**LAB-1: Quicksort Program**

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**Description:** Quicksort is **a divide-and-conquer algorithm**. It works by selecting a 'pivot' element from the array and partitioning the other elements into two sub-arrays, according to whether they are less than or greater than the pivot.

**Program :**

import java.util.\*;

public class Main

{

static void quicksort(int[] a, int first, int last)

{

    int i, j, pivot, temp;

    if(first<last){

    pivot=first;

    i=first;

    j=last;

    while(i<j)

    {

    while(a[i]<=a[pivot]&i<last)

    i++;

    while(a[j]>a[pivot])

    j--;

    if(i<j)

    {

    temp=a[i];

    a[i]=a[j];

    a[j]=temp;

    }

    }

    temp=a[pivot];

    a[pivot]=a[j];

    a[j]=temp;

    quicksort(a,first,j-1);

    quicksort(a,j+1,last);

    }

    }

    public static void  main(String[] args)

    {

        Scanner s = new Scanner(System.in);

        int n,b;

        int[] a = new int[25];

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

        n=s.nextInt();

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

        for( b=0;b<n;b++)

        {

            a[b]=s.nextInt();

        }

        quicksort(a,0,n-1);

        System.out.println("Printing the sorted array");

        for(b=0;b<n;b++)

        {

            System.out.println(a[b]);

        }

    }

}

**Output :**

Text

Description automatically generated