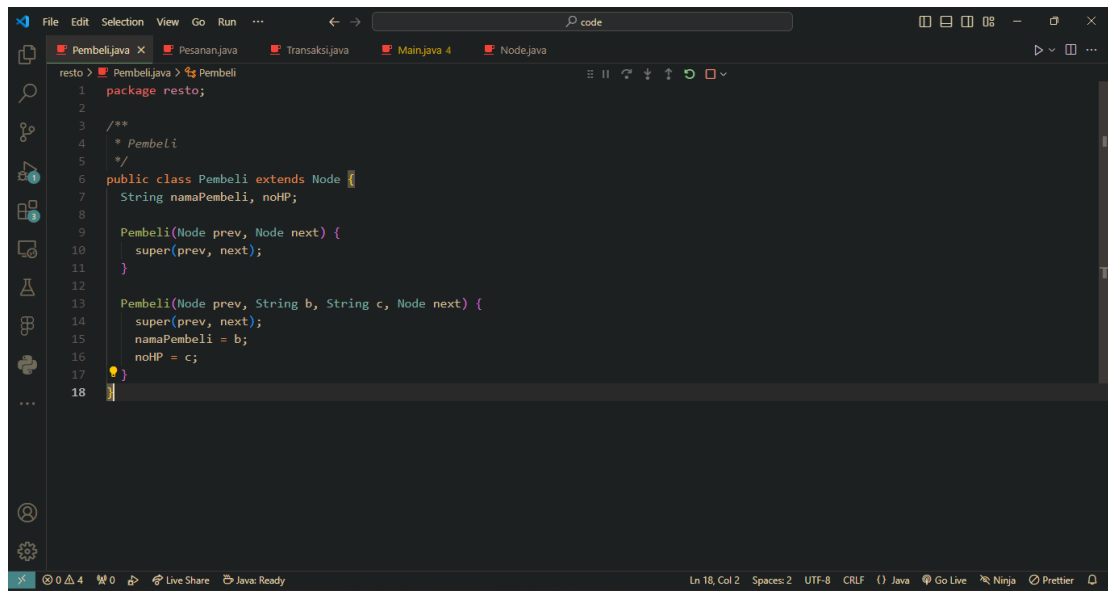# ALGORITMA STRUKTUR DATA

Kuis 2 - Praktikum
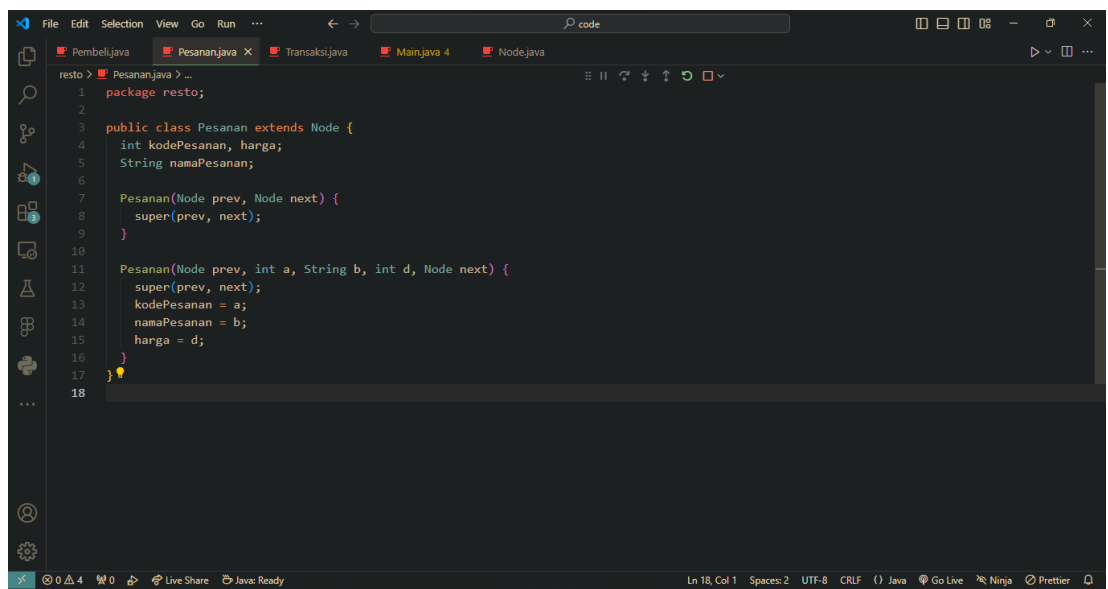
Lavina 2341760062

Pembeli.java

```java
package resto;

/**
 * Pembeli
 */
public class Pembeli extends Node {
    String namaPembeli, noHP;

    Pembeli(Node prev, Node next) {
        super(prev, next);
    }

    Pembeli(Node prev, String b, String c, Node next) {
        super(prev, next);
        namaPembeli = b;
        noHP = c;
    }
}
```

Pesanan.java

```java
package resto;

public class Pesanan extends Node {
    int kodePesanan, harga;
    String namaPesanan;

    Pesanan(Node prev, Node next) {
        super(prev, next);
    }

    Pesanan(Node prev, int a, String b, int d, Node next) {
        super(prev, next);
        kodePesanan = a;
        namaPesanan = b;
        harga = d;
    }
}
```

Transaksi.java

```java
package resto;

public class Transaksi {
    Pembeli head;
    Pesanan headPesanan;
    int size, sizePesanan;
    int total;

    public boolean isEmpty() {
        return head == null;
    }

    public boolean isPesananEmpty() {
        return headPesanan == null;
    }

    public int size() {
        return size;
    }

    public int sizePesanan() {
        return sizePesanan;
    }

    public void addFirst(String nm, String no) {
        if (isEmpty()) {
            head = new Pembeli(null, nm, no, null);
        } else {
            Pembeli newPembeli = new Pembeli(null, nm, no, head);
            head.prev = newPembeli;
            head = newPembeli;
        }
        size++;
    }

    public void addLast(String nm, String no) {
        if (isEmpty()) {
            addFirst(nm, no);
        } else {
            Pembeli current = head;
            while (current.next != null) {
                current = (Pembeli) current.next;
            }
            Pembeli newPembeli = new Pembeli(current, nm, no, null);
            current.next = newPembeli;
            size++;
        }
    }
```

```java
50      public void removeFirst() {
51        if (isEmpty()) {
52          System.out.println("Antrian Kosong");
53        } else if (size == 1) {
54          removeLast();
55        } else {
56          head = (Pembeli) head.next;
57          head.prev = null;
58          size--;
59        }
60      }
61
62      public void removeLast() {
63        if (isEmpty()) {
64          System.out.println("Antrian Kosong");
65        } else if (head.next == null) {
66          System.out.println(head.namaPembeli + " telah memesan menu");
67          head = null;
68          size--;
69          return;
70        }
71
72        Pembeli current = head;
73        while (current.next.next != null) {
74          current = (Pembeli) current.next;
75        }
76        System.out.println(current.namaPembeli + " telah memesan menu");
77        current.next = null;
78        size--;
79      }
80
81      public void addPesananFirst(int kd, String nm, int harga) {
