PRAKTIKUM ALGORITMA DAN STRUKTUR DATA

KUIS 2

RIO TRI PRAYOGO

TI 1A

26

2341720236

PROGRAM STUDI TEKNIK INFORMATIKA

JURUSAN TEKNOLOGI INFORMASI

POLITEKNIK NEGERI MALANG

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Kode :

Node26

```
package minggu13;

public class Node26 {
    Pelanggan26 data;
    Node26 prev, next;

    Node26(Node26 prev, Pelanggan26 item, Node26 next) {
        this.prev = prev;
        data = item;
        this.next = next;
    }
}
```

Pelanggan26

```
package minggu13;

public class Pelanggan26 {
    String namaPelanggan, noHp;
    public int harga;

    Pelanggan26(String namaPelanggan, String noHp) {
        this.namaPelanggan = namaPelanggan;
        this.noHp = noHp;
    }
}
```

Layanan26

```
package minggu13;

public class Layanan26 {
    int kode, harga;
    String nama;
    Layanan26 prev, next;

    Layanan26(Layanan26 prev, int kode, String nama, int harga, Layanan26
next) {
        this.kode = kode;
        this.nama = nama;
        this.harga = harga;
        this.next = next;
    }
}
```

LayananDLL26

```
package minggu13;

public class LayananDLL26 {
    Layanan26 head;
    int size;
    int totalPemasukan;

    public LayananDLL26() {
        head = null;
        size = 0;
        totalPemasukan = 0;

    }

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

    public void addFirst(int kode, String nama, int harga) {
        if (isEmpty()) {
            head = new Layanan26(null, kode, nama, harga, null);
        } else {
            Layanan26 node = new Layanan26(null, kode, nama, harga, head);
            head.prev = node;
            head = node;
        }
        size++;
    }

    public void add(int kode, String nama, int harga) {
        if (isEmpty()) {
            addFirst(kode, nama, harga);
        } else {
            Layanan26 current = head;
            while (current.next != null) {
                current = current.next;
            }
            Layanan26 node = new Layanan26(current, kode, nama, harga,
null);
            current.next = node;
            size++;
        }
    }

    public void sort() {
        if (isEmpty() || size == 1) {
            return;
        }
        for (int i = 0; i < size - 1; i++) {
            Layanan26 current = head;
            for (int j = 0; j < size - i - 1; j++) {
                if (current.harga > current.next.harga) {
                    int tempKode = current.kode;
                    String tempNama = current.nama;
                    int tempHar = current.harga;

                    current.kode = current.next.kode;
                    current.nama = current.next.nama;
                    current.harga = current.next.harga;

                    current.next.kode = tempKode;
                    current.next.nama = tempNama;
                    current.next.harga = tempHar;
                }
                current = current.next;
            }
        }
    }

    public void print() {
        if (!isEmpty()) {
            Layanan26 tmp = head;
            while (tmp != null) {
                System.out.println("-------------------------------");
                System.out.println("Kode: " + tmp.kode);
                System.out.println("Nama Layanan: " + tmp.nama);
                System.out.println("Harga: " + tmp.harga);
                tmp = tmp.next;
            }
        } else {
            System.out.println("Layanan kosong");
        }
    }
}
```

