

# ALGORITMA STRUKTUR DATA

## UAS - Praktikum

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Kendaraan.java

```
1 class Kendaraan {
2     String noTNKB, nama, jenis;
3     int cc, tahun, bulanHarusBayar;
4     Kendaraan prev, next;
5
6     Kendaraan(String noTNKB, String nama, String jenis, int cc, int tahun, int bulanHarusBayar) {
7         this.noTNKB = noTNKB;
8         this.nama = nama;
9         this.jenis = jenis;
10        this.cc = cc;
11        this.tahun = tahun;
12        this.bulanHarusBayar = bulanHarusBayar;
13        this.prev = null;
14        this.next = null;
15    }
16
17    @Override
18    public String toString() {
19        return String.format("| %-15s | %-15s | %-5s | %-15d | %-5d | %-15d |",
20            noTNKB, nama, jenis, cc, tahun, bulanHarusBayar);
21    }
22 }
23
```

TransaksiPajak.java

```
1 import java.util.Scanner;
2
3 public class TransaksiPajak {
4     Scanner sc = new Scanner(System.in);
5     int kode, bulanBayar;
6     long nominalBayar, denda;
7     Kendaraan kendaraan;
8     Kendaraan head, tail;
9     int size;
10
11     public TransaksiPajak() {
12         this.head = null;
13         this.tail = null;
14         this.size = 0;
15     }
16
17     public TransaksiPajak(int kode, long nominalBayar, long denda, int bulanBayar) {
18         this.kode = kode++;
19         this.nominalBayar = nominalBayar;
20         this.denda = denda;
21         this.bulanBayar = bulanBayar;
22     }
23
24     public boolean isEmpty() {
25         return head == null;
26     }
27 }
```

```

28 public void addFirst(Kendaraan data) {
29     if (isEmpty()) {
30         head = data;
31         tail = data;
32     } else {
33         data.next = head;
34         head.prev = data;
35         head = data;
36     }
37     size++;
38 }
39
40 public void addLast(Kendaraan data) {
41     if (isEmpty()) {
42         addFirst(data);
43     } else {
44         tail.next = data;
45         data.prev = tail;
46         tail = data;
47     }
48     size++;
49 }
50
51 public void print() {
52     System.out.println("+++++++");
53     System.out.println("DAFTAR KENDARAAN");
54     System.out.println("+++++++");
55     System.out.println("| No TNKB      | Nama Pemilik   | Jenis | CC Kendaraan   | Tahun | Bulan harus bayar |");
56
57     if (!isEmpty()) {
58         Kendaraan current = head;
59         while (current != null) {
60             System.out.println(current);
61             current = current.next;
62         }
63     } else {
64         System.out.println("Kendaraan kosong");
65     }
66 }
67
68 public void bayarPajak(int kode, String noTNKB, int bulanBayar) {
69     Kendaraan tmp = head;
70     int index = 0;
71     while (tmp != null && !tmp.noTNKB.equals(noTNKB)) {
72         tmp = tmp.next;
73         index++;
74     }
75
76     if (tmp.jenis.equals("Motor")) {
77         if (tmp.cc <= 100) {
78             nominalBayar = 100_000 * tmp.bulanHarusBayar;
79         } else if (tmp.cc > 100 && tmp.cc <= 250) {
80             nominalBayar = 250_000 * tmp.bulanHarusBayar;
81         } else {
82             nominalBayar = 500_000 * tmp.bulanHarusBayar;
83         }
84     } else if (tmp.jenis.equals("Mobil")) {
85         if (tmp.cc <= 1000) {
86             nominalBayar = 750_000 * tmp.bulanHarusBayar;
87         } else if (tmp.cc > 1000 && tmp.cc <= 2500) {
88             nominalBayar = 1_000_000 * tmp.bulanHarusBayar;
89         } else {
90             nominalBayar = 1_500_000 * tmp.bulanHarusBayar;
91         }
92     }
93
94     if (tmp.bulanHarusBayar < bulanBayar) {
95         int terlambat = bulanBayar - tmp.bulanHarusBayar;
96         if (terlambat <= 3) {
97             denda = 50_000;
98         } else {
99             denda = 50_000 * terlambat;
100         }
101     }
102
103     nominalBayar += denda;
104
105     if (tmp != null) {
106         System.out.println(kode);
107         System.out.println(tmp.noTNKB);
108         System.out.println(tmp.nama);
109         System.out.println(tmp.jenis);
110         System.out.println(tmp.cc);
111         System.out.println(nominalBayar);
112         System.out.println(denda);

```

## Main.java

```
1  import java.util.Scanner;
2
3  public class Main {
4      public static void main(String[] args) throws Exception {
5          Scanner sc = new Scanner(System.in);
6
7          Kendaraan[] kendaraan = {
8              new Kendaraan("S 4567 YV", "Basko", "Mobil", 2000, 2012, 4),
9              new Kendaraan("N 4511 VS", "Arta", "Mobil", 2500, 2015, 3),
10             new Kendaraan("AB 4321 A", "Wisnu", "Motor", 125, 2010, 2),
11             new Kendaraan("B 1234 AG", "Sisa", "Motor", 150, 2020, 1),
12         };
13
14         TransaksiPajak tp = new TransaksiPajak();
15         for (Kendaraan k : kendaraan) {
16             tp.addLast(k);
17         }
18         int pilih;
19         do {
20             System.out.println("Menu");
21             System.out.println("1. Daftar Kendaraan\n2. Bayar Pajak\n3. Tampilkan seluruh transaksi");
22             System.out.println("4. Urutkan transaksi berdasarkan nama pemilik\n5. Keluar");
23             System.out.print("Pilih(1-5): ");
24             pilih = sc.nextInt();
25             sc.nextLine();
26
27             switch (pilih) {
28                 case 1:
29                     tp.print();
30                     break;
31                 case 2:
32                     int kode = 0;
33                     System.out.println("-----");
34                     System.out.println("Masukkan Data Pembayaran");
35                     System.out.println("-----");
36                     System.out.print("Masukkan nomor TNBK: ");
37                     String noTNKB = sc.nextLine();
38                     System.out.print("Bulan bayar: ");
39                     int bulanBayar = sc.nextInt();
40                     sc.nextLine();
41                     kode++;
42
43                     tp.bayarPajak(kode, noTNKB, bulanBayar);
44                     break;
45             }
46         } while (pilih < 6);
47     }
48 }
49
```

Output:

```
Menu
1. Daftar Kendaraan
2. Bayar Pajak
3. Tampilkan seluruh transaksi
4. Urutkan transaksi berdasarkan nama pemilik
5. Keluar
Pilih(1-5): 1
+++++
DAFTAR KENDARAAN
+++++
| No TNKB      | Nama Pemilik | Jenis | CC Kendaraan | Tahun | Bulan harus bayar |
| S 4567 YV   | Basko        | Mobil | 2000         | 2012  | 4                  |
| N 4511 VS   | Arta         | Mobil | 2500         | 2015  | 3                  |
| AB 4321 A   | Wisnu        | Motor | 125          | 2010  | 2                  |
| B 1234 AG   | Sisa         | Motor | 150          | 2020  | 1                  |
```

```
Pilih(1-5): 2
-----
Masukkan Data Pembayaran
-----
Masukkan nomor TNBK: AB 4321 A
Bulan bayar: 6
1
AB 4321 A
Wisnu
Motor
125
700000
200000
```