82        if (isPesananEmpty()) {
83          headPesanan = new Pesanan(null, kd, nm, harga, null);
84        } else {
85          Pesanan newPesanan = new Pesanan(null, kd, nm, harga, headPesanan);
86          headPesanan.prev = newPesanan;
87          headPesanan = newPesanan;
88          total += newPesanan.harga;
89        }
90        sizePesanan++;
91      }
92
93      public void addPesananLast(int kd, String nm, int harga) {
94        if (isPesananEmpty()) {
95          addPesananFirst(kd, nm, harga);
96        } else {
97          Pesanan current = headPesanan;
98          while (current.next != null) {
99            current = (Pesanan) current.next;
100         }
101         Pesanan newPesanan = new Pesanan(current, kd, nm, harga, null);
102         current.next = newPesanan;
```

```java
103          total += newPesanan.harga;
104          sizePesanan++;
105       }
106    }
107
108    public void print() {
109       System.out.println("++++++++++++++++++++++++++++++++++++++");
110       System.out.println("Daftar Antrian Resto Lavina");
111       System.out.println("++++++++++++++++++++++++++++++++++++++");
112       System.out.println("| No.\t\t| Nama Customer\t\t| Nomor HP\t|");
113       if (!isEmpty()) {
114          Pembeli tmp = head;
115          int i = 1;
116          while (tmp != null && i <= size + 1) {
117             int no = i;
118             String nama = tmp.namaPembeli;
119             String noHP = tmp.noHP;
120             String format = "| %-13d | %-15s | %-15s |";
121             System.out.println(String.format(format, no, nama, noHP));
122             tmp = (Pembeli) tmp.next;
123             i++;
124          }
125          System.out.println("\nSisa Antrian: " + size);
126       } else {
127          System.out.println("Linked list kosong");
128       }
129    }
130
131    public void printPesanan() {
132       System.out.println("++++++++++++++++++++++++++++++++++++++");
133       System.out.println("Daftar Pesanan Resto Lavina");
134       System.out.println("++++++++++++++++++++++++++++++++++++++");
135       System.out.println("| No.\t\t| Nama Pesanan\t\t| Harga\t|");
136       if (!isPesananEmpty()) {
137          Pesanan tmp = headPesanan;
138          int i = 1;
139          while (tmp != null && i <= sizePesanan + 1) {
140             int no = i;
141             String nama = tmp.namaPesanan;
142             int harga = tmp.harga;
143             String format = "| %-13d | %-15s | %-15s |";
144             System.out.println(String.format(format, no, nama, harga));
145             total += tmp.harga;
146             tmp = (Pesanan) tmp.next;
147             i++;
148          }
149          System.out.println("\nSemua Pesanan Berhasil Dicetak");
150       } else {
151          System.out.println("Linked list kosong");
152       }
153    }
154
```

```java
155    public void sortByNamaPesanan() {
156      if (headPesanan == null || headPesanan.next == null) {
