Writing a program in Java implementing the linear search algorithm ?

import java.util.\*;

public class Main {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter range");

        int n = sc.nextInt();

        System.out.println("Enter element that want to search");

        int ele = sc.nextInt();

        System.out.println("Enter elements");

        int[] arr = new int[n];

        int flag = 0;

        for(int i=0;i<n;i++){

            arr[i] = sc.nextInt();

            if(arr[i] == ele){

                flag = 1;

                break;

            }

        }

        if(flag == 0){

            System.out.println("Elemnt not found");

        }

        else{

            System.out.println("Element found");

        }

    }

}

Writing a program in Java implementing the binary search algorithm ?

import java.util.\*;

public class Main {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter range");

        int n = sc.nextInt();

        System.out.println("Enter element that want to search");

        int ele = sc.nextInt();

        System.out.println("Enter elements");

        int[] arr = new int[n];

        int flag = 0;

        for(int i=0;i<n;i++){

            arr[i] = sc.nextInt();

        }

        int first = 0;

        int last = n-1;

        int mid = (first+last)/2;

        while(first <= last){

            if(arr[mid] == ele){

                flag = 1;

                break;

            }

            else if(arr[mid] < ele){

                first = mid+1;

            }

            else{

                last = mid-1;

            }

            mid = (first + last)/2;

        }

        if(flag == 0){

            System.out.println("Elemnt not found");

        }

        else{

            System.out.println("Element found");

        }

    }

}

Writing a program in Java implementing the exponential search algorithm ?

import java.util.\*;

public class Main {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter range");

        int n = sc.nextInt();

        System.out.println("Enter element that want to search");

        int ele = sc.nextInt();

        System.out.println("Enter elements");

        int[] arr = new int[n];

        int flag = 0;

        for(int i=0;i<n;i++){

            arr[i] = sc.nextInt();

        }

        if(arr[0] == ele){

            flag=1;

        }

        else{

        int i=1;

        while(i < n && arr[i] <= ele){

            i=i\*2;

        }

        int first = i/2;

        int last = Math.min(i, n-1);

        int mid = (first+last)/2;

        while(first <= last){

            if(arr[mid] == ele){

                flag = 1;

                break;

            }

            else if(arr[mid] < ele){

                first = mid+1;

            }

            else{

                last = mid-1;

            }

            mid = (first + last)/2;

        }

        }

        if(flag == 0){

            System.out.println("Elemnt not found");

        }

        else{

            System.out.println("Element found");

        }

    }

}

Writing a program in Java implementing the selection sort algorithm ?

import java.util.\*;

public class Main {

public static void main(String args[]) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter range");

int n = sc.nextInt();

int[] arr = new int[n];

System.out.println("Enter elements");

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

arr[i] = sc.nextInt();

}

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

int temp = 0;

int min = arr[i];

//int k=0;

for(int j=i+1;j<n;j++){

if(arr[j] < min){

min = arr[j];

//k=j;

temp = arr[i];

arr[i] = min;

arr[j] = temp;

}

}

}

System.out.println("Sorted Array");

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

System.out.print(arr[i] + " ");

}

}

}

Writing a program in Java implementing the bubble sort algorithm?

import java.util.\*;

public class Main {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter range");

        int n = sc.nextInt();

        int[] arr = new int[n];

        System.out.println("Enter elements");

        for(int i=0;i<n;i++){

            arr[i] = sc.nextInt();

        }

        for(int i=0;i<n;i++){

            int temp =0;

            for(int j=0;j<n-1;j++){

                if(arr[j] > arr[j+1]){

                    temp = arr[j];

                    arr[j] = arr[j+1];

                    arr[j+1] = temp;

                }

            }

       }

        System.out.println("Sorted Array");

        for(int i=0;i<n;i++){

            System.out.print(arr[i] + " ");

        }

    }

}

Writing a program in Java implementing the insertion sort algorithm ?

import java.util.\*;

public class Main {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter range");

        int n = sc.nextInt();

        int[] arr = new int[n];

        System.out.println("Enter elements");

        for(int i=0;i<n;i++){

            arr[i] = sc.nextInt();

        }

        //for(int i=0;i<n;i++){

            int temp,j;

            for(int i=0;i<n;i++){

                temp = arr[i];

                j = i-1;

                while(j >= 0 && temp <= arr[j]){

                        arr[j+1] = arr[j];

                        j=j-1;

                }

                arr[j+1] = temp;

            }

      // }

        System.out.println("Sorted Array");

        for(int i=0;i<n;i++){

            System.out.print(arr[i] + " ");

        }

    }

}

Writing a program in Java implementing the merge sort algorithm ?

import java.util.\*;

class Main

{

void merge(int arr[], int l, int m, int r)

{

int n1 = m - l + 1;

int n2 = r - m;

int L[] = new int[n1];

int R[] = new int[n2];

for (int i = 0; i < n1; ++i)

L[i] = arr[l + i];

for (int j = 0; j < n2; ++j)

R[j] = arr[m + 1 + j];

int i = 0, j = 0;

int k = l;

while (i < n1 && j < n2) {

if (L[i] <= R[j]) {

arr[k] = L[i];

i++;

}

else {

arr[k] = R[j];

j++;

}

k++;

}

while (i < n1) {

arr[k] = L[i];

i++;

k++;

}

while (j < n2) {

arr[k] = R[j];

j++;

k++;

}

}

void sort(int arr[], int l, int r)

{

if (l < r) {

int m =l+ (r-l)/2;

sort(arr, l, m);

sort(arr, m + 1, r);

merge(arr, l, m, r);

}

}

static void printArray(int arr[])

{

int n = arr.length;

for (int i = 0; i < n; ++i)

System.out.print(arr[i] + " ");

System.out.println();

}

public static void main(String args[])

{

int arr[] = { 12, 11, 13, 5, 6, 7 };

System.out.println("Given Array");

printArray(arr);

Main ob = new Main();

ob.sort(arr, 0, arr.length - 1);

System.out.println("Sorted array");

printArray(arr);

}

}

Writing a program in Java implementing the quick sort algorithm ?

import java.util.\*;

class Main{

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

{

int temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

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

{

int pivot = arr[high];

int i = (low - 1);

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

{

if (arr[j] < pivot)

{

i++;

swap(arr, i, j);

}

}

swap(arr, i + 1, high);

return (i + 1);

}

static void quickSort(int[] arr, int low, int high)

{

if (low < high)

{

int pi = partition(arr, low, high);

quickSort(arr, low, pi - 1);

quickSort(arr, pi + 1, high);

}

}

static void printArray(int[] arr, int size)

{

for(int i = 0; i < size; i++)

System.out.print(arr[i] + " ");

System.out.println();

}

public static void main(String[] args)

{

int[] arr = { 10, 7, 8, 9, 1, 5 };

int n = arr.length;

quickSort(arr, 0, n - 1);

System.out.println("Sorted array ");

printArray(arr, n);

}

}