

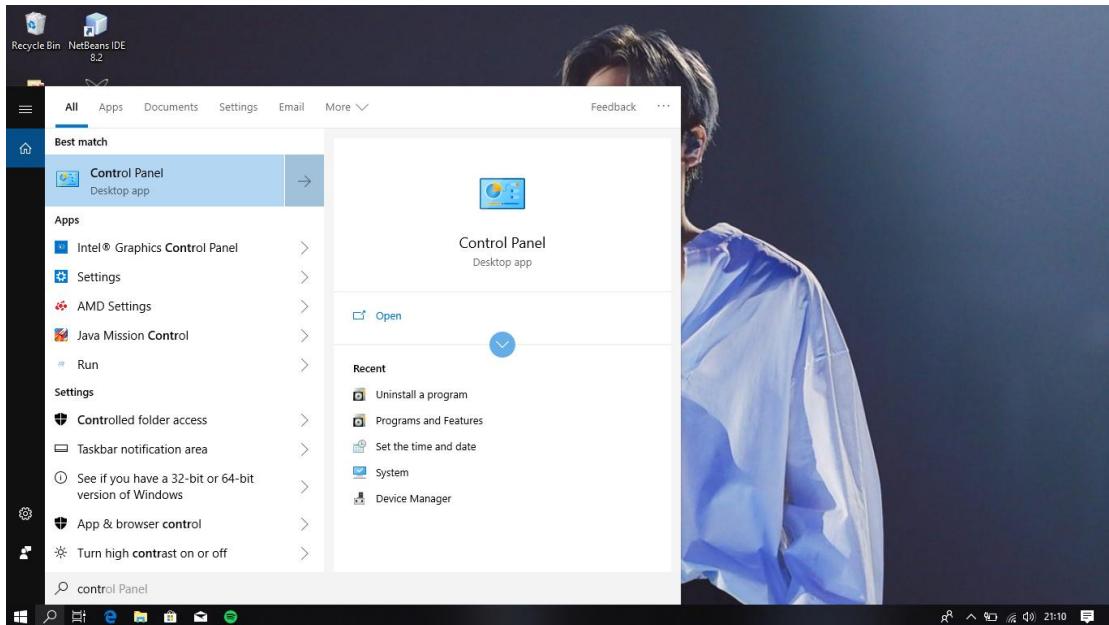
**Arindita Prihastama**  
**L200180058**  
**Kelas B**

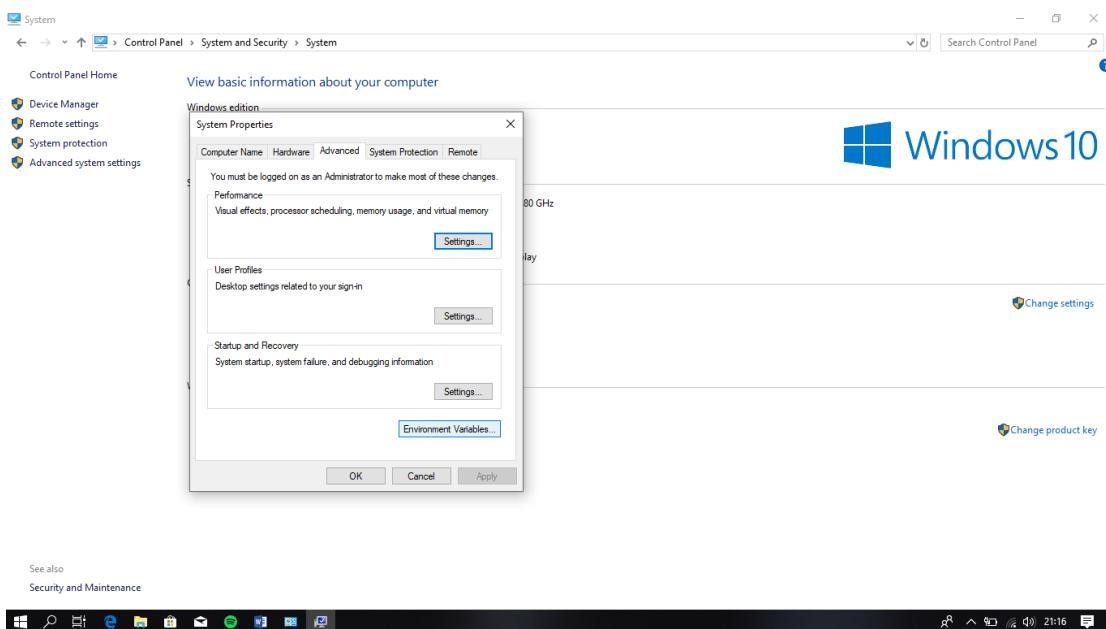
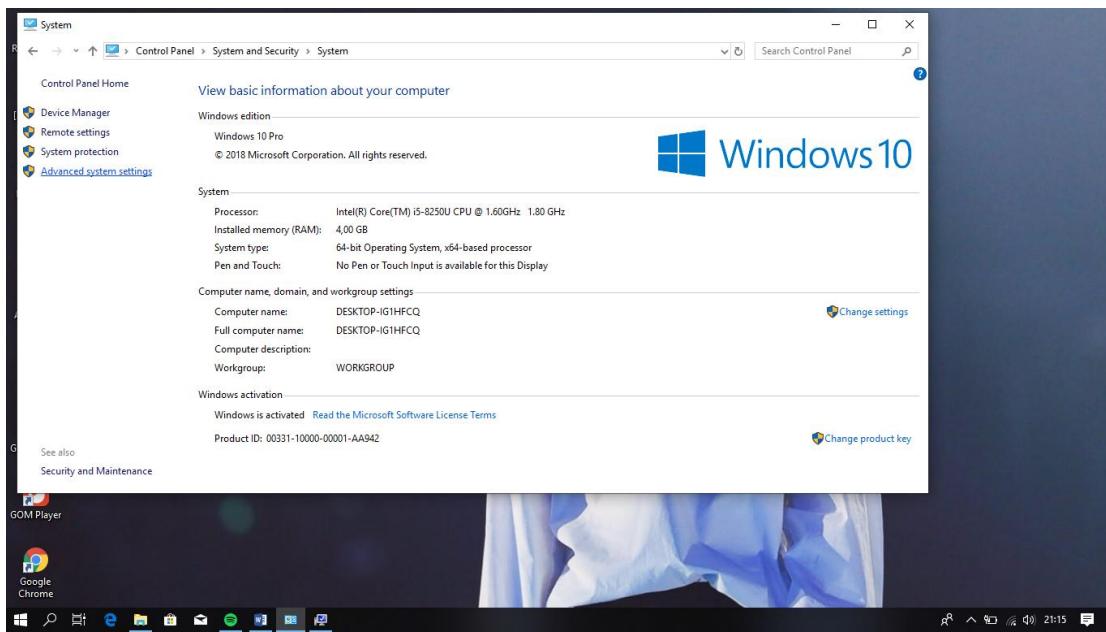
## **MODUL 1-12**

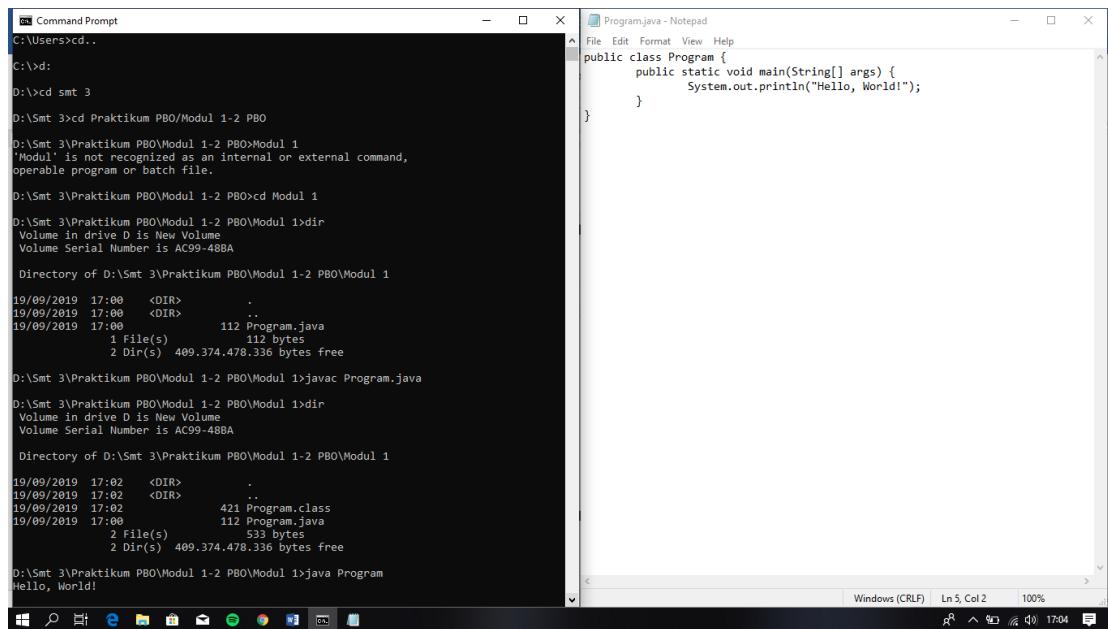
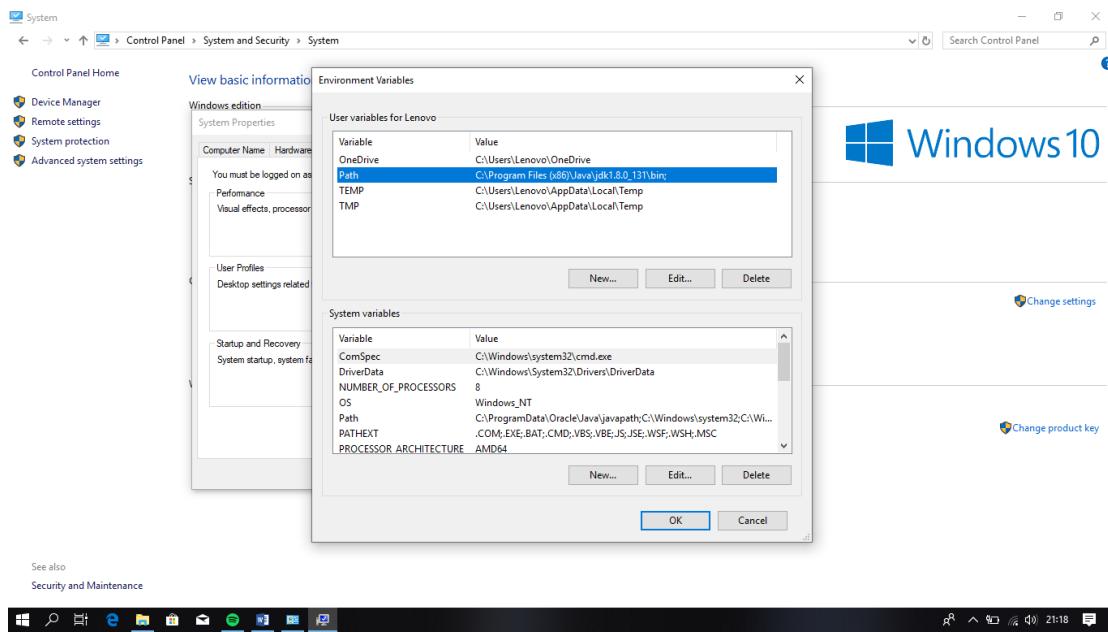
# **PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK**

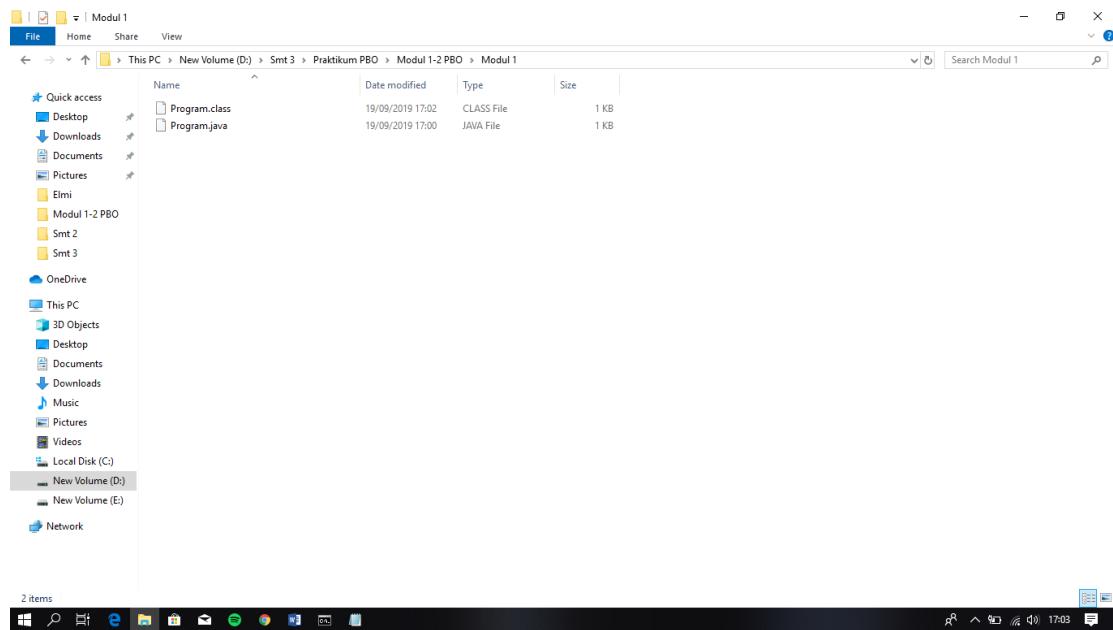
## **MODUL 1**

### **PENGENALAN JAVA**









## MODUL 2

### CLASS DAN OBJECT

#### 2.1. Object

```
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Lenovo>d:
D:>cd smt 3\praktikum pbo/modul 2
D:\Smt 3\Praktikum PBO\Modul 2>dir
 Volume in drive D is New Volume
 Volume Serial Number is AC99-4B8A

Directory of D:\Smt 3\Praktikum PBO\Modul 2

25/09/2019 21:57 <DIR> .
25/09/2019 21:57 <DIR> ..
20/09/2019 15:47 413 Car.java
20/09/2019 15:48 310 CarDemo.java
20/09/2019 16:02 534 Hewan.java
20/09/2019 16:07 431 HewanDemo.java
13/09/2019 14:51 108 program.java
13/09/2019 15:35 530 Roti.java
13/09/2019 15:36 225 RotiDemo.java
20/09/2019 15:06 621 Smartphone.java
20/09/2019 15:08 299 SmartphoneDemo.java
               9 File(s)      3,471 bytes
              2 Dir(s)  406.912.507.904 bytes free

D:\Smt 3\Praktikum PBO\Modul 2>javac Roti.java
D:\Smt 3\Praktikum PBO\Modul 2>javac RotiDemo.java

D:\Smt 3\Praktikum PBO\Modul 2>java RotiDemo
Warna Roti : Hijau
Rasa Roti : Pandan
Berat Roti : 30
grHarga Roti : Rp. 6000.0

D:\Smt 3\Praktikum PBO\Modul 2>
```

```
RotiDemo.java - Notepad
File Edit Format View Help
public class RotiDemo{
    public static void main(String[] args){
        Roti roti = new Roti();
        roti.beriWarna("Hijau");
        roti.beriRasa("Pandan");
        roti.timbangBerat(30);
        roti.hargaJual(6000);
        roti.infoRoti();
    }
}
```

```
Roti.java - Notepad
File Edit Format View Help
public class Roti{
    String warna;
    String rasa;
    int berat;
    double harga;

    void beriWarna(String warnaRoti){
        warna = warnaRoti;
    }

    void beriRasa(String rasaRoti){
        rasa = rasaRoti;
    }

    void timbangBerat(int beratRoti){
        berat = beratRoti;
    }

    void hargaJual(double hargaRoti){
        harga = hargaRoti;
    }

    void infoRoti(){
        System.out.println(
            "Warna Roti : " + warna + "\n" +
            "Rasa Roti : " + rasa + "\n" +
            "Berat Roti : " + berat + "\n" + "gr" +
            "Harga Roti : Rp. " + harga);
    }
}
```

```
D:\Smt 3\Praktikum PBO\Modul 2>javac SmartphoneDemo.java
D:\Smt 3\Praktikum PBO\Modul 2>java SmartphoneDemo
Warna Roti : Hijau
Rasa Roti : Pandan
Berat Roti : 30
grHarga Roti : Rp. 6000.0

D:\Smt 3\Praktikum PBO\Modul 2>dir
 Volume in drive D is New Volume
 Volume Serial Number is AC99-4B8A

Directory of D:\Smt 3\Praktikum PBO\Modul 2

25/09/2019 21:59 <DIR> .
25/09/2019 21:59 <DIR> ..
413 Car.java
310 CarDemo.java
534 Hewan.java
431 HewanDemo.java
108 program.java
530 Roti.class
225 RotiDemo.class
225 RotiDemo.java
621 Smartphone.java
299 SmartphoneDemo.java
               11 File(s)      5,119 bytes
              2 Dir(s)  406.912.503.808 bytes free

D:\Smt 3\Praktikum PBO\Modul 2>javac Smartphone.java
D:\Smt 3\Praktikum PBO\Modul 2>javac SmartphoneDemo.java

D:\Smt 3\Praktikum PBO\Modul 2>java SmartphoneDemo
Warna Smartphone : Starry Black
Merek Smartphone : VIVO Y93
Berat Smartphone : 225
grHarga Smartphone : Rp. 2099000.0

D:\Smt 3\Praktikum PBO\Modul 2>
```

```
SmartphoneDemo.java - Notepad
File Edit Format View Help
public class SmartphoneDemo{
    public static void main(String[] args){
        Smartphone smartphone = new Smartphone();
        smartphone.beriWarna("Starry Black");
        smartphone.beriMerek("VIVO Y93");
        smartphone.timbangBerat(225);
        smartphone.hargaJual(2099000);
        smartphone.infoSmartphone();
    }
}
```

```
Smartphone.java - Notepad
File Edit Format View Help
public class Smartphone{
    String warna;
    String merek;
    int berat;
    double harga;

    void beriWarna(String warnaSmartphone){
        warna = warnaSmartphone;
    }

    void beriMerek(String merekSmartphone){
        merek = merekSmartphone;
    }

    void timbangBerat(int beratSmartphone){
        berat = beratSmartphone;
    }

    void hargaJual(double hargaSmartphone){
        harga = hargaSmartphone;
    }

    void infoSmartphone(){
        System.out.println(
            "Warna Smartphone : " + warna + "\n" +
            "Merek Smartphone : " + merek + "\n" +
            "Berat Smartphone : " + berat + "\n" + "gr" +
            "Harga Smartphone : Rp. " + harga);
    }
}
```

#### 2.4. Latihan

Windows Command Prompt

```

Marna Smartphone : Starry Black
Merek Smartphone : VIVO Y93
Berat Smartphone : 225
grHarga Smartphone : Rp. 2099000.0

D:\Smt 3\Praktikum PBO\Modul 2>dir
Volume in drive D is New Volume
Volume Serial Number is AC99-48BA

Directory of D:\Smt 3\Praktikum PBO\Modul 2

25/09/2019 22:00 <DIR> .
25/09/2019 22:00 <DIR> ..
20/09/2019 15:47 413 Car.java
20/09/2019 15:48 310 CarDemo.java
20/09/2019 16:02 534 Hewan.java
20/09/2019 16:07 431 HewanDemo.java
13/09/2019 14:51 108 program.java
25/09/2019 21:58 1.130 Roti.class
25/09/2019 21:59 518 RotiDemo.class
13/09/2019 15:36 225 RotiDemo.java
25/09/2019 22:00 1.175 Smartphone.java
20/09/2019 15:06 621 Smartphone.java
25/09/2019 22:00 553 Smartphone.java
20/09/2019 15:08 299 SmartphoneDemo.java
13 File(s) 6.847 bytes
2 Dir(s) 406.912.499.712 bytes free

```

D:\Smt 3\Praktikum PBO\Modul 2>javac Car.java

D:\Smt 3\Praktikum PBO\Modul 2>javac CarDemo.java

D:\Smt 3\Praktikum PBO\Modul 2>java CarDemo

```

Cadence Mobil : 50
Speed Mobil : 20
Gear Mobil : 2

Cadence Mobil : 30
Speed Mobil : 10
Gear Mobil : 1

```

D:\Smt 3\Praktikum PBO\Modul 2>

Windows Notepad

```

CarDemo.java - Notepad
File Edit Format View Help
public class CarDemo {
    public static void main(String[] args) {
        Car car1 = new Car();
        Car car2 = new Car();

        car1.changeCadence(50);
        car1.speedUp(20);
        car1.changeGear(2);
        car1.printInfo();

        car2.changeCadence(30);
        car2.speedUp(10);
        car2.changeGear(1);
        car2.printInfo();
    }
}

void changeCadence(int carCadence){
    cadence = carCadence;
}

void speedUp(int carSpeed){
    speed = carSpeed;
}

void changeGear(int carGear){
    gear = carGear;
}

void printInfo(){
    System.out.println(
        "Cadence Mobil : " + cadence + "\n" +
        "Speed Mobil : " + speed + "\n" +
        "Gear Mobil : " + gear + "\n");
}

```

Windows Notepad

```

Car.java - Notepad
File Edit Format View Help
public class Car {
    int cadence;
    int speed;
    int gear;

    void changeCadence(int carCadence){
        cadence = carCadence;
    }

    void speedUp(int carSpeed){
        speed = carSpeed;
    }

    void changeGear(int carGear){
        gear = carGear;
    }

    void printInfo(){
        System.out.println(
            "Cadence Mobil : " + cadence + "\n" +
            "Speed Mobil : " + speed + "\n" +
            "Gear Mobil : " + gear + "\n");
    }
}

```

Windows Notepad

```

HewanDemo.java - Notepad
File Edit Format View Help
public class HewanDemo {
    public static void main(String[] args) {
        Hewan hewan1 = new Hewan();
        Hewan hewan2 = new Hewan();

        hewan1.beriNama("Harimau");
        hewan1.beriKaki(4);
        hewan1.beriMakanan("Daging");
        hewan1.beriTipe("Karnivora");
        hewan1.printInfo();

        hewan2.beriNama("Kerbau");
        hewan2.beriKaki(4);
        hewan2.beriMakanan("Rumput");
        hewan2.beriTipe("Omnivora");
        hewan2.printInfo();
    }
}

void beriNama(String namaHewan){
    nama = namaHewan;
}

void beriKaki(int kakiHewan){
    kaki = kakiHewan;
}

void beriMakanan(String makananHewan){
    makanan = makananHewan;
}

void beriTipe(String tipeHewan){
    tipe = tipeHewan;
}

void printInfo(){
    System.out.println(
        "Nama Hewan : " + nama + "\n" +
        "Jumlah Kaki : " + kaki + "\n" +
        "Makanan : " + makanan + "\n" +
        "Type Hewan : " + tipe + "\n");
}

```

Windows Notepad

```

Hewan.java - Notepad
File Edit Format View Help
public class Hewan {
    String nama;
    int kaki;
    String makanan;
    String tipe;

    void beriNama(String namaHewan){
        nama = namaHewan;
    }

    void beriKaki(int kakiHewan){
        kaki = kakiHewan;
    }

    void beriMakanan(String makananHewan){
        makanan = makananHewan;
    }

    void beriTipe(String tipeHewan){
        tipe = tipeHewan;
    }

    void printInfo(){
        System.out.println(
            "Nama Hewan : " + nama + "\n" +
            "Jumlah Kaki : " + kaki + "\n" +
            "Makanan : " + makanan + "\n" +
            "Type Hewan : " + tipe + "\n");
    }
}

```

Windows Command Prompt

```

25/09/2019 15:47 413 Car.java
25/09/2019 22:02 469 CarDemo.java
20/09/2019 15:48 310 CarDemo.java
20/09/2019 16:02 534 Hewan.java
25/09/2019 22:13 424 HewanDemo.java
13/09/2019 14:51 108 program.java
25/09/2019 21:58 1.130 Roti.class
25/09/2019 21:59 518 RotiDemo.class
13/09/2019 15:36 225 RotiDemo.java
25/09/2019 22:00 1.175 Smartphone.java
20/09/2019 15:06 621 Smartphone.java
25/09/2019 22:00 553 Smartphone.java
20/09/2019 15:08 299 SmartphoneDemo.java
15 File(s) 8.261 bytes
2 Dir(s) 406.912.491.520 bytes free

```

D:\Smt 3\Praktikum PBO\Modul 2>javac Hewan.java

D:\Smt 3\Praktikum PBO\Modul 2>javac HewanDemo.java

D:\Smt 3\Praktikum PBO\Modul 2>javac HewanDemo

```

error: Class names, 'HewanDemo', are only accepted if annotation processing is explicitly requested
1 error

```

D:\Smt 3\Praktikum PBO\Modul 2>javac HewanDemo.java

D:\Smt 3\Praktikum PBO\Modul 2>java HewanDemo

```

Nama Hewan : Harimau
Jumlah Kaki : 4
Makanan : Daging
Type Hewan : Karnivora

Nama Hewan : Kerbau
Jumlah Kaki : 4
Makanan : Rumput
Type Hewan : Omnivora

```

D:\Smt 3\Praktikum PBO\Modul 2>

## 2.5. Pekerjaan Rumah

### 2. Buat class berdasarkan class diagram

```
Volume in drive D is New Volume
Volume Serial Number is AC99-48BA

Directory of D:\Smt 3\Praktikum PBO\Modul 2

26/09/2019  19:35    <DIR>      .
26/09/2019  19:35    <DIR>      ..
25/09/2019  22:01      952 Car.class
20/09/2019  15:47      413 Car.java
25/09/2019  22:02      469 Cardemo.class
20/09/2019  15:48      310 Cardemo.java
26/09/2019  14:08      600 Dosen.java
26/09/2019  19:35
25/09/2019  22:13
20/09/2019  16:02
25/09/2019  22:21
25/09/2019  22:13
25/09/2019  22:57
25/09/2019  23:02
25/09/2019  23:12
13/09/2019  14:51
25/09/2019  21:58
13/09/2019  15:35
25/09/2019  21:59
13/09/2019  15:36
25/09/2019  22:00
20/09/2019  15:06
25/09/2019  22:00
20/09/2019  15:08
22 File(s)   2 Dir(s)  406

D:\Smt 3\Praktikum PBO\Modul 2>javac Dosen.java
D:\Smt 3\Praktikum PBO\Modul 2>javac DosenDemo.java

D:\Smt 3\Praktikum PBO\Modul 2>java DosenDemo
Nama Dosen : Regan Hanggyaru Pranadiputra
NIK Dosen : 200180058
Pendidikan : Oxford University
Tanggal Lahir : 7 Desember 1990

D:\Smt 3\Praktikum PBO\Modul 2>
```

```
D:\Smt 3\Praktikum PBO\Modul 2>
```

```
File Edit Format View Help
public class Dosen {
    String nama;
    int nik;
    String pendidikan;
    String tglLahir;

    void tampilkanNama(String namaDosen) {
        nama = namaDosen;
    }

    void tampilkanNik(int nikDosen) {
        nik = nikDosen;
    }

    void tampilkanPendidikan(String pendidikanDosen) {
        pendidikan = pendidikanDosen;
    }

    void tampilkanTglLahir(String tglLahirDosen) {
        tglLahir = tglLahirDosen;
    }

    void printInfo() {
        System.out.println(
            "Nama Dosen : " + nama + "\n" +
            "NIK Dosen : " + nik + "\n" +
            "Pendidikan : " + pendidikan + "\n" +
            "Tanggal Lahir : " + tglLahir + "\n");
    }
}
```

```
Windows (CRLI Ln 11, Col 2 100%
```

```
File Edit Format View Help
public class Karyawan{
    String nama;
    String alamat;
    String jabatan;
    double gaji;

    void tampilkanNama(String namaKaryawan){
        nama = namaKaryawan;
    }

    void tampilkanJabatan(String jabatanKaryawan){
        jabatan = jabatanKaryawan;
    }

    void tampilkanAlamat(String alamatKaryawan){
        alamat = alamatKaryawan;
    }

    void tampilkanGaji(double gajiKaryawan){
        gaji = gajiKaryawan;
    }

    void printInfo(){
        System.out.println(
            "Nama Karyawan : " + nama + "\n" +
            "Jabatan Karyawan : " + jabatan + "\n" +
            "Alamat Karyawan : " + alamat + "\n" +
            "Gaji Karyawan : " + gaji + "\n");
    }
}
```

```
Windows (CRLI Ln 19, Col 31 100%
```

```
File Edit Format View Help
public class KaryawanDemo {
    public static void main(String[] args){
        Karyawan karyawan = new Karyawan();

        karyawan.tampilkanNama("Yohansyah Reza Mahendra");
        karyawan.tampilkanJabatan("General Manager");
        karyawan.tampilkanAlamat("Jayakarta");
        karyawan.tampilkanGaji(8000000);
        karyawan.printInfo();
    }
}

25 File(s)   2 Dir(s)  406

D:\Smt 3\Praktikum PBO\Modul 2>javac Karyawan.java
D:\Smt 3\Praktikum PBO\Modul 2>javac KaryawanDemo.java

D:\Smt 3\Praktikum PBO\Modul 2>java KaryawanDemo
Nama Karyawan : Yohansyah Reza Mahendra
Jabatan Karyawan : General Manager
Alamat Karyawan : Metro Jayatri
Gaji Karyawan : 8000000.0

D:\Smt 3\Praktikum PBO\Modul 2>
```

```
Windows (CRLI Ln 8, Col 27 100%
```

```
Windows (CRLI Ln 28, Col 29 100%
```

D:\Smt 3\Praktikum PBO\Modul 2>javac Mahasiswa.java  
Mahasiswa.java:25: error: ')' expected  
"N  
Mahasiswa.java:26: error: 'N  
public class MahasiswaDemo{  
 public static void main (String[] args) {  
 Mahasiswa mhs = new Mahasiswa();  
  
 mhs.tampilkanNama("Arkan Deva Rajendra");  
 mhs.tampilkanNim("L200180058");  
 mhs.tampilkanAlamat("Surakarta");  
 mhs.tampilkanSemester(3);  
 mhs.printInfo();  
 }  
Mahasiswa.java:28: error:  
"S  
Mahasiswa.java:28: error:  
"S  
7 errors  
D:\Smt 3\Praktikum PBO\Modul 2>javac Mahasiswa.java  
D:\Smt 3\Praktikum PBO\Modul 2>javac MahasiswaDemo.java  
javac: file not found: MahasiswaDemo.java  
Usage: javac <options> <source files>  
use -help for a list of possible options  
D:\Smt 3\Praktikum PBO\Modul 2>javac Mahasiswa.java  
D:\Smt 3\Praktikum PBO\Modul 2>javac MahasiswaDemo.java  
D:\Smt 3\Praktikum PBO\Modul 2>java MahasiswaDemo  
Nama Mahasiswa : Arkan Deva Rajendra  
NIM Mahasiswa : L200180058  
Alamat Mahasiswa : Surakarta  
Semester Mahasiswa : 3  
D:\Smt 3\Praktikum PBO\Modul 2>

Windows (CRLI Ln 11, Col 2 100%)

File Edit Format View Help  
public class Mahasiswa{  
 String nama;  
 String nim;  
 String alamat;  
 int semester;  
  
 void tampilkanNama(String namaMahasiswa){  
 nama = namaMahasiswa;  
 }  
  
 void tampilkanNim(String nimMahasiswa){  
 nim = nimMahasiswa;  
 }  
  
 void tampilkanAlamat(String alamatMahasiswa){  
 alamat = alamatMahasiswa;  
 }  
  
 void tampilkanSemester(int semesterMahasiswa){  
 semester = semesterMahasiswa;  
 }  
  
 void printInfo(){  
 System.out.println(  
 "Nama Mahasiswa : " + nama + "\n" +  
 "NIM Mahasiswa : " + nim + "\n" +  
 "Alamat Mahasiswa : " + alamat + "\n" +  
 "Semester Mahasiswa : " + semester + "\n");  
 }  
}

Windows (CRLI Ln 27, Col 43 100%)

# MODUL 3

## CLASS MEMBER : VARIABEL DAN METHOD

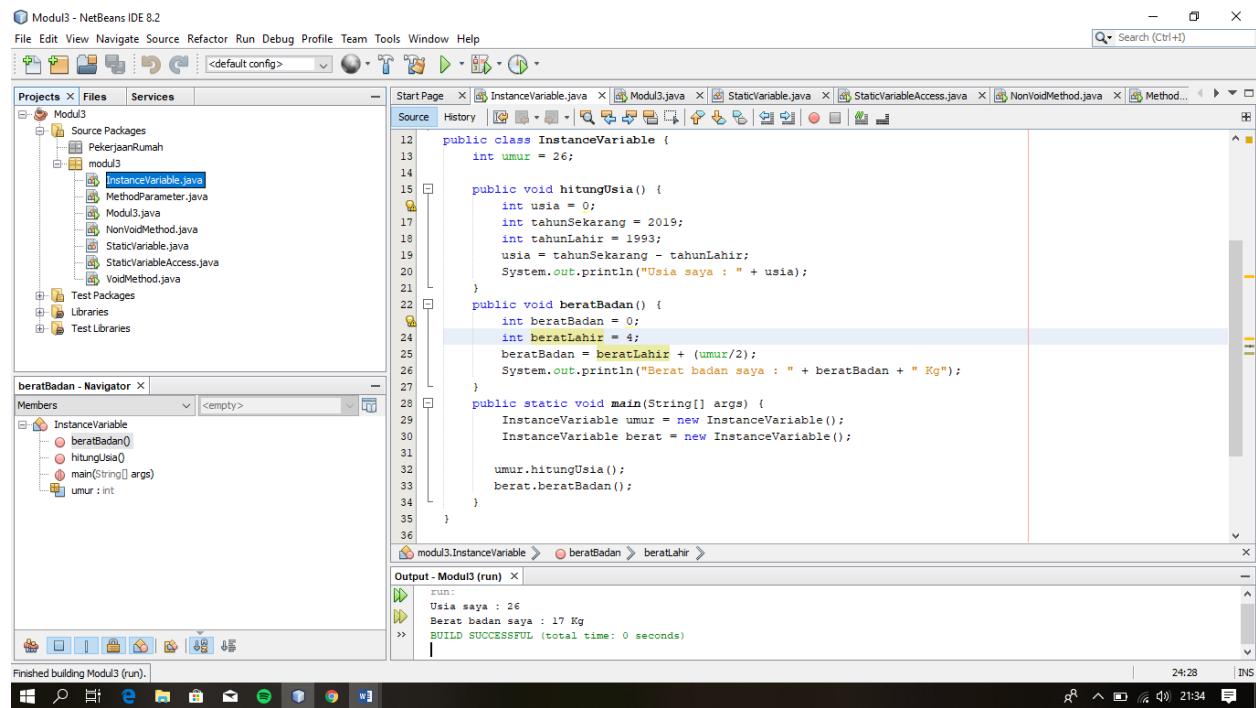
### 3.1.1. Local Variable

#### Latihan 1

```
Modul3 - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
Projects Files Services
Modul3 -> Source Packages
  PekerjaanRumah
    modul3
      InstanceVariable.java
      MethodParameter.java
      Modul3.java
      NonVoidMethod.java
      StaticVariable.java
      StaticVariableAccess.java
      VoidMethod.java
Test Packages
Libraries
Test Libraries
Start Page History <default config> Search (Ctrl+F)
11  /*
12   * 
13  public class Modul3 {
14      public void hitungUsia() {
15          int usia = 0;
16          int tahunSekarang = 2019;
17          int tahunLahir = 1993;
18
19          usia = tahunSekarang - tahunLahir;
20          System.out.println("Usia saya : " + usia);
21      }
22      public void beratBadan() {
23          int beratBadan = 0;
24          int beratLahir = 3;
25
26          beratBadan = beratLahir + (umur/2);
27          System.out.println("Berat badan saya : " + beratBadan + " Kg");
28      }
29      public static void main(String[] args) {
30          Modul3 umur = new Modul3();
31          Modul3 berat = new Modul3();
32          umur.hitungUsia();
33          berat.beratBadan();
34      }
35  }
modul3.Modul3 > beratBadan >
Output - Modul3 (run) >
run:
E:\Users\Lenovo\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:48:
Cancelled by user.
BUILD FAILED (total time: 2 seconds)
25:37 21:31 INS
```

Nilai dari variable umur tidak dapat dipanggil dari method void beratBadan(), karena variable umur merupakan variable local, yang hanya dapat diakses dalam methodnya sendiri.

