**Assignment 1:**

import java.util.Scanner;

import java.util.Random;

public class Sort {

static int compareCount=0,swapCount=0;

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=bubbleSort(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 bubble 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();

linearSearch(x, a);

}

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

int k,t,temp;

k=a.length;

while(k!=0){

t=0;

for(int j=1;j<=k-1;j++){

compareCount++;

if(a[j-1]>a[j]){

temp=a[j-1];

a[j-1]=a[j];

a[j]=temp;

t=j;

swapCount++;

}

}

k=t;

}

return a;

}

public static void linearSearch(int key, int a[]){

int i;

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

if(a[i]==key){

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

break;

}

}

if(i==a.length)

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

}

}