157        return;
158      }
159
160      boolean swapped;
161      do {
162        swapped = false;
163        Pesanan prev = null;
164        Pesanan current = headPesanan;
165        Pesanan nextNode = (Pesanan) headPesanan.next;
166
167        while (nextNode != null) {
168          if (current.namaPesanan.compareTo(nextNode.namaPesanan) < 0) {
169            if (prev != null) {
170              prev.next = nextNode;
171            } else {
172              headPesanan = (Pesanan) nextNode;
173            }
174
175            current.next = nextNode.next;
176            nextNode.next = current;
177            prev = nextNode;
178            nextNode = (Pesanan) current.next;
179            swapped = true;
180          } else {
181            prev = current;
182            current = nextNode;
183            nextNode = (Pesanan) nextNode.next;
184          }
185        }
186      } while (swapped);
187    }
188
189    public void totalPendapatan() {
190      System.out.println(total);
191    }
192
193  }
194
```

Main.java

```java
package resto;

import java.util.Scanner;

public class Main {
  public static void main(String[] args) {
    Scanner sc14 = new Scanner(System.in);
    Transaksi tr = new Transaksi();

    System.out.println("========== QUIZ 2 PRAKTIKUM ASD SIB - 1B ==========");
    System.out.println("Dibuat oleh: Lavina");
    System.out.println("NIM        : 2341760062");
    System.out.println("Absen      : 14");

    int menu;
    do {
      System.out.println("Menu");
      System.out.println("1. Tambah Antrian\n2. Cetak Antrian\n3. Hapus Antrian");
      System.out.println("4. Laporan Pengurutan Pesanan by Nama\n5. Hitung Total Pendapatan\n6. Keluar");
      System.out.print("Pilih (1-5): ");
      menu = sc14.nextInt();

      switch (menu) {
        case 1:
          System.out.println("------------------------");
          System.out.println("Masukkan Data Pembeli");
          System.out.println("------------------------");
          System.out.print("Nomor Antrian: ");
          int noAntrian = sc14.nextInt();
          sc14.nextLine();
          System.out.print("Nama Customer: ");
          String nama = sc14.nextLine();
          System.out.print("Nomor HP: ");
          String noHP = sc14.nextLine();

          Pembeli pb = new Pembeli(null, nama, noHP, null);
          tr.addLast(nama, noHP);
          break;
        case 2:
          tr.print();
          break;
        case 3:
          tr.removeLast();
          System.out.println("------------------------");
          System.out.println("Masukkan Data Pembeli");
          System.out.println("------------------------");
          System.out.print("Nomor Pesanan: ");
          int kd = sc14.nextInt();
          sc14.nextLine();
          System.out.print("Pesanan: ");
          String nm = sc14.nextLine();
          System.out.print("Harga: ");
          int hrg = sc14.nextInt();