### 3.1.2. Instance Variable. Latihan 2



### 3.1.3. Static Variable

```
package modul3;

/*
 * @author LABRPL-3
 */
public class StaticVariable {
    public static char akreditasi;
    public static final String jurusan = "Informatika";

    void firstMethod() {
        System.out.println(jurusan);
    }

    void secondMethod() {
        System.out.println("Akreditasi : " + akreditasi );
    }
}
```

Modul3 - NetBeans IDE 8.2

```

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 modul3;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class StaticVariableAccess {
13     public static void main (String[] args) {
14         StaticVariable.akreditasi = 'B';
15         StaticVariable sv = new StaticVariable();
16
17         sv.firstMethod();
18         sv.secondMethod();
19     }
20 }

```

Output - Modul3 (run) >

```

run:
Informatika
Akreditasi : B
BUILD SUCCESSFUL (total time: 0 seconds)

```

### 3.2.1. Method Non-Void

Modul3 - NetBeans IDE 8.2

```

10  /*
11  * @author Lenovo
12  */
13 public class NonVoidMethod {
14     String nama;
15     String nim;
16
17     public String getName(String nama) {
18         return this.nama = nama;
19     }
20     public String getNIM(String nim){
21         return this.nim = nim;
22     }
23     public void main() {
24         System.out.println(this.getName("Arindita Prihastama"));
25         System.out.println(this.getNIM("L200180056"));
26     }
27     public static void main(String[] args) {
28         NonVoidMethod mhs = new NonVoidMethod();
29
30         mhs.main();
31     }
32 }

```

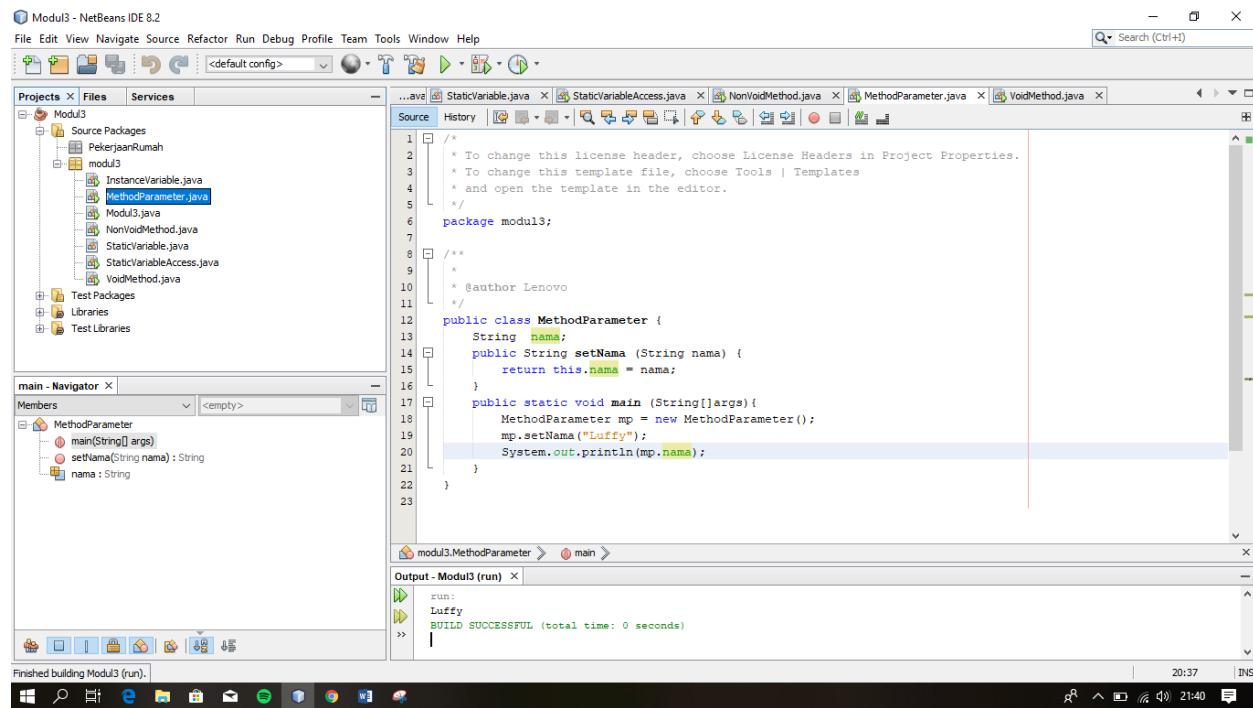
Output - Modul3 (run) >

```

run:
Arindita Prihastama
L200180056
BUILD SUCCESSFUL (total time: 0 seconds)

```

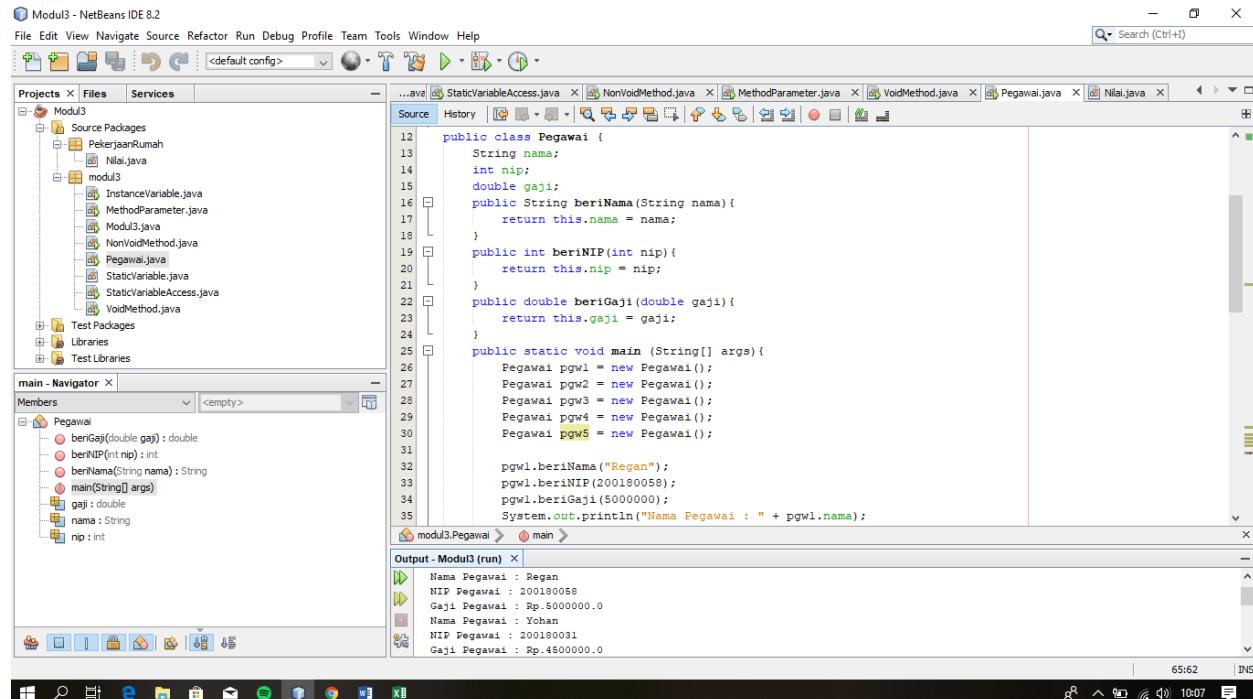
### 3.2.2. Parameter Method



The screenshot shows the NetBeans IDE interface with the following details:

- Project:** Modul3
- Source Packages:** PekerjaanRumah, modul3
- Files:** InstanceVariable.java, MethodParameter.java, Modul3.java, NonvoidMethod.java, StaticVariable.java, StaticVariableAccess.java, VoidMethod.java
- Code Editor:** MethodParameter.java (selected)
- ```
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 modul3;
7
8 /**
9 *
10 * @author Lenovo
11 */
12 public class MethodParameter {
13     String nama;
14     public String setName (String nama) {
15         return this.nama = nama;
16     }
17     public static void main (String[] args) {
18         MethodParameter mp = new MethodParameter();
19         mp.setName("Luffy");
20         System.out.println(mp.nama);
21     }
22 }
```
- Output:** Luffy

### 3.2.2. Latihan 3



The screenshot shows the NetBeans IDE interface with the following details:

- Project:** Modul3
- Source Packages:** PekerjaanRumah, modul3
- Files:** InstanceVariable.java, MethodParameter.java, Modul3.java, NonvoidMethod.java, Pegawai.java, StaticVariable.java, StaticVariableAccess.java, VoidMethod.java
- Code Editor:** Pegawai.java (selected)
- ```
12 public class Pegawai {
13     String nama;
14     int nip;
15     double gaji;
16     public String beriNama(String nama) {
17         return this.nama = nama;
18     }
19     public int beriNIP(int nip) {
20         return this.nip = nip;
21     }
22     public double beriGaji(double gaji){
23         return this.gaji = gaji;
24     }
25     public static void main (String[] args) {
26         Pegawai pgw1 = new Pegawai();
27         Pegawai pgw2 = new Pegawai();
28         Pegawai pgw3 = new Pegawai();
29         Pegawai pgw4 = new Pegawai();
30         Pegawai pgw5 = new Pegawai();
31
32         pgw1.beriNama("Regan");
33         pgw1.beriNIP(200180058);
34         pgw1.beriGaji(5000000);
35         System.out.println("Nama Pegawai : " + pgw1.nama);
36 }
```
- Output:** Nama Pegawai : Regan  
NIP Pegawai : 200180058  
Gaji Pegawai : Rp.5000000.0  
Nama Pegawai : Yohan  
NIP Pegawai : 200180031  
Gaji Pegawai : Rp.4500000.0

Modul3 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source History

```

36     System.out.println("NIP Pegawai : " + pgw1.nip);
37     System.out.println("Gaji Pegawai : Rp." + pgw1.gaji);

38     pgw2.beriNama("Yohan");
39     pgw2.beriNIP(200180031);
40     pgw2.beriGaji(4500000);
41     System.out.println("Nama Pegawai : " + pgw2.nama);
42     System.out.println("NIP Pegawai : " + pgw2.nip);
43     System.out.println("Gaji Pegawai : Rp." + pgw2.gaji);

44     pgw3.beriNama("Galen");
45     pgw3.beriNIP(200180020);
46     pgw3.beriGaji(4750000);
47     System.out.println("Nama Pegawai : " + pgw3.nama);
48     System.out.println("NIP Pegawai : " + pgw3.nip);
49     System.out.println("Gaji Pegawai : Rp." + pgw3.gaji);

50     pgw4.beriNama("Arkan");
51     pgw4.beriNIP(200180023);
52     pgw4.beriGaji(4800000);
53     System.out.println("Nama Pegawai : " + pgw4.nama);
54     System.out.println("NIP Pegawai : " + pgw4.nip);
55     System.out.println("Gaji Pegawai : Rp." + pgw4.gaji);

56     pgw5.beriNama("Noa");
57     pgw5.beriNIP(200180013);
58     pgw5.beriGaji(5500000);
59     System.out.println("Nama Pegawai : " + pgw5.nama);
60     System.out.println("NIP Pegawai : " + pgw5.nip);
61     System.out.println("Gaji Pegawai : Rp." + pgw5.gaji);
62 }

63 }
64 }
65 }
66 }
67 }
68 }
```

Output - Modul3 (run) :

- Nama Pegawai : Galen
- NIP Pegawai : 200180020
- Gaji Pegawai : Rp.4750000.0
- Nama Pegawai : Arkan
- NIP Pegawai : 200180023
- Gaji Pegawai : Rp.4800000.0

65:62 | INS

Modul3 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source History

```

53     pgw4.beriNama("Arkan");
54     pgw4.beriNIP(200180023);
55     pgw4.beriGaji(4800000);
56     System.out.println("Nama Pegawai : " + pgw4.nama);
57     System.out.println("NIP Pegawai : " + pgw4.nip);
58     System.out.println("Gaji Pegawai : Rp." + pgw4.gaji);

59     pgw5.beriNama("Noa");
60     pgw5.beriNIP(200180013);
61     pgw5.beriGaji(5500000);
62     System.out.println("Nama Pegawai : " + pgw5.nama);
63     System.out.println("NIP Pegawai : " + pgw5.nip);
64     System.out.println("Gaji Pegawai : Rp." + pgw5.gaji);
65 }

66 }
67 }
68 }
```

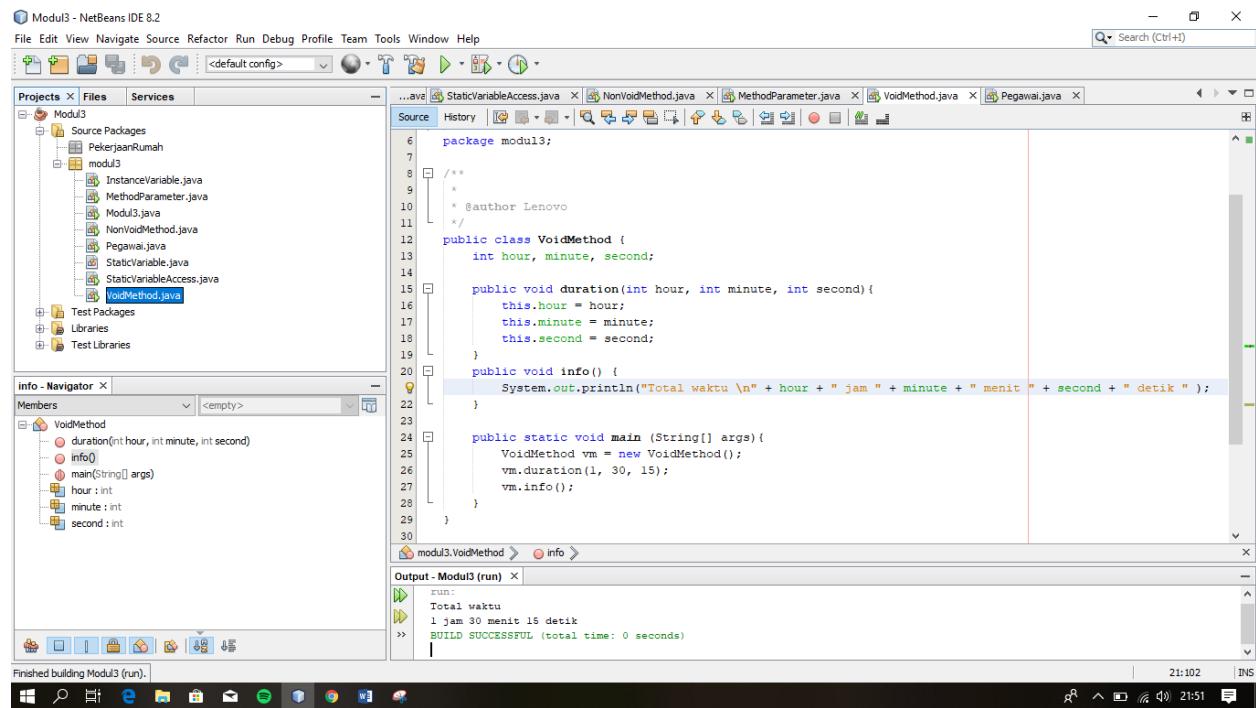
Output - Modul3 (run) :

- Gaji Pegawai : Rp.4800000.0
- Nama Pegawai : Noa
- NIP Pegawai : 200180013
- Gaji Pegawai : Rp.5500000.0

BUILD SUCCESSFUL (total time: 1 second)

68:1 | INS

### 3.2.3. Method Void



The screenshot shows the NetBeans IDE interface with the following details:

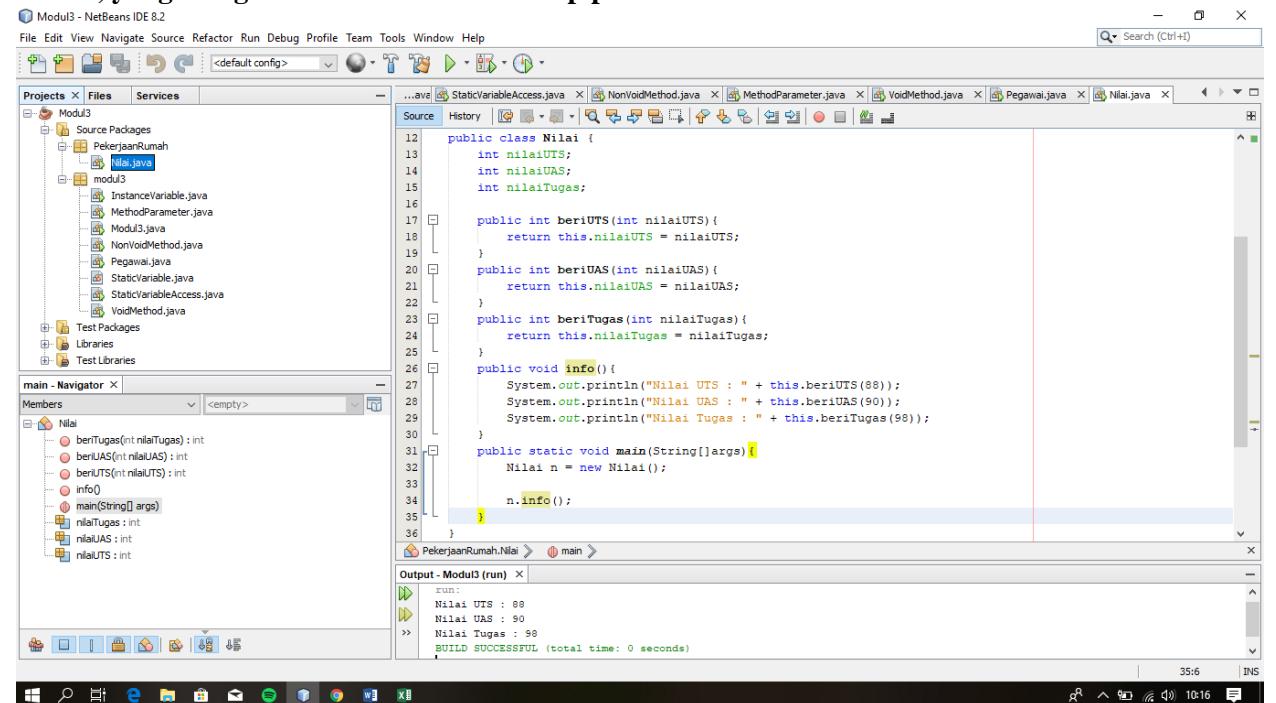
- Project:** Modul3
- Source Packages:** PekerjaanRumah, modul3
- Files:** InstanceVariable.java, MethodParameter.java, Modul3.java, NonVoidMethod.java, Pegawai.java, StaticVariable.java, StaticVariableAccess.java, VoidMethod.java
- Code Editor:** Content of VoidMethod.java:

```
6 package modul3;
7
8 /**
9  * Author: Lenovo
10 */
11 public class VoidMethod {
12     int hour, minute, second;
13
14     public void duration(int hour, int minute, int second) {
15         this.hour = hour;
16         this.minute = minute;
17         this.second = second;
18     }
19     public void info() {
20         System.out.println("Total waktu \n" + hour + " jam " + minute + " menit " + second + " detik ");
21     }
22
23     public static void main (String[] args){
24         VoidMethod vm = new VoidMethod();
25         vm.duration(1, 30, 15);
26         vm.info();
27     }
28 }
29
30 modul3.VoidMethod > info >
```
- Output:** Output - Modul3 (run)

```
run:
Total waktu
1 jam 30 menit 15 detik
>> BUILD SUCCESSFUL (total time: 0 seconds)
```

## 3.3. Pekerjaan Rumah

### 1. Melengkapi kode pada Program 10 dengan menambahkan method void dan method return, yang mengembalikan nilai dari setiap parameter method void.



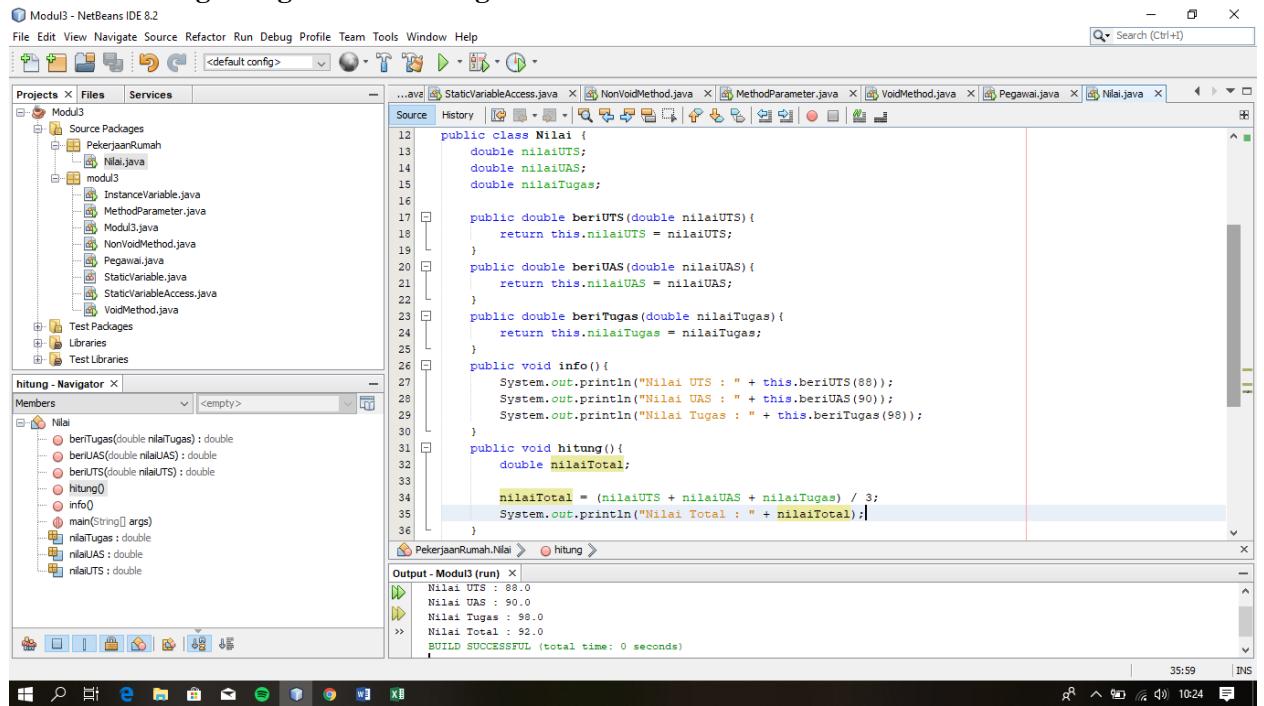
The screenshot shows the NetBeans IDE interface with the following details:

- Project:** Modul3
- Source Packages:** PekerjaanRumah, modul3
- Files:** InstanceVariable.java, MethodParameter.java, Modul3.java, NonVoidMethod.java, Pegawai.java, StaticVariable.java, StaticVariableAccess.java, VoidMethod.java, Nilai.java
- Code Editor:** Content of Nilai.java:

```
12 public class Nilai {
13     int nilaiUTS;
14     int nilaiUAS;
15     int nilaiTugas;
16
17     public int beriUTS(int nilaiUTS){
18         return this.nilaiUTS = nilaiUTS;
19     }
20     public int beriUAS(int nilaiUAS){
21         return this.nilaiUAS = nilaiUAS;
22     }
23     public int beriTugas(int nilaiTugas){
24         return this.nilaiTugas = nilaiTugas;
25     }
26
27     public void info(){
28         System.out.println("Nilai UTS : " + this.beriUTS(88));
29         System.out.println("Nilai UAS : " + this.beriUAS(90));
30         System.out.println("Nilai Tugas : " + this.beriTugas(98));
31     }
32
33     public static void main(String[]args){
34         Nilai n = new Nilai();
35
36         n.info();
37     }
38 }
39
40 PekerjaanRumah.Nilai > main >
```
- Output:** Output - Modul3 (run)

```
run:
Nilai UTS : 88
Nilai UAS : 90
Nilai Tugas : 98
>> BUILD SUCCESSFUL (total time: 0 seconds)
```

**2. Mengubah tipe data int menjadi double dan menambahkan variable double nilaiTotal, kemudian menghitung nilaiTotal dengan rumus.**



The screenshot shows the NetBeans IDE interface with the following details:

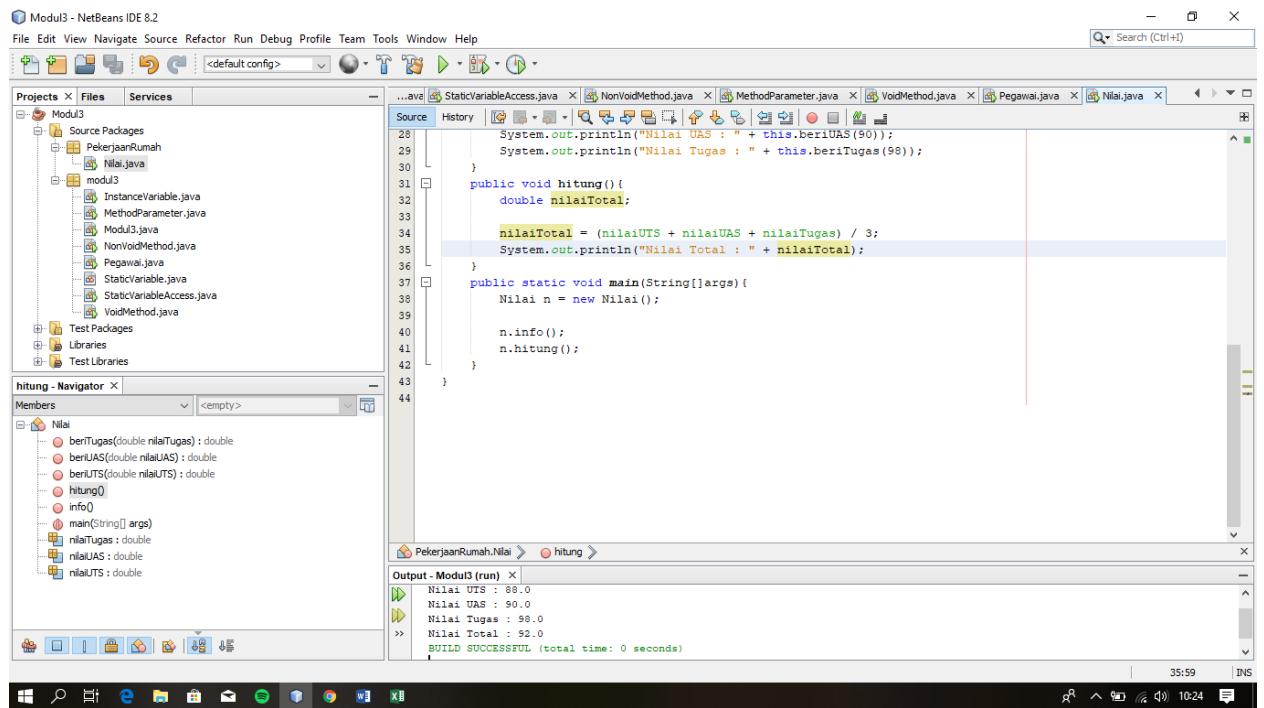
- Project:** Modul3
- Source Packages:** PekerjaanRumah, modul3
- Class:** Nilai
- Code:** Java code for calculating average marks (Nilai.java)

```

12 public class Nilai {
13     double nilaiUTS;
14     double nilaiUAS;
15     double nilaiTugas;
16
17     public double beriUTS(double nilaiUTS){
18         return this.nilaiUTS = nilaiUTS;
19     }
20     public double beriUAS(double nilaiUAS){
21         return this.nilaiUAS = nilaiUAS;
22     }
23     public double beriTugas(double nilaiTugas){
24         return this.nilaiTugas = nilaiTugas;
25     }
26
27     public void info(){
28         System.out.println("Nilai UTS : " + this.beriUTS(88));
29         System.out.println("Nilai UAS : " + this.beriUAS(90));
30         System.out.println("Nilai Tugas : " + this.beriTugas(98));
31     }
32     public void hitung(){
33         double nilaiTotal;
34
35         nilaiTotal = (nilaiUTS + nilaiUAS + nilaiTugas) / 3;
36         System.out.println("Nilai Total : " + nilaiTotal);
37     }
38 }

```

- Output - Modul3 (run):** Displays the console output showing the calculation of average marks.



The screenshot shows the NetBeans IDE interface with the following details:

- Project:** Modul3
- Source Packages:** PekerjaanRumah, modul3
- Class:** Nilai
- Code:** Java code for calculating average marks using static methods (Nilai.java)

```

28     System.out.println("Nilai UAS : " + this.beriUAS());
29     System.out.println("Nilai Tugas : " + this.beriTugas());
30 }
31 public void hitung(){
32     double nilaiTotal;
33
34     nilaiTotal = (nilaiUTS + nilaiUAS + nilaiTugas) / 3;
35     System.out.println("Nilai Total : " + nilaiTotal);
36 }
37 public static void main(String[]args){
38     Nilai n = new Nilai();
39
40     n.info();
41     n.hitung();
42 }

```

- Output - Modul3 (run):** Displays the console output showing the calculation of average marks.

# MODUL 4

## ACCESS MODIFIER

### 4.1. Private Modifier

```
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 modul4;
7
8 /**
9  *
10 * @author LABRPL-3
11 */
12 public class PrivateModifier {
13     private String nama;
14     private int umur;
15
16     public void printInfo(){
17         System.out.println("private modifier");
18     }
19 }
modul4.PrivateModifier >
```

Output - Modul4 (run) :

```
run:
Exception in thread "main" java.lang.RuntimeException: Uncompilable source code - nama has private access in modul4.PrivateModi
| at modul4.Latihan1.main(Latihan1.java:14)
C:\Users\LABRPL-3\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:63: Java returned: 1
BUILD FAILED (total time: 0 seconds)
```

#### 4.1.1. Latihan

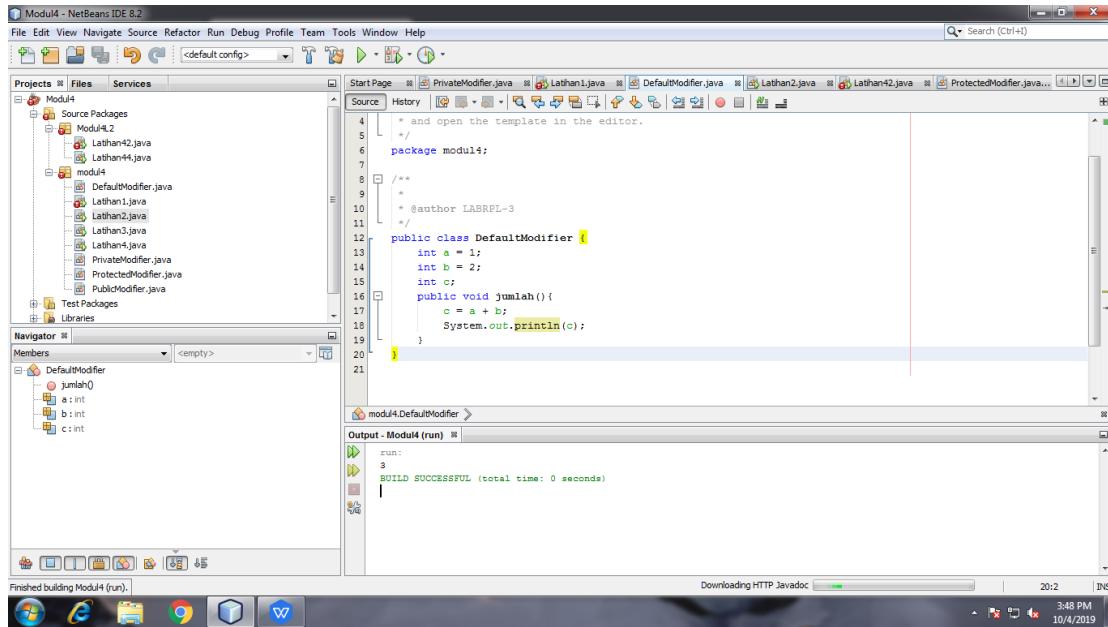
```
1 /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates.
4  * and open the template in the editor.
5  */
6 package modul4;
7
8 /**
9  *
10 * @author LABRPL-3
11 */
12 public class Latihan1 {
13     public static void main (String[] args){
14         PrivateModifier.nama = "Arindita";
15         PrivateModifier.umur = "18";
16
17         PrivateModifier pm = new PrivateModifier();
18         pm.printInfo();
19     }
20 }
```

Output - Modul4 (run) :

```
run:
Exception in thread "main" java.lang.RuntimeException: Uncompilable source code - nama has private access in modul4.PrivateModi
| at modul4.Latihan1.main(Latihan1.java:14)
C:\Users\LABRPL-3\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:63: Java returned: 1
BUILD FAILED (total time: 0 seconds)
```

Variable tersebut tidak dapat diakses di kelas lain, karena variable tersebut bertipe private modifier, yang hanya dapat diakses dari dalam class itu sendiri.

## 4.2. Default Modifier



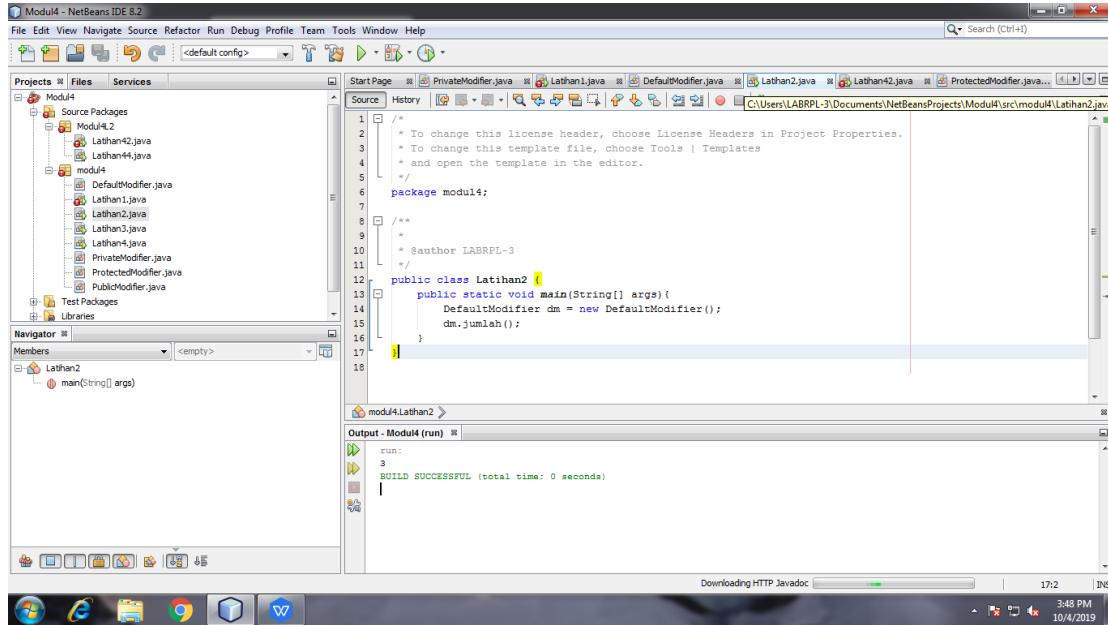
```
4  * and open the template in the editor.
5  *
6  package modul4;
7
8  /**
9   * 
10  * @author LABRPL-3
11  */
12 public class DefaultModifier {
13     int a = 1;
14     int b;
15     int c;
16     public void jumlah() {
17         c = a + b;
18         System.out.println(c);
19     }
20 }
21
```

Output - Modul4 (run) :

```
run:
3
BUILD SUCCESSFUL (total time: 0 seconds)
```

### 4.2.1. Latihan

#### 1. Class baru



```
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 modul4;
7
8  /**
9   * 
10  * @author LABRPL-3
11  */
12 public class Latihan2 {
13     public static void main(String[] args) {
14         DefaultModifier dm = new DefaultModifier();
15         dm.jumlah();
16     }
17 }
18
```

Output - Modul4 (run) :

```
run:
3
BUILD SUCCESSFUL (total time: 0 seconds)
```

Variabel dapat diakses di class baru yang package-nya sama karena class dan method bertipe default modifier, yang memungkinkan variable diakses dari class lain dalam package yang sama.