DoubleLinkedList26

```
package minggu13;

public class DoubleLinkedList26 {
    Node26 head;
    int size;
    Layanan26 listLayanan[] = new Layanan26[5];
    int idl, top;

    DoubleLinkedList26() {
        head = null;
        size = 0;
    }

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

    void addFirst(Pelanggan26 item) {
        if (isEmpty()) {
            head = new Node26(null, item, null);
        } else {
            Node26 newNode = new Node26(null, item, head);
            head.prev = newNode;
            head = newNode;
        }
        Pelanggan26 antri = head.data;
        size++;
        System.out.println(antri.namaPelanggan + " berhasil dimasukkan
dalam antrian ke-" + size);
    }

    void addLast(Pelanggan26 item) {
        if (isEmpty()) {
            addFirst(item);
        } else {
            Node26 current = head;
            while (current.next != null) {
                current = current.next;
            }
            Node26 newNode = new Node26(current, item, null);
            current.next = newNode;
            Pelanggan26 antri = current.next.data;
            size++;
            System.out.println(antri.namaPelanggan + " berhasil dimasukkan
dalam antrian ke-" + size);
        }
    }

    int size() {
        return size;
    }
    void clear() {
        head = null;
        size = 0;
    }

    void print() {
        if (!isEmpty()) {
            Node26 tmp = head;
            int index = 1;
            while (tmp != null) {
                Pelanggan26 antri = tmp.data;
                System.out.println("-------------------------------");
                System.out.println("Antrian ke-" + index);
                System.out.println("-------------------------------");
                System.out.println("Nama Pelanggan: " +
antri.namaPelanggan);
                System.out.println("No HP: " + antri.noHp);
                tmp = tmp.next;
                index++;
            }
        } else {
            System.out.println("Linked Lists Kosong");
        }
    }

    void removeFirst() throws Exception {
        if (isEmpty()) {
            throw new Exception("Linked List masih kosong, tidak dapat
dihapus!");
        } else if (size == 1) {
            removeLast();
        } else {
            Pelanggan26 data = head.data;
            String dataNama = data.namaPelanggan;
            String dataHp = data.noHp;
            getData(dataNama, dataHp);
            head = head.next;
            head.prev = null;
            size--;
        }
    }

    void removeLast() throws Exception {
        if (isEmpty()) {
            throw new Exception("Linked List masih kosong, tidak dapat
dihapus!");
        } else if (head.next == null) {
            head = null;
            size--;
            return;
        }
        Node26 current = head;
        while (current.next.next != null) {
            current = current.next;
        }
        Pelanggan26 data = current.next.data;
        String dataNama = data.namaPelanggan;
        String dataHp = data.noHp;
        getData(dataNama, dataHp);
        current.next = null;
        size--;
    }

    void getData(String nama, String noHp) {
        System.out.println("Antrian dengan Nama: " + nama + " dan No. HP: "
+ noHp + " Selesai!");
    }
}
```

Main26

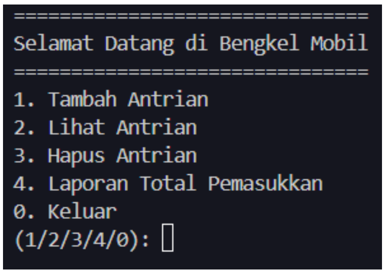
```
package minggu13;

import java.util.Scanner;
```

```
public class Main26 {
    public static void main(String[] args) throws Exception {
        Scanner scan = new Scanner(System.in);
        DoubleLinkedList26 list = new DoubleLinkedList26();
        LayananDLL26 layanan = new LayananDLL26();
        layanan.add(1, "Pompa Ban", 2000);
        layanan.add(2, "Service", 10000);
        layanan.add(3, "Tambal Ban", 5000);
        int totalBiaya = 0;
        boolean run = true;
        do {
            System.out.println("\n===============================");
            System.out.println("Selamat Datang di Bengkel Mobil");
            System.out.println("===============================");
            System.out.println("1. Tambah Antrian");
            System.out.println("2. Lihat Antrian");
            System.out.println("3. Hapus Antrian");
            System.out.println("4. Laporan Total Pemasukkan");
            System.out.println("0. Keluar");
            System.out.print("(1/2/3/4/0): ");
            int input = scan.nextInt();
            System.out.println("===============================");
            switch (input) {
                case 1:
                    System.out.println("Masukkan Data Antrian:");
                    System.out.println("===============================");
                    System.out.print("Input Nama: ");
                    scan.nextLine();
                    String nama = scan.nextLine();
                    System.out.print("Input No HP: ");
                    String noHp = scan.nextLine();
                    Pelanggan26 inputPelanggan = new Pelanggan26(nama, 
noHp);
                    System.out.println("===============================");
                    list.addLast(inputPelanggan);
                    System.out.println("===============================");
                    break;
                case 2:
                    System.out.println("Daftar Antrian: ");
                    System.out.println("===============================");
                    list.print();
                    System.out.println("===============================");
                    break;
                case 3:
                    list.removeFirst();
                    boolean jalan = true;
                    do {
                        System.out.println("Pilih Layanan");
                        System.out.println("-------------------------------
");
                        System.out.println("1. Pompa Ban (Rp 2.000)");
                        System.out.println("2. Service (Rp 10.000)");
                        System.out.println("3. Tambal Ban (Rp 5.000)");
                        System.out.println("4. Sort berdasarkan harga
termurah");
                        System.out.println("-------------------------------
");
                        System.out.print("(1/2/3/4): ");
                        int inputLayanan = scan.nextInt();
                        System.out.println("-------------------------------
");
                        switch (inputLayanan) {
                            case 1:
                                totalBiaya += 2000;
                                System.out.println("Pompa Ban");
                                System.out.println("-----------------------
--------");
                                System.out.println("");
                                jalan = false;
                                break;
                            case 2:
                                totalBiaya += 10000;
                                System.out.println("Tambal Ban");
                                System.out.println("-----------------------
--------");
```

```
                                jalan = false;
                                break;
                            case 3:
                                totalBiaya += 5000;
                                System.out.println("Tambal Ban");
                                System.out.println("-----------------------
--------");
                                jalan = false;
                                break;
                            case 4:
                                layanan.sort();
                                System.out.println("Urutkan Layanan
Berdasarkan Harga Termurah");
                                System.out.println("-----------------------
--------");
                                layanan.print();
                                break;
                            default:
                                System.out.println("Pilihan tidak valid!");
                                System.out.println("-----------------------
--------");
                                break;
                        }
                    } while (jalan);
                    break;
                case 4:
                    System.out.println("Total Pemasukkan: " + totalBiaya);
                    System.out.println("-------------------------------");
                    break;
                case 0:
                    System.out.println("Keluar program\nTerimakasih!");
                    System.out.println("===============================");
                    run = false;
                    break;
                default:
                    System.out.println("Pilihan tidak valid!");
                    System.out.println("===============================");
                    break;
            }
        } while (run);
    }
}
```

