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Selection Sort

```
/*
 * To change this license header, choose License Headers in Project
Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package alproii012120;

/**
 *
 * @author Ferza Reyaldi
 */
public class Sorting {

    static void ascendingSelectionSort_searchMin(int array[])
    {
        int n = array.length;
        for (int i = 0; i < n-1; i++)
        {
            int min = i;
            for (int j = i+1; j < n; j++)
                if (array[j] < array[min])
                    min = j;

            int temp = array[min];
            array[min] = array[i];
            array[i] = temp;
        }
    }

    static void ascendingSelectionSort_searchMax(int array[])
    {
        int n = array.length;
        for (int i = n-1; i > 0; i--)
        {
            int max = i;
            for (int j = 0; j < i; j++)
                if (array[j] > array[max])
                    max = j;

            int temp = array[max];
            array[max] = array[i];
            array[i] = temp;
        }
    }
}
```

```

    }

    static void descendingSelectionSort_searchMax(int
array[])
    {
        int n = array.length;
        for (int i = 0; i < n-1; i++)
        {
            int max = i;
            for (int j = i+1; j < n; j++)
                if (array[j] > array[max])
                    max = j;

            int temp = array[max];
            array[max] = array[i];
            array[i] = temp;
        }
    }

    static void descendingSelectionSort_searchMin(int array[])
    {
        int n = array.length;
        for (int i = n-1; i > 0; i--)
        {
            int min = i;
            for (int j = 0; j < i; j++)
                if (array[j] < array[min])
                    min = j;

            int temp = array[min];
            array[min] = array[i];
            array[i] = temp;
        }
    }

    static void tampil(int array[])
    {
        int n = array.length;
        for (int i = 0; i < n; i++){
            System.out.print(array[i] + " ");
        }
        System.out.println();
    }

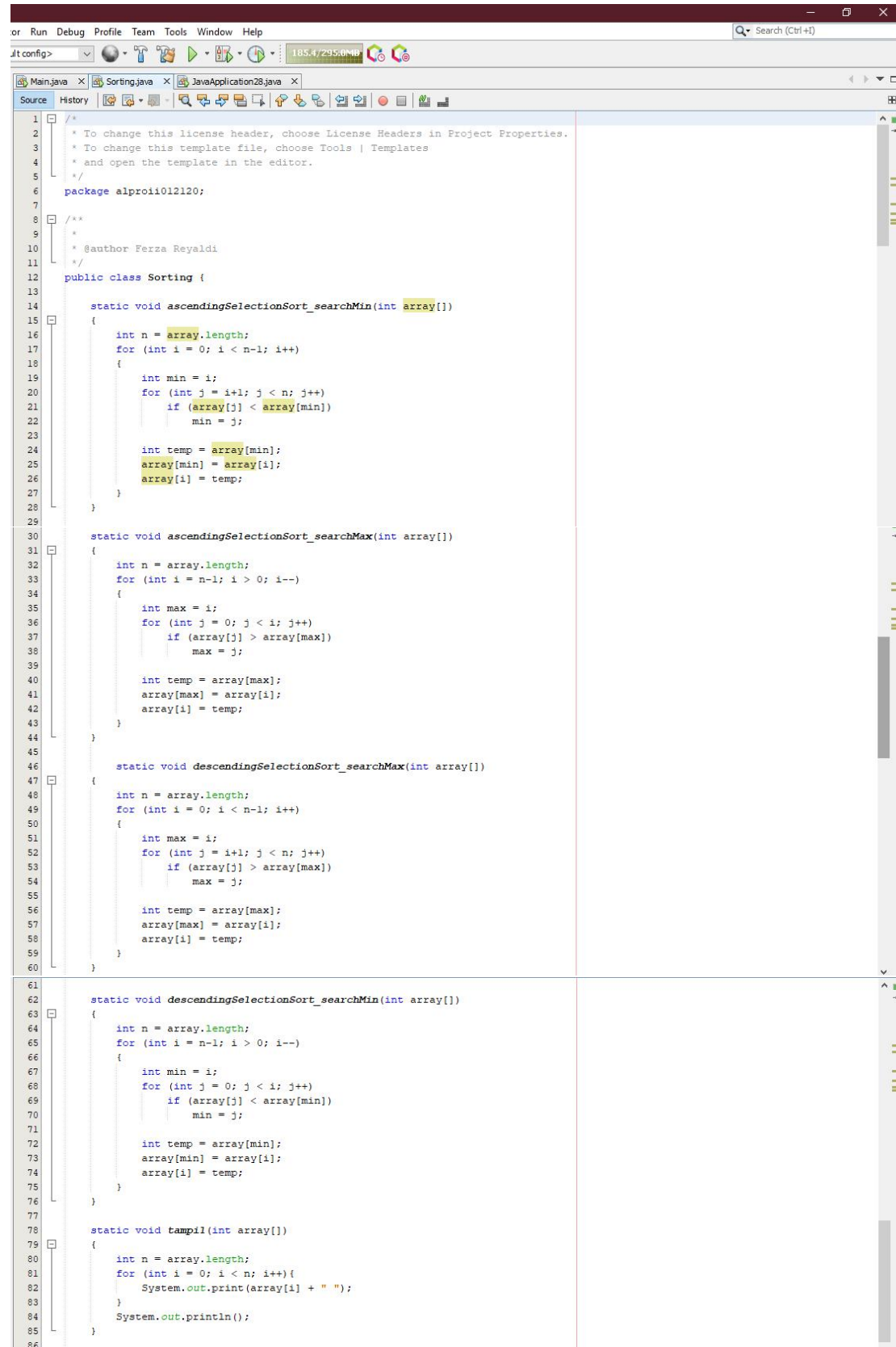
    public static void main(String[] args) {
        int A[] = {2,4,3,2,23,4,5,6,7};
        tampil(A);
        ascendingSelectionSort_searchMin(A);
    }