## 2. Class lain dari package yang berbeda

```
/*
 * 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 Modul4L2;

/*
 *
 * @author LABRPL-3
 */

public class Latihan42 {
    public static void main(String[] args) {
        DefaultModifier dm = new DefaultModifier();
        dm.jumlah();
    }
}
```

Output - Modul4 (run) :

```
run:
Exception in thread "main" java.lang.RuntimeException: Uncompilable source code - cannot find symbol
symbol: class DefaultModifier
location: class Modul4L2.Latihan42
        at Modul4L2.Latihan42.main(Latihan42.java:14)
C:\Users\LABRPL-3\AppData\Local\NetBeans\Cache\8.2\executor-snippets\run.xml:53: Java returned: 1
BUILD FAILED (total time: 0 seconds)
```

Variabel tidak dapat diakses karena diakses di class dengan package yang berbeda. Sedangkan variable pada class bertipe default modifier, yang membuat variable hanya bisa diakses dari class lain dengan package yang sama.

## 4.3. Protected Modifier

```
/*
 * 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 modul4;

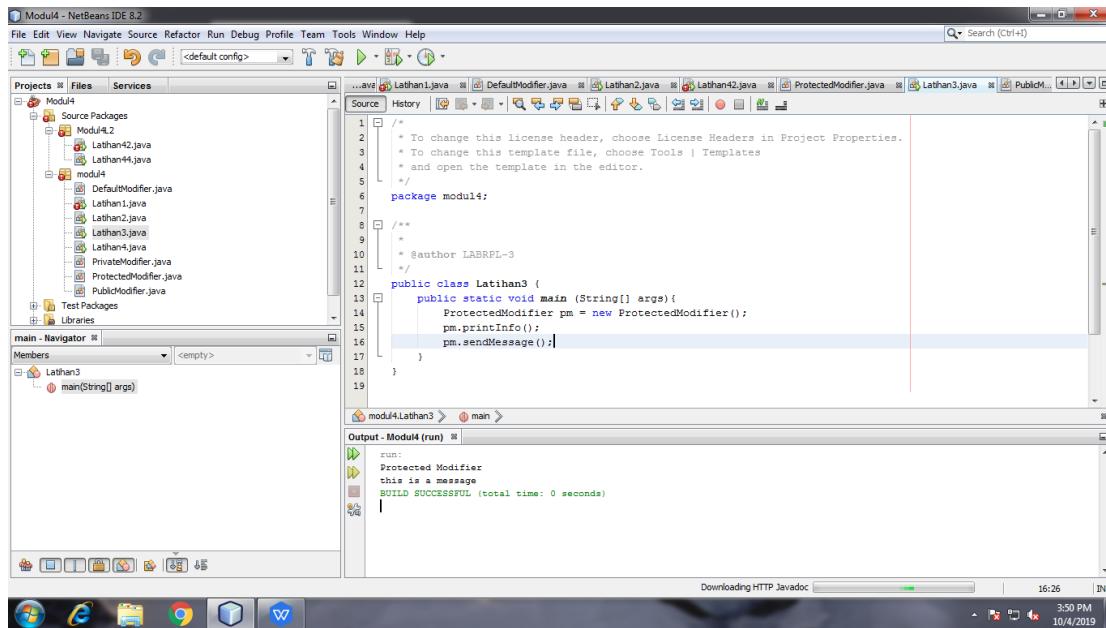
/*
 *
 * @author LABRPL-3
 */

public class ProtectedModifier {
    protected void printInfo(){
        System.out.println("Protected Modifier");
    }
    protected void sendMessage(){
        System.out.println("this is a message");
    }
}
```

Output - Modul4 (run) :

```
run:
Protected Modifier
this is a message
BUILD SUCCESSFUL (total time: 0 seconds)
```

### 4.3.1 Latihan

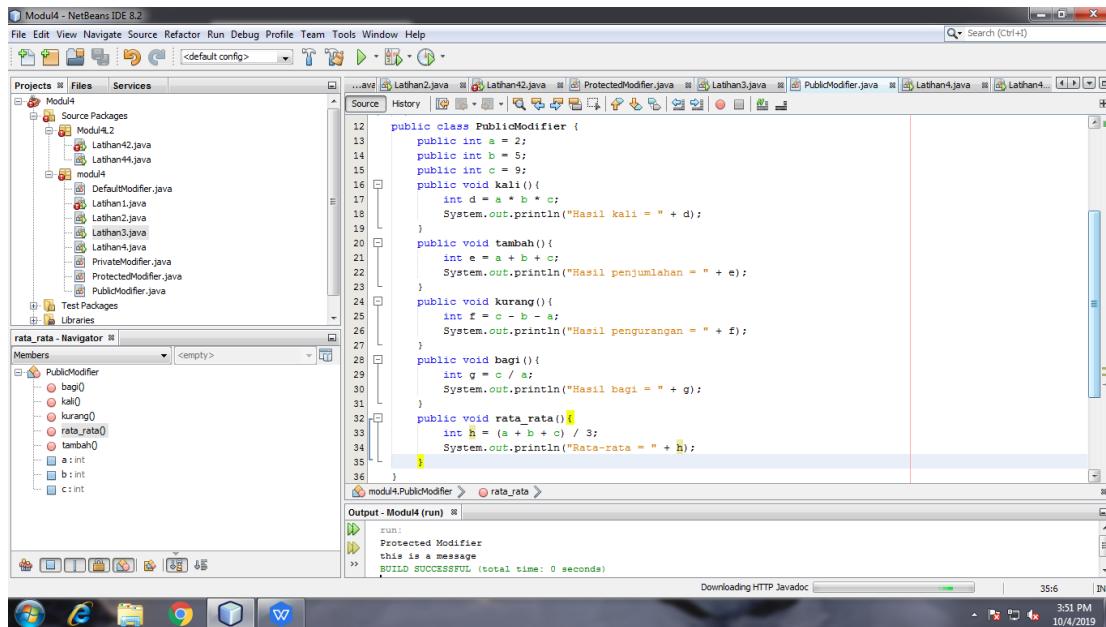


The screenshot shows the NetBeans IDE interface with the following details:

- File Menu:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Projects Tab:** Shows the project "Modul4" with several source files: Lathan1.java, Lathan2.java, Lathan3.java, Lathan4.java, DefaultModifier.java, ProtectedModifier.java, and PublicModifier.java.
- Source Editor:** Displays the code for `Lathan3.java`. The code defines a package named `modul4` and a class `Latihan3` with a main method that creates an instance of `ProtectedModifier` and calls its `printInfo` and `sendMessage` methods.
- Output Tab:** Shows the build output: "run: Protected Modifier this is a message BUILD SUCCESSFUL (total time: 0 seconds)".
- Bottom Status Bar:** Shows "Downloading HTTP Javadoc", the date "10/4/2019", and the time "3:50 PM".

Jika private modifier hanya dapat di akses di dalam class, lalu default modifier dapat diakses di class lain dalam package yang sama, pada protected modifier variable dapat diakses oleh class lain yang sama package-nya dan subclass-nya meskipun berbeda package.

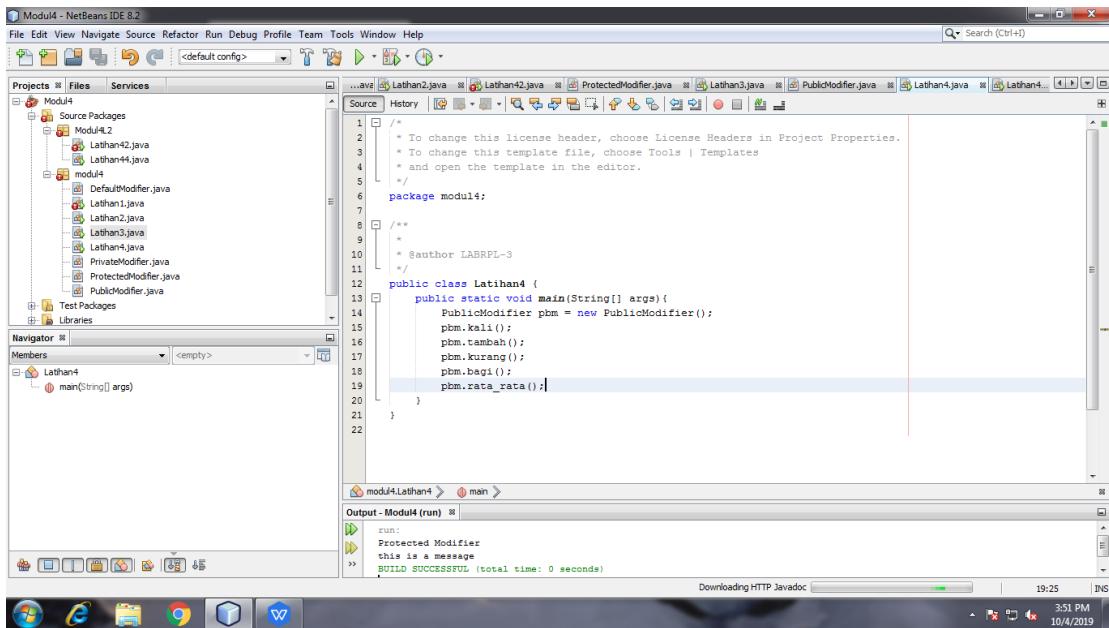
### 4.4. Public Modifier



The screenshot shows the NetBeans IDE interface with the following details:

- File Menu:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help.
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Projects Tab:** Shows the project "Modul4" with several source files: Lathan1.java, Lathan2.java, Lathan3.java, Lathan4.java, DefaultModifier.java, ProtectedModifier.java, and PublicModifier.java.
- Source Editor:** Displays the code for `PublicModifier.java`. The code defines a public class `PublicModifier` with methods for multiplication, addition, subtraction, division, and calculating average.
- Output Tab:** Shows the build output: "run: Protected Modifier this is a message BUILD SUCCESSFUL (total time: 0 seconds)".
- Bottom Status Bar:** Shows "Downloading HTTP Javadoc", the date "10/4/2019", and the time "3:51 PM".

#### 4.4.1. Latihan



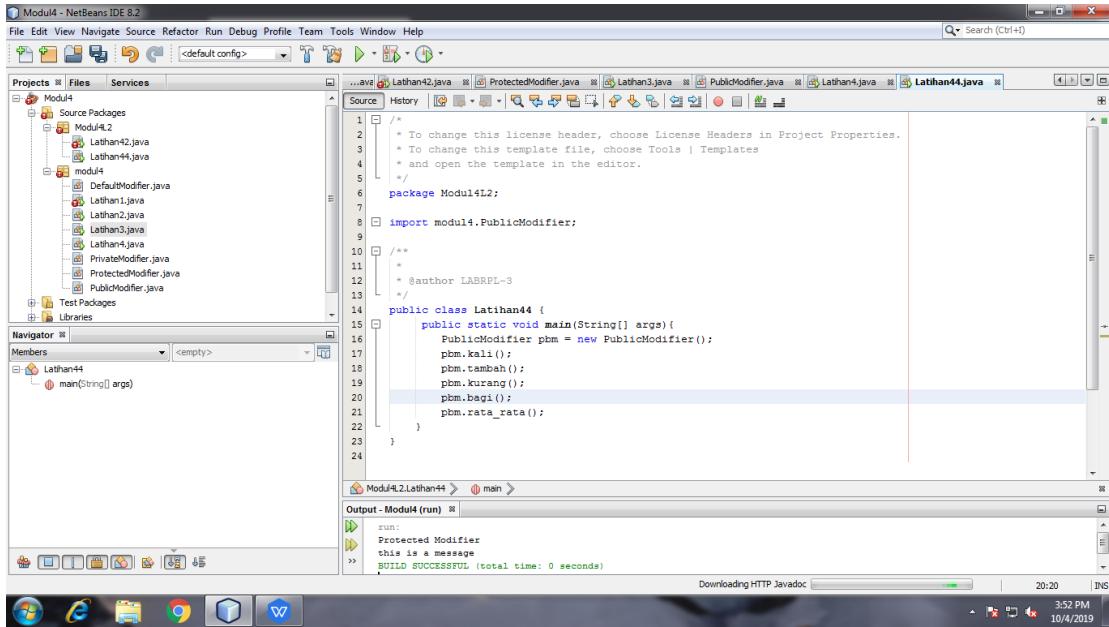
The screenshot shows the NetBeans IDE interface with the title "Modul4 - NetBeans IDE 8.2". The Projects panel contains a project named "Modul4" with several source packages: "Modul4\_2", "modul4", and "Modul4\_4". The "modul4" package contains classes "Latihan1.java", "Latihan2.java", "Latihan3.java", "Latihan4.java", "DefaultModifier.java", "ProtectedModifier.java", "PrivateModifier.java", and "PublicModifier.java". The "Latihan4.java" file is open in the Source editor, showing the following 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 modul4;
7
8  /**
9  *
10 * @author LABRPL-3
11 */
12 public class Latihan4 {
13     public static void main(String[] args) {
14         PublicModifier pbm = new PublicModifier();
15         pbm.kali();
16         pbm.tambah();
17         pbm.kurang();
18         pbm.bagi();
19         pbm.rata_rata();
20     }
21 }
22
```

The Output window shows the results of running the code:

```
run:
Protected Modifier
>> this is a message
BUILD SUCCESSFUL (total time: 0 seconds)
```

#### Pada pacakge yang berbeda



The screenshot shows the NetBeans IDE interface with the title "Modul4 - NetBeans IDE 8.2". The Projects panel contains a project named "Modul4" with several source packages: "Modul4\_2", "modul4", and "Modul4\_4". The "Modul4\_2" package contains classes "Latihan1.java", "Latihan2.java", "Latihan3.java", "Latihan4.java", "DefaultModifier.java", "ProtectedModifier.java", "PrivateModifier.java", and "PublicModifier.java". The "Latihan4.java" file is open in the Source editor, showing the following 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 Modul4_2;
7
8  import modul4.PublicModifier;
9
10 /**
11 *
12 * @author LABRPL-3
13 */
14 public class Latihan4 {
15     public static void main(String[] args) {
16         PublicModifier pbm = new PublicModifier();
17         pbm.kali();
18         pbm.tambah();
19         pbm.kurang();
20         pbm.bagi();
21         pbm.rata_rata();
22     }
23 }
24
```

The Output window shows the results of running the code:

```
run:
Protected Modifier
>> this is a message
BUILD SUCCESSFUL (total time: 0 seconds)
```

Public modifier memungkinkan variable diakses dari berbagai class dan package. Sehingga semua class bisa mengaksesnya.

# MODUL 5

## CONSTRUCTOR

### 5.1. Default Constructor

The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul5 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Project Explorer:** Shows the project structure under "Modul5". The "modul5" package contains several Java files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ConstructorAccess2.java, Lathan1.java, Lathan1Access.java, ParamConstructor.java, and Buku.java (a duplicate entry). There are also "Test Packages", "Libraries", and "Test Libraries".
- Source Editor:** The current file is "Constructor.java". The code defines a class "Constructor" with a constructor that prints "Default Constructor".

```
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 modul5;  
7  
8  /**  
9  *  
10 * @author LABRPL-4  
11 */  
12 public class Constructor {  
13     public Constructor(){  
14         System.out.println("Default Constructor");  
15     }  
16 }
```
- Navigator:** Shows the members of the "Constructor" class: "Constructor" and "Constructor()".
- Output:** An empty output window.
- System Tray:** Shows standard Windows system tray icons.

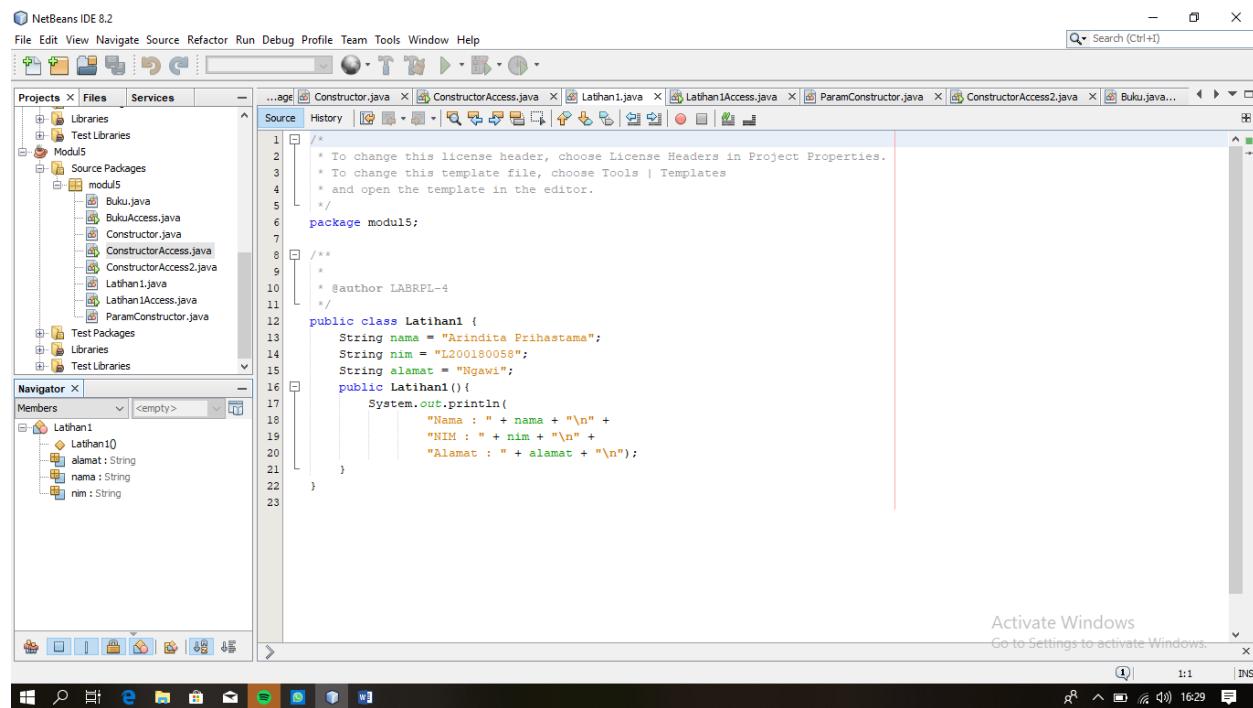
The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul5 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Project Explorer:** Shows the project structure under "Modul5". The "modul5" package contains several Java files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ConstructorAccess2.java, Lathan1.java, Lathan1Access.java, ParamConstructor.java, and Buku.java (a duplicate entry). There are also "Test Packages", "Libraries", and "Test Libraries".
- Source Editor:** The current file is "ConstructorAccess.java". The code defines a class "ConstructorAccess" with a static main method that creates an instance of "Constructor".

```
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 modul5;  
7  
8  /**  
9  *  
10 * @author LABRPL-4  
11 */  
12 public class ConstructorAccess {  
13     public static void main(String[] args){  
14         Constructor cons = new Constructor();  
15     }  
16 }
```
- Navigator:** Shows the members of the "ConstructorAccess" class: "main(String[] args)".
- Output:** Shows the output of the run command:

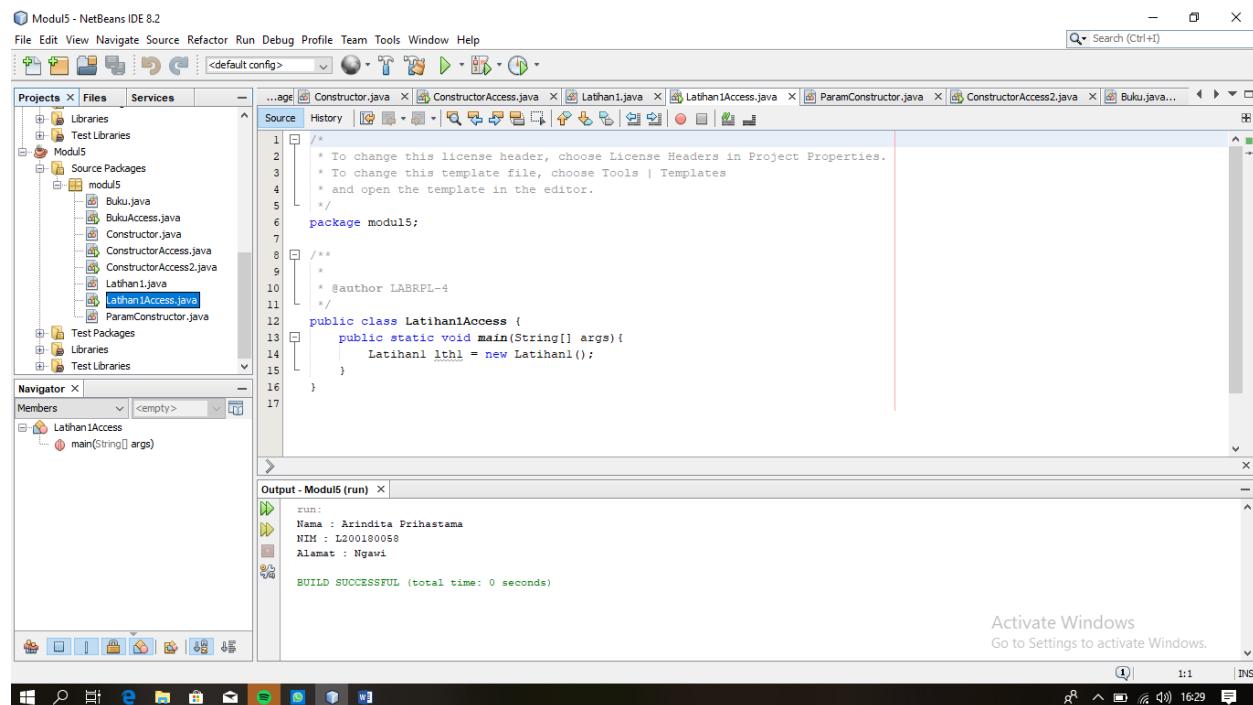
```
RUN:  
Default Constructor  
BUILD SUCCESSFUL (total time: 1 second)
```
- System Tray:** Shows standard Windows system tray icons.

### 5.1.1. Latihan 1



The screenshot shows the NetBeans IDE interface with the following details:

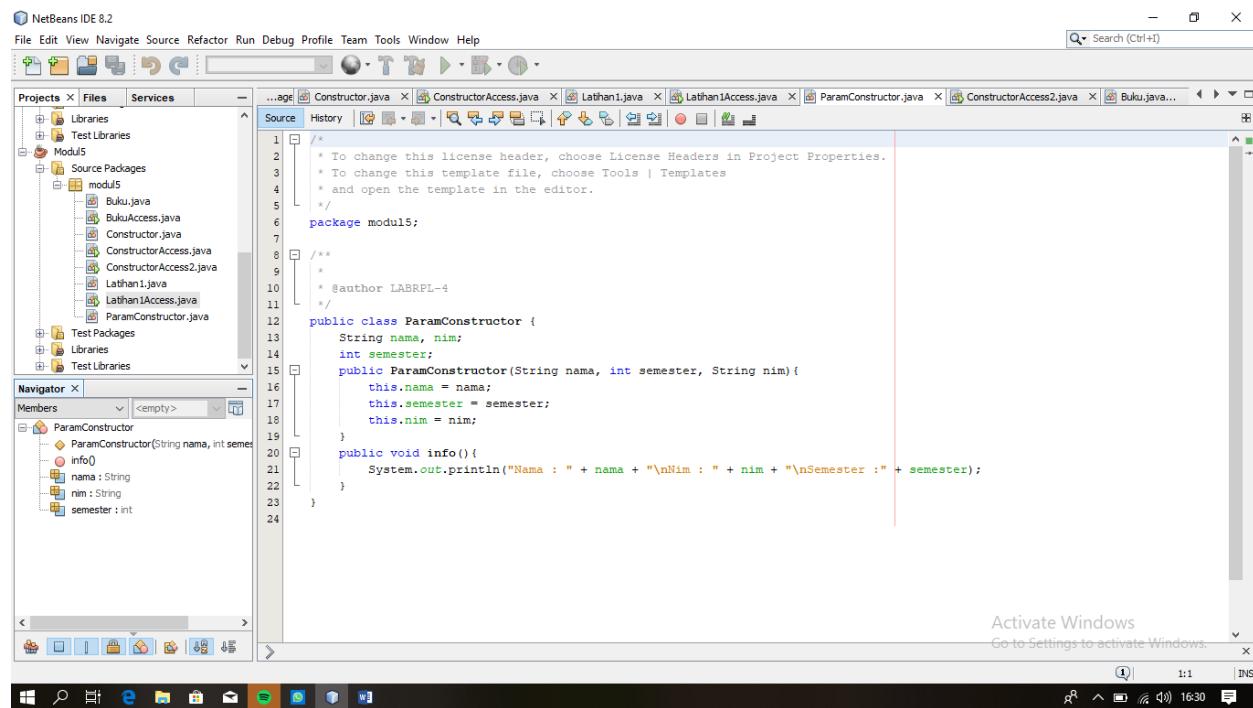
- Project Explorer:** Shows the project structure under "Modul5". The "Source Packages" node contains "modul5" which includes files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ConstructorAccess2.java, Latihan1.java, Latihan1Access.java, ParamConstructor.java.
- Code Editor:** Displays the content of `Latihan1.java`. The code defines a class `Latihan1` with a constructor that prints three variables: `nama`, `nim`, and `alamat`.
- Navigator:** Shows the members of the `Latihan1` class: `Latihan1`, `Latihan1()`, `alamat : String`, `nama : String`, and `nim : String`.
- Status Bar:** Shows the status bar with "Activate Windows Go to Settings to activate Windows.", the time "1:1", and the mode "INS".



The screenshot shows the NetBeans IDE interface with the following details:

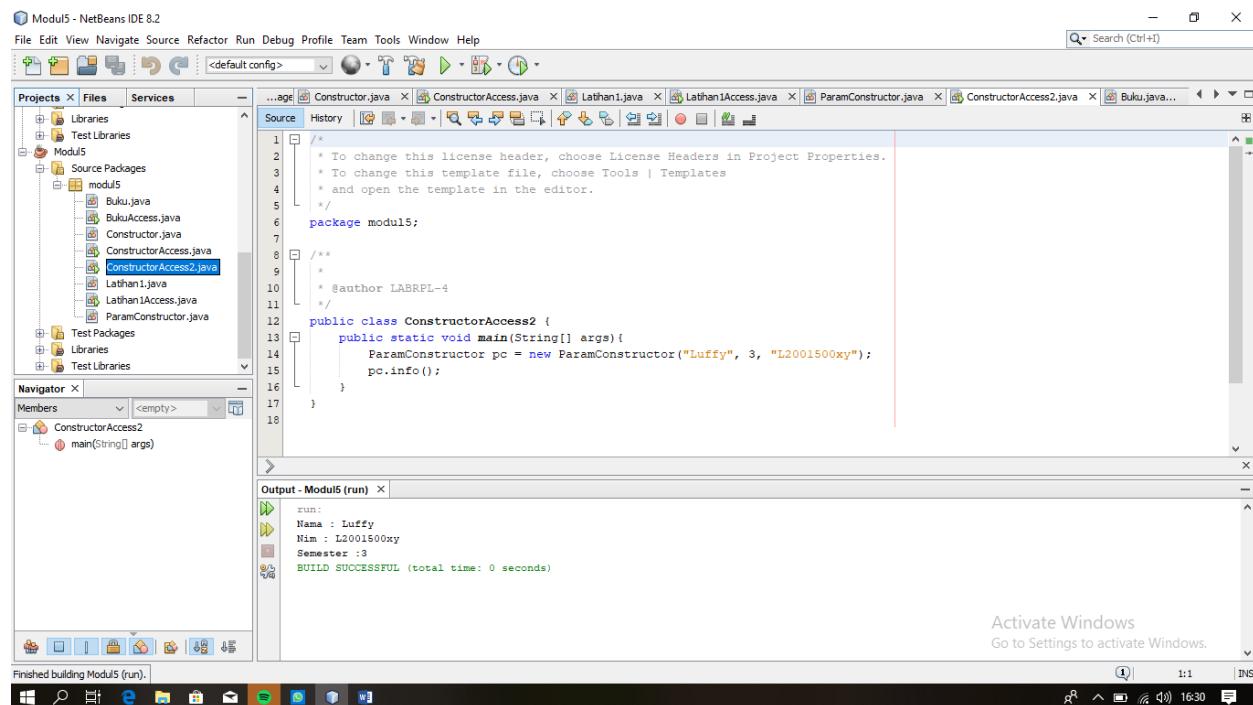
- Project Explorer:** Shows the project structure under "Modul5". The "Source Packages" node contains "modul5" which includes files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ConstructorAccess2.java, Latihan1.java, Latihan1Access.java, ParamConstructor.java.
- Code Editor:** Displays the content of `Latihan1Access.java`. The code defines a class `Latihan1Access` with a static main method that creates an instance of `Latihan1`.
- Output Window:** Shows the output of the run command. It displays the printed values: `Nama : Arindita Prihastama`, `NIM : L200180058`, and `Alamat : Ngawi`. Below this, it says "BUILD SUCCESSFUL (total time: 0 seconds)".
- Status Bar:** Shows the status bar with "Activate Windows Go to Settings to activate Windows.", the time "1:1", and the mode "INS".

## 5.2. Parameterized Constructor



The screenshot shows the NetBeans IDE interface with the following details:

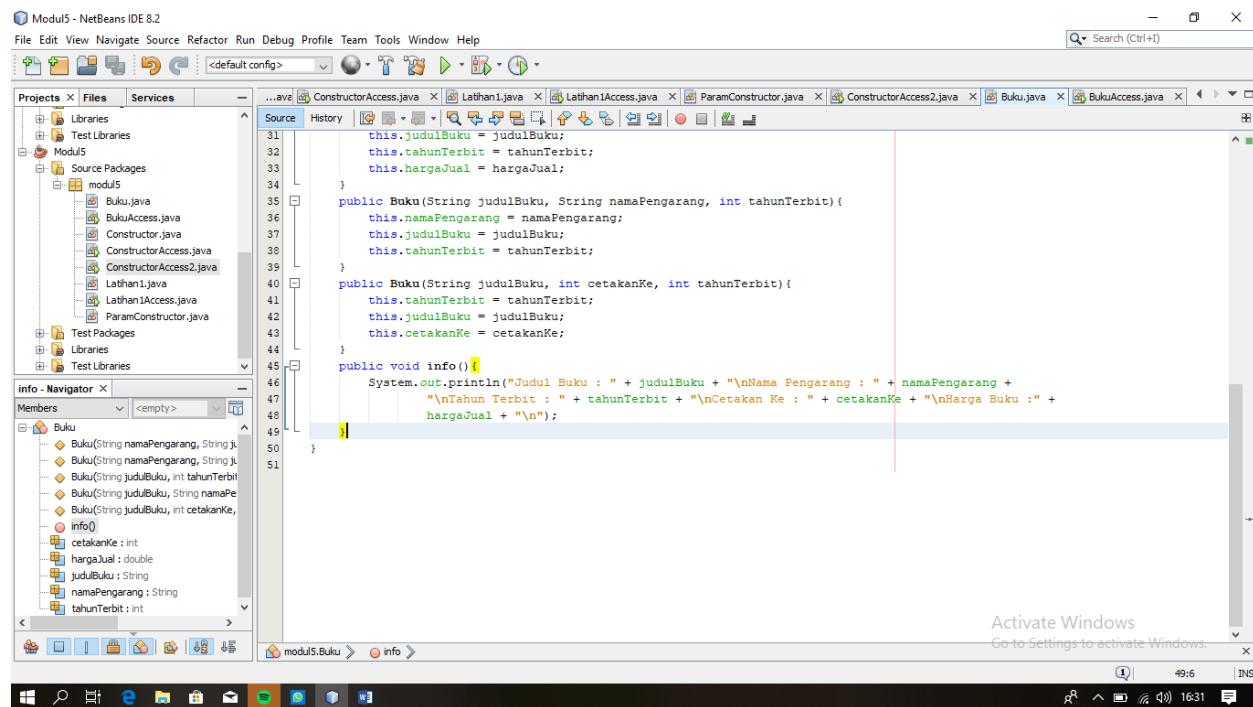
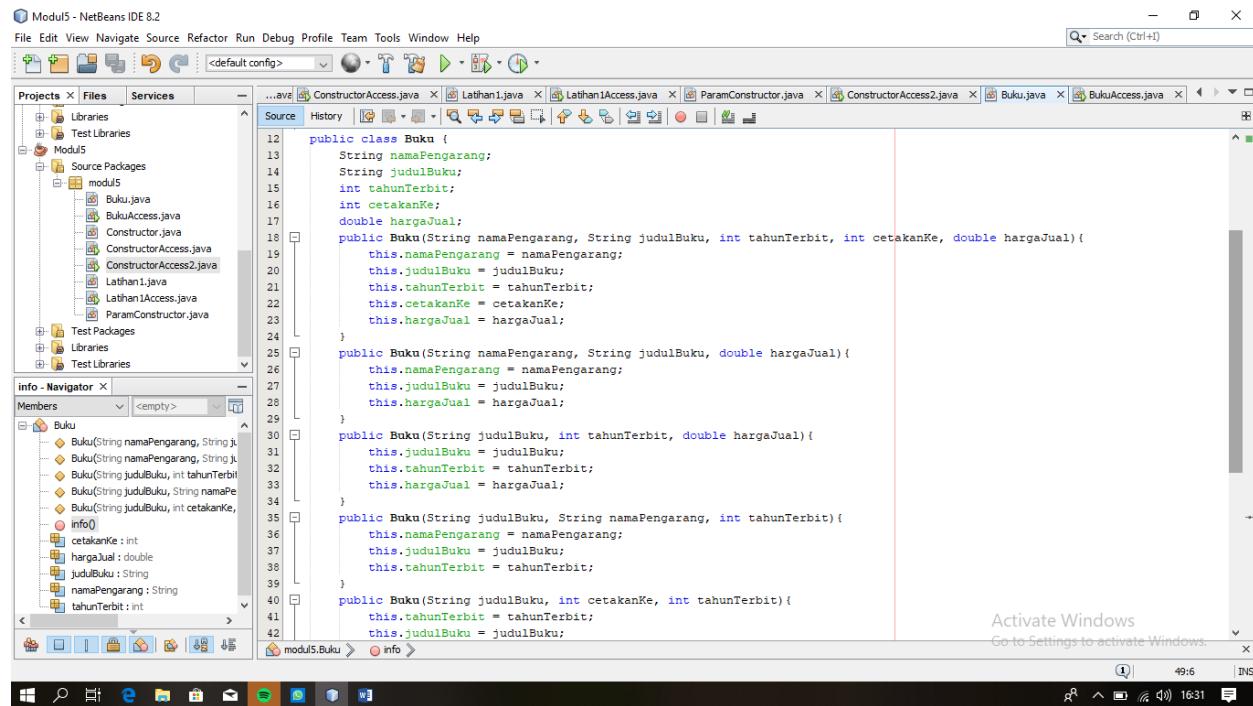
- Project Structure:** The left pane shows a project named "Modul5" with a "Source Packages" node containing files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ConstructorAccess2.java, Lathan1.java, Lathan1Access.java, ParamConstructor.java.
- Code Editor:** The main pane displays the code for `ParamConstructor.java`. The code defines a class `ParamConstructor` with a constructor that takes three parameters: `nama`, `nim`, and `semester`. It also contains a `info()` method that prints the values of `nama`, `nim`, and `semester`.
- Navigator:** The bottom-left pane shows the members of the `ParamConstructor` class, including the constructor and the `info()` method.
- Status Bar:** The bottom status bar shows the time as 16:30 and the date as Friday, April 21, 2017.



The screenshot shows the NetBeans IDE interface with the following details:

- Project Structure:** The left pane shows a project named "Modul5" with a "Source Packages" node containing files: Buku.java, BukuAccess.java, Constructor.java, ConstructorAccess.java, ConstructorAccess2.java, Lathan1.java, Lathan1Access.java, ParamConstructor.java.
- Code Editor:** The main pane displays the code for `ConstructorAccess2.java`. The code contains a `main()` method that creates an instance of `ParamConstructor` with parameters "Luffy", 3, and "L2001500xy", and then calls its `info()` method.
- Output Window:** The bottom-right pane shows the output of the run command, displaying the printed values: Name : Luffy, Nim : L2001500xy, Semester :3, and BUILD SUCCESSFUL (total time: 0 seconds).
- Status Bar:** The bottom status bar shows the time as 16:30 and the date as Friday, April 21, 2017.