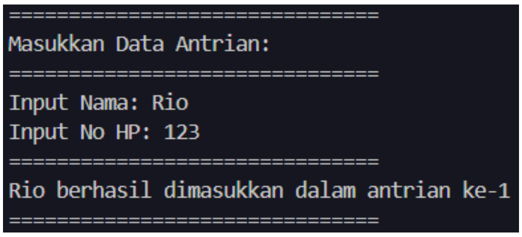
Output :

0. Main

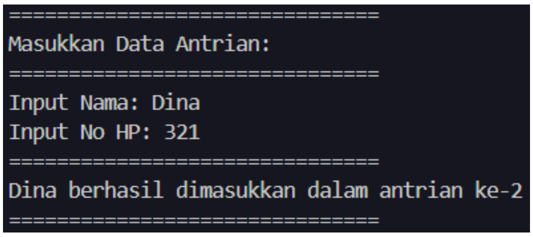


```
===============================
Selamat Datang di Bengkel Mobil
===============================
1. Tambah Antrian
2. Lihat Antrian
3. Hapus Antrian
4. Laporan Total Pemasukkan
0. Keluar
(1/2/3/4/0): 
```

1. Tambah Antrian

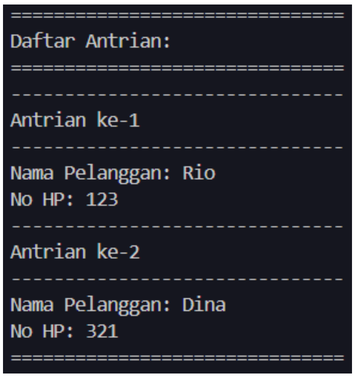


```
===============================
Masukkan Data Antrian:
===============================
Input Nama: Rio
Input No HP: 123
===============================
Rio berhasil dimasukkan dalam antrian ke-1
===============================
```



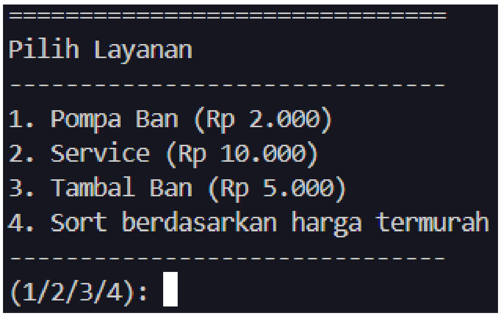
```
===============================
Masukkan Data Antrian:
===============================
Input Nama: Dina
Input No HP: 321
===============================
Dina berhasil dimasukkan dalam antrian ke-2
===============================
```

