import java.util.Scanner;

public class Test {

static int compareCount=0,swapCount=0,low,high,mid;

public static void main(String args[]){

Scanner sc=new Scanner(System.in);

int a[]=new int[1000];

for(int i=0;i<a.length;i++)

a[i]=(int)(Math.random()\*1000+1);

long startTime = System.currentTimeMillis();

a=insertionSort(a);

long stopTime = System.currentTimeMillis();

long elapsedTime = stopTime - startTime;

for(int i=0;i<a.length;i++)

System.out.println((i+1)+": "+a[i]+" ");

System.out.println("\nTime elapsed for insertion sorting "+a.length+" integers: "+elapsedTime+" miliseconds");

System.out.println("Comparison count: "+compareCount);

System.out.println("Swap count: "+swapCount);

System.out.println("Enter a number to search for: ");

int x=sc.nextInt();

boolean b=binarySearch(a,x);

if(b==true)

System.out.println("Found at position "+(mid+1));

else

System.out.println("Not Found");

}

public static int[] insertionSort(int a[]){

int key,i;

for(int j=1;j<a.length;j++){

key=a[j];

i=j-1;

while(i>=0 && key<a[i]){

compareCount++;

a[i+1]=a[i];

i=i-1;

}

a[i+1]=key;

swapCount++;

}

return a;

}

public static boolean binarySearch(int a[],int key){

low=0;

high=a.length-1;

while(low<=high){

mid=(low+high)/2;

if(a[mid]==key)

return true;

else if(a[mid]>key)

high=mid-1;

else

low=mid+1;

}

return false;

}

}