### **5.2.1. Latihan 2**



## Output

Modul5 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

default config

Projects X Files Services

Source History

...java ConstructorAccess.java Lathan1.java Lathan1Access.java ParamConstructor.java ConstructorAccess2.java Buku.java BukuAccess.java

12 public class BukuAccess {  
13 public static void main(String[] args) {  
14 Buku buku = new Buku("Lexie Xu", "Omen", 75000);  
15 buku.cetak();  
16 }  
17 }

Output - Modul5 (run) x

run:  
Judul Buku : Lexie Xu  
Nama Pengarang : Omen  
Tahun Terbit : 75000  
Cetak Ke : 0  
Harga Buku :0.0

Judul Buku : Dark Series #1 Rahasia Tergelap  
Nama Pengarang : Lexie Xu  
Tahun Terbit : 2017  
Cetak Ke : 1  
Harga Buku :88000.0

Judul Buku : Pendidikan Pancasila  
Nama Pengarang : null  
Tahun Terbit : 40000  
Cetak Ke : 3  
Harga Buku :0.0

Judul Buku : Erisca Febriani  
Nama Pengarang : Dear Nathan  
Tahun Terbit : 80000  
Cetak Ke : 0  
Harga Buku :0.0

Judul Buku : Harry Potter dan Tawanan Azkaban  
Nama Pengarang : null  
Tahun Terbit : 2015  
Cetak Ke : 3  
Harga Buku :0.0

Activate Windows  
Go to Settings to activate Windows.

Modul5 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History ... Search (Ctrl+F) ...

Projects Files Services ...

...ava ConstructorAccess.java Lathian1.java Lathian1Access.java ParamConstructor.java ConstructorAccess2.java Buku.java BukuAccess.java

Source Packages modul5

- Buku.java
- BukuAccess.java
- Constructor.java
- ConstructorAccess.java
- ConstructorAccess2.java
- Lathian1.java
- Lathian1Access.java
- ParamConstructor.java

Test Packages Libraries Test Libraries

main - Navigator ...

Members BukuAccess <empty>

BukuAccess main(String[] args)

Output - Modul5 (run) ...

```
Judul Buku : Kisah Untuk Geri
Nama Pengarang : Krisca Febriani
Tahun Terbit : 2019
Cetakan Ke : 1
Harga Buku :97000.0

Judul Buku : Pemrograman Berorientasi Objek
Nama Pengarang : null
Tahun Terbit : 2019
Cetakan Ke : 1
Harga Buku :0.0

Judul Buku : Data and Computer Communications
Nama Pengarang : William Stallings
Tahun Terbit : 2007
Cetakan Ke : 0
Harga Buku :0.0

Judul Buku : Pemrograman Berorientasi Objek
Nama Pengarang : Dimas Aryo Anggoro, S.Kom.,M.Sc. dkk
Tahun Terbit : 2019
Cetakan Ke : 0
Harga Buku :0.0

BUILD SUCCESSFUL (total time: 0 seconds)
```

Activate Windows Go to Settings to activate Windows.

### 5.3. Tugas

NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History ... Search (Ctrl+F) ...

Projects Services Files ...

...ava Lathian1Access.java ParamConstructor.java ConstructorAccess2.java Buku.java BukuAccess.java Tugas.java TugasAccess.java

Source Packages modul5

- Buku.java
- BukuAccess.java
- Constructor.java
- ConstructorAccess.java
- ConstructorAccess2.java
- Lathian1.java
- Lathian1Access.java
- ParamConstructor.java
- Tugas.java
- TugasAccess.java

Test Packages Libraries Test Libraries

cetak - Navigator ...

Members Tugas <empty>

Tugas() Tugas(double p, double l, double t) cetak()

cetak() l: double p: double t: double v: double

public class Tugas {

\* @author Lenovo

\*/

public class Tugas {

double p;

double l;

double t;

double v;

public Tugas(){

System.out.println("Mencari volume balok" + "nv = p \* l \* t" + "\n");

}

public Tugas(double p, double l, double t){

this.p = p;

this.l = l;

this.t = t;

v = p \* l \* t;

}

public void cetak(){

System.out.println("Panjang : " + p + "\nTinggi : " + t + "\nLebar : " + l);

System.out.println("Volume = " + v + "\n");

}

}

modul5.Tugas > cetak >

Activate Windows Go to Settings to activate Windows.

Modul5 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files

Source History

...ave Lathan1Access.java ParamConstructor.java ConstructorAccess2.java Buku.java BukuAccess.java Tugas.java TugasAccess.java

Modul5

Source Packages

modul5

Buku.java BukuAccess.java Constructor.java ConstructorAccess.java ConstructorAccess2.java Lathan1.java Lathan1Access.java ParamConstructor.java Tugas.java TugasAccess.java

Test Packages Libraries Test Libraries

Navigator

Members <empty>

TugasAccess main(String[] args)

12 public class TugasAccess {  
13 public static void main(String[] args){  
14 Tugas tgs1 = new Tugas();  
15 Tugas tgs2 = new Tugas(10,8,7);  
16 tgs2.cetak();  
17 Tugas tgs3 = new Tugas(34, 27, 18);  
18 tgs3.cetak();  
19 Tugas tgs4 = new Tugas(7.5, 5, 3.75);  
20 tgs4.cetak();  
21 }  
22 }

modul5.TugasAccess > main >

Output - Modul5 (run) >

Mencari volume balok  
v = p \* l \* t

Panjang : 10.0  
Tinggi : 7.0  
Lebar : 8.0  
Volume = 560.0

Panjang : 34.0  
Tinggi : 18.0  
Lebar : 27.0  
Volume = 16524.0

Panjang : 7.5  
Tinggi : 3.75  
Lebar : 5.0  
Volume = 140.625

BUILD SUCCESSFUL (total time: 0 seconds)

Activate Windows  
Go to Settings to activate Windows.

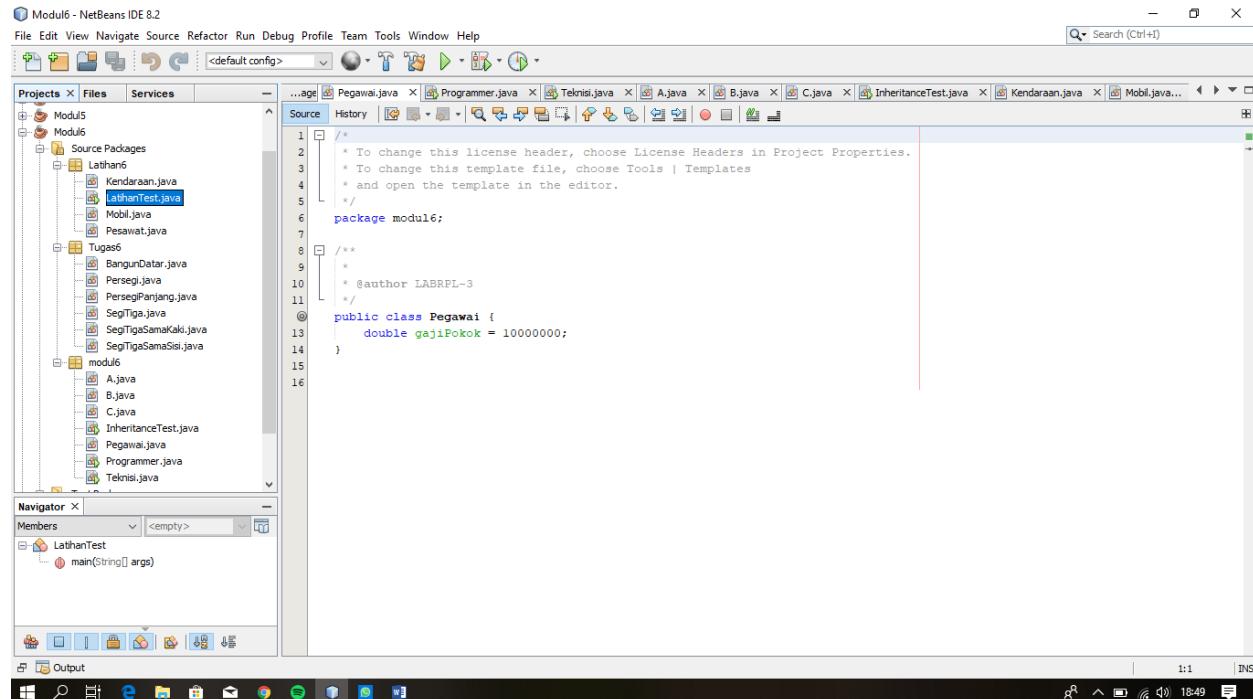
20:22 17:44

```
public class TugasAccess {  
    public static void main(String[] args){  
        Tugas tgs1 = new Tugas();  
        Tugas tgs2 = new Tugas(10,8,7);  
        tgs2.cetak();  
        Tugas tgs3 = new Tugas(34, 27, 18);  
        tgs3.cetak();  
        Tugas tgs4 = new Tugas(7.5, 5, 3.75);  
        tgs4.cetak();  
    }  
}
```

# MODUL 6

## INHERITANCE

### 6.1.1. Single Inheritance



Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source History

Pegawai.java (selected)

```
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 modul6;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Pegawai {
13     double gajiPokok = 10000000;
14 }
15
16
```

Navigator

Members

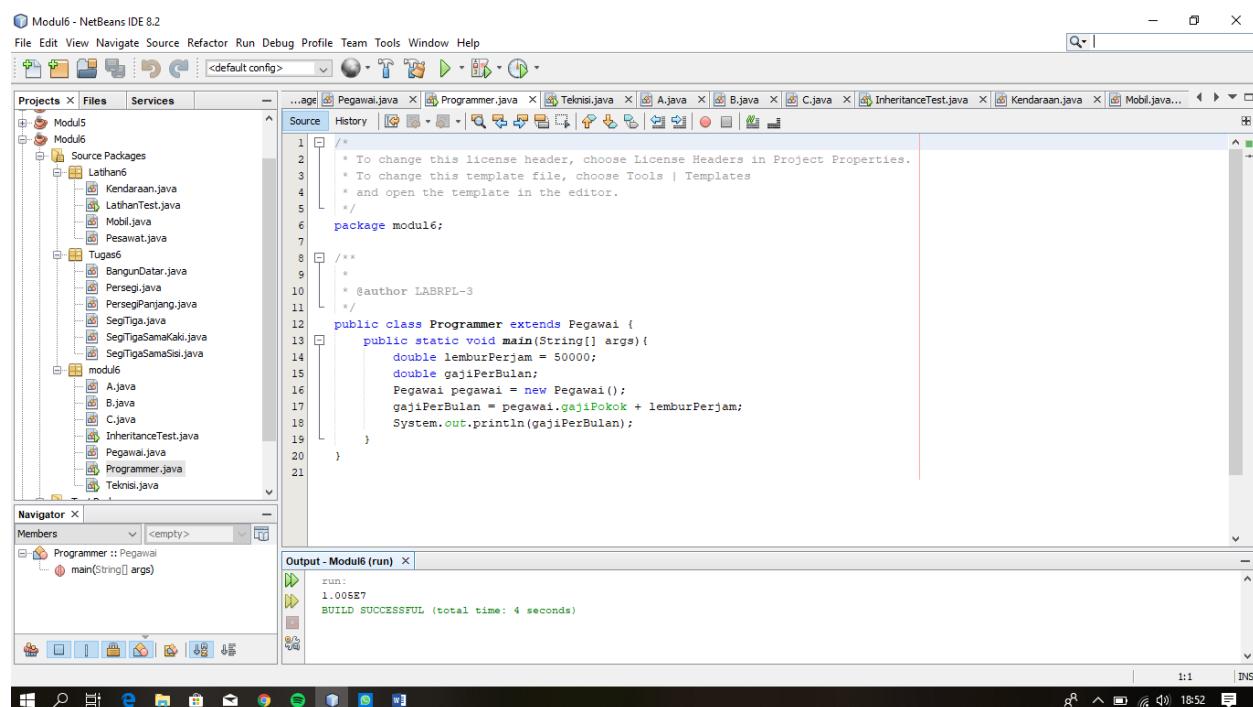
LathanTest

main(String[] args)

Output

1:1 18:49

This screenshot shows the NetBeans IDE interface with the project 'Modul6' selected. The 'Source' tab is active, displaying the code for 'Pegawai.java'. The code defines a class 'Pegawai' with a single instance variable 'gajiPokok' set to 10,000,000. The 'Navigator' and 'Output' panes are also visible.



Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source History

Pegawai.java (selected)

```
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 modul6;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Programmer extends Pegawai {
13     public static void main(String[] args){
14         double lemburPerjam = 50000;
15         double gajiPerBulan;
16         Pegawai pegawai = new Pegawai();
17         gajiPerBulan = pegawai.gajiPokok + lemburPerjam;
18         System.out.println(gajiPerBulan);
19     }
20 }
```

Navigator

Members

Programmer :: Pegawai

main(String[] args)

Output - Modul6 (run) X

```
run:
1.005E7
BUILD SUCCESSFUL (total time: 4 seconds)
```

1:1 18:52

This screenshot shows the NetBeans IDE interface with the project 'Modul6' selected. The 'Source' tab is active, displaying the code for 'Programmer.java'. The code extends the 'Pegawai' class and overrides its 'main' method to calculate and print the total salary. The 'Output' pane shows the successful execution of the program.

### 6.1.2. Hierarchical Inheritance

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source Packages

Projects Files Services

Source History

```

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 module6;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Teknisi extends Pegawai{
13     public static void main(String[] args){
14         double lemburPerjam = 40000;
15         double gajiPerBulan;
16         Pegawai pegawai = new Pegawai();
17         gajiPerBulan = pegawai.gajiPokok + lemburPerjam;
18         System.out.println(gajiPerBulan);
19     }
20 }
21

```

Navigator

Members <empty>

Teknisi :: Pegawai  
main(String[] args)

Output - Modul6 (run) x

```

run:
1.004E7
BUILD SUCCESSFUL (total time: 0 seconds)

```

Finished building Modul6 (run).

### 6.1.3. Multilevel Inheritance

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source Packages

Projects Files Services

Source History

```

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 module6;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class A {
13     public void MessageA(){
14         System.out.println("Info dari Class A");
15     }
16 }
17

```

Navigator

Members <empty>

A  
MessageA()

Output - Modul6 (run) x

```

run:
1.004E7
BUILD SUCCESSFUL (total time: 0 seconds)

```

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source Packages

Lathan6

Kendaraan.java

LathanTest.java

Mobil.java

Pesawat.java

Tugas6

BangunDatar.java

Persegi.java

PersegiPanjang.java

Segitiga.java

SegiTigaSamakaki.java

SegiTigaSamaSisi.java

modul6

A.java

B.java

C.java

InheritanceTest.java

Pegawai.java

Programmer.java

Teknisi.java

Source History

```
1 /* To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates
3 * and open the template in the editor.
4 */
5 package module6;
6
7 /**
8 */
9
10 /**
11 * @author LABRPL-3
12 */
13 public class B extends A{
14     public void MessageB(){
15         System.out.println("Info dari Class B");
16     }
17 }
```

Navigator

Members <empty>

B :: A

MessageB()

Output - Modul6 (run) x

run:

1.004E7

BUILD SUCCESSFUL (total time: 0 seconds)

1:1 1:1 18:53 INS

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source Packages

Lathan6

Kendaraan.java

LathanTest.java

Mobil.java

Pesawat.java

Tugas6

BangunDatar.java

Persegi.java

PersegiPanjang.java

Segitiga.java

SegiTigaSamakaki.java

SegiTigaSamaSisi.java

modul6

A.java

B.java

C.java

InheritanceTest.java

Pegawai.java

Programmer.java

Teknisi.java

Source History

```
1 /* To change this license header, choose License Headers in Project Properties.
2 * To change this template file, choose Tools | Templates
3 * and open the template in the editor.
4 */
5 package module6;
6
7 /**
8 */
9
10 /**
11 * @author LABRPL-3
12 */
13 public class C extends B{
14     public void MessageC(){
15         System.out.println("Info dari Class C");
16     }
17 }
```

Navigator

Members <empty>

C :: B

MessageC()

Output - Modul6 (run) x

run:

1.004E7

BUILD SUCCESSFUL (total time: 0 seconds)

1:1 1:1 18:54 INS

Modul6 - NetBeans IDE 8.2

```

6 package modul6;
7
8 /**
9  * 
10 * @author LABRPL-3
11 */
12 public class InheritanceTest {
13     public static void main(String[] args){
14         A a = new A();
15         B b = new B();
16         C c = new C();
17
18         a.MessageA();
19         b.MessageB();
20         b.MessageA();
21         c.MessageC();
22         c.MessageB();
23         c.MessageA();
24     }
25 }

```

## 6.2. Latihan

NetBeans IDE 8.2

```

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 Lathian6;
7
8 /**
9  * 
10 * @author LABRPL-3
11 */
12
13 public class Kendaraan {
14     int roda = 0;
15     String buatanNegara = "Rusia";
16     String warna = "Biru";
17 }

```

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source Packages

Source Packages

Modul6

Modul5

Source Packages

Lathan6

Kendaraan.java

LathanTest.java

Mobil.java

Pesawat.java

Tugas6

BangunDatar.java

Persegi.java

PersegiPanjang.java

Segitiga.java

SegiTigaSamakali.java

SegiTigaSamaSisi.java

modul6

A.java

B.java

C.java

InheritanceTest.java

Pegawai.java

Programmer.java

Teknisi.java

Navigator X

Members <empty>

Mobil :: Kendaraan

merek : String

roda : int

Source History

```
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 Lathan6;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Mobil extends Kendaraan{
13     String merek = "Honda";
14     int roda = 4;
15 }
```

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source Packages

Modul6

Modul5

Source Packages

Lathan6

Kendaraan.java

LathanTest.java

Mobil.java

Pesawat.java

Tugas6

BangunDatar.java

Persegi.java

PersegiPanjang.java

Segitiga.java

SegiTigaSamakali.java

SegiTigaSamaSisi.java

modul6

A.java

B.java

C.java

InheritanceTest.java

Pegawai.java

Programmer.java

Teknisi.java

Navigator X

Members <empty>

Pesawat :: Kendaraan

bahanBakar : String

roda : int

Source History

```
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 Lathan6;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Pesawat extends Kendaraan{
13     String bahanBakar = "Avtur";
14     int roda = 6;
15 }
```

Modul6 - NetBeans IDE 8.2

```

package Latihan6;
public class LatihanTest {
    public static void main(String[] args) {
        Mobil mobil = new Mobil();
        Pesawat pesawat = new Pesawat();

        System.out.println("Mobil dengan warna " + mobil.warna + " ini memiliki roda " + mobil.roda +
                           " dan bermerek " + mobil.merek + " yang merupakan kendaraan yang berasal dari " +
                           "negara " + mobil.buatanNegara + "\n");
        System.out.println("Kendaraan : Pesawat" + "\n" + "Jumlah Roda : " + pesawat.roda + "\n" +
                           "Warna : " + pesawat.warna + "\n" + "Bahan Bakar : " + pesawat.bahanBakar + "\n" +
                           "Buatan Negara : " + pesawat.buatanNegara);
    }
}

```

Output - Modul6 (run) ×

```

run:
Mobil dengan warna Biru ini memiliki roda 4 dan bermerek Honda yang merupakan kendaraan yang berasal dari Rusia

Kendaraan : Pesawat
Jumlah Roda : 6
Warna : Biru
Bahan Bakar : Avtur
Buatan Negara : Rusia
BUILD SUCCESSFUL (total time: 0 seconds)

```

### 6.3. Tugas

NetBeans IDE 8.2

```

/*
 * 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 Tugas6;

public class BangunDatar {
    protected double luas;
    protected double keliling;

    protected void hitungLuas() {
    }

    protected double hitungKeliling() {
        return keliling;
    }
}

```

Activate Windows  
Go to Settings to activate Windows.

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source History BangunDatar.java Persegi.java PersegiPanjang.java SegTiga.java SegTigaSamaKaki.java SegTigaSamaSisi.java

Start Page

LathanUTS Modul3 Modul5 Modul6

Source Packages Lathan6 Tugas6 modul6

Persegi.java

```
8
9  /*
10   * @author LABRPL-3
11   */
12  public class Persegi extends BangunDatar{
13      protected double sisi;
14
15      public void hitungLuas(){
16          super.luas = sisi * sisi;
17          System.out.println("Luas persegi adalah = " + luas);
18      }
19
20      public double hitungKeliling(){
21          super.keliling = 4 * sisi;
22          System.out.println("Keliling persegi adalah = " + keliling);
23          return keliling;
24      }
25
26      public static void main(String[] args){
27          Persegi p = new Persegi();
28
29          p.sisi = 15;
30          p.hitungLuas();
31          p.hitungKeliling();
32      }
33  }
```

Output - Modul6 (run) x

```
run:
Luas persegi adalah = 225.0
Keliling persegi adalah = 60.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

Activate Windows  
Go to Settings to activate Windows.

31:28 | INS

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Source History BangunDatar.java Persegi.java PersegiPanjang.java SegTiga.java SegTigaSamaKaki.java SegTigaSamaSisi.java

Start Page

LathanUTS Modul3 Modul5 Modul6

Source Packages Lathan6 Tugas6 modul6

PersegiPanjang.java

```
11  /*
12  public class PersegiPanjang extends BangunDatar{
13      protected int panjang;
14      protected double lebar;
15
16      public void hitungLuas(){
17          super.luas = panjang * lebar;
18          System.out.println("Luas persegi panjang adalah = " + luas);
19      }
20
21      public double hitungKeliling(){
22          super.keliling = 2 * (panjang + lebar);
23          System.out.println("Keliling persegi panjang adalah = " + keliling);
24          return keliling;
25      }
26
27      public static void main(String[] args){
28          PersegiPanjang pp = new PersegiPanjang();
29
30          pp.panjang = 15;
31          pp.lebar = 10;
32          pp.hitungLuas();
33          pp.hitungKeliling();
34      }
35  }
```

Output - Modul6 (run) x

```
run:
Luas persegi panjang adalah = 150.0
Keliling persegi panjang adalah = 50.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

Activate Windows  
Go to Settings to activate Windows.

34:6 | INS

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Start Page BangunDatar.java Persegi.java PersegiPanjang.java SegTiga.java SegTigaSamaKaki.java SegTigaSamaSisi.java

Source History

```
11 */
12 public class PersegiPanjang extends BangunDatar{
13     protected int panjang;
14     protected double lebar;
15
16     public void hitungLuas(){
17         super.luas = panjang * lebar;
18         System.out.println("Luas persegi panjang adalah = " + luas);
19     }
20
21     public double hitungKeliling(){
22         super.keliling = 2 * (panjang + lebar);
23         System.out.println("Keliling persegi panjang adalah = " + keliling);
24         return keliling;
25     }
26
27     public static void main(String[] args){
28         PersegiPanjang pp = new PersegiPanjang();
29
30         pp.panjang = 15;
31         pp.lebar = 10;
32         pp.hitungLuas();
33         pp.hitungKeliling();
34     }
35
36 }
```

main - Navigator

Members <empty>

- PersegiPanjang :: BangunDatar
  - hitungKelling() : double ↑ BangunDatar
  - hitungLuas() : double ↑ BangunDatar
  - main(String[] args)
  - lebar : double

Output - Modul6 (run) :

```
run:
Luas persegi panjang adalah = 150.0
Keliling persegi panjang adalah = 50.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

Activate Windows  
Go to Settings to activate Windows.

34:6 INS

NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Start Page BangunDatar.java Persegi.java PersegiPanjang.java SegTiga.java SegTigaSamaKaki.java SegTigaSamaSisi.java

Source History

```
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 Tugas6;
7
8 /**
9  */
10
11 /**
12  * @author LABRPL-3
13  */
14 public class SegiTiga extends BangunDatar{
15     protected double alas;
16
17     public void hitungLuas(){
18
19     }
20     public double hitungKeliling(){
21         return keliling;
22     }
23 }
```

hitungKelling - Navigator

Members <empty>

- SegiTiga :: BangunDatar
  - hitungKelling() : double ↑ BangunDatar
  - hitungLuas() : double ↑ BangunDatar
  - alas : double

Activate Windows  
Go to Settings to activate Windows.

20:6 INS

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Start Page BangunDatar.java Persegi.java PersegiPanjang.java SegTiga.java SegTigaSamaKaki.java SegTigaSamaSisi.java

Source History

```
11 */
12 public class SegiTigaSamaKaki extends SegiTiga{
13     protected double sisiMiring;
14
15     public void hitungLuas(){
16         double tinggi = sisiMiring - alas;
17         luas = (alas * tinggi)/2;
18         System.out.println("Luas Segitiga Sama Kaki = " + luas);
19     }
20
21     public double hitungKeliling(){
22         keliling = 2*(sisiMiring + alas);
23         System.out.println("Keliling Segitiga Sama Kaki = " + keliling);
24         return keliling;
25     }
26
27     public static void main(String[] args){
28         SegiTigaSamaKaki sk = new SegiTigaSamaKaki();
29
30         sk.sisiMiring = 15;
31         sk.alas = 8;
32         sk.hitungLuas();
33         sk.hitungKeliling();
34     }
35 }
```

Output - Modul6 (run) :

```
run:
Luas Segitiga Sama Kaki = 20.0
Keliling Segitiga Sama Kaki = 46.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

Activate Windows  
Go to Settings to activate Windows.

17:29 | INS

Modul6 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Files Services

Start Page BangunDatar.java Persegi.java PersegiPanjang.java SegTiga.java SegTigaSamaKaki.java SegTigaSamaSisi.java

Source History

```
10 * @author LABRPL-3
11 */
12 public class SegiTigaSamaSisi extends SegiTiga{
13     protected double sisi;
14
15     public void hitungLuas(){
16         double tinggi = sisi - alas;
17         luas = (alas * tinggi)/2;
18         System.out.println("Luas Segitiga Sama Sisi = " + luas);
19     }
20
21     public double hitungKeliling(){
22         keliling = 3 * sisi;
23         System.out.println("Keliling Segitiga Sama Sisi = " + keliling);
24         return keliling;
25     }
26
27     public static void main(String[] args){
28         SegiTigaSamaKaki ss = new SegiTigaSamaKaki();
29
30         ss.sisiMiring = 20;
31         ss.alas = 8;
32         ss.hitungLuas();
33         ss.hitungKeliling();
34     }
35 }
```

Output - Modul6 (run) :

```
run:
Luas Segitiga Sama Kaki = 48.0
Keliling Segitiga Sama Kaki = 56.0
BUILD SUCCESSFUL (total time: 0 seconds)
```

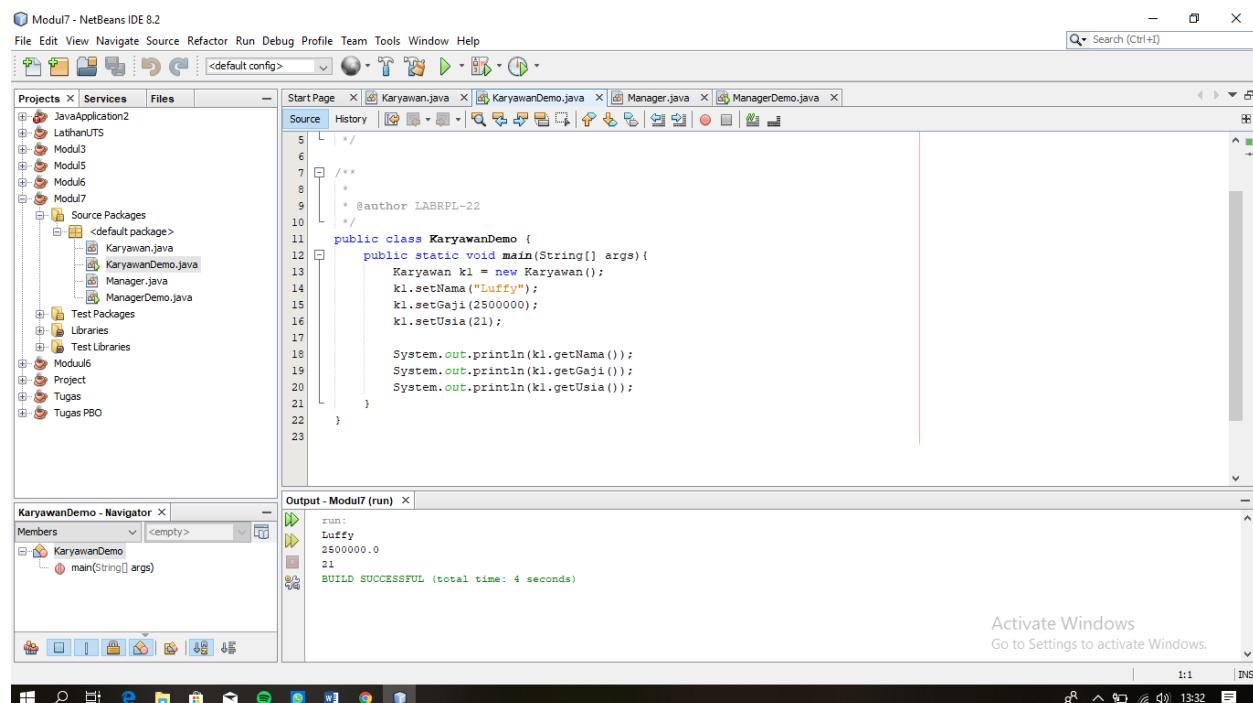
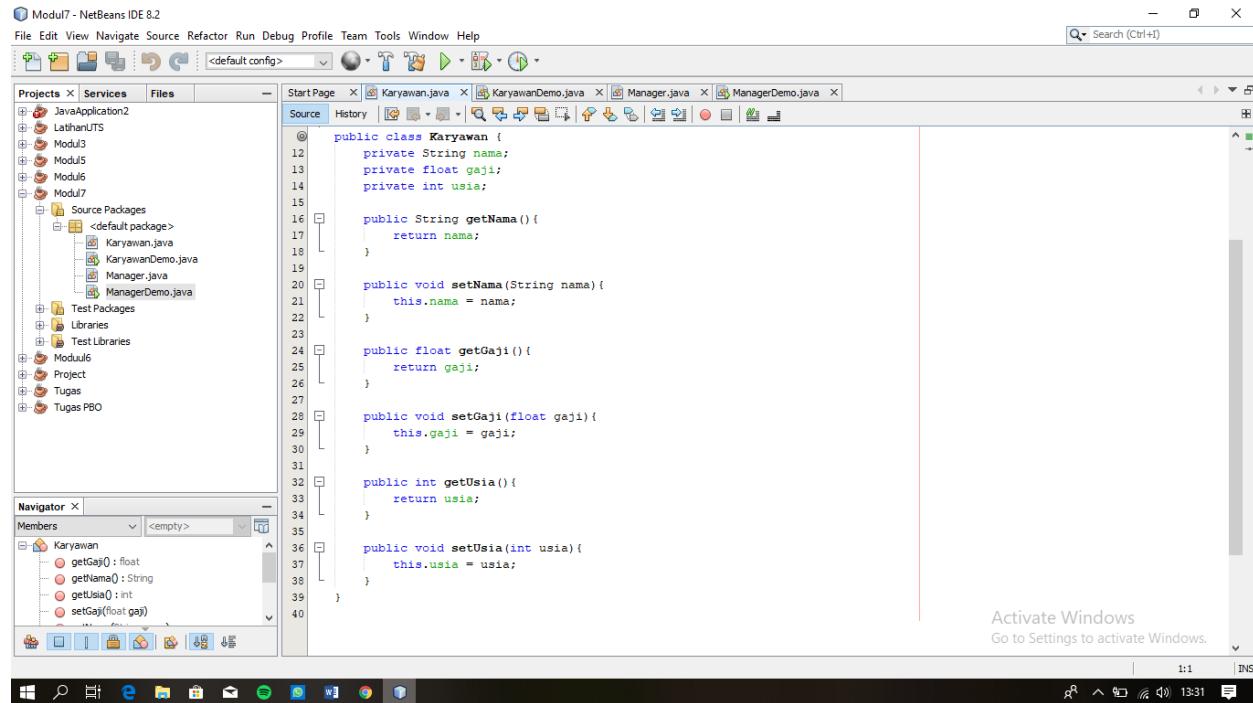
Activate Windows  
Go to Settings to activate Windows.

33:29 | INS

# **MODUL 7**

## **ENCAPSULATION**

### **7.1. Gambaran Umum**



NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

Source History

```

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
7 /**
8 *
9 * @author LABRFL-22
10 */
11 public class Manager extends Karyawan{
12     private float jamKerja = 7.5f;
13
14     public float jamKerja(){
15         return jamKerja;
16     }
17
18     public void setJamKerja(float jamKerja){
19         this.jamKerja = jamKerja;
20     }
21
22     public float getGajiManager(){
23         return getGaji() * 2;
24     }
25
26 }
```

Manager - Navigator

Members Manager :: Karyawan

- getGajiManager() : float
- jamKerja : float
- setJamKerja(float jamKerja)
- jamKerja : float

Activate Windows  
Go to Settings to activate Windows.

1:1 INS

## 7.2. Latihan

Modul7 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

Source History

```

11 public class ManagerDemo {
12     public static void main(String[] args) {
13         Manager m1 = new Manager();
14         Manager m2 = new Manager();
15         Manager m3 = new Manager();
16         Manager m4 = new Manager();
17         Manager m5 = new Manager();
18
19         m1.setNama("Arin");
20         m1.setUsia(28);
21         m1.setJamKerja(8.5f);
22         m1.setGaji(2750000);
23
24         m2.setNama("Dita");
25         m2.setUsia(25);
26         m2.jamKerja();
27         m2.setGaji(2400000);
28
29         m3.setNama("Arlin");
30         m3.setUsia(27);
31         m3.setJamKerja(8.5f);
32         m3.setGaji(2650000);
33
34         m4.setNama("Jihan");
35         m4.setUsia(26);
36         m4.jamKerja();
37         m4.setGaji(2500000);
38
39         m5.setNama("Doni");
40         m5.setUsia(30);
41         m5.setJamKerja(8.5f);
42         m5.setGaji(300);
```

ManagerDemo - Navigator

Members ManagerDemo

- main(String[] args)

Activate Windows  
Go to Settings to activate Windows.

1:1 INS

Modul7 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

Source History

```
43 System.out.println("Manager : " + m1.getNama());
44 System.out.println("Usia : " + m1.getUsia() + " tahun");
45 System.out.println("Jam Kerja : " + m1.jamKerja() + " jam");
46 System.out.println("Gaji : " + m1.getGajiManager() + "\n");
47
48 System.out.println("Manager : " + m2.getNama());
49 System.out.println("Usia : " + m2.getUsia() + " tahun");
50 System.out.println("Jam Kerja : " + m2.jamKerja() + " jam");
51 System.out.println("Gaji : " + m2.getGajiManager() + "\n");
52
53 System.out.println("Manager : " + m3.getNama());
54 System.out.println("Usia : " + m3.getUsia() + " tahun");
55 System.out.println("Jam Kerja : " + m3.jamKerja() + " jam");
56 System.out.println("Gaji : " + m3.getGajiManager() + "\n");
57
58 System.out.println("Manager : " + m4.getNama());
59 System.out.println("Usia : " + m4.getUsia() + " tahun");
60 System.out.println("Jam Kerja : " + m4.jamKerja() + " jam");
61 System.out.println("Gaji : " + m4.getGajiManager() + "\n");
62
63 System.out.println("Manager : " + m5.getNama());
64 System.out.println("Usia : " + m5.getUsia() + " tahun");
65 System.out.println("Jam Kerja : " + m5.jamKerja() + " jam");
66 System.out.println("Gaji : " + m5.getGajiManager() + "\n");
67
68 }
69 }
70 }
71 }
72 }
73 }
```

ManagerDemo - Navigator

Members <empty>

ManagerDemo main(String[] args)

Activate Windows  
Go to Settings to activate Windows.

1:1 INS

Modul7 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Karyawan.java KaryawanDemo.java Manager.java ManagerDemo.java

Source History

```
43 System.out.println("Manager : " + m1.getNama());
44 System.out.println("Usia : " + m1.getUsia() + " tahun");
45 System.out.println("Jam Kerja : " + m1.jamKerja() + " jam");
46 System.out.println("Gaji : " + m1.getGajiManager() + "\n");
47
48 Manager : Arin
Usia : 28 tahun
Jam Kerja : 8.5 jam
Gaji : 5500000.0
49
50 Manager : Dita
Usia : 25 tahun
Jam Kerja : 7.5 jam
Gaji : 4800000.0
51
52 Manager : Arlin
Usia : 27 tahun
Jam Kerja : 8.5 jam
Gaji : 5300000.0
53
54 Manager : Jihan
Usia : 26 tahun
Jam Kerja : 7.5 jam
Gaji : 5000000.0
55
56 Manager : Doni
Usia : 30 tahun
Jam Kerja : 8.5 jam
Gaji : 600.0
```

Output - Modul7 (run)

BUILD SUCCESSFUL (total time: 1 second)

Activate Windows  
Go to Settings to activate Windows.