2. Lihat Antrian

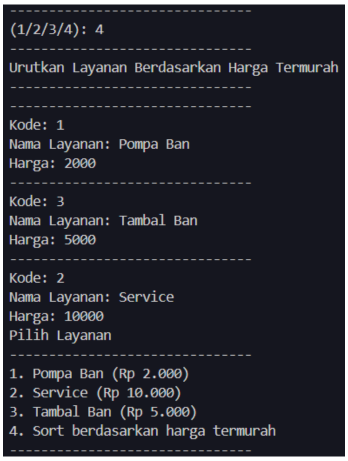


```
===============================
Daftar Antrian:
===============================
-------------------------------
Antrian ke-1
-------------------------------
Nama Pelanggan: Rio
No HP: 123
-------------------------------
Antrian ke-2
-------------------------------
Nama Pelanggan: Dina
No HP: 321
===============================
```

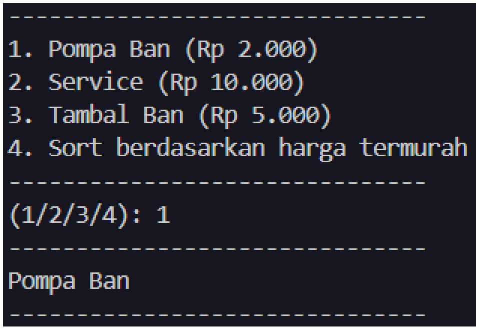
3. Hapus Antrian Dan Pilih Layanan



```
================================
Pilih Layanan
--------------------------------
1. Pompa Ban (Rp 2.000)
2. Service (Rp 10.000)
3. Tambal Ban (Rp 5.000)
4. Sort berdasarkan harga termurah
--------------------------------
(1/2/3/4): 
```

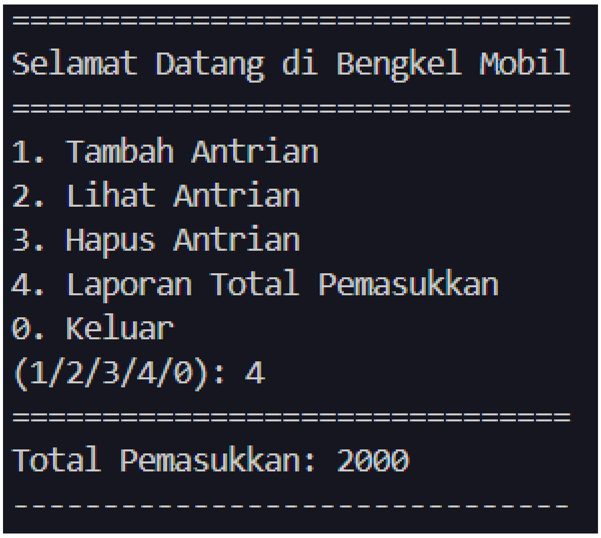


```
------------------------------
(1/2/3/4): 4
------------------------------
Urutkan Layanan Berdasarkan Harga Termurah
------------------------------
------------------------------
Kode: 1
Nama Layanan: Pompa Ban
Harga: 2000
------------------------------
Kode: 3
Nama Layanan: Tambal Ban
Harga: 5000
------------------------------
Kode: 2
Nama Layanan: Service
Harga: 10000
Pilih Layanan
------------------------------
1. Pompa Ban (Rp 2.000)
2. Service (Rp 10.000)
3. Tambal Ban (Rp 5.000)
4. Sort berdasarkan harga termurah
------------------------------
```



```
-------------------------------
1. Pompa Ban (Rp 2.000)
2. Service (Rp 10.000)
3. Tambal Ban (Rp 5.000)
4. Sort berdasarkan harga termurah
-------------------------------
(1/2/3/4): 1
-------------------------------
Pompa Ban
-------------------------------
```

4. Total Pemasukkan



```
================================
Selamat Datang di Bengkel Mobil
================================
1. Tambah Antrian
2. Lihat Antrian
3. Hapus Antrian
4. Laporan Total Pemasukkan
0. Keluar
(1/2/3/4/0): 4
================================
Total Pemasukkan: 2000
--------------------------------
```