```

```
        System.out.print("Selection sort menaik dengan pencarian
nilai minimum      : ");
        tampil(A);
        descendingSelectionSort_searchMin(A);
        System.out.print("Selection sort menurun dengan pencarian
nilai minimum      : ");
        tampil(A);
        ascendingSelectionSort_searchMax(A);
        System.out.print("Selection sort menaik dengan pencarian
nilai maksimum     : ");
        tampil(A);
        descendingSelectionSort_searchMax(A);
        System.out.print("Selection sort menurun dengan pencarian
nilai maksimum     : ");
        tampil(A);

    }
}
```

Screenshot Source Code:



```
1  /**
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6   package alproii012120;
7
8   /**
9    *
10   * @author Ferza Reyaldi
11   */
12   public class Sorting {
13
14       static void ascendingSelectionSort_searchMin(int array[])
15       {
16           int n = array.length;
17           for (int i = 0; i < n-1; i++)
18           {
19               int min = i;
20               for (int j = i+1; j < n; j++)
21                   if (array[j] < array[min])
22                       min = j;
23
24               int temp = array[min];
25               array[min] = array[i];
26               array[i] = temp;
27           }
28       }
29
30       static void ascendingSelectionSort_searchMax(int array[])
31       {
32           int n = array.length;
33           for (int i = n-1; i > 0; i--)
34           {
35               int max = i;
36               for (int j = 0; j < i; j++)
37                   if (array[j] > array[max])
38                       max = j;
39
40               int temp = array[max];
41               array[max] = array[i];
42               array[i] = temp;
43           }
44       }
45
46       static void descendingSelectionSort_searchMax(int array[])
47       {
48           int n = array.length;
49           for (int i = 0; i < n-1; i++)
50           {
51               int max = i;
52               for (int j = i+1; j < n; j++)
53                   if (array[j] > array[max])
54                       max = j;
55
56               int temp = array[max];
57               array[max] = array[i];
58               array[i] = temp;
59           }
60       }
61
62       static void descendingSelectionSort_searchMin(int array[])
63       {
64           int n = array.length;
65           for (int i = n-1; i > 0; i--)
66           {
67               int min = i;
68               for (int j = 0; j < i; j++)
69                   if (array[j] < array[min])
70                       min = j;
71
72               int temp = array[min];
73               array[min] = array[i];
74               array[i] = temp;
75           }
76       }
77
78       static void tampilkan(int array[])
79       {
80           int n = array.length;
81           for (int i = 0; i < n; i++){
82               System.out.print(array[i] + " ");
83           }
84           System.out.println();
85       }
86   }
```

```
86  
87  
88     public static void main(String[] args) {  
89         int A[] = {2,4,3,2,23,4,5,6,7};  
90         tampil(A);  
91         ascendingSelectionSort_searchMin(A);  
92         System.out.print("Selection sort menaik dengan pencarian nilai minimum : ");  
93         tampil(A);  
94         descendingSelectionSort_searchMin(A);  
95         System.out.print("Selection sort menurun dengan pencarian nilai minimum : ");  
96         tampil(A);  
97         ascendingSelectionSort_searchMax(A);  
98         System.out.print("Selection sort menaik dengan pencarian nilai maksimum : ");  
99         tampil(A);  
100        descendingSelectionSort_searchMax(A);  
101        System.out.print("Selection sort menurun dengan pencarian nilai maksimum : ");  
102        tampil(A);  
103    }  
104 }
```

