
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter the Number of elements to be in Array: ");
    int n = sc.nextInt();
    int[] a= new int[10];
    System.out.println("Enter the array elements: ");
    for(int i=0; i<n;i++)
    {
        a[i] =sc.nextInt();
    }
    System.out.println("Original array: ");
    printaay(a, n);
    quickSort(a, 0, n - 1);
    System.out.println("Sorted array: ");
    printaay(a, n);
}
}
```

Command Prompt

```
D:\20BCE7323>javac Quicksort.java

D:\20BCE7323>java Quicksort
Enter the Number of elements to be in Array:
5
Enter the array elements:
86 24 68 7 34
Original array:
86 24 68 7 34
Sorted array:
7 24 34 68 86

D:\20BCE7323>
```

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