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Kelas : 20

Materi : Algoritma dan struktur data 2.

### Tugas 4.

#### 1) Insertion Sort

25	7	9	13	3
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Step 1 :

25	7	9	13	3
7	25	9	13	3

Step 2 :

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

Step 3 :

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

Step 4 :

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

#### 2) Bubble sort

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

i = 1 j = 4 :

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

j = 3 :

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

j = 2 :

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

j = 1 :

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

i = 2 j = 4 :

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

j = 3 :

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

j = 2 :

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

i = 3 j = 4 :

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

j = 3 :

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

i = 4 j = 4 :

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

After :

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

### 3.) 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
---	---	---	----	----

### 4.) Shell Sort

$$N = 5/2 = 2.5 \downarrow 2.$$

Jarak = 2 :

0	1	2	3	4
25	7	9	13	3



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

Jarak = 1 :

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

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



7) ilustrasi dari algoritma sorting (Insertion Sort) dan algoritma searching (binary).

→ Insertion Sort

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

step 1 : 

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

step 2 : 

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

step 3 : 

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

step 4 : 

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

Setelah data diurutkan, lakukan pencarian "13"

→ Binary Search

0	1	2	3	4
3	7	9	13	25

1. tengah =  $(0 + 4) / 2 = 2$

$A(2) = 9$ ;  $9 < 13$ ; cari ke kanan

batas awal = tengah + 1 =  $2 + 1 = 3$ ;

3	7	9	13	25
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→

2. tengah :  $(3 + 4) / 2 = 3$

$A(3) = 13$ ;  $13 = 13$ ;

data di temukan

2	3	4
9	13	25