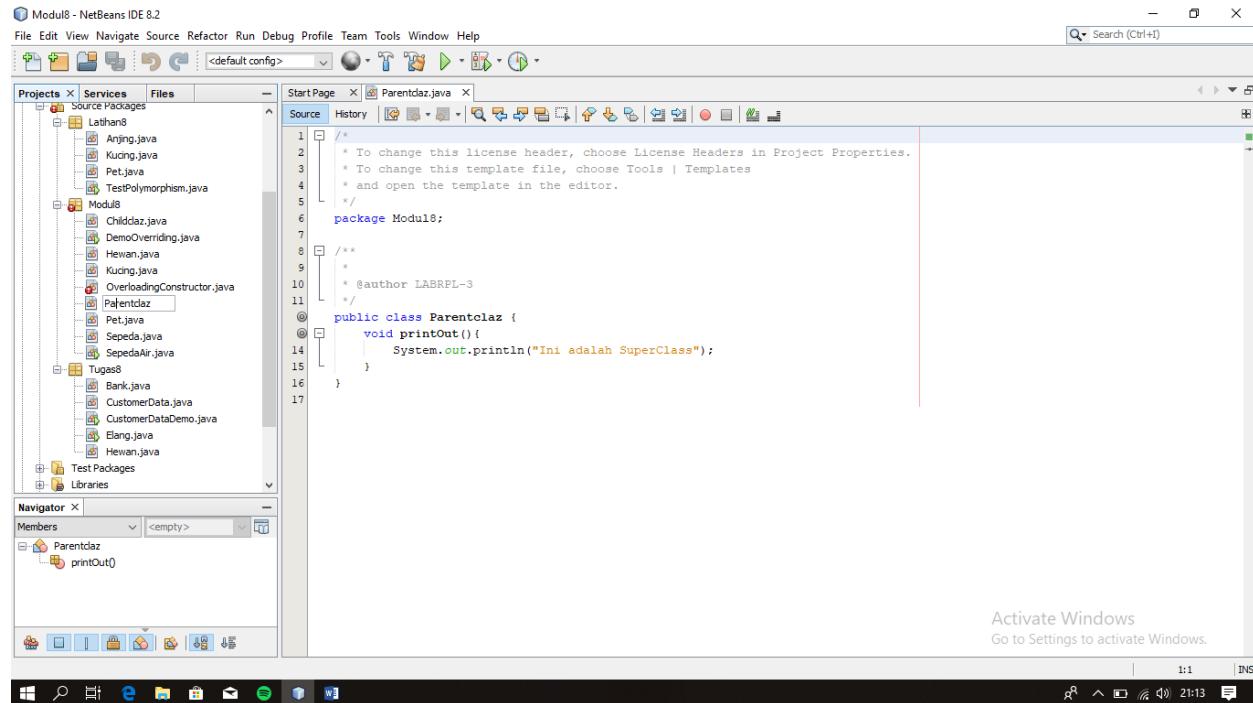
1:1 INS

# MODUL 8

## POLYMORPHISM

### 8.1. Runtime Polymorphism

#### 8.1.1. Overriding



Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

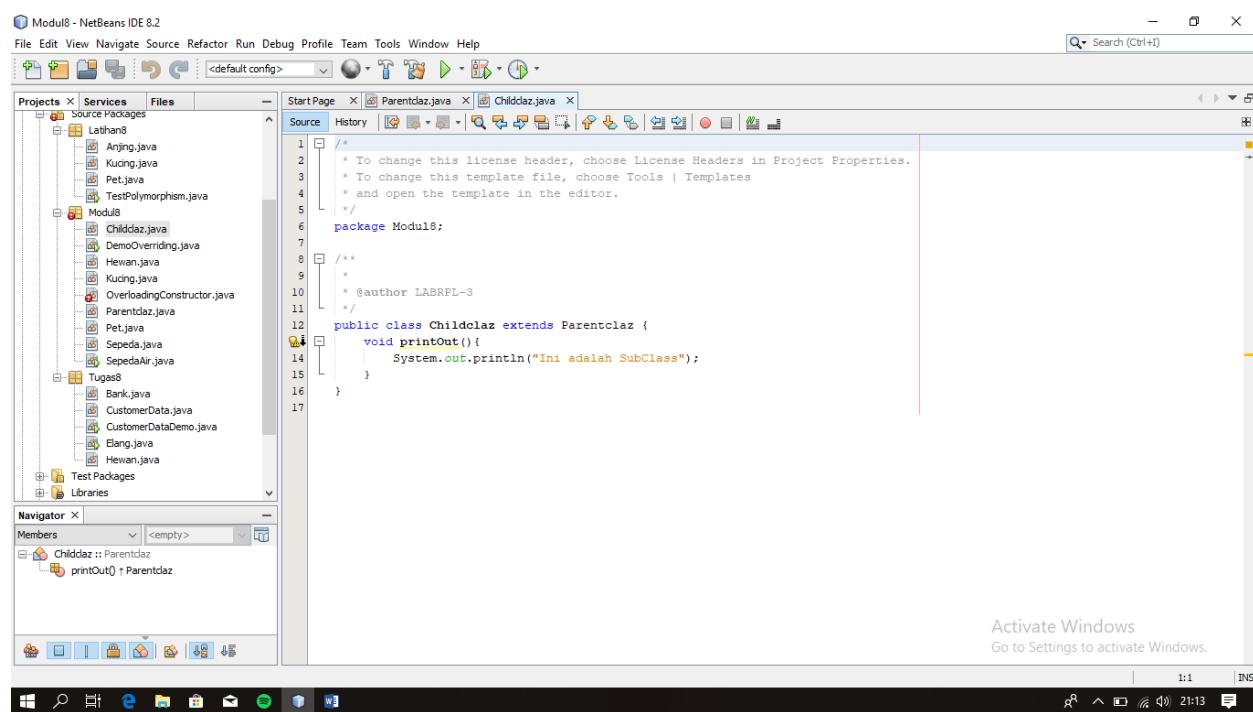
Projects Services Files Start Page Parentclaz.java

```
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 Modul8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Parentclaz {
13     void printOut(){
14         System.out.println("Ini adalah SuperClass");
15     }
16 }
```

Navigator Members <empty>

Activate Windows Go to Settings to activate Windows.

Windows Taskbar: Start, Search, File, Internet Explorer, Mail, Chat, File Explorer, Task View, Taskbar settings, 1:1, 21:13, INS



Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Parentclaz.java Childdaz.java

```
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 Modul8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Childdaz extends Parentclaz {
13     void printOut(){
14         System.out.println("Ini adalah SubClass");
15     }
16 }
```

Navigator Members <empty>

Activate Windows Go to Settings to activate Windows.

Windows Taskbar: Start, Search, File, Internet Explorer, Mail, Chat, File Explorer, Task View, Taskbar settings, 1:1, 21:13, INS

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Parentclaz.java Childclaz.java DemoOverriding.java

Source History <default config> Search (Ctrl+I)

Lathan8 Modul8 Tugas8 Test Packages Libraries

Anjing.java Kucing.java Pet.java TestPolymorphism.java Modul8 Childclaz.java DemoOverriding.java Hewan.java Kucing.java OverloadingConstructor.java Parentclaz.java Pet.java Sepeda.java SepedaAir.java Bank.java CustomerData.java CustomerDataDemo.java Elang.java Hewan.java Test Packages Libraries

DemoOverriding main(String[] ovr)

Output - Modul8 (run) :

```
sun:
Ini adalah SuperClass
Ini adalah SubClass
BUILD SUCCESSFUL (total time: 7 seconds)
```

Activate Windows  
Go to Settings to activate Windows.

11:15 | INS

```
/*
 * 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 Modul8;

/**
 *
 * @author LABRPL-3
 */
public class DemoOverriding {
    public static void main(String[] ovr){
        Parentclaz pc = new Parentclaz();
        Childclaz cc = new Childclaz();
        pc.printOut();
        cc.printOut();
    }
}
```

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Parentclaz.java Childclaz.java DemoOverriding.java Hewan.java

Source History <default config> Search (Ctrl+I)

Lathan8 Modul8 Tugas8 Test Packages Libraries

Anjing.java Kucing.java Pet.java TestPolymorphism.java Modul8 Childclaz.java DemoOverriding.java Hewan.java Kucing.java OverloadingConstructor.java Parentclaz.java Pet.java Sepeda.java SepedaAir.java Bank.java CustomerData.java CustomerDataDemo.java Elang.java Hewan.java Test Packages Libraries

Hewan jalang()

Output - Modul8 (run) :

```
sun:
Hewan bisa berjalan
BUILD SUCCESSFUL (total time: 7 seconds)
```

Activate Windows  
Go to Settings to activate Windows.

11:15 | INS

```
/*
 * 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 Modul8;

public class Hewan {
    public void jalang(){
        System.out.println("Hewan bisa berjalan");
    }
}
```

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Parentdaz.java Chiddaz.java DemoOverriding.java Hewan.java Kucing.java

Source History <default config>

```

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 Modul8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Kucing extends Hewan {
13     @Override
14     public void jalan(){
15         System.out.println("Hewan bisa berjalan" + "dan berlari");
16     }
17 }

```

Activate Windows  
Go to Settings to activate Windows.

18:1 21:15 INS

## 8.1.2. Upcasting

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Parentdaz.java Chiddaz.java DemoOverriding.java Hewan.java Kucing.java Sepeda.java

Source History <default config>

```

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 Modul8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Sepeda {
13     public void run(){
14         System.out.println("Bisa berjalan");
15     }
16 }

```

Activate Windows  
Go to Settings to activate Windows.

1:1 21:19 INS

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page X Parentdaz.java X Chiddaz.java X DemoOverriding.java X Hewan.java X Kucing.java X Sepeda.java X SepedaAir.java X <default config>

Source History

```

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 Modul8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class SepedaAir extends Sepeda{
13     @Override
14     public void run(){
15         System.out.println("Hanya bisa berjalan di atas " + "air");
16     }
17     public static void main(String[] args){
18         Sepeda s = new SepedaAir();
19         s.run();
20     }
21 }
22

```

Output - Modul8 (run) X

```

run:
Hanya bisa berjalan di atas air
BUILD SUCCESSFUL (total time: 1 second)

```

Activate Windows  
Go to Settings to activate Windows.

### 8.1.3. Overloading

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page X Chiddaz.java X DemoOverriding.java X Hewan.java X Kucing.java X Sepeda.java X SepedaAir.java X OverloadingConstructor.java X <default config>

Source History

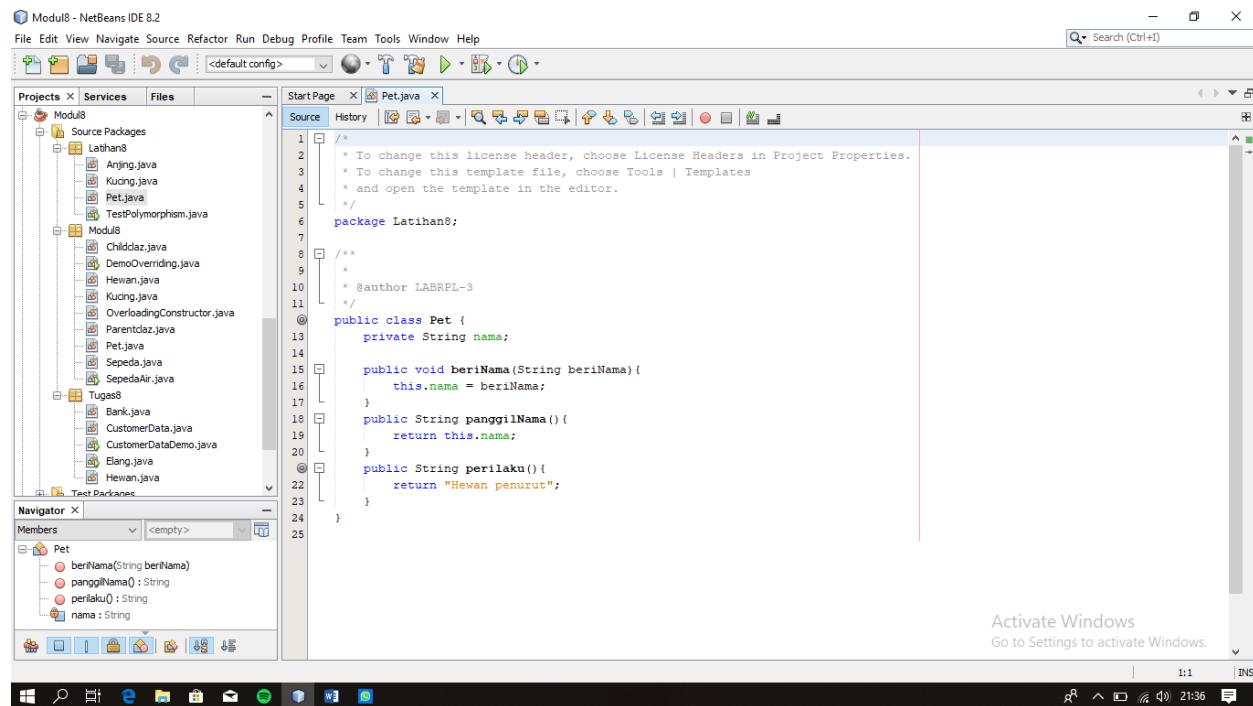
```

1  /*
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5 package Modul8;
6
7 import java.util.Date;
8
9 /**
10 *
11 * @author LABRPL-3
12 */
13 public class OverloadingConstructor {
14     int idUser;
15     String userName;
16     int level;
17     Date lastLogin;
18     public OverloadingConstructor(){
19     }
20     public OverloadingConstructor(int idUser, String userName){
21         this.idUser = idUser;
22         this.userName = userName;
23     }
24 }
25

```

Activate Windows  
Go to Settings to activate Windows.

## 8.2. Latihan



Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Pet.java

Source History <default config> Search (Ctrl+I)

Modul8

- Source Packages
  - Latihan8
    - Anjing.java
    - Kucing.java
    - Pet.java
    - TestPolymorphism.java
  - Modul8
    - Childdaz.java
    - DemoOverriding.java
    - Hewan.java
    - Kucing.java
    - OverloadingConstructor.java
    - Parentdaz.java
    - Pet.java
    - Sepeda.java
    - SepedaAir.java
  - Tugas8
    - Bank.java
    - CustomerData.java
    - CustomerDataDemo.java
    - Elang.java
    - Hewan.java
- Test Packages

Navigator Members <empty>

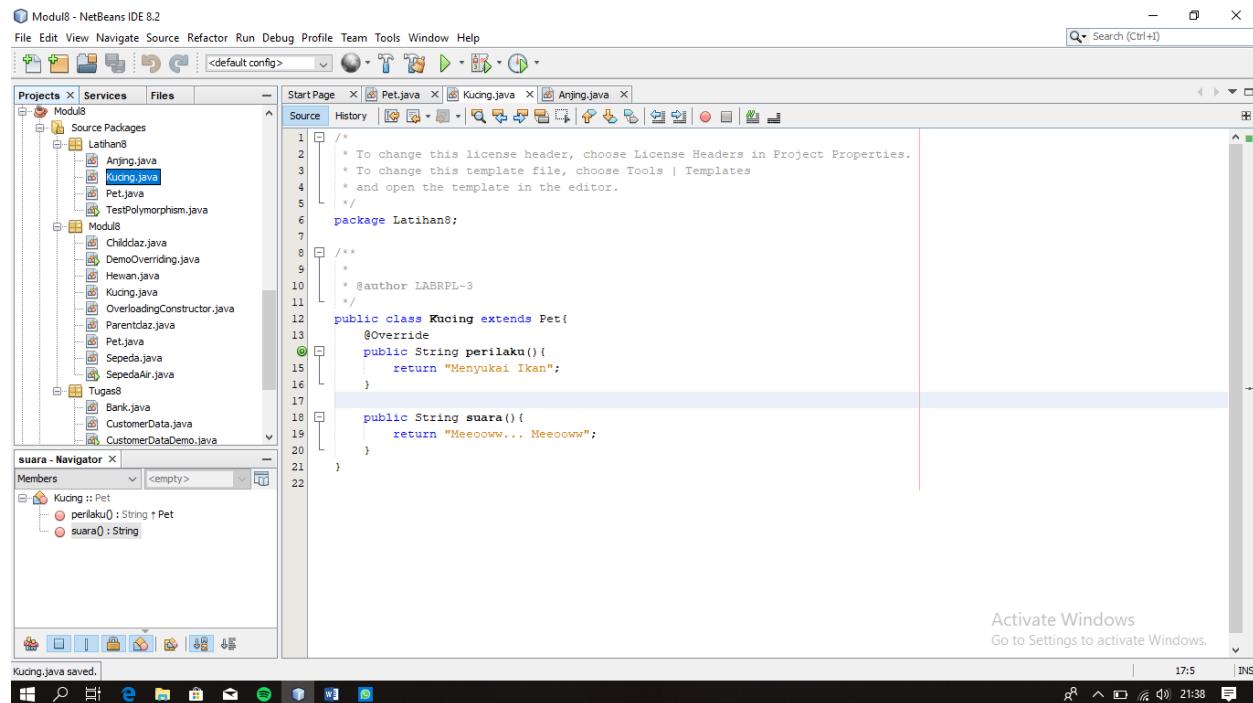
Pet

- beriNama(String beriNama)
- panggilNama(): String
- perilaku(): String
- nama : String

Activate Windows Go to Settings to activate Windows.

1:1 INS

```
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 Latihan8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Pet {
13     private String nama;
14
15     public void beriNama(String beriNama) {
16         this.nama = beriNama;
17     }
18     public String panggilNama() {
19         return this.nama;
20     }
21     public String perilaku() {
22         return "Hewan penurut";
23     }
24 }
```



Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files Start Page Pet.java Kucing.java Anjing.java

Source History <default config> Search (Ctrl+I)

Modul8

- Source Packages
  - Latihan8
    - Anjing.java
    - Kucing.java
    - Pet.java
    - TestPolymorphism.java
  - Modul8
    - Childdaz.java
    - DemoOverriding.java
    - Hewan.java
    - Kucing.java
    - OverloadingConstructor.java
    - Parentdaz.java
    - Pet.java
    - Sepeda.java
    - SepedaAir.java
  - Tugas8
    - Bank.java
    - CustomerData.java
    - CustomerDataDemo.java
- Test Packages

suara - Navigator Members <empty>

Kucing

- perilaku(): String <sup>Pet</sup>
- suara(): String

Activate Windows Go to Settings to activate Windows.

17:5 INS

```
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 Latihan8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Kucing extends Pet{
13     @Override
14     public String perilaku(){
15         return "Menyukai Ikan";
16     }
17
18     public String suara(){
19         return "Meeooww... Meeooww";
20     }
21 }
```

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Start Page Pet.java Anjing.java

Projects Services Files

Modul8

- Source Packages
  - Latihan8
    - Anjing.java
    - Kucing.java
    - Pet.java
    - TestPolymorphism.java
  - Module
    - Childdaz.java
    - DemoOverriding.java
    - Hewan.java
    - Kucing.java
    - OverloadingConstructor.java
    - Parentdaz.java
    - Pet.java
    - Sepeda.java
    - SepedaAir.java
  - Tugas8
    - Bank.java
    - CustomerData.java
    - CustomerDataDemo.java
    - Elang.java
    - Hewan.java
  - Test Packages

Navigator

Members <empty>

Anjing :: Pet

- perilaku() : String ↑ Pet
- suara() : String

Activate Windows  
Go to Settings to activate Windows.

17:5 | INS

### 8.3. Tugas

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Start Page Pet.java Kucing.java Anjing.java Hewan.java

Projects Services Files

Modul8

- TestPolymorphism.java
- Module
  - Childdaz.java
  - DemoOverriding.java
  - Hewan.java
  - Kucing.java
  - OverloadingConstructor.java
  - Parentdaz.java
  - Pet.java
  - Sepeda.java
  - SepedaAir.java
- Tugas8
  - Bank.java
  - CustomerData.java
  - CustomerDataDemo.java
  - Elang.java
  - Hewan.java
- Test Packages
- Libraries
- Test Libraries

Project

Navigator

Members <empty>

Hewan

- jalan()

Activate Windows  
Go to Settings to activate Windows.

1:1 | 21:45 | INS

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files StartPage Pet.java Kucing.java Anjing.java Hewan.java Elang.java

Source History

```
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 Tugas8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class Elang extends Hewan{
13     @Override
14     public void jalan(){
15         System.out.println("Elang bisa berjalan" + " dan terbang");
16     }
17     public static void main(String[] args){
18         Elang e = new Elang();
19         e.jalan();
20     }
21 }
22
```

jalan - Navigator

Members <empty>

Elang :: Hewan

jalan() & Hewan

main(String[] args)

Output - Modul8 (run)

```
run:
Elang bisa berjalan dan terbang
BUILD SUCCESSFUL (total time: 1 second)
```

Activate Windows  
Go to Settings to activate Windows.

14:1 21:46 INS

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files StartPage Pet.java Kucing.java Anjing.java Hewan.java Elang.java CustomerData.java

Source History

```
1 package Tugas8;
2
3 /**
4 *
5 * @author LABRPL-3
6 */
7 public class CustomerData {
8     String nama;
9     String alamat;
10    String tanggalLahir;
11    String pekerjaan;
12    double gaji;
13
14    public CustomerData(String nama, String alamat, String tanggalLahir, String pekerjaan, double gaji){
15        this.nama = nama;
16        this.alamat = alamat;
17        this.tanggalLahir = tanggalLahir;
18        this.pekerjaan = pekerjaan;
19        this.gaji = gaji;
20
21        System.out.println("Nama : " + nama + "\nAlamat : " + alamat + "\nTanggal Lahir : " + tanggalLahir +
22                           "\nPekerjaan : " + pekerjaan + "\nGaji : " + gaji + "\n");
23    }
24
25
26
27
28
29
30}
```

Navigator

Members <empty>

CustomerData

CustomerData(String nama, String alamat, String tanggalLahir, String pekerjaan, double gaji)

alamat : String

gaji : double

nama : String

pekerjaan : String

tanggalLahir : String

Activate Windows  
Go to Settings to activate Windows.

14:1 21:46 INS

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Start Page Pet.java Kucing.java Anjing.java Hewan.java Elang.java CustomerData.java CustomerDataDemo.java

Source History

```
3 * To change this template file, choose Tools | Templates
4 * and open the template in the editor.
5 */
6 package Tugas8;
7
8 /**
9 *
10 * @author LABRPL-3
11 */
12 public class CustomerDataDemo {
13     public static void main(String[] args){
14         CustomerData c1 = new CustomerData("Arin", "Ngawi", "31 Maret 2001", "Mahasiswa", 0);
15         CustomerData c2 = new CustomerData("Dita", "Yogyakarta", "31 Maret 2001", "Mahasiswa", 0);
16         CustomerData c3 = new CustomerData("Regan", "Surabaya", "7 Desember 1999", "Desainer", 5000000);
17         CustomerData c4 = new CustomerData("Yohan", "Bantul", "22 September 1999", "Arsitek", 8000000);
18         CustomerData c5 = new CustomerData("Dera", "Semarang", "20 Maret 2000", "Pilot", 10000000);
19         CustomerData c6 = new CustomerData("Arkan", "Madiun", "23 April 2000", "Dokter", 9000000);
20         CustomerData c7 = new CustomerData("Johan", "Magetan", "14 September 2000", "Programmer", 7500000);
21         CustomerData c8 = new CustomerData("Caca", "Facitan", "4 September 2000", "Penulis", 2500000);
22         CustomerData c9 = new CustomerData("Angga", "Jakarta", "30 Oktober 2000", "Polisi", 6000000);
23         CustomerData c10 = new CustomerData("Noa", "Tokyo", "13 Maret 2000", "Musisi", 6000000);
24     }
25 }
26 }
```

Navigator

Members <empty>

CustomerDataDemo  
main(String[] args)

Activate Windows  
Go to Settings to activate Windows.

Output

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Start Page Pet.java Kucing.java Anjing.java Hewan.java Elang.java CustomerData.java CustomerDataDemo.java

Source History

Output - Modul8 (run) x

```
run:
Nama : Arin
Alamat : Ngawi
Tanggal Lahir : 31 Maret 2001
Pekerjaan : Mahasiswa
Gaji : 0.0

Nama : Dita
Alamat : Yogyakarta
Tanggal Lahir : 31 Maret 2001
Pekerjaan : Mahasiswa
Gaji : 0.0

Nama : Regan
Alamat : Surabaya
Tanggal Lahir : 7 Desember 1999
Pekerjaan : Desainer
Gaji : 5000000.0

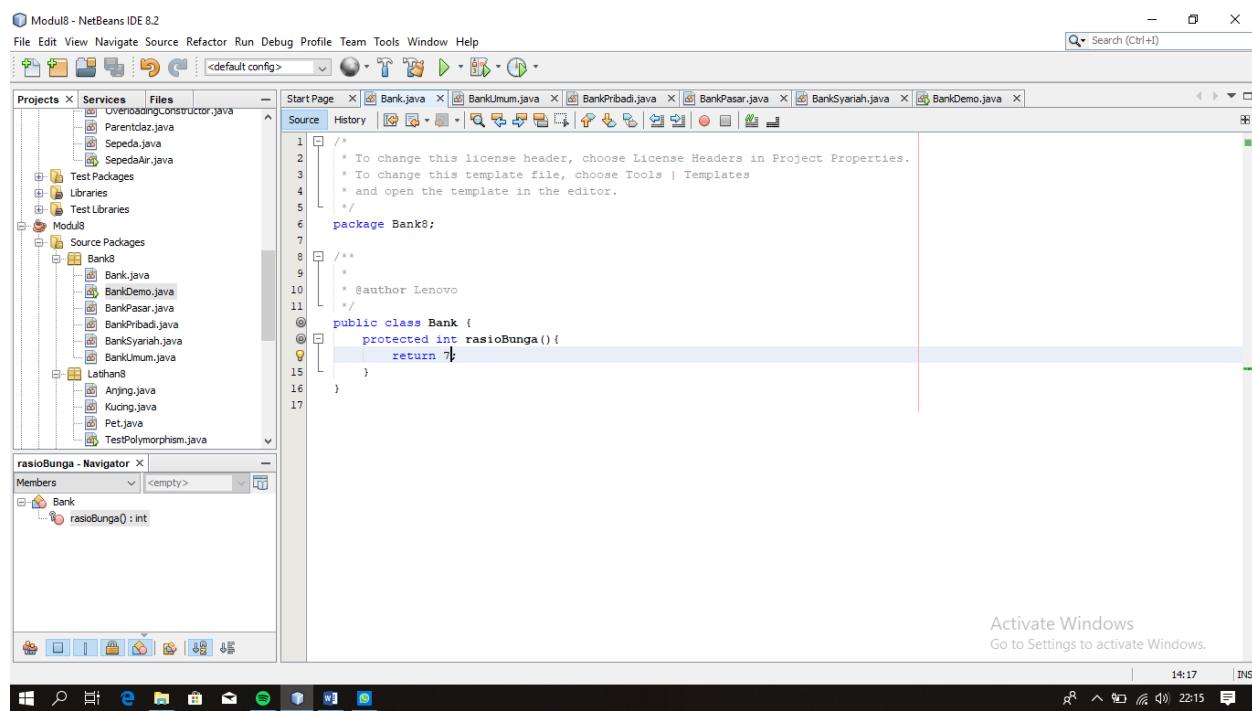
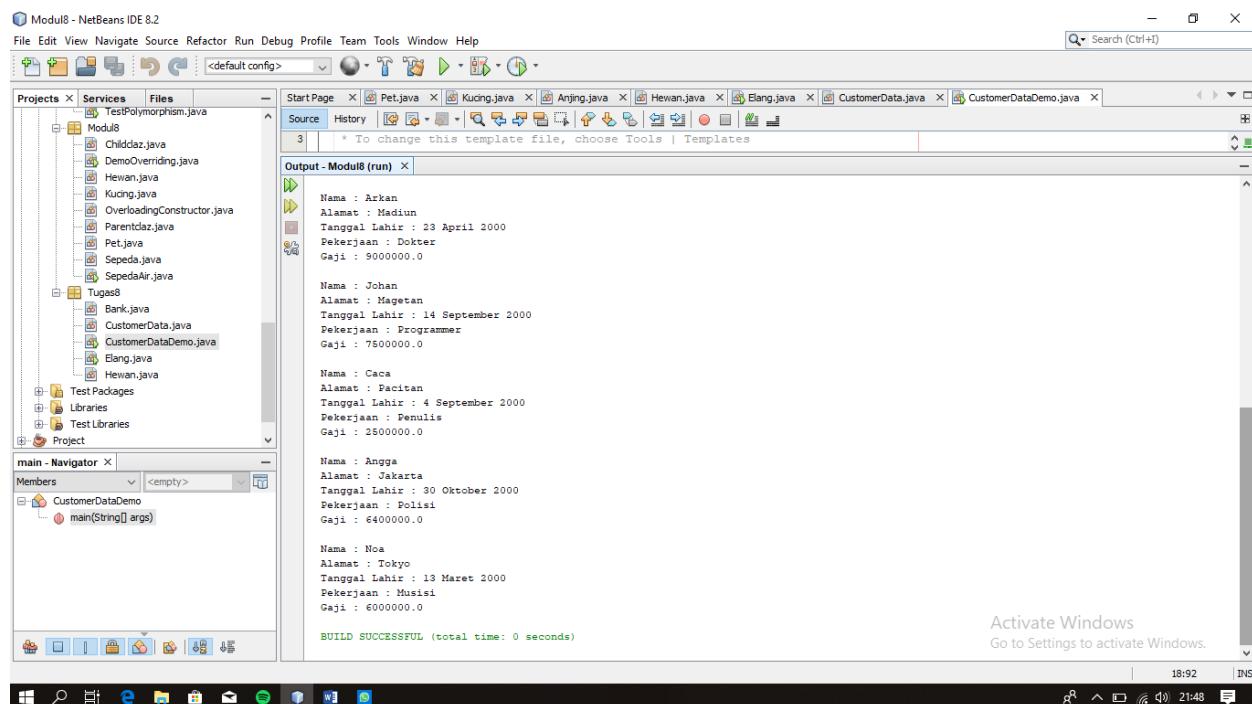
Nama : Yohan
Alamat : Bantul
Tanggal Lahir : 22 September 1999
Pekerjaan : Arsitek
Gaji : 8000000.0

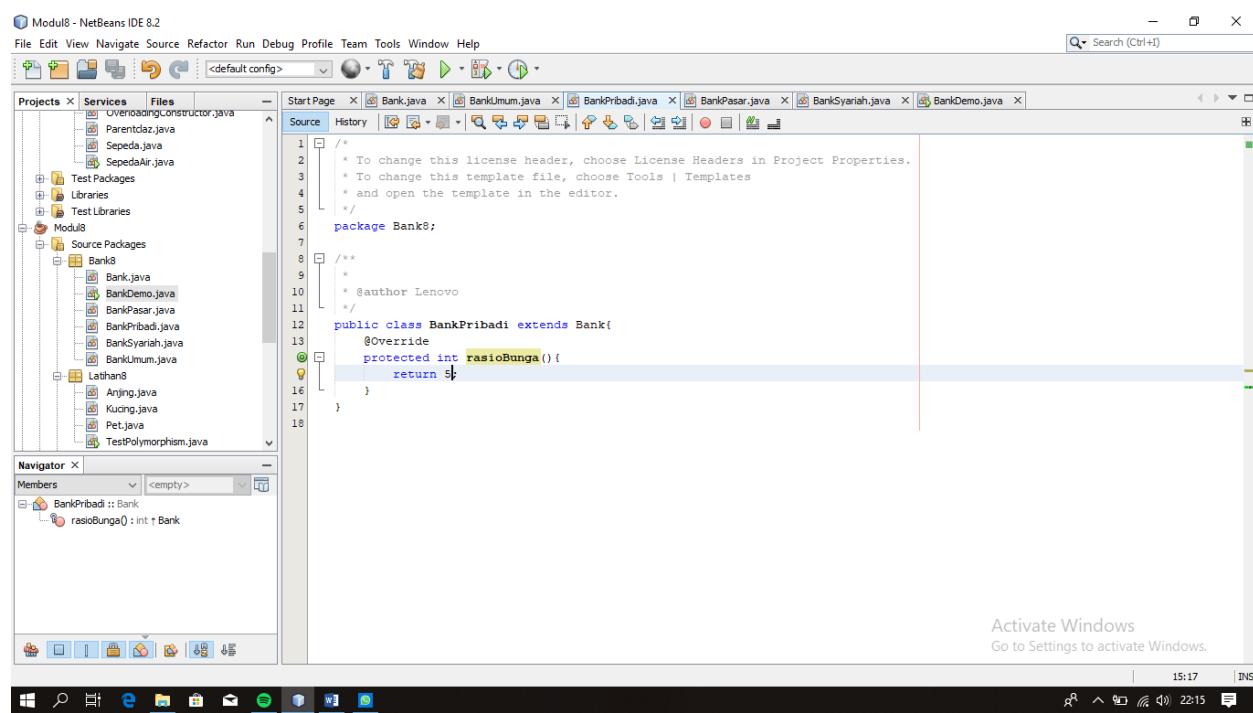
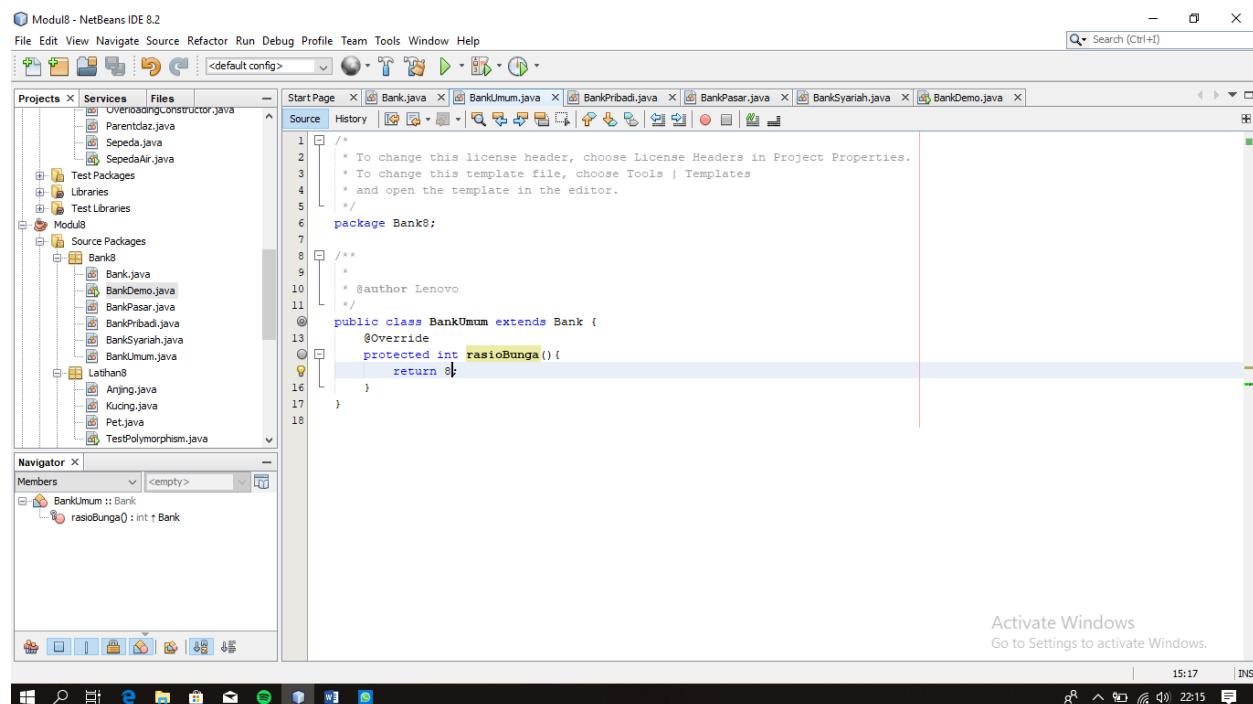
Nama : Dera
Alamat : Semarang
Tanggal Lahir : 20 Maret 2000
Pekerjaan : Pilot
Gaji : 1.0E7

Nama : Arkan
Alamat : Madiun
```

Activate Windows  
Go to Settings to activate Windows.

