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Algoritma dan Struktur Data

3.) Data : (2, 3, 4, 1, 7, 2, 0, 0, 3, 8)
nilai yang dicari adalah 0

• Pencarian dengan sequential search

2 : 0

3 : 0

4 : 0

1 : 0

7 : 0

2 : 0

0 : 0 benar \rightarrow index ke 6

• Pencarian dengan binary search

Data : (2, 3, 4, 1, 7, 2, 0, 0, 3, 8)

Sorting

2, 3, 4, 1, 7, 2, 0, 0, 3, 8

2 > 3 no swap

4 < 3 no swap

1, 2, 3, 4, 7, 2, 0, 0, 3, 8

1 < 2 swap

7 > 4

7 > 3

7 > 2

7 > 1

1, 2, 3, 4, 2, 7, 0, 0, 3, 8

2 < 7 swap

1, 2, 3, 2, 4, 7, 0, 0, 3, 8

2 < 4 swap

1, 2, 2, 3, 4, 7, 0, 0, 3, 8

2 < 3 swap

1, 2, 2, 3, 4, 0, 7, 0, 3, 8

0 < 7 swap

1, 2, 2, 3, 0, 4, 7, 0, 3, 8

0 < 4 swap

0, 1, 2, 2, 3, 4, 7, 0, 3, 8

0 < 3

0 < 2

0 < 2

0 < 1 swap

0 < 7

0 < 7

0 < 4

0 < 3

0 < 2

0 < 2

0 < 1 swap

0, 0, 1, 2, 2, 3, 4, 7, 3, 8

3 < 7

3 < 4 swap

0, 0, 1, 2, 2, 3, 3, 4, 7, 8

Binary search

0	0	1	2	2	3	3	4	7	8	data
0	1	2	3	4	5	6	7	8	9	index

m

$$\text{nilai tengah} = \frac{0 + 9}{2} = 4$$

$$\text{nilai tengah} = \frac{0 + 4}{2} = 2 \quad \begin{array}{|c|c|c|} \hline 0 & 0 & 1 \\ \hline 0 & 1 & 2 \\ \hline \end{array}$$

$$\text{nilai tengah} = \frac{0 + 1}{2} = 0 \rightarrow \text{data ditemukan di index ke 0}$$