          Pesanan psn = new Pesanan(null, kd, nm, hrg, null);
          tr.addPesananLast(kd, nm, hrg);
          tr.printPesanan();
          break;
        case 4:
          tr.sortByNamaPesanan();
          tr.printPesanan();
          break;
        case 5:
          tr.totalPendapatan();
          break;
        case 6:
          break;
      }
    } while (menu < 6);
  }
}
```

Output:

```
========== QUIZ 2 PRAKTIKUM ASD SIB - 1B ==========
Dibuat oleh: Lavina
NIM        : 2341760062
Absen      : 14
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 1
--------------------------
Masukkan Data Pembeli
--------------------------
Nomor Antrian: 1
Nama Customer: Mamluatul
Nomor HP: 08224500000
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 1
--------------------------
```

```
Pilih (1-5): 1
-------------------------
Masukkan Data Pembeli
-------------------------
Nomor Antrian: 2
Nama Customer: Abyaz A.M
Nomor HP: 08224511111
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 1
-------------------------
Masukkan Data Pembeli
-------------------------
Nomor Antrian: 3
Nama Customer: Yoshinoya
Nomor HP: 08224522222
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 1
-------------------------
```

```
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 2
++++++++++++++++++++++++++++++++
Daftar Antrian Resto Lavina
++++++++++++++++++++++++++++++++
| No.              | Nama Customer       | Nomor HP       |
| 1                | Mamluatul           | 08224500000    |
| 2                | Abyaz A.M           | 08224511111    |
```

```
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 3
Yoshinoya telah memesan menu
------------------------
Masukkan Data Pembeli
------------------------
Nomor Pesanan: 1
Pesanan: Rendang
Harga: 25000
++++++++++++++++++++++++++++++
Daftar Pesanan Resto Lavina
++++++++++++++++++++++++++++++
| No.              | Nama Pesanan        | Harga |
| 1                | Rendang             | 25000     |
```

```
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 3
Abyaz A.M telah memesan menu
-------------------------
Masukkan Data Pembeli
-------------------------
Nomor Pesanan: 2
Pesanan: Bulgogi
Harga: 25000
++++++++++++++++++++++++++++++
Daftar Pesanan Resto Lavina
++++++++++++++++++++++++++++++
| No.          | Nama Pesanan      | Harga  |
| 1            | Rendang      | 25000          |
| 2            | Bulgogi      | 25000          |

Semua Pesanan Berhasil Dicetak
```

```
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 4
++++++++++++++++++++++++++++++
Daftar Pesanan Resto Lavina
++++++++++++++++++++++++++++++
| No.          | Nama Pesanan      | Harga |
| 1            | Rendang      | 25000          |
| 2            | Bulgogi      | 25000          |

Semua Pesanan Berhasil Dicetak
Menu
1. Tambah Antrian
2. Cetak Antrian
3. Hapus Antrian
4. Laporan Pengurutan Pesanan by Nama
5. Hitung Total Pendapatan
6. Keluar
Pilih (1-5): 5
150000
```