Output





Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Start Page Bank.java BankUmum.java BankPribadi.java BankPasar.java BankSyariah.java BankDemo.java

Source History

```
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 Bank;
7
8 /**
9 *
10 * @author Lenovo
11 */
12 public class BankPasar extends BankUmum{
13     @Override
14     protected int rasioBunga() {
15         return 3;
16     }
17 }
```

Navigator

Members <empty>

BankPasar :: BankUmum  
    ↳ rasioBunga(): int ↑ BankUmum

Activate Windows  
Go to Settings to activate Windows.

16:6 INS

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Start Page Bank.java BankUmum.java BankPribadi.java BankPasar.java BankSyariah.java BankDemo.java

Source History

```
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 Bank;
7
8 /**
9 *
10 * @author Lenovo
11 */
12 public class BankSyariah extends BankUmum{
13     @Override
14     protected int rasioBunga() {
15         return 5;
16     }
17 }
```

Navigator

Members <empty>

BankSyariah :: BankUmum  
    ↳ rasioBunga(): int ↑ BankUmum

Activate Windows  
Go to Settings to activate Windows.

15:17 INS

Modul8 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Bank.java BankUmum.java BankPribadi.java BankPasar.java BankSyariah.java BankDemo.java

StartPage X Bank.java X BankUmum.java X BankPribadi.java X BankPasar.java X BankSyariah.java X BankDemo.java X

Source History

```
11  /*
12   * 
13  public class BankDemo {
14     public static void main(String[] args) {
15       Bank bpr = new BankPribadi();
16       Bank bu = new BankUmum();
17       Bank bp = new BankPasar();
18       Bank bs = new BankSyariah();
19 
20       System.out.println(
21           "Ratio Bunga pada : " + "\nBank Pribadi: " + bpr.rasioBunga() + "%" + "\nBank Umum: " +
22           bu.rasioBunga() + "%" + "\nBank Pasar: " + bp.rasioBunga() + "%" + "\nBank Syariah: " +
23           bs.rasioBunga() + "%");
24 
25       BankUmum bkpsr = new BankPasar();
26       BankUmum bksyr = new BankSyariah();
27 
28       System.out.println(
29           "Bank Pasar: "+bkpsr.rasioBunga()+"%\n" +
30           "Bank Syariah: "+bksyr.rasioBunga()+"%");
31     }
32 }
```

main - Navigator X

Members <empty>

BankDemo main(String[] args)

Output - Modul8 (run) X

run:

Ratio Bunga pada :

Bank Pribadi: 5%

Bank Umum: 8%

Bank Pasar: 3%

Bank Syariah: 5%

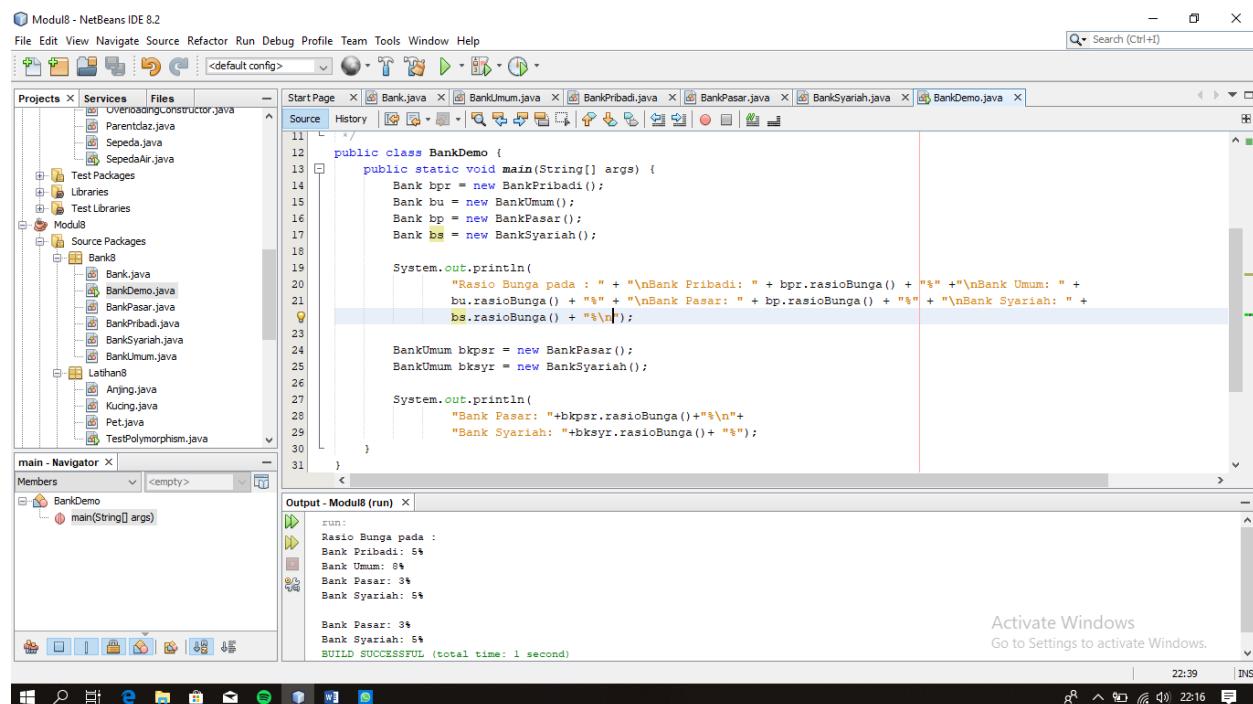
Bank Pasar: 3%

Bank Syariah: 5%

BUILD SUCCESSFUL (total time: 1 second)

Activate Windows  
Go to Settings to activate Windows.

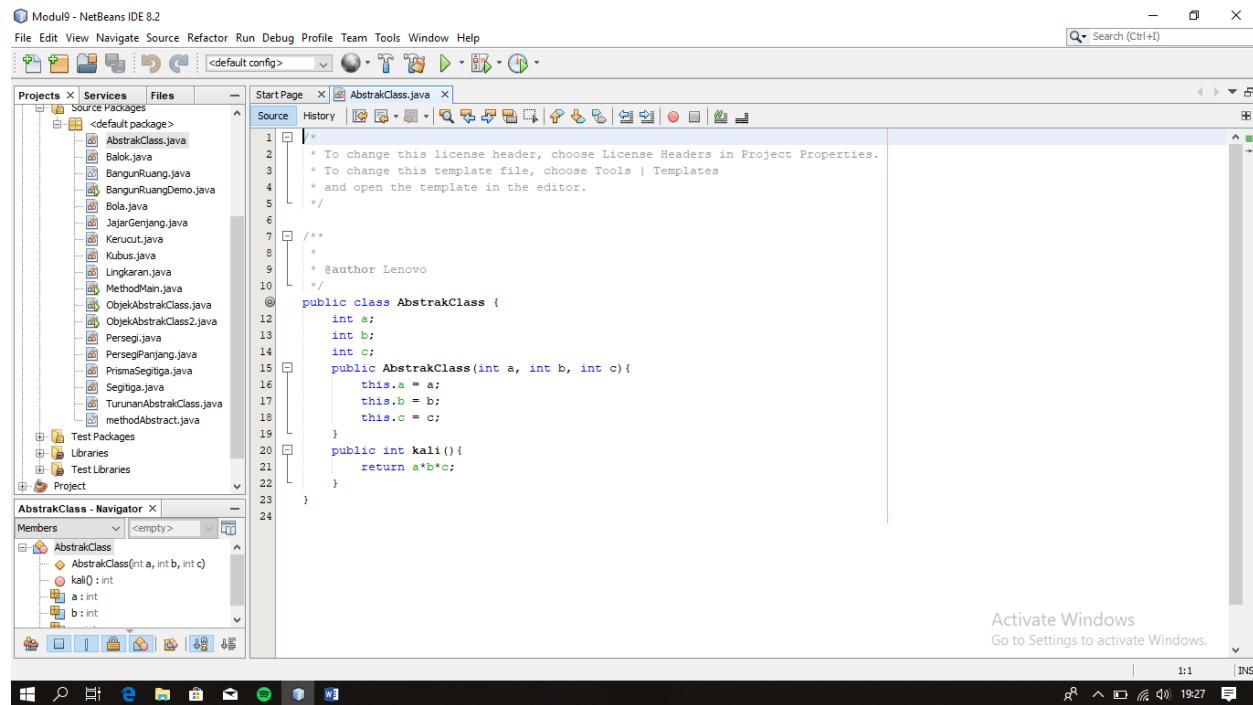
22:39 | INS



# MODUL 9

## ABSTRACT CLASS

### 9.1. Object Class Abstract



The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul9 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar icons.
- Search Bar:** Search (Ctrl+I)
- Projects Tab:** Shows the current project structure with packages like <default package> containing files such as AbstrakClass.java, Belok.java, BangunKuang.java, BangunKuangDemo.java, Bola.java, JajarGenjang.java, Kerucut.java, Kubus.java, Lingkaran.java, MethodMain.java, ObjekAbstrakClass.java, ObjekAbstrakClass2.java, Persegi.java, PersegiPanjang.java, PrismaSegitiga.java, Segitiga.java, and TurunanAbstrakClass.java. It also lists Test Packages, Libraries, and Test Libraries.
- Source Tab:** The active tab, showing the code for AbstrakClass.java. The code defines an abstract class with three integer fields (a, b, c) and a constructor that initializes them. It also contains a static method kali() that returns the product of the three fields.
- Navigator Tab:** Shows the members of the AbstrakClass class, including the constructor and the kali() method.
- Status Bar:** Shows the message "Activate Windows Go to Settings to activate Windows.", the system tray, and the current time (19:27).

```
* @author Lenovo
*/
public class ObjekAbstrakClass {
    public static void main(String[] args){
        AbstrakClass ac = new AbstrakClass(2, 3, 4);
    }
}
```

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Start Page AbstrakClass.java ObjekAbstrakClass.java TurunanAbstrakClass.java

Projects Services Files

<default package>

- AbstrakClass.java
- Balok.java
- BangunRuang.java
- BangunRuangDemo.java
- Bola.java
- JajarGenjang.java
- Kerucut.java
- Kubus.java
- Lingkaran.java
- MethodMain.java
- ObjekAbstrakClass.java
- ObjekAbstrakClass2.java
- Persegi.java
- PersegiPanjang.java
- PrismaSegitiga.java
- Segitiga.java
- TurunanAbstrakClass.java
- methodAbstract.java

Test Packages Libraries Test Libraries Project

TurunanAbstrakClass - Navigator

Members <empty>

- TurunanAbstrakClass :: AbstrakClass
- TurunanAbstrakClass(int a, int b, int c)
- print()
- x: int

Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class TurunanAbstrakClass extends AbstrakClass {
12     int x;
13
14     public TurunanAbstrakClass(int a, int b, int c){
15         super(a, b, c);
16         x = a + b + c;
17     }
18
19     public void printX(){
20         System.out.println(x);
21     }
22 }
```

Activate Windows  
Go to Settings to activate Windows.

1:1 19:29 INS

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Start Page AbstrakClass.java ObjekAbstrakClass.java TurunanAbstrakClass.java ObjekAbstrakClass2.java

Projects Services Files

<default package>

- AbstrakClass.java
- Balok.java
- BangunRuang.java
- BangunRuangDemo.java
- Bola.java
- JajarGenjang.java
- Kerucut.java
- Kubus.java
- Lingkaran.java
- MethodMain.java
- ObjekAbstrakClass.java
- ObjekAbstrakClass2.java
- Persegi.java
- PersegiPanjang.java
- PrismaSegitiga.java
- Segitiga.java
- TurunanAbstrakClass.java
- methodAbstract.java

Test Packages Libraries Test Libraries Project

ObjekAbstrakClass2 - Navigator

Members <empty>

- ObjekAbstrakClass2
- main(String[] args)

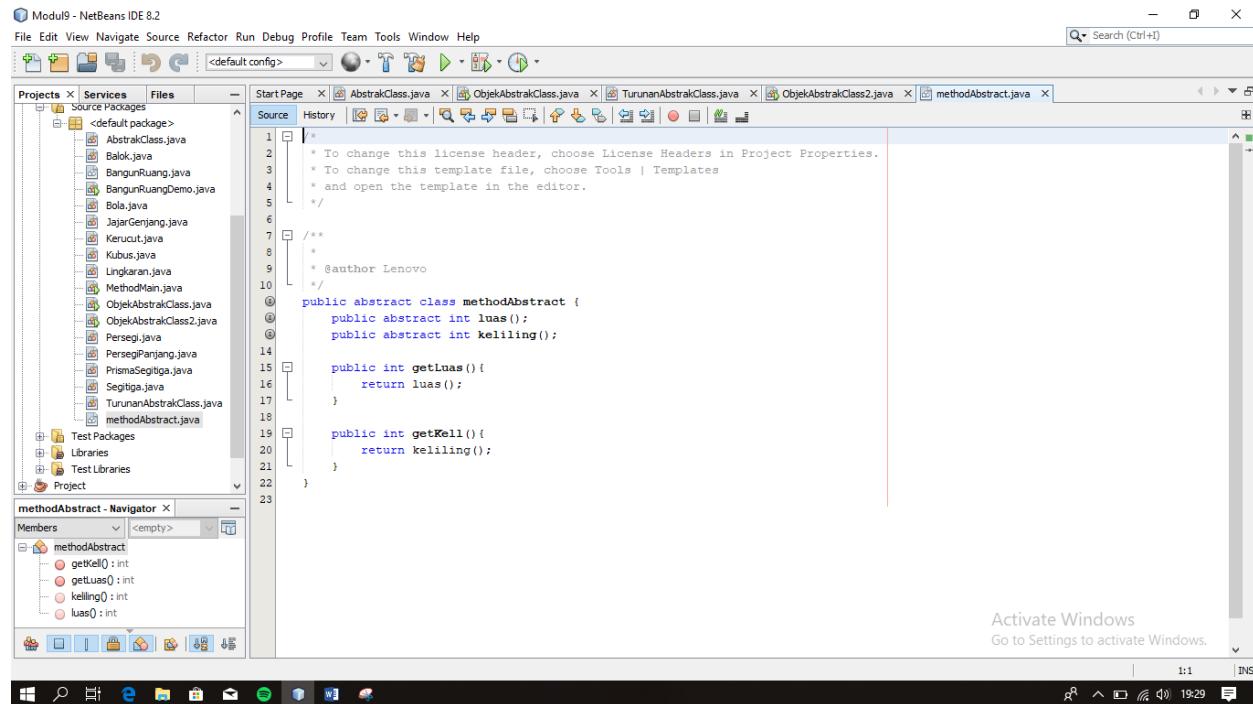
Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class ObjekAbstrakClass2 {
12     public static void main(String[] args){
13         TurunanAbstrakClass tac = new TurunanAbstrakClass(2, 3, 2);
14         tac.printX();
15         System.out.println(tac.kali());
16     }
17 }
```

Activate Windows  
Go to Settings to activate Windows.

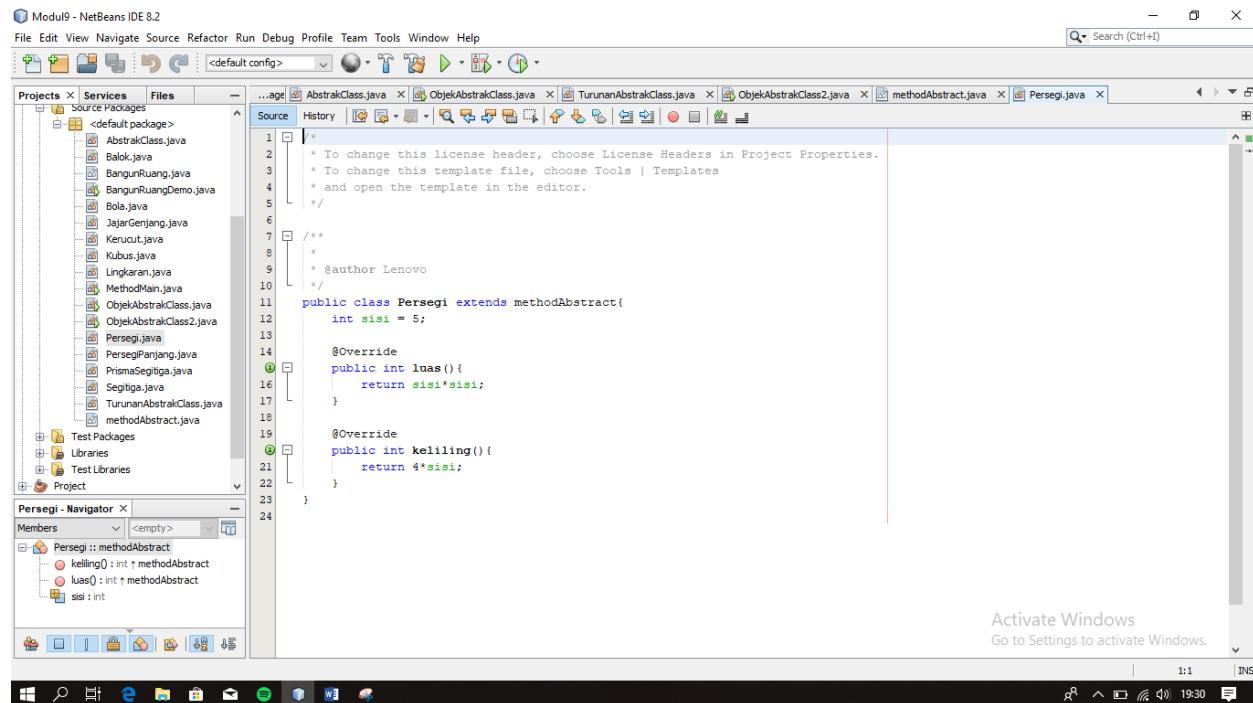
1:1 19:29 INS

## 9.2. Method Abstract



The screenshot shows the NetBeans IDE interface with the title "Modul9 - NetBeans IDE 8.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Run, Stop, and others. The Projects tab shows a package named "methodAbstract" containing various Java files like AbstrakClass.java, Balok.java, BangunRuang.java, etc. The Files tab shows the source code for "methodAbstract.java". The code defines an abstract class "methodAbstract" with abstract methods "luas()" and "keliling()", and concrete methods "getLuas()" and "getKell()". The Navigator pane shows members of the "methodAbstract" class. A message at the bottom right says "Activate Windows Go to Settings to activate Windows." The status bar at the bottom shows the date and time.

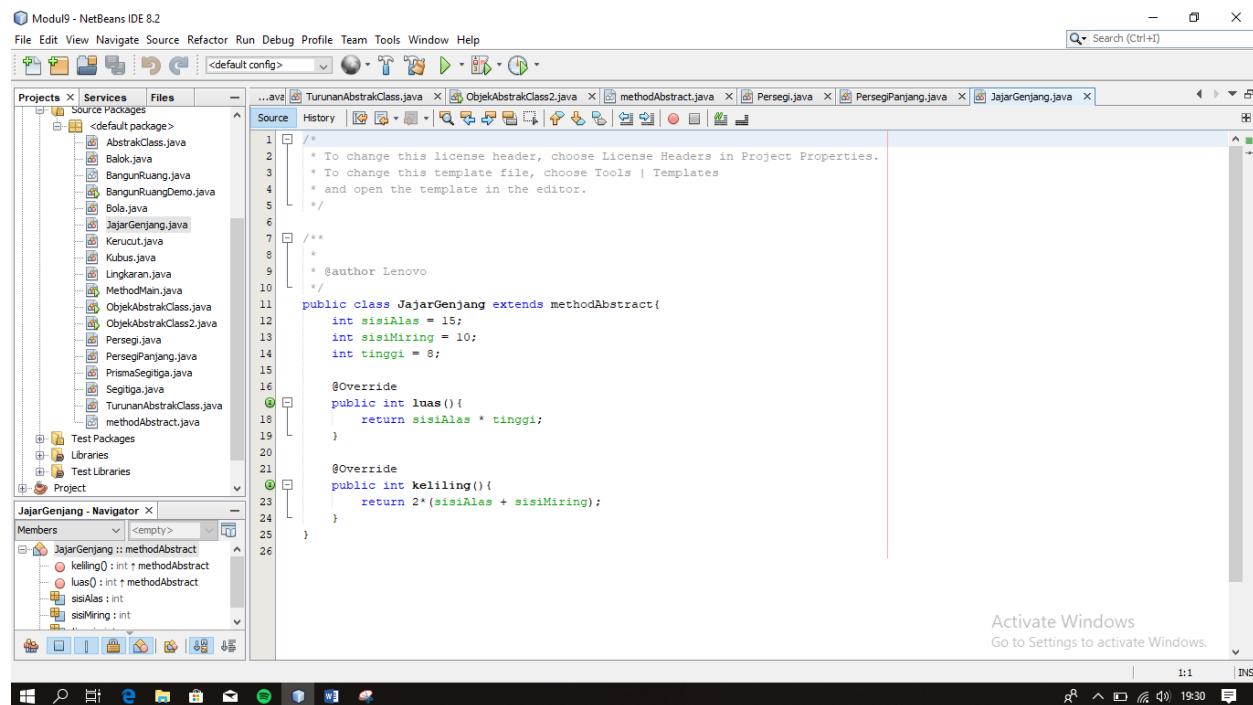
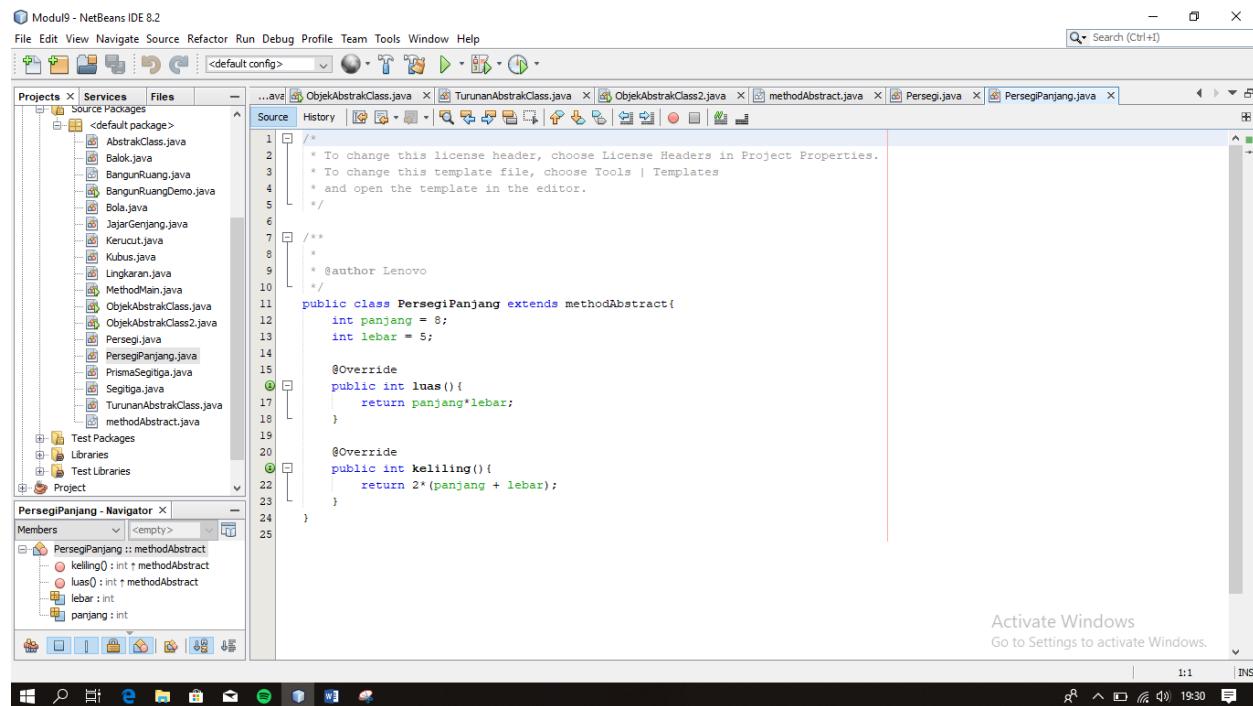
```
1  /*
2   * To change this license header, choose License Headers in Project Properties.
3   * To change this template file, choose Tools | Templates
4   * and open the template in the editor.
5   */
6
7  /**
8   *
9   * @author Lenovo
10 */
11 public abstract class methodAbstract {
12     public abstract int luas();
13     public abstract int keliling();
14
15     public int getLuas(){
16         return luas();
17     }
18
19     public int getKell(){
20         return keliling();
21     }
22 }
```



The screenshot shows the NetBeans IDE interface with the title "Modul9 - NetBeans IDE 8.2". The menu bar includes File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help. The toolbar has icons for New Project, Open Project, Save, Run, Stop, and others. The Projects tab shows a package named "methodAbstract" containing various Java files like AbstrakClass.java, Balok.java, BangunRuang.java, etc. The Files tab shows the source code for "Persegi.java". The code defines a class "Persegi" that extends "methodAbstract". It overrides the abstract methods "luas()" and "keliling()", setting the side length "sisi" to 5. The Navigator pane shows members of the "Persegi" class. A message at the bottom right says "Activate Windows Go to Settings to activate Windows." The status bar at the bottom shows the date and time.

```
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
7  /**
8   *
9   * @author Lenovo
10 */
11 public class Persegi extends methodAbstract{
12     int sisi = 5;
13
14     @Override
15     public int luas(){
16         return sisi*sisi;
17     }
18
19     @Override
20     public int keliling(){
21         return 4*sisi;
22     }
23 }
```

### 9.3. Latihan



Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files

Source Packages <default package>

- AbstrakClass.java
- Balok.java
- BangunRuang.java
- BangunRuangDemo.java
- Bola.java
- JajarGenjang.java
- Kerucut.java
- Kubus.java
- Lingkaran.java
- MethodMain.java
- ObjekAbstrakClass.java
- ObjekAbstrakClass2.java
- Persegi.java
- PersegiPanjang.java
- PrismaSegitiga.java
- Segitiga.java
- TurunanAbstrakClass.java
- methodAbstract.java

Test Packages Libraries Test Libraries Project

Lingkaran - Navigator

Members <empty>

Lingkaran :: methodAbstract

- kelingi : int ↑ methodAbstract
- luas() : int ↑ methodAbstract
- jari : int

Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class Lingkaran extends methodAbstract{
12     int jari = 7;
13
14     @Override
15     public int luas(){
16         return (22*jari*jari)/7;
17     }
18
19     @Override
20     public int keliling(){
21         return (2*22*jari)/7;
22     }
23 }
24
```

Activate Windows  
Go to Settings to activate Windows.

1:1 19:30 INS

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects Services Files

Source Packages <default package>

- AbstrakClass.java
- Balok.java
- BangunRuang.java
- BangunRuangDemo.java
- Bola.java
- JajarGenjang.java
- Kerucut.java
- Kubus.java
- Lingkaran.java
- MethodMain.java
- ObjekAbstrakClass.java
- ObjekAbstrakClass2.java
- Persegi.java
- PersegiPanjang.java
- PrismaSegitiga.java
- Segitiga.java
- TurunanAbstrakClass.java
- methodAbstract.java

Test Packages Libraries Test Libraries Project

Segitiga - Navigator

Members <empty>

Segitiga :: methodAbstract

- kelingi : int ↑ methodAbstract
- luas() : int ↑ methodAbstract
- alas : int
- tinggi : int
- miring : int

Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class Segitiga extends methodAbstract {
12     int alas = 12;
13     int tinggi = 8;
14     int miring = 10;
15
16     @Override
17     public int luas(){
18         return (alas * tinggi)/2;
19     }
20
21     @Override
22     public int keliling(){
23         return alas + (2*miring);
24     }
25 }
```

Activate Windows  
Go to Settings to activate Windows.

1:1 19:30 INS

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Source Packages

<default package>

- AbstrakClass.java
- Balok.java
- BangunRuang.java
- BangunRuangDemo.java
- Bola.java
- JajarGenjang.java
- Kerucut.java
- Kubus.java
- Lingkaran.java
- MethodMain.java
- ObjekAbstrakClass.java
- ObjekAbstrakClass2.java
- Persegi.java
- PersegiPanjang.java
- PrismaSegitiga.java
- Segitiga.java
- TurunanAbstrakClass.java
- methodAbstract.java

Test Packages Libraries Test Libraries Project

MethodMain - Navigator

Members <empty>

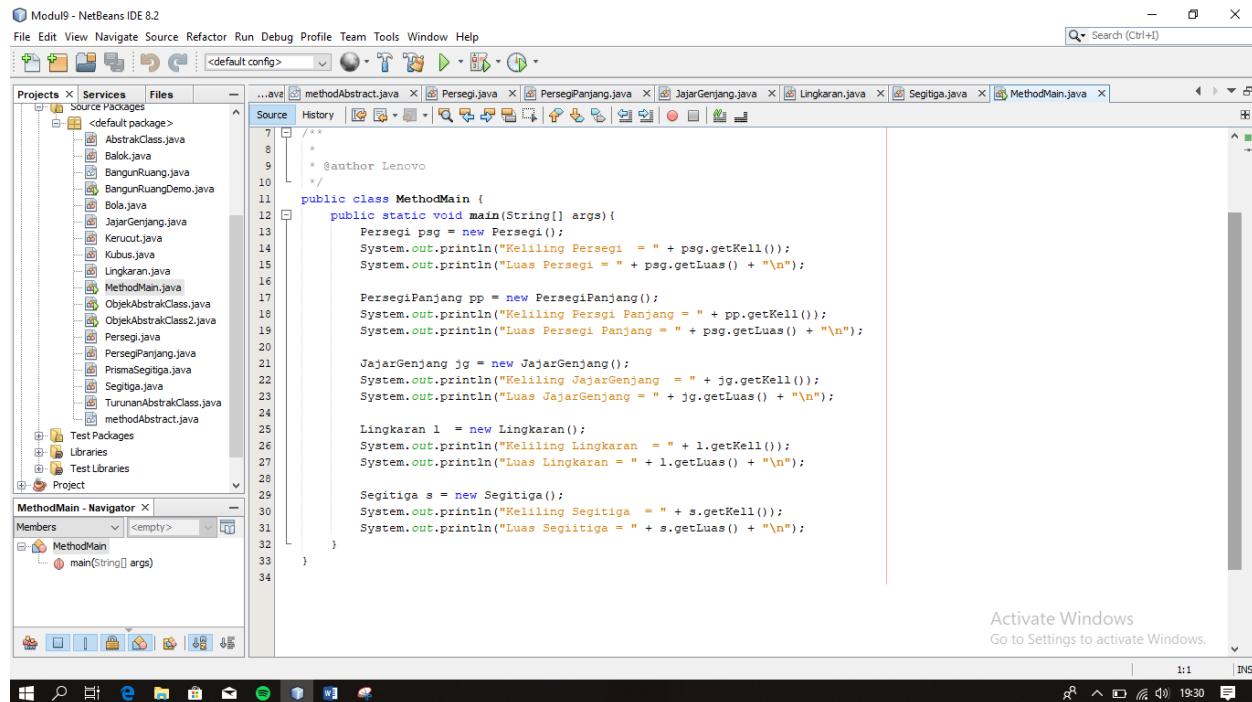
MethodMain

main(String[] args)

```
1 /**
2  * 
3  * @author Lenovo
4 */
5 public class MethodMain {
6     public static void main(String[] args) {
7         Persegi psg = new Persegi();
8         System.out.println("Keliling Persegi = " + psg.getKell());
9         System.out.println("Luas Persegi = " + psg.getLuas() + "\n");
10
11         PersegiPanjang pp = new PersegiPanjang();
12         System.out.println("Keliling Persegi Panjang = " + pp.getKell());
13         System.out.println("Luas Persegi Panjang = " + psg.getLuas() + "\n");
14
15         JajarGenjang jg = new JajarGenjang();
16         System.out.println("Keliling JajarGenjang = " + jg.getKell());
17         System.out.println("Luas JajarGenjang = " + jg.getLuas() + "\n");
18
19         Lingkaran l = new Lingkaran();
20         System.out.println("Keliling Lingkaran = " + l.getKell());
21         System.out.println("Luas Lingkaran = " + l.getLuas() + "\n");
22
23         Segitiga s = new Segitiga();
24         System.out.println("Keliling Segitiga = " + s.getKell());
25         System.out.println("Luas Segitiga = " + s.getLuas() + "\n");
26     }
27 }
28
29
30
31
32
33 }
```

Activate Windows  
Go to Settings to activate Windows.

1:1 INS



Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Source Packages

<default package>

- AbstrakClass.java
- Balok.java
- BangunRuang.java
- BangunRuangDemo.java
- Bola.java
- JajarGenjang.java
- Kerucut.java
- Kubus.java
- Lingkaran.java
- MethodMain.java
- ObjekAbstrakClass.java
- ObjekAbstrakClass2.java
- Persegi.java
- PersegiPanjang.java
- PrismaSegitiga.java
- Segitiga.java
- TurunanAbstrakClass.java
- methodAbstract.java

Test Packages Libraries Test Libraries Project

MethodMain - Navigator

Members <empty>

MethodMain

main(String[] args)

Output - Modul9 (run) ×

```
run:
Keliling Persegi = 20
Luas Persegi = 25

Keliling Persegi Panjang = 26
Luas Persegi Panjang = 25

Keliling JajarGenjang = 50
Luas JajarGenjang = 120

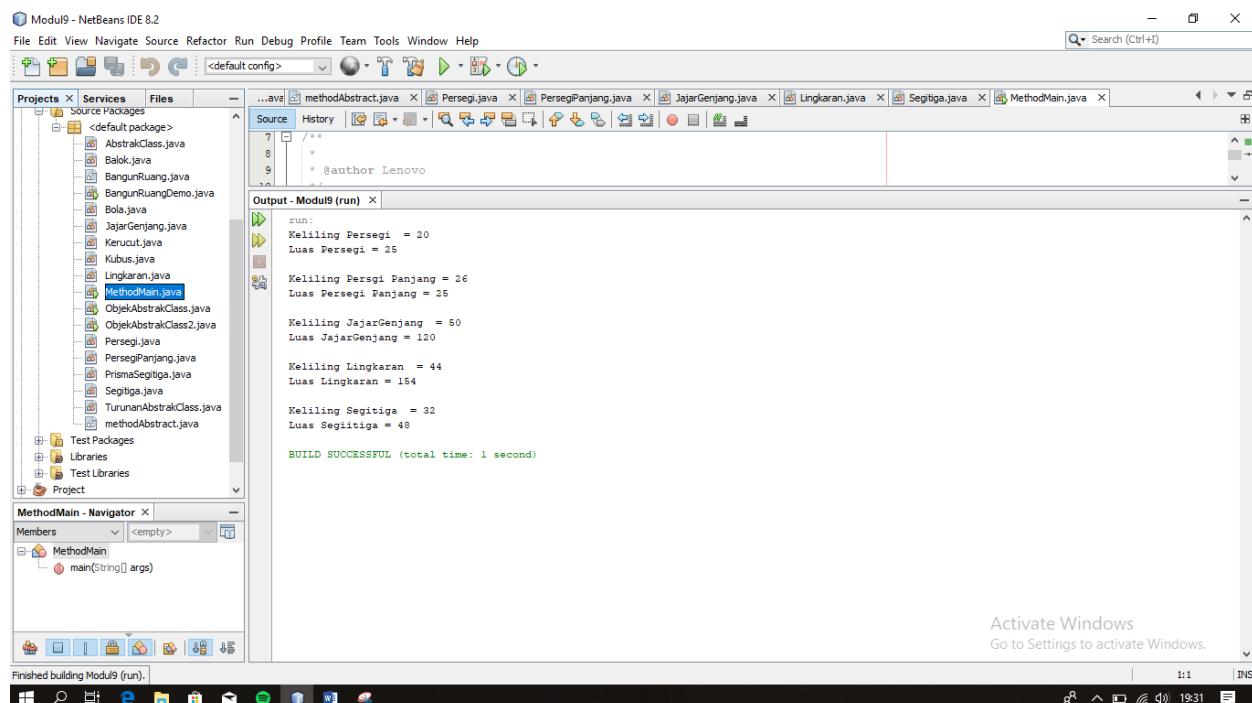
Keliling Lingkaran = 44
Luas Lingkaran = 154

Keliling Segitiga = 32
Luas Segitiga = 48

BUILD SUCCESSFUL (total time: 1 second)
```

Activate Windows  
Go to Settings to activate Windows.

