

Insertion sort

25	7	9	13	3
----	---	---	----	---

Step 0

25	7	9	13	3
----	---	---	----	---



Step 1 → Membandingkan data di sebelah kiri angka 7

7	25	9	13	3
---	----	---	----	---



Step 2 → Membandingkan data di sebelah kiri angka 9

7	9	25	13	3
---	---	----	----	---



Step 3 → Membandingkan data di sebelah kiri angka 13

7	9	13	25	3
---	---	----	----	---



Step 4

3	7	9	13	25
---	---	---	----	----

Step 5 → Hasil akhir dari Insertion sort

Step 4 → Membandingkan data di sebelah kiri angka 3

$3 < 25$ bergeser ke sebelah kiri
 $3 < 13$ bergeser ke sebelah kiri
 $3 < 9$ bergeser ke sebelah kiri
 $3 < 7$ bergeser ke sebelah kiri

Bubble sort

25	7	9	13	3
----	---	---	----	---

25	7	9	13	3
----	---	---	----	---

$i = 1$

$j = 4$

25	7	9	3	13
----	---	---	---	----

$j = 3$

25	7	3	9	13
----	---	---	---	----

$j = 2$

25 3 7 9 13 j=1

3 25 7 9 13 i=2 j=4

3 7 25 9 13 j=3

3 7 9 25 13 j=2

3 7 9 13 25 i=3 j=4

3 7 9 13 25 Akhir

* Selection sort

25 7 9 13 3

3 7 9 13 25

3 7 9 13 25

3 7 9 13 25

3 7 9 13 25 Akhir

* Shell sort

25 7 9 13 3

25 7 9 13 3 jarak = 2

3 7 9 13 25 Akhir

```

public static void printData (int [] data){
    for (int i=0; i < data.length; i++){
        System.out.print (data[i] + " ");
    }
}

```

```

public static void selection sort (int [] data){
    for (int i=0; i < data.length-1; i++){
        int indexSmall = i;
        for (int j=i+1; j < data.length; j++){
            if (data[j] < data[indexSmall]){
                indexSmall = j;
            }
        }
    }
}

```

```

int temp = data [i];
data [i] = data [indexSmall];
data [indexSmall] = temp;
}

```



```

}
public static void binarySearch(int[] data, int key) {
    int indexAwal = 0;
    int indexAkhir = data.length - 1;
    middle = 0;
    found = 0;
    while ((indexAwal <= indexAkhir) && (found == 0)) {
        middle = (indexAwal + indexAkhir) / 2;
        System.out.println("nilai tengah = " + middle);
        if (key == data[middle]) {
            System.out.println("nilai " + key + " berada di indeks ke- " + middle);
            found = 1;
        }
        else {
            if (key < data[middle]) {
                System.out.println("← kiri");
                indexAkhir = middle - 1;
            }
        }
    }
}

if (found == 1) {
    System.out.println("data telah ditemukan");
}
else {
    System.out.println("data tidak ditemukan");
}

```



```
}  
else {  
    System.out.println("data tidak ditemukan");  
}
```

```
}  
public static void main (String [] args) {  
    Scanner input = new  
    Scanner (System.in);  
    System.out.println("Sorted by Annisa Nadia Nur Afifah");  
    int [] nilai = {25, 7, 9, 13, 3};
```

```
    System.out.println("--- before ---");  
    System.out.println("\n -- after ---");  
    System.out.println("\nMasukkan Data Yang Ingin dicari :");  
    int key = input.nextInt();
```

```
    binarySearch (nilai, key);
```

```
}
```