**WRITE A PROGRAM IN JAVA IMPLEMENTING THE EXPONENTIAL SEARCH ALGORITHM**

package searching;

import java.util.Arrays;

import java.util.InputMismatchException;

import java.util.Scanner;

public class ExponentialSearch {

BinarySearch obj = new BinarySearch();

public int exponentialSearch(int arr[], int key) {

if(arr[0] == key) {

return 0;

}

int i = 1;

while(i<arr.length && arr[i] <= key) {

i \*= 2;

}

return obj.binarySearch(arr, i/2, Math.min(i, arr.length-1), key);

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

ExponentialSearch obj1 = new ExponentialSearch();

try {

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

int size = sc.nextInt();

int arr[] = new int[size];

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

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

arr[i] = sc.nextInt();

}

Arrays.sort(arr);

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

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

System.out.println(arr[i]);

}

System.out.println("Enter the value to be searched: ");

int key = sc.nextInt();

int index = obj1.exponentialSearch(arr,key);

if(index == -1) {

System.out.println(key+" is not found");

}

else {

System.out.println(key+" is found at index "+index);

}

} catch (InputMismatchException e) {

System.out.println("Invalid input");

}

catch(Exception e) {

System.out.println(e.getMessage());

}

sc.close();

}

}