1:1 INS



## 9.4. Tugas

NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public abstract class BangunRuang {
12     public abstract int volume();
13     public abstract int luasPermukaan();
14
15     public int getVolume() {
16         return volume();
17     }
18
19     public int getLuasPer() {
20         return luasPermukaan();
21     }
22 }
```

BangunRuang - Navigator

Members <empty>

- BangunRuang
  - getLuasPer(): int
  - getVolume(): int
  - luasPermukaan(): int
  - volume(): int

Activate Windows  
Go to Settings to activate Windows.

1:1 INS

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class Balok extends BangunRuang{
12     int panjang = 20;
13     int lebar = 10;
14     int tinggi = 15;
15
16     @Override
17     public int volume() {
18         return panjang*lebar*tinggi;
19     }
20
21     @Override
22     public int luasPermukaan() {
23         return 2*((panjang * lebar)+(panjang*tinggi)+(lebar*tinggi));
24     }
25 }
```

Balok - Navigator

Members <empty>

- Balok :: BangunRuang
  - luasPermukaan(): int ↑ BangunRuang
  - volume(): int ↑ BangunRuang
  - lebar: int

Activate Windows  
Go to Settings to activate Windows.

1:1 INS

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

```

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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class Kubus extends BangunRuang{
12     int sisi = 15;
13
14     @Override
15     public int volume(){
16         return sisi*sisi*sisi;
17     }
18
19     @Override
20     public int luasPermukaan(){
21         return 6*sisi*sisi;
22     }
23 }
24

```

Activate Windows  
Go to Settings to activate Windows.

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

```

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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class Bola extends BangunRuang{
12     int jari = 14;
13
14     @Override
15     public int volume(){
16         return (4*22*jari*jari*jari)/(3*7);
17     }
18
19     @Override
20     public int luasPermukaan(){
21         return (4*22*jari*jari)/7;
22     }
23 }
24

```

Activate Windows  
Go to Settings to activate Windows.

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History BangunRuang.java Segitiga.java MethodMain.java BangunRuang.java Balok.java Kubus.java Bola.java Kerucut.java

Projects Services Files

<default package>

AbstractClass.java  
Balok.java  
BangunRuang.java  
BangunRuangDemo.java  
Bola.java  
JajarGenjang.java  
Kerucut.java  
Kubus.java  
Lingkaran.java  
MethodMain.java  
ObjekAbstrakClass.java  
ObjekAbstrakClass2.java  
Persegi.java  
Persegipanjang.java  
PrismaSegitiga.java  
Segitiga.java  
TurunanAbstrakClass.java  
methodAbstract.java

Test Packages Libraries Test Libraries Project

Kerucut - Navigator

Members <empty>

Kerucut :: BangunRuang  
luasPermukaan() : int ↑ BangunRuang  
volume() : int ↑ BangunRuang  
jari : int

Activate Windows  
Go to Settings to activate Windows.

11 public class Kerucut extends BangunRuang{  
12 int luasAlas = 14;  
13 int tinggi = 21;  
14 int jari = 3;  
15 int selimut = 24;  
16  
17 @Override  
18 public int volume(){  
19 return (luasAlas \* tinggi)/3;  
20 }  
21  
22 @Override  
23 public int luasPermukaan(){  
24 return luasAlas + (22 \* jari \* selimut)/7;  
25 }  
26 }

Modul9 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History Segitiga.java MethodMain.java BangunRuang.java Balok.java Kubus.java Bola.java Kerucut.java PrismaSegitiga.java

Projects Services Files

<default package>

AbstractClass.java  
Balok.java  
BangunRuang.java  
BangunRuangDemo.java  
Bola.java  
JajarGenjang.java  
Kerucut.java  
Kubus.java  
Lingkaran.java  
MethodMain.java  
ObjekAbstrakClass.java  
ObjekAbstrakClass2.java  
Persegi.java  
Persegipanjang.java  
PrismaSegitiga.java  
Segitiga.java  
TurunanAbstrakClass.java  
methodAbstract.java

Test Packages Libraries Test Libraries Project

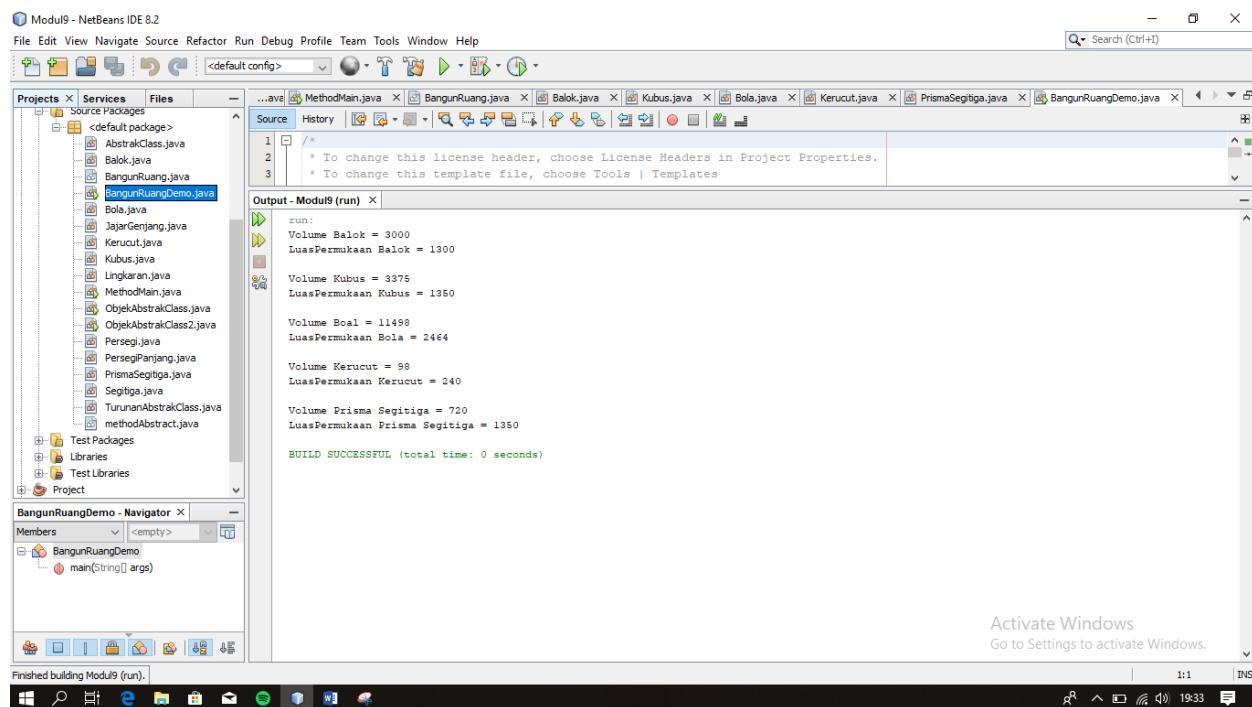
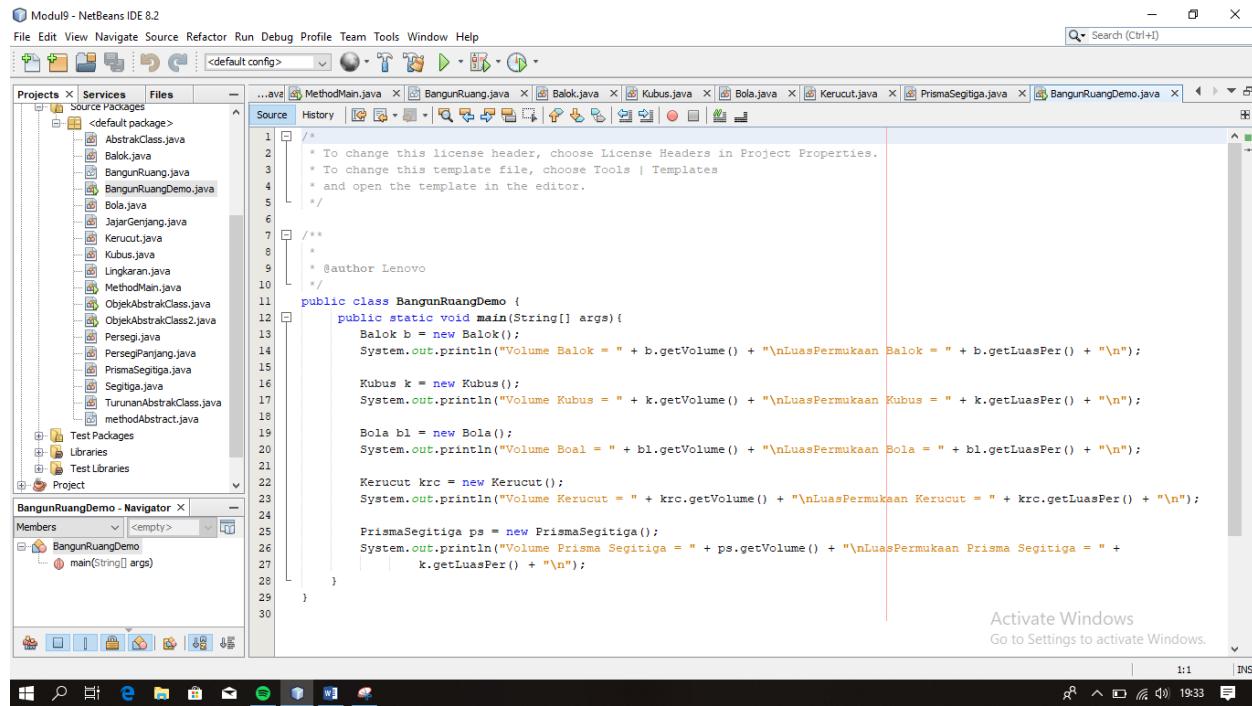
PrismaSegitiga - Navigator

Members <empty>

PrismaSegitiga :: BangunRuang  
luasPermukaan() : int ↑ BangunRuang  
volume() : int ↑ BangunRuang  
kelAlas : int

Activate Windows  
Go to Settings to activate Windows.

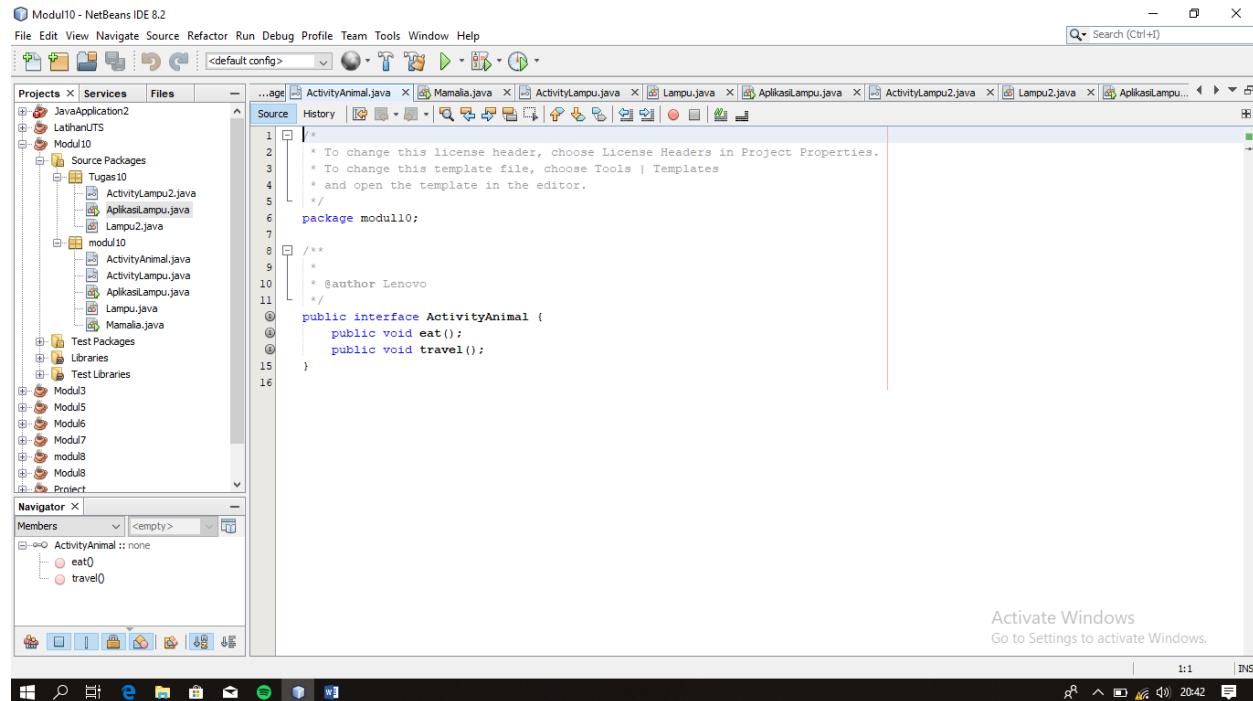
11 public class PrismaSegitiga extends BangunRuang{  
12 int luasAlas = 24;  
13 int kelAlas = 32;  
14 int tinggi = 30;  
15  
16 @Override  
17 public int volume(){  
18 return luasAlas \* tinggi;  
19 }  
20  
21 @Override  
22 public int luasPermukaan(){  
23 return (2 \* luasAlas) + (kelAlas \* tinggi);  
24 }  
25 }



# MODUL 10

## INTERFACE

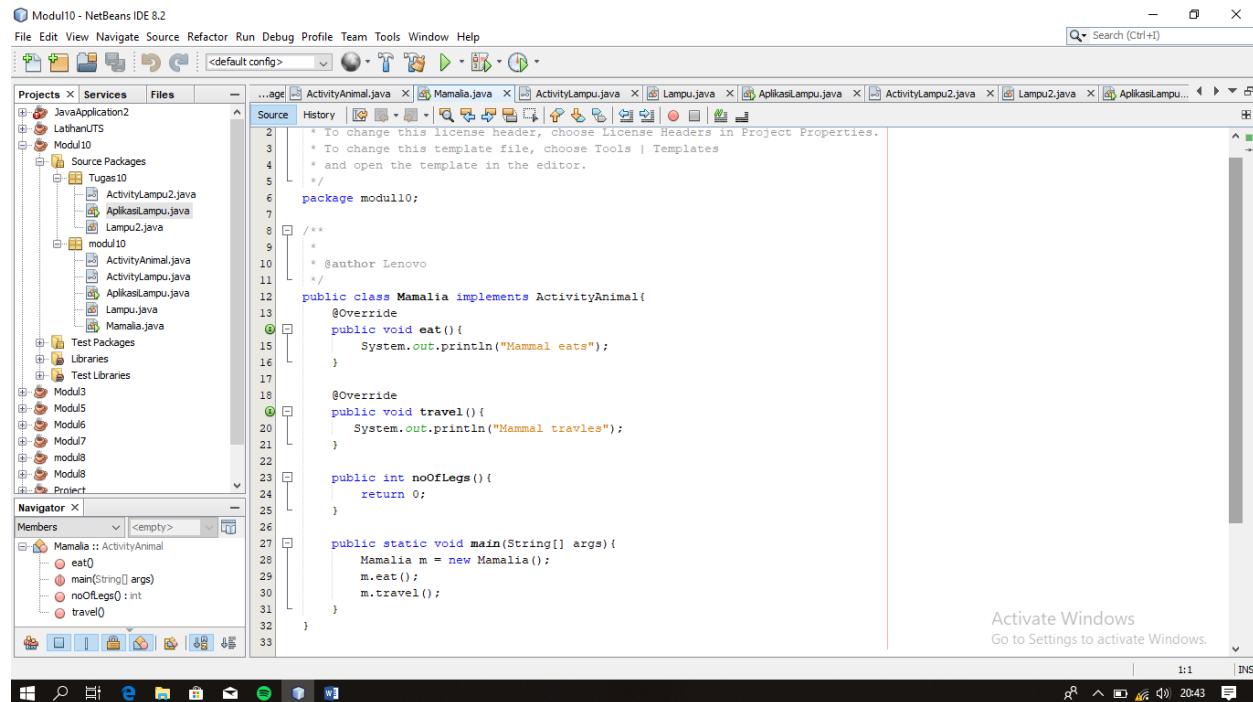
### 10.1. Deklarasi Interface



The screenshot shows the NetBeans IDE interface with the following details:

- Project:** Modul10 - NetBeans IDE 8.2
- Source Packages:** Tugas10, modul10
- ActivityAnimal.java:** Contains the declaration of the `ActivityAnimal` interface with methods `eat()` and `travel()`.
- Mammalia.java:** Contains the implementation of the `ActivityAnimal` interface for the `Mammalia` class.
- Navigator:** Shows members of `Mammalia`, including `eat()`, `main(String[] args)`, `noOfLegs(): int`, and `travel()`.
- Status Bar:** Shows "Activate Windows Go to Settings to activate Windows."

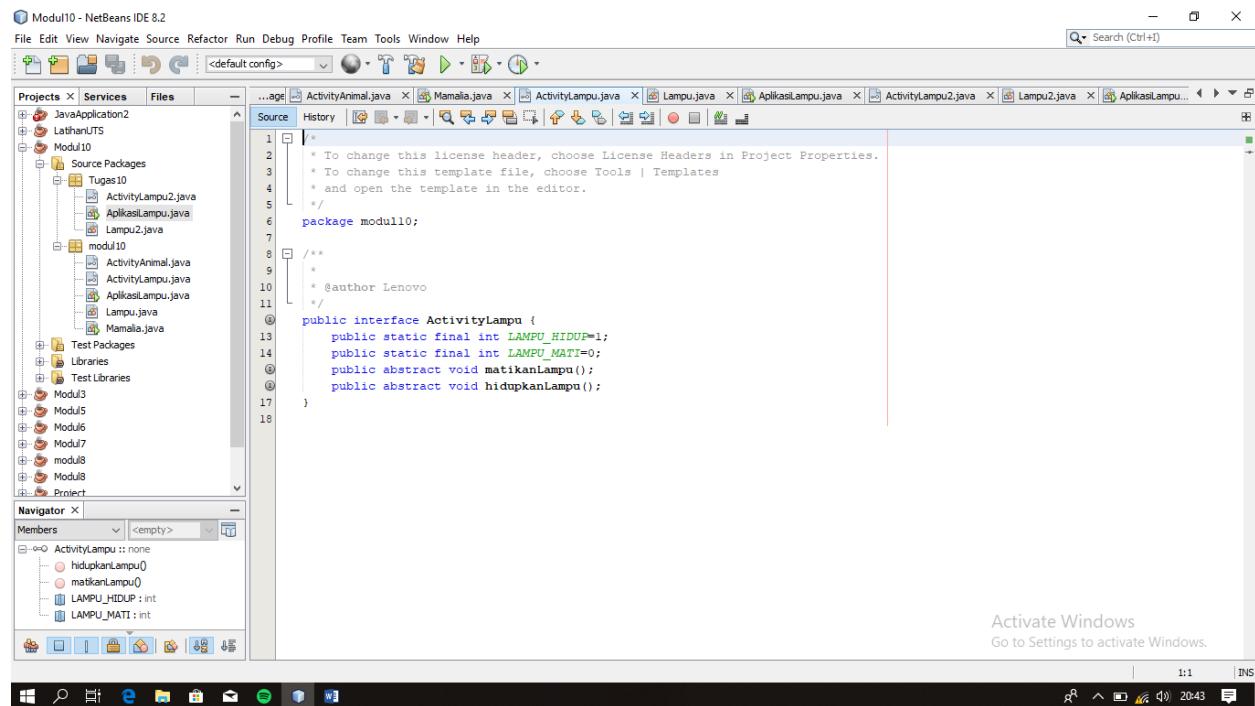
### 10.2. Implementasi Interface



The screenshot shows the NetBeans IDE interface with the following details:

- Project:** Modul10 - NetBeans IDE 8.2
- Source Packages:** Tugas10, modul10
- Mammalia.java:** Contains the implementation of the `ActivityAnimal` interface for the `Mammalia` class, including overridden methods `eat()` and `travel()`, and a static main method.
- Navigator:** Shows members of `Mammalia`, including `eat()`, `main(String[] args)`, `noOfLegs(): int`, and `travel()`.
- Status Bar:** Shows "Activate Windows Go to Settings to activate Windows."

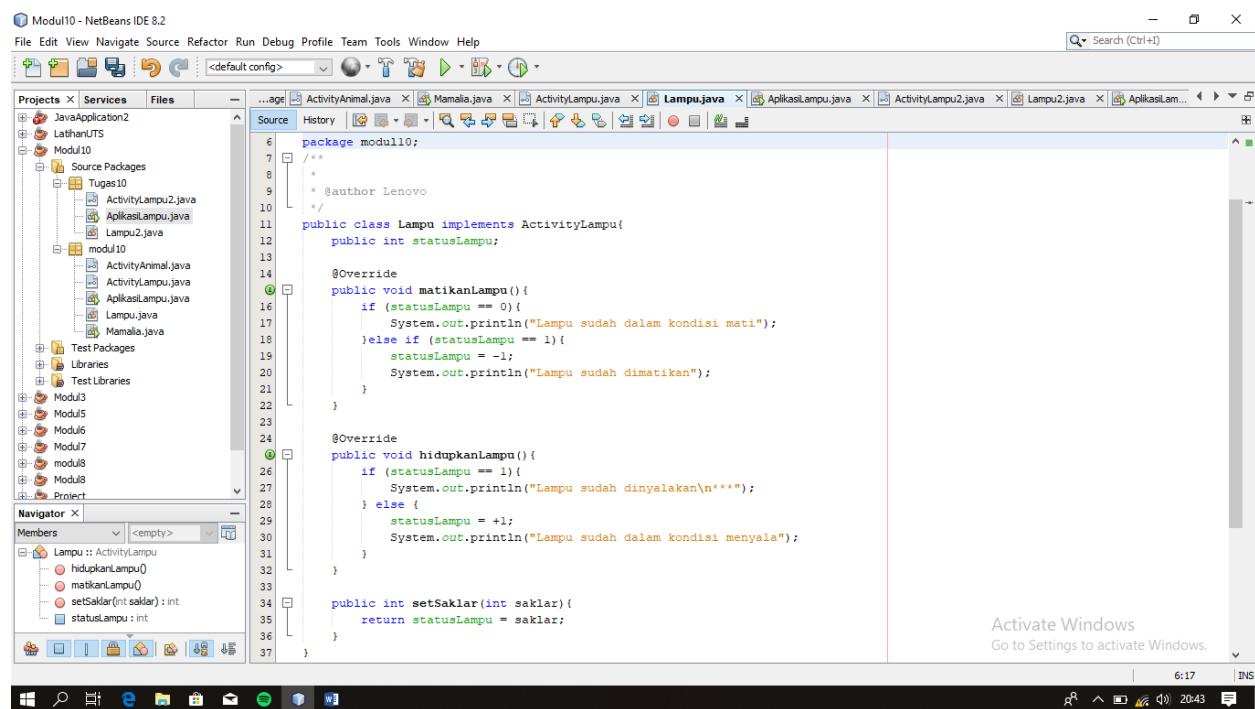
## 10.2.1. Percobaan



The screenshot shows the NetBeans IDE 8.2 interface with the following details:

- Title Bar:** Modul10 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Project Explorer:** Shows the project structure under "Modul10".
- Source Editor:** Displays the code for the `ActivityLampu` interface:

```
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 modul10;
7
8  /**
9   *
10  * @author Lenovo
11  */
12 public interface ActivityLampu {
13     public static final int LAMPU_HIDUP=1;
14     public static final int LAMPU_MATI=0;
15     public abstract void matikanLampu();
16     public abstract void hidupkanLampu();
17 }
18
```
- Navigator:** Shows members of the `ActivityLampu` interface.
- Status Bar:** Shows "Activate Windows Go to Settings to activate Windows."
- System Tray:** Shows standard Windows system tray icons.



The screenshot shows the NetBeans IDE 8.2 interface with the following details:

- Title Bar:** Modul10 - NetBeans IDE 8.2
- Menu Bar:** File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
- Toolbar:** Standard NetBeans toolbar with icons for file operations.
- Project Explorer:** Shows the project structure under "Modul10".
- Source Editor:** Displays the code for the `Lampu` class implementing the `ActivityLampu` interface:

```
6  package modul10;
7
8  /**
9   *
10  * @author Lenovo
11  */
12 public class Lampu implements ActivityLampu {
13     public int statusLampu;
14
15     @Override
16     public void matikanLampu() {
17         if (statusLampu == 0){
18             System.out.println("Lampu sudah dalam kondisi mati");
19         }else if (statusLampu == 1){
20             statusLampu = -1;
21             System.out.println("Lampu sudah dimatikan");
22         }
23
24     @Override
25     public void hidupkanLampu() {
26         if (statusLampu == -1){
27             System.out.println("Lampu sudah dinyalakan\n***");
28         } else {
29             statusLampu = +1;
30             System.out.println("Lampu sudah dalam kondisi menyala");
31         }
32
33     public int setSaklar(int saklar) {
34         return statusLampu = saklar;
35     }
36 }
37
```
- Navigator:** Shows members of the `Lampu` class.
- Status Bar:** Shows "Activate Windows Go to Settings to activate Windows."
- System Tray:** Shows standard Windows system tray icons.

Modul10 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

Projects X Services Files

ActivityAnimal.java Mamala.java ActivityLampu.java Lampu.java ApikasiLampu.java ActivityLampu2.java Lampu2.java ApikasiLampu...

Source Packages

Tugas10

ActivityLampu2.java ApikasiLampu.java Lampu2.java

modul10

ActivityAnimal.java ActivityLampu.java ApikasiLampu.java Lampu.java Mamala.java

Test Packages Libraries Test Libraries

Modul3 Modul5 Modul6 Modul7 modul8 Modul9 Project

ApikasiLampu

main(String[] args)

Output - Modul10 (run) X

```

run:
Status Lampu = 0
ketikan
1 untuk menyalaikan lampu
0 untuk mematikan lampu
1
Lampu sudah dinyalakan
***
BUILD SUCCESSFUL (total time: 7 seconds)

```

Activate Windows  
Go to Settings to activate Windows.

```

package modul10;
import java.util.Scanner;

/*
 * @author Lenovo
 */

public class ApikasiLampu {
    public static void main (String[] args){
        Lampu lampu = new Lampu();
        Scanner sc = new Scanner(System.in);
        lampu.setStatusLampu(lampu.setSaklar(0));
        System.out.println("Status Lampu = " + lampu.getStatusLampu() + "\nketikan");
        System.out.println("1 untuk menyalaikan lampu\n0 untuk mematikan lampu");

        if (lampu.setSaklar(sc.nextInt())==0){
            lampu.matikanLampu();
        } else {
            lampu.hidupkanLampu();
        }
    }
}

```

### 10.3. Tugas

Modul10 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

Projects X Services Files

ActivityAnimal.java Mamala.java ActivityLampu.java Lampu.java ApikasiLampu.java ActivityLampu2.java Lampu2.java ApikasiLampu...

Source Packages

Tugas10

ActivityLampu2.java ApikasiLampu.java Lampu2.java

modul10

ActivityAnimal.java ActivityLampu.java ApikasiLampu.java Lampu.java Mamala.java

Test Packages Libraries Test Libraries

Modul3 Modul5 Modul6 Modul7 modul8 Modul9 Project

ActivityLampu2

hidupkanLampu()  
matikanLampu()  
redupkanLampu()

LAMPU\_HIDUP : int

ActivityLampu2.java saved.

Activate Windows  
Go to Settings to activate Windows.

```

/*
 * 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 Tugas10;

public interface ActivityLampu2 {
    public static final int LAMPU_HIDUP=1;
    public static final int LAMPU_MATI=0;
    public static final int LAMPU_REDUP=2;
    public abstract void hidupkanLampu();
    public abstract void matikanLampu();
    public abstract void redupkanLampu();
}

```

Modul10 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

ActivityAnimal.java Mamalia.java ActivityLampu.java Lampu.java AplikasiLampu.java ActivityLampu2.java Lampu2.java AplikasiLampu...

Projects Services Files

JavaApplication2 LathanUTS Modul10 Tugas10 modul10

ActivityLampu2.java AplikasiLampu.java Lampu2.java

ActivityAnimal.java ActivityLampu.java AplikasiLampu.java Lampu.java Mamalia.java

Test Packages Libraries Test Libraries Modul3 Modul5 Modul6 Modul7 modul8 Modul9 Project

Navigator Members

Lampu2 :: ActivityLampu2 hidupkanLampu() matikanLampu() redupkanLampu() setSaklar(int saklar) : int

```
6 package Tugas10;
7
8 /**
9 *
10 * @author Lenovo
11 */
12 public class Lampu2 implements ActivityLampu2{
13     public int statusLampu;
14
15     @Override
16     public void matikanLampu(){
17         if (statusLampu == 0){
18             System.out.println("Lampu sudah dalam kondisi mati");
19         }else if (statusLampu == 1){
20             statusLampu = -1;
21             System.out.println("Lampu sudah dimatikan");
22         }
23     }
24
25     @Override
26     public void hidupkanLampu(){
27         if (statusLampu == 1){
28             System.out.println("Lampu sudah dinyalakan\n***");
29         } else {
30             statusLampu = +1;
31             System.out.println("Lampu sudah dalam kondisi menyala");
32         }
33     }
34
35     @Override
36     public void redupkanLampu(){
37
38
39
40
41
42
43
44
45
46
47
48
49 }
```

Activate Windows  
Go to Settings to activate Windows.

1:1 INS

Modul10 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Source History

Mamalia.java ActivityLampu.java Lampu.java AplikasiLampu.java ActivityLampu2.java Lampu2.java AplikasiLampu...

Projects Services Files

JavaApplication2 LathanUTS Modul10 Tugas10 modul10

ActivityLampu2.java AplikasiLampu.java Lampu2.java

ActivityAnimal.java ActivityLampu.java AplikasiLampu.java Lampu.java Mamalia.java

Test Packages Libraries Test Libraries Modul3 Modul5 Modul6 Modul7 modul8 Modul9 Project

Navigator Members

Lampu2 :: ActivityLampu2 hidupkanLampu() matikanLampu() redupkanLampu() setSaklar(int saklar) : int

```
23
24
25     @Override
26     public void hidupkanLampu(){
27         if (statusLampu == 1){
28             System.out.println("Lampu sudah dinyalakan\n***");
29         } else {
30             statusLampu = +1;
31             System.out.println("Lampu sudah dalam kondisi menyala");
32         }
33     }
34
35     @Override
36     public void redupkanLampu(){
37         if (statusLampu == 2){
38             System.out.println("Lampu dalam kondisi redup");
39         } else {
40             statusLampu = +1;
41             System.out.println("Lampu kembali normal");
42         }
43     }
44
45     public int setSaklar(int saklar){
46         return statusLampu = saklar;
47     }
48 }
```

Activate Windows  
Go to Settings to activate Windows.

Modul10 (run) running... 49:1 20:57 INS

Modul10 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

default config > Search (Ctrl+F)

Projects Services Files

Source History

JavaApplication2

LathanUTS

Modul10

Tugas10

ActivityLampu2.java

AplikasiLampu.java

Lampu2.java

modul10

ActivityAnimal.java

ActivityLampu.java

AplikasiLampu.java

Lampu.java

Mamala.java

Test Packages

Libraries

Test Libraries

Modul3

Modul5

Modul6

Modul7

Modul8

Modul9

Project

Mamala - Navigator

Members <empty>

AplikasiLampu

main(String[] args)

Output

Modul10 (run) Modul10 (run) #2

```
run:
Status Lampu = 0
ketikan
0 untuk mematikan lampu
1 untuk menyalaikan lampu
2 untuk meredupkan lampu
2
Lampu dalam kondisi redup
```

Activate Windows  
Go to Settings to activate Windows.

Modul10 (run) running... 26:10 20:58

The screenshot shows the NetBeans IDE interface with the following details:

- Title Bar:** Modul10 - NetBeans IDE 8.2
- Menu Bar:** File, Edit, View, Navigate, Source, Refactor, Run, Debug, Profile, Team, Tools, Window, Help
- Toolbar:** Includes icons for New Project, Open Project, Save, Undo, Redo, Cut, Copy, Paste, Find, Replace, Run, Stop, and others.
- Project Explorer:** Shows the project structure with packages like Tugas10, modul10, and sub-packages like ActivityLampu2.java, AplikasiLampu.java, etc.
- Code Editor:** Displays the Java code for the AplikasiLampu class. The code initializes a Scanner object, creates a Lampu2 object, and prints instructions for controlling the lamp's status (off, on, dim). It includes a switch statement based on user input (0, 1, or 2).
- Output Panel:** Shows the run log for the Modul10 (run) configuration, indicating the status of the lamp (off) and the control commands entered by the user.
- System Tray:** Shows standard Windows system tray icons for network, battery, volume, and taskbar.

# MODUL 11

## NESTED CLASS

### 11.1. Inner Class(Non-Static Nested Class)

The screenshot shows the NetBeans IDE interface with the title "Modul11 - NetBeans IDE 8.2". The left sidebar displays a project structure with several Java files under "Source Packages". The main editor window shows the following Java code:

```
/*
 * 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.
 */
/**
 *
 * @author Lenovo
 */
public class OuterDemo {
    int num;

    //inner class
    private class InnerDemo{
        private void print(){
            System.out.println("Ini merupakan method inner class");
        }
    }

    //akses method inner class dari method outer class
    void displayInner(){
        InnerDemo inner = new InnerDemo();
        inner.print();
    }
}
```

The code defines a public class `OuterDemo` containing an inner class `InnerDemo`. The `InnerDemo` class has a private method `print` that prints a specific message. The `OuterDemo` class also contains a public method `displayInner` that creates an instance of `InnerDemo` and calls its `print` method.

The screenshot shows the NetBeans IDE interface with the title "Modul11 - NetBeans IDE 8.2". The left sidebar displays a project structure with several Java files under "Source Packages". The main editor window shows the following Java code:

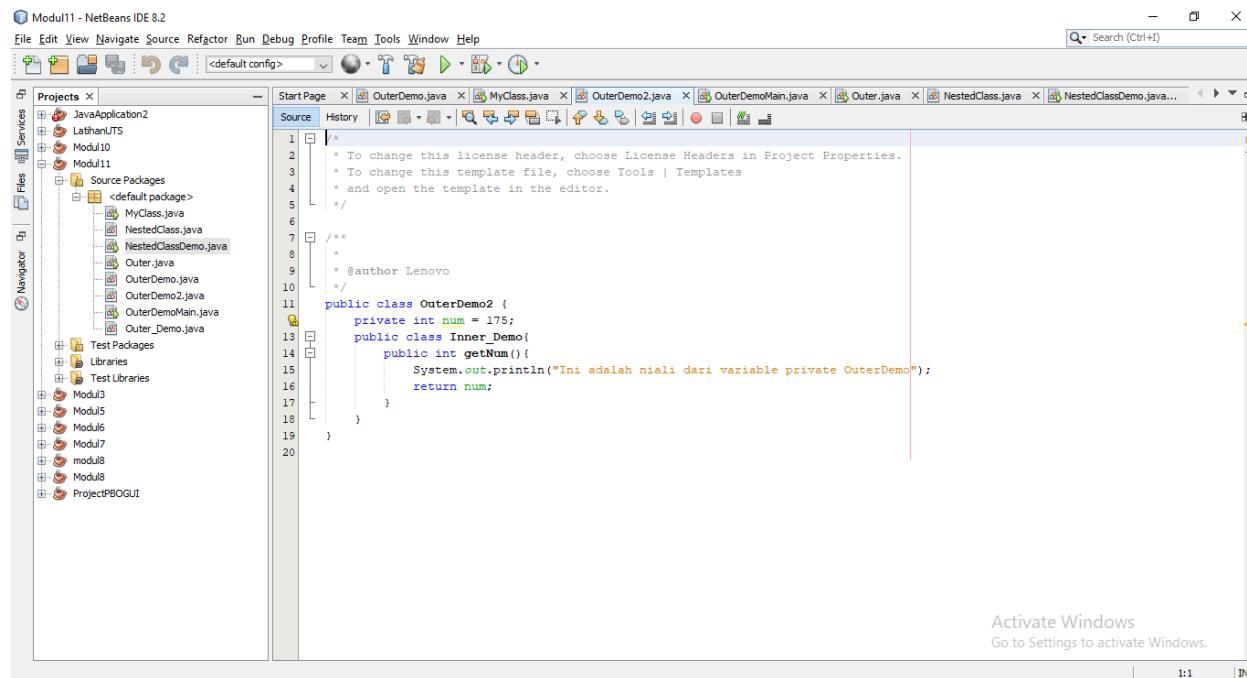
```
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
/**
 *
 * @author Lenovo
 */
public class MyClass {
    public static void main (String[] args){

        //membuat object outer class
        OuterDemo outer = new OuterDemo();

        //mengakses method outer class
        outer.displayInner();
    }
}
```

The code defines a public class `MyClass` containing a static main method. Inside the main method, it creates an object of the `OuterDemo` class and calls its `displayInner` method.

## 11.2. Mengakses Private Member



Modul11 - NetBeans IDE 2

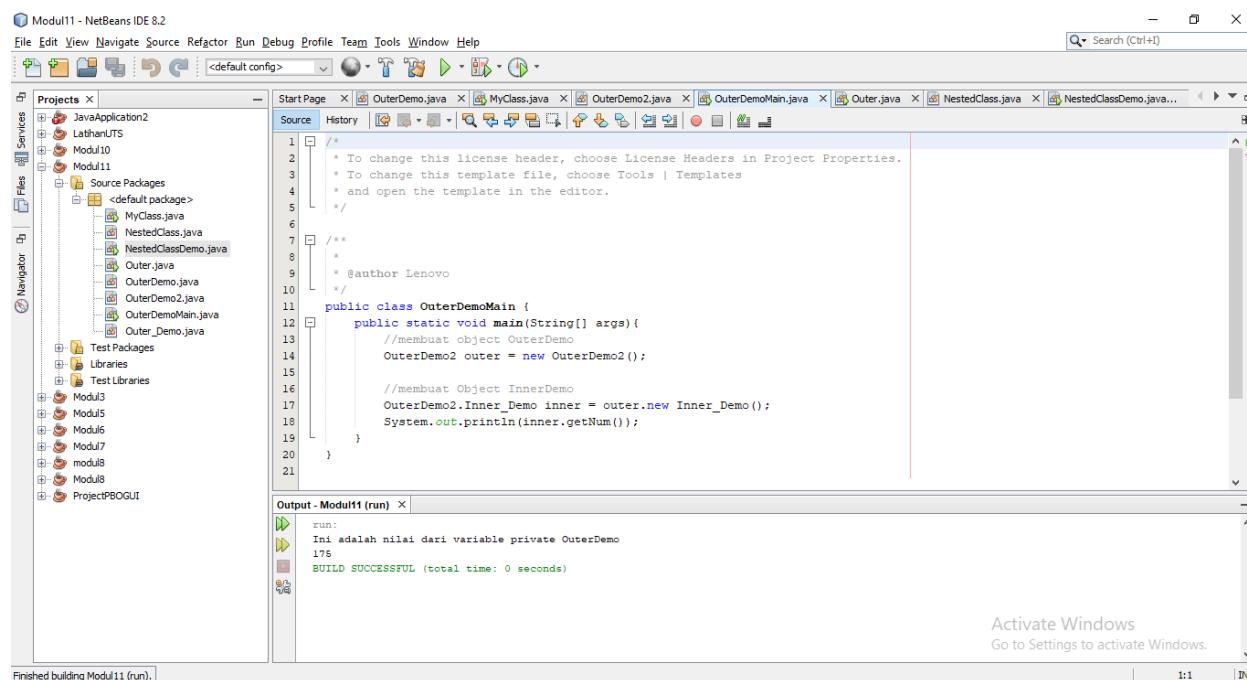
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects X Start Page X OuterDemo.java X MyClass.java X OuterDemo2.java X OuterDemoMain.java X Outer.java X NestedClass.java X NestedClassDemo.java...

Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class OuterDemo2 {
12     private int num = 175;
13     public class Inner_Demo{
14         public int getNum(){
15             System.out.println("Ini adalah nilai dari variable private OuterDemo");
16             return num;
17         }
18     }
19 }
20 
```

Activate Windows  
Go to Settings to activate Windows.



Modul11 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects X Start Page X OuterDemo.java X MyClass.java X OuterDemo2.java X OuterDemoMain.java X Outer.java X NestedClass.java X NestedClassDemo.java...

Source History

```
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
7 /**
8 *
9 * @author Lenovo
10 */
11 public class OuterDemoMain {
12     public static void main(String[] args){
13         //membuat object OuterDemo
14         OuterDemo2 outer = new OuterDemo2();
15
16         //membuat Object InnerDemo
17         OuterDemo2.Inner_Demo inner = outer.new Inner_Demo();
18         System.out.println(inner.getNum());
19     }
20 }
21 
```

Output - Modul11 (run) X

```
run:
Ini adalah nilai dari variable private OuterDemo
175
BUILD SUCCESSFUL (total time: 0 seconds)
```

Activate Windows  
Go to Settings to activate Windows.

### 11.3. Static Nested Class

The screenshot shows the NetBeans IDE interface with the title "Modul11 - NetBeans IDE 8.2". The left sidebar displays a project structure under "Projects" for "Modul11", including source packages like "MyClass.java", "NestedClass.java", and "NestedClassDemo.java". The main editor window shows Java code for a static nested class:

```
4  * and open the template in the editor.
5  */
6
7  /**
8  * @author Lenovo
9  */
10 public class Outer {
11     static class NestedDemo{
12         public void myMethod(){
13             System.out.println("Ini adalah method " + " static nested class");
14         }
15     }
16
17     public static void main(String[] args){
18         Outer.NestedDemo nested = new Outer.NestedDemo();
19         nested.myMethod();
20     }
21 }
22
23
24
```

The output window at the bottom shows the run results:

```
run:
Ini adalah method static nested class
BUILD SUCCESSFUL (total time: 0 seconds)
```

An "Activate Windows" message is visible in the bottom right corner.

### 11.4. Latihan

The screenshot shows the NetBeans IDE interface with the title "Modul11 - NetBeans IDE 8.2". The left sidebar displays a project structure under "Projects" for "Modul11", including source packages like "MyClass.java", "NestedClass.java", and "NestedClassDemo.java". The main editor window shows Java code for a static nested class with another static nested class:

```
6 /**
7  *
8  * @author Lenovo
9  */
10 public class NestedClass {
11     String nama = "Arindita Prihistama";
12     String nim = "L200180058";
13
14     public void printNama(){
15         System.out.println(nama + " : " + nim);
16     }
17
18     static class StaticNestedClass{
19         static String jurusan = "Informatika";
20
21         void cetakNama(){
22             NestedClass nc = new NestedClass();
23             nc.printNama();
24         }
25     }
26
27     class InnerClass{
28         void cetakJurusan(){
29             NestedClass.StaticNestedClass snc = new NestedClass.StaticNestedClass();
30             System.out.println("Jurusan : " + snc.jurusan);
31         }
32     }
33 }
34
35
```

An "Activate Windows" message is visible in the bottom right corner.

Modul11 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects X ...age OuterDemo.java MyClass.java OuterDemo2.java OuterDemoMain.java Outer.java NestedClass.java NestedClassDemo.java

Services Modul10 Modul11 Source Packages <default package> MyClass.java NestedClass.java NestedClassDemo.java Outer Java OuterDemo.java OuterDemo2.java OuterDemoMain.java Outer\_Demo.java Test Packages Libraries Test Libraries Modul3 Modul5 Modul6 Modul7 modul8 Modul8 ProjectPBOGUI

Source History

```
1  /* To change this license header, choose License Headers in Project Properties.
2  * To change this template file, choose Tools | Templates
3  * and open the template in the editor.
4  */
5
6  /**
7  * 
8  * @author Lenovo
9  */
10 public class NestedClassDemo {
11     public static void main(String[] args){
12         NestedClass nc = new NestedClass();
13         NestedClass.StaticNestedClass snc = new NestedClass.StaticNestedClass();
14         NestedClass.InnerClass ic = nc.new InnerClass();
15         snc.cetakNama();
16         ic.cetakJurusan();
17     }
18 }
19
20 }
```

Output - Modul11 (run) X

```
run:
Arindita Prihastama : L200180058
Jurusan : Informatika
BUILD SUCCESSFUL (total time: 0 seconds)
```

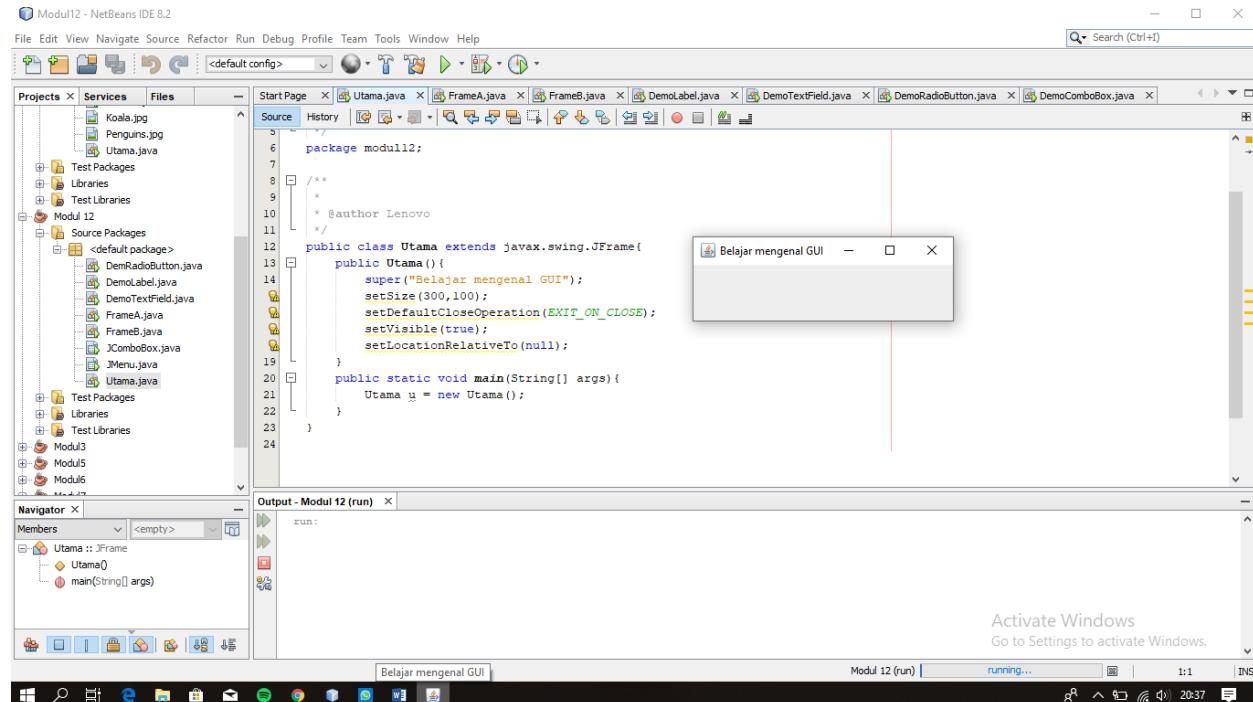
Activate Windows  
Go to Settings to activate Windows.

## MODUL 12

### GRAPHICAL USER INTERFACE(GUI)

#### 12.5. Latihan

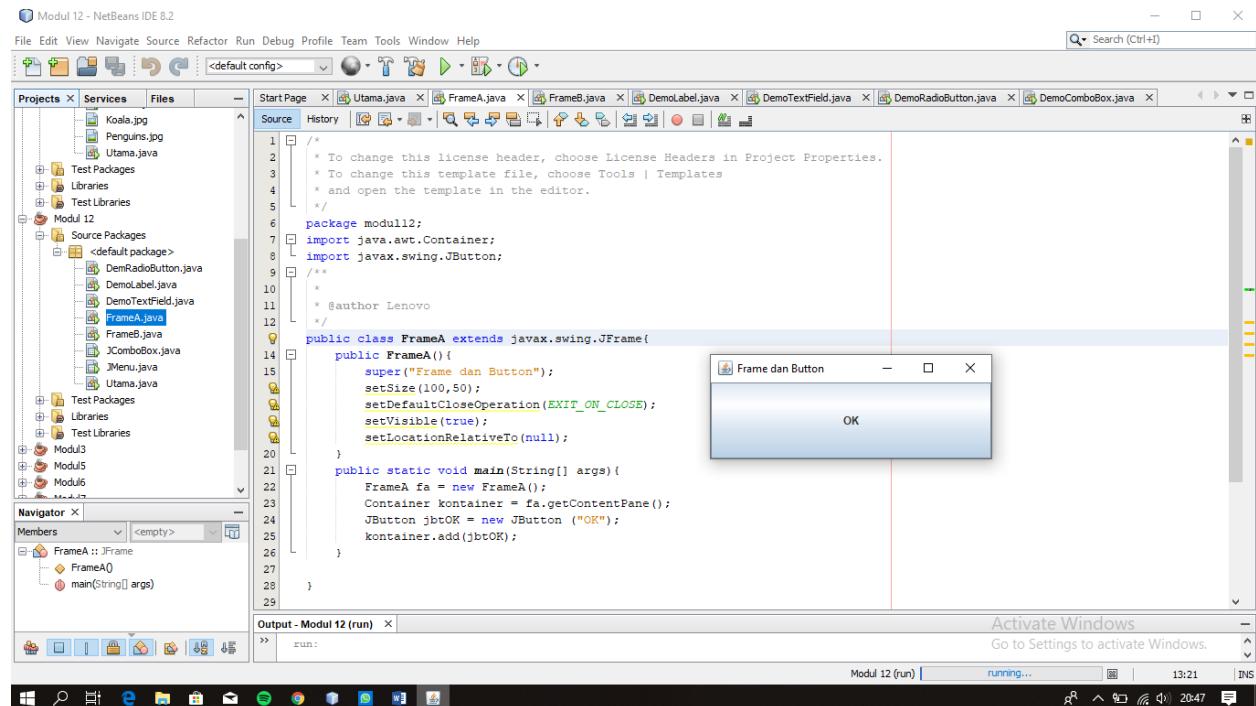
##### 12.5.1. Frame



Konstruktor	Keterangan
JFrame()	Membuat JFrame tanpa judul
JFrame(String Judul)	Membuat JFrame dengan judul

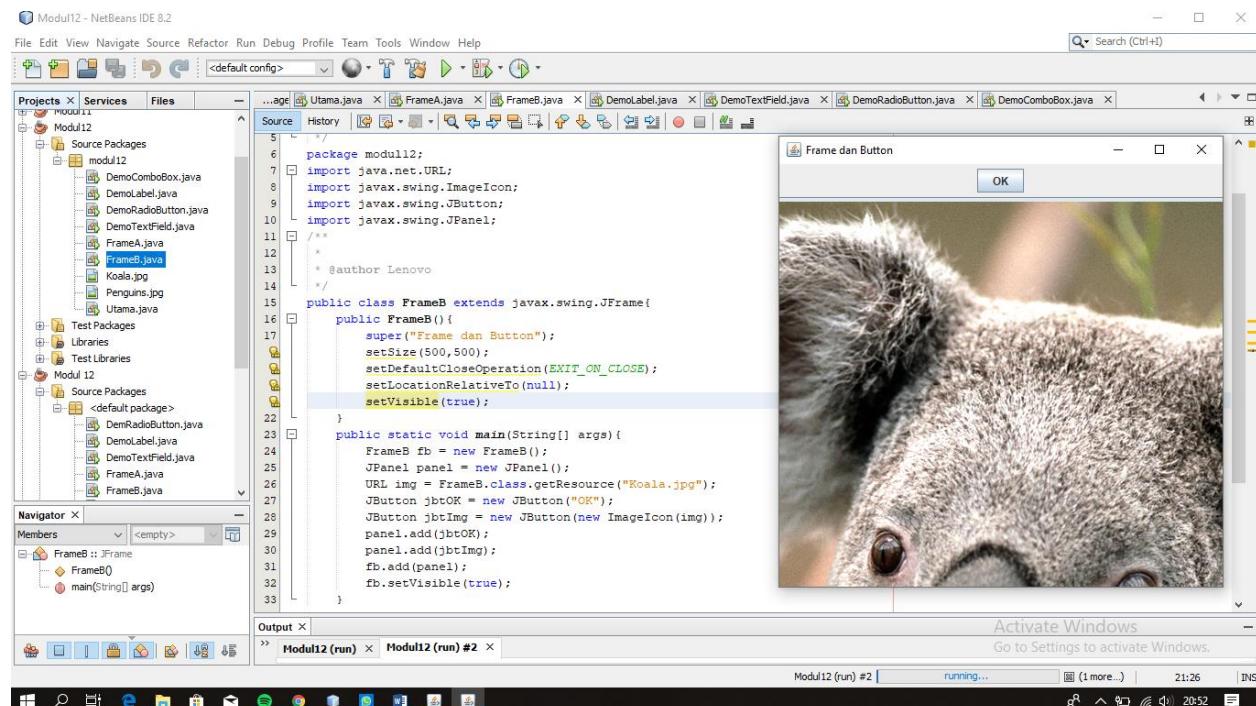
Metode	Keterangan
void setSize(int lebar, int tinggi)	Menentukan ukuran frame
void setLocation(int x, int y)	Menentukan lokasi frame dihitung dari kiri atas
void setVisible(Boolean)	Menentukan JFrame ditampilkan atau tidak
void setLocationRelativeTo(Component)	Menentukan letak JFrame relative dengan komponen lainnya. Jika diset null, maka JFrame akan ditampilkan di tengah.

## 12.5.2. Button

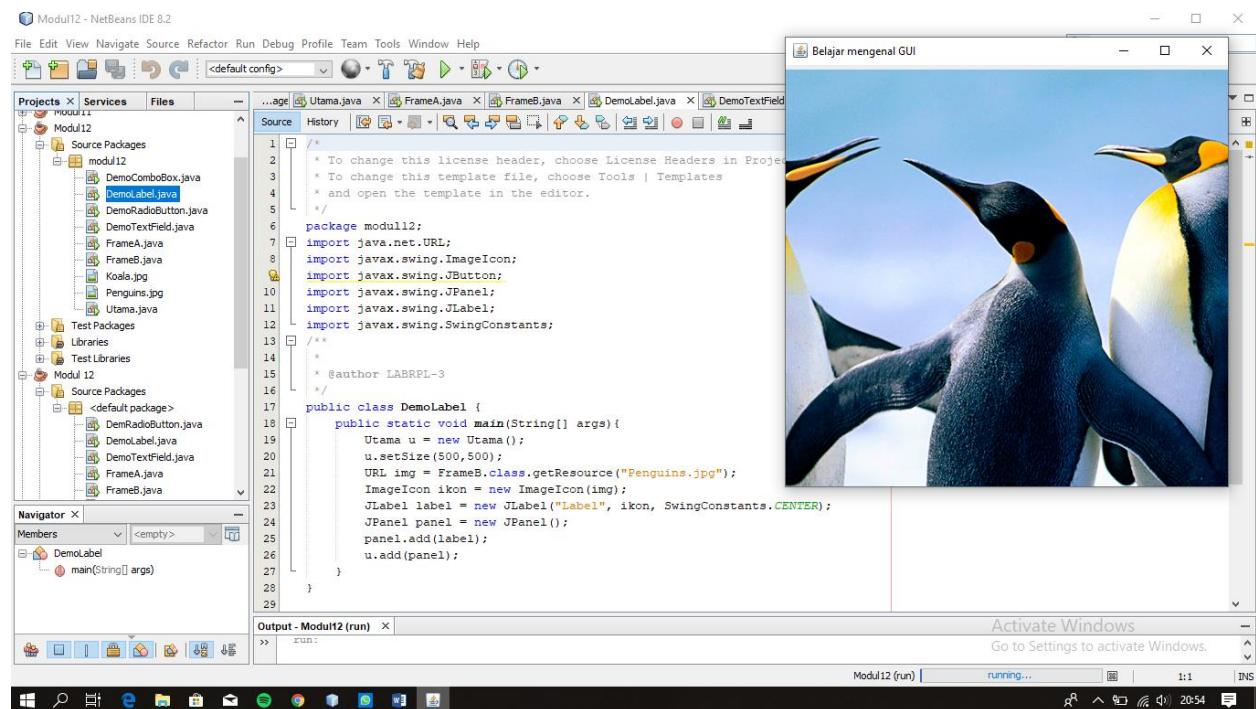


Konstruktor	Keterangan
JButton()	Membuat JButton tanpa teks maupun icon
JButton(String Teks)	Membuat JButton dengan teks
JButton(Icon icon)	Membuat JButton dengan icon
JButton(String teks, Icon icon)	Membuat JButton dengan teks dan icon

### 12.5.3. Container

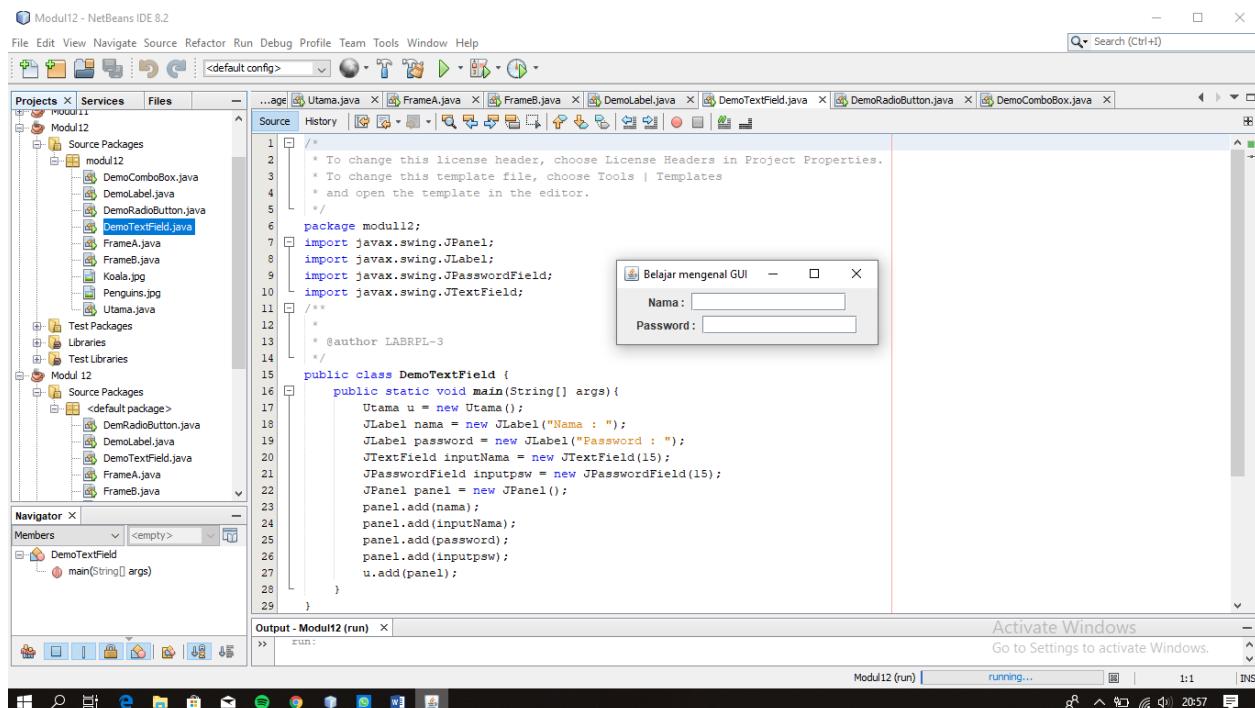


### 12.5.4. Label



Konstruktor	Keterangan
JLabel(String Teks)	Label dengan teks
JLabel(String teks, int i)	Label dengan teks dan alignment (perataan). Terdapat tiga jenis alignment : LEFT, CENTER, dan RIGHT
JLabel(String teks, Icon ic, int i)	Label dengan teks, icon, dan alignment

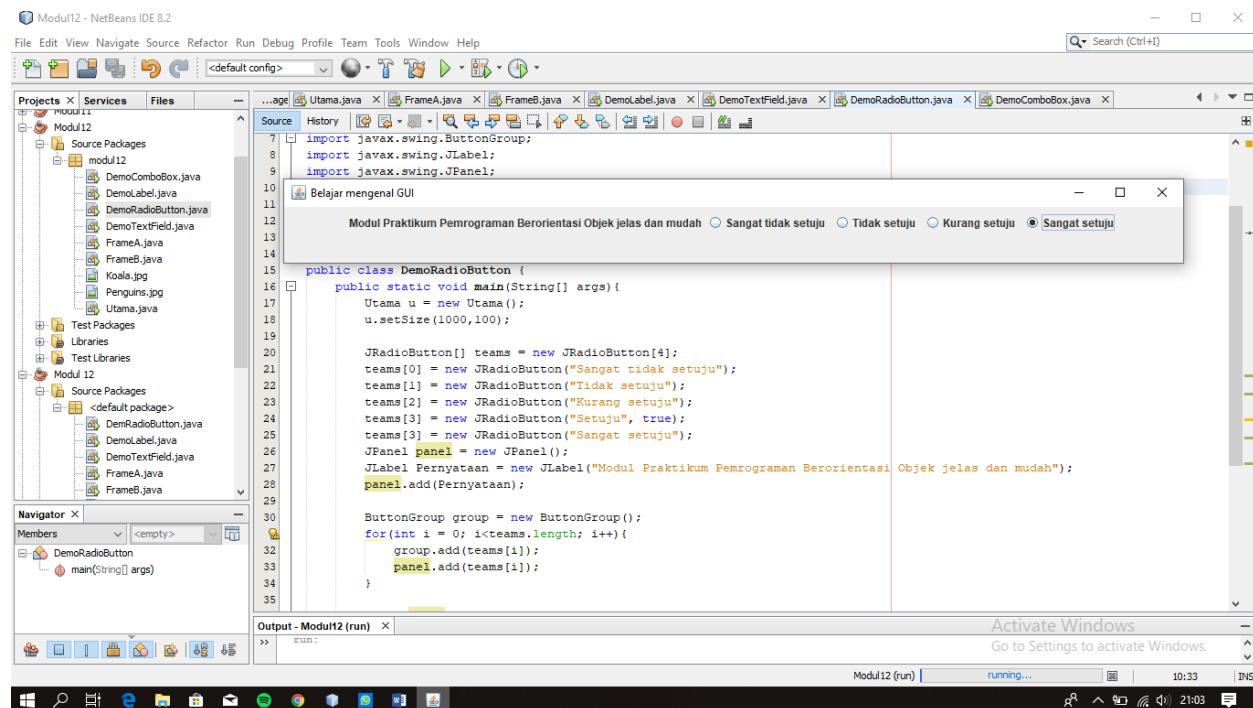
### 12.5.5. TextField dan PasswordField



Konstruktor	Keterangan
JTextField()	Text field kosong tanpa tulisan
JTextField(int i)	Text field dengan panjang yang ditentukan
JTextField(String i)	Text field dengan teks yang sudah ditentukan
JTextField(String teks, int i)	Text field dengan teks dan Panjang kolom yang sudah ditentukan

Parameter dalam class JTextField	Penjelasan
String Text	Teksi dalam Text field
Boolean Editable	Menentukan bisa tidaknya teks dalam Text field untuk diedit
Int columns	Jumlah kolom pada Text field
Int horizontalAlignment	Perataan horizontal pada Text field

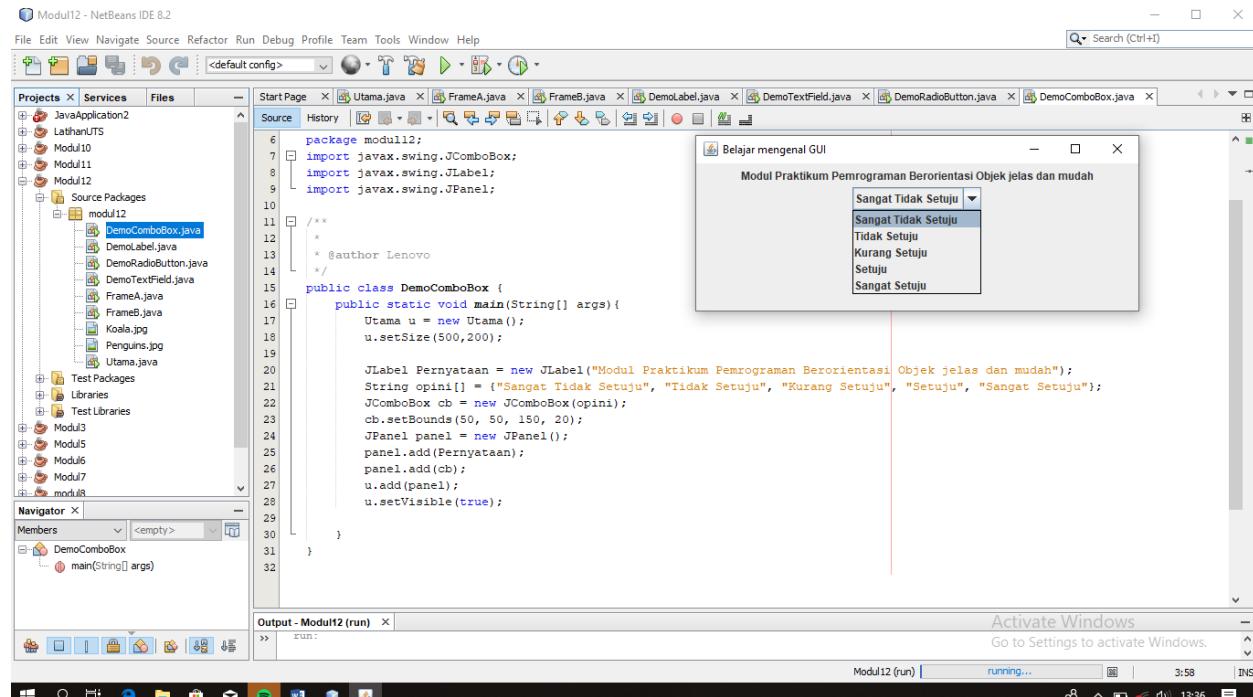
## 12.5.6. RadioButton dan CheckBox



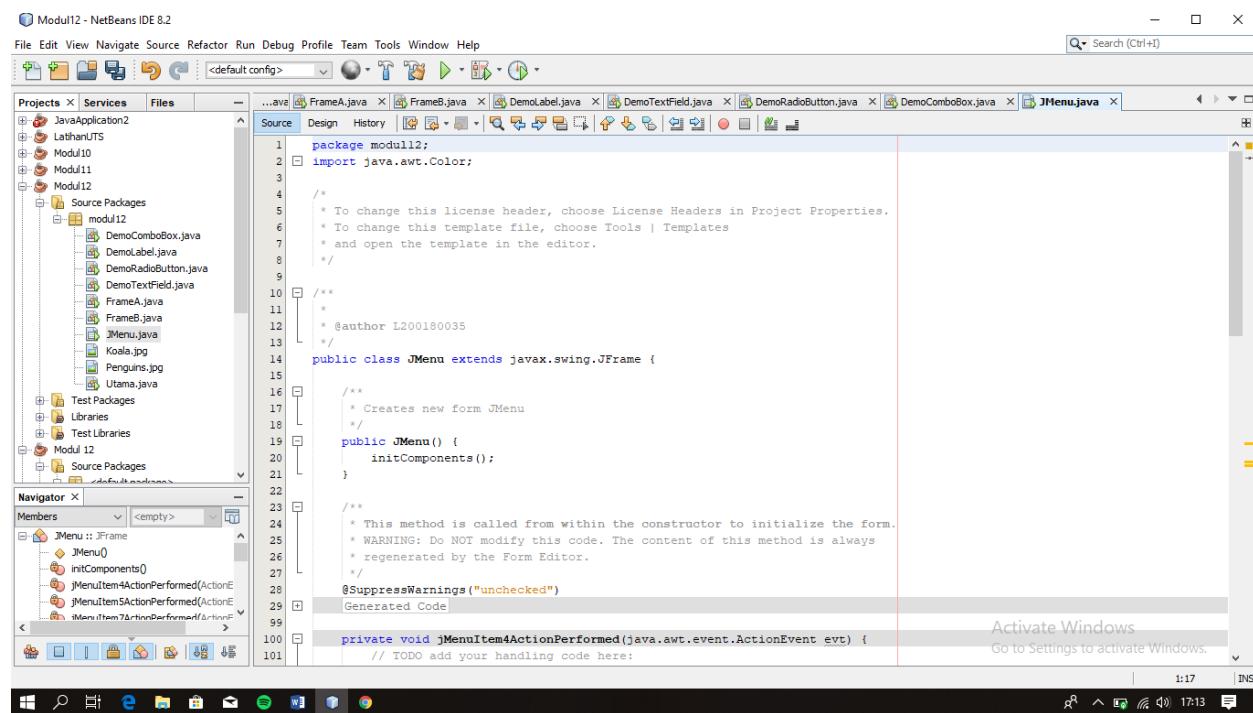
Konstruktur	Keterangan
<code>JCheckBox(String teks)</code>	Check box dengan teks yang ditentukan
<code>JCheckBox(String, Boolean)</code>	Check box dengan teks yang ditentukan. jika kondisi pada parameter kedua true, maka Check box ini akan dipilih
<code>JCheckBox(icon)</code>	Check box dengan gambar icon
<code>JCheckBox(icon, Boolean)</code>	Check box dengan gambar icon dan terpilih jika true
<code>JCheckBox(String, Icon)</code>	Check box dengan tulisan dan gambar icon
<code>JCheckBox(String, Icon, Boolean)</code>	Check box dengan tulisan dan gambar icon, akan dipilih secara default jika kondisi true.

## 12.6. Tugas

### 1. JComboBox



### 2. JMenu



Modul12 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Source Design History

FrameA.java FrameB.java DemoLabel.java DemoTextField.java DemoRadioButton.java DemoComboBox.java JMenu.java

JavaApplication2 LathanUTS Modul10 Modul11 Modul12

Source Packages modul12 DemoComboBox.java DemoLabel.java DemoRadioButton.java DemoTextField.java FrameA.java FrameB.java JMenu.java Koala.jpg Penguins.jpg Utama.java Test Packages Libraries Test Libraries Modul 12 Source Packages default package

Navigator Members <empty>

```
100     private void jMenuItemActionPerformed(java.awt.event.ActionEvent evt) {  
101         // TODO add your handling code here:  
102         this.getContentPane().setBackground(Color.red);  
103     }  
104  
105     private void jMenuItem5ActionPerformed(java.awt.event.ActionEvent evt) {  
106         // TODO add your handling code here:  
107         this.getContentPane().setBackground(Color.yellow);  
108     }  
109  
110     private void jMenuItem7ActionPerformed(java.awt.event.ActionEvent evt) {  
111         // TODO add your handling code here:  
112         this.getContentPane().setBackground(Color.green);  
113     }  
114  
115     /**  
116      * @param args the command line arguments  
117      */  
118     public static void main(String args[]) {  
119         /* Set the Nimbus look and feel */  
120         /* Look and feel setting code (optional)  
121          */  
122  
123         /* Create and display the form */  
124         java.awt.EventQueue.invokeLater(new Runnable() {  
125             public void run() {  
126                 new JMenu().setVisible(true);  
127             }  
128         });  
129     }  
130  
131     // Variables declaration - do not modify  
132 }
```

Activate Windows  
Go to Settings to activate Windows.

1:17 INS

Modul12 - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Search (Ctrl+F)

Projects Services Files

Source Design History

FrameA.java FrameB.java DemoLabel.java DemoTextField.java DemoRadioButton.java DemoComboBox.java JMenu.java

JavaApplication2 LathanUTS Modul10 Modul11 Modul12

Source Packages modul12 DemoComboBox.java DemoLabel.java DemoRadioButton.java DemoTextField.java FrameA.java FrameB.java JMenu.java Koala.jpg Penguins.jpg Utama.java Test Packages Libraries Test Libraries Modul 12 Source Packages default package

Navigator Members <empty>

```
143     /* Create and display the form */  
144     java.awt.EventQueue.invokeLater(new Runnable() {  
145         public void run() {  
146             new JMenu().setVisible(true);  
147         }  
148     });  
149  
150     // Variables declaration - do not modify  
151     private javax.swing.JMenu jMenu1;  
152     private javax.swing.JMenu jMenu2;  
153     private javax.swing.JMenu jMenu3;  
154     private javax.swing.JMenuBar jMenuBar1;  
155     private javax.swing.JMenuItem jMenuItem1;  
156     private javax.swing.JMenuItem jMenuItem2;  
157     private javax.swing.JMenuItem jMenuItem3;  
158     private javax.swing.JMenuItem jMenuItem4;  
159     private javax.swing.JMenuItem jMenuItem5;  
160     private javax.swing.JMenuItem jMenuItem7;  
161     private javax.swing.JPopupMenu jPopupMenu1;  
162     // End of variables declaration  
163 }  
164  
165 }
```

Activate Windows  
Go to Settings to activate Windows.

1:17 INS

