

```
1 public class Absensi {
2     public static void main(String[] args) throws Exception {
3         int[] arr = {64, 34, 25, 22, 11, 90};
4         bubbleSort(arr, true);
5         System.out.println("Array setelah diurutkan secara ascending:");
6         printArray(arr);
7
8         int[] arr2 = {64, 34, 25, 22, 11, 90};
9         insertionSort(arr2, false);
10        System.out.println("Array 2 setelah diurutkan secara descending:");
11        printArray(arr2);
12
13        int[] arr3 = {64, 34, 25, 12, 22, 100, 90};
14        selectionSort(arr3, true);
15        System.out.println("Array 3 setelah diurutkan secara ascending:");
16        printArray(arr3);
17    }
18
19    public static void insertionSort(int[] arr, boolean ascending) {
20        int n = arr.length;
21        for (int i = 1; i < n; i++) {
22            int key = arr[i];
23            int j = i - 1;
24            while (j >= 0 && (ascending ? arr[j] > key : arr[j] < key)) {
25                arr[j + 1] = arr[j];
26                j = j - 1;
27            }
28            arr[j + 1] = key;
29        }
30    }
31
32    public static void selectionSort(int[] arr, boolean ascending) {
33        int n = arr.length;
34        for (int i = 0; i < n - 1; i++) {
35            int minIndex = i;
36            for (int j = i + 1; j < n; j++) {
37                if (ascending ? arr[j] < arr[minIndex] : arr[j] > arr[minIndex]) {
38                    minIndex = j;
39                }
40            }
41            int temp = arr[minIndex];
42            arr[minIndex] = arr[i];
43            arr[i] = temp;
44        }
45    }
46
47    public static void bubbleSort(int[] arr, boolean ascending) {
48        int n = arr.length;
49        for (int i = 0; i < n - 1; i++) {
50            for (int j = 0; j < n - i - 1; j++) {
51                if (ascending ? arr[j] > arr[j + 1] : arr[j] < arr[j + 1]) {
52
53                    int temp = arr[j];
54                    arr[j] = arr[j + 1];
55                    arr[j + 1] = temp;
56                }
57            }
58        }
59    }
}
```

```
60
61     public static void printArray(int[] arr) {
62         int n = arr.length;
63         for (int i = 0; i < n; i++) {
64             System.out.print(arr[i] + " ");
65         }
66         System.out.println();
67     }
68 }
```