SS Output Program:

```
Output - AlproII (run) X  
run:  
2 4 3 2 23 4 5 6 7  
Selection sort menaik dengan pencarian nilai minimum : 2 2 3 4 4 5 6 7 23  
Selection sort menurun dengan pencarian nilai minimum : 23 7 6 5 4 4 3 2 2  
Selection sort menaik dengan pencarian nilai maksimum : 2 2 3 4 4 5 6 7 23  
Selection sort menurun dengan pencarian nilai maksimum : 23 7 6 5 4 4 3 2 2  
BUILD SUCCESSFUL (total time: 0 seconds)
```

Output Penjabaran dari masing-masing method Selection Sorting

❖ Selection Sort Menaik dengan Pencarian Nilai Minimum

```
91 public static void main(String[] args) {
92     int A[] = {2,4,3,2,23,4,5,6,7};
93     System.out.print("Susuna awal :");
94     tampil(A);
95     ascendingSelectionSort_searchMin(A);
96     System.out.print("Selection sort menaik dengan pencarian nilai minimum : ");
97     tampil(A);
98 }
99 }
```

Output - AlproII (run) X

```
Susuna awal :2 4 3 2 23 4 5 6 7
2 4 3 2 23 4 5 6 7
2 2 3 4 23 4 5 6 7
2 2 3 4 23 4 5 6 7
2 2 3 4 23 4 5 6 7
2 2 3 4 4 23 5 6 7
2 2 3 4 4 5 23 6 7
2 2 3 4 4 5 6 23 7
2 2 3 4 4 5 6 7 23
Selection sort menaik dengan pencarian nilai minimum : 2 2 3 4 4 5 6 7 23
BUILD SUCCESSFUL (total time: 0 seconds)
```

❖ Selection Sort Menaik dengan Pencarian Nilai Maksimum

```
91 public static void main(String[] args) {
92     int A[] = {2,4,3,2,23,4,5,6,7};
93     System.out.print("Susuna awal :");
94     tampil(A);
95     ascendingSelectionSort_searchMax(A);
96     System.out.print("Selection sort menaik dengan pencarian nilai maksimum : ");
97     tampil(A);
98 }
99 }
```

Output - AlproII (run) X

```
Susuna awal :2 4 3 2 23 4 5 6 7
2 4 3 2 7 4 5 6 23
2 4 3 2 6 4 5 7 23
2 4 3 2 5 4 6 7 23
2 4 3 2 4 5 6 7 23
2 4 3 2 4 5 6 7 23
2 2 3 4 4 5 6 7 23
2 2 3 4 4 5 6 7 23
2 2 3 4 4 5 6 7 23
Selection sort menaik dengan pencarian nilai maksimum : 2 2 3 4 4 5 6 7 23
BUILD SUCCESSFUL (total time: 0 seconds)
```

❖ Selection Sort Menurun dengan Pencarian Nilai Minimum

```
91 public static void main(String[] args) {
92     int A[] = {2,4,3,2,23,4,5,6,7};
93     System.out.print("Susuna awal :");
94     tampil(A);
95     descendingSelectionSort_searchMin(A);
96     System.out.print("Selection sort menurun dengan pencarian nilai minimum : ");
97     tampil(A);
98 }
99 }
```

Output - AlproII (run) X

```
Susuna awal :2 4 3 2 23 4 5 6 7
7 4 3 2 23 4 5 6 2
7 4 3 6 23 4 5 2 2
7 4 5 6 23 4 3 2 2
7 4 5 6 23 4 3 2 2
7 23 5 6 4 4 3 2 2
7 23 6 5 4 4 3 2 2
7 23 6 5 4 4 3 2 2
23 7 6 5 4 4 3 2 2
Selection sort menurun dengan pencarian nilai minimum : 23 7 6 5 4 4 3 2 2
BUILD SUCCESSFUL (total time: 0 seconds)
```

❖ Selection Sort Menurun dengan Pencarian Nilai Maksimum

```
91 public static void main(String[] args) {
92     int A[] = {2,4,3,2,23,4,5,6,7};
93     System.out.print("Susuna awal :");
94     tampil(A);
95     descendingSelectionSort_searchMax(A);
96     System.out.print("Selection sort menurun dengan pencarian nilai maksimum : ");
97     tampil(A);
98 }
99 }
```

Output - AlproII (run) X

```
Susuna awal :2 4 3 2 23 4 5 6 7
23 4 3 2 2 4 5 6 7
23 7 3 2 2 4 5 6 4
23 7 6 2 2 4 5 3 4
23 7 6 5 2 4 2 3 4
23 7 6 5 4 2 2 3 4
23 7 6 5 4 4 2 3 2
23 7 6 5 4 4 3 2 2
23 7 6 5 4 4 3 2 2
Selection sort menurun dengan pencarian nilai maksimum : 23 7 6 5 4 4 3 2 2
BUILD SUCCESSFUL (total time: